

The Association among CEO Overconfidence, Ownership Structure and Financial Performance

Li Chang and Tsui-Jung Lin

ABSTRACT

This paper explores the relationship among ownership type, managerial overconfidence, and corporate performance. In addition, the purposes of this research are to examine the structure of ownership and CEO overconfidence of family businesses and investigates whether it influences the performance. This study uses a panel estimation to exploit both the cross-section and time-series nature of the data; our sample includes firms listed on Taiwan's stock market during the period of 2009 to 2018, totally 6,612. These results show that (1) financial performance of family business is worse than that of non-family business. It means that family interests of family business are higher than those of company which lead to exploited; (2) CEO overconfidence of family business is lower than that of non-family business. Family supervision and control can lead to family business managers who depress his (her) own overconfident tendency; (3) the overconfident CEO has poor impact on corporate performance. This means that manager's overconfident expectations will damage company's benefits; and (4) after the overconfident CEO joins family business, corporate performance will be increased. It means overconfident manager can compensate for family's conservativeness and lead to increased corporate performance.

Keywords: Family business, financial performance, overconfidence.

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I. INTRODUCTION

Family businesses play important roles in world economic entities. In western countries, 33% of S&P 500 companies are family businesses in the US; 67% of public-listed companies are family businesses in Australia; 68% of public-owned companies are family businesses in Italy (Anderson & Reed, 2003; Chu, 2011). Also, Yeh *et al.* (2001) pointed out that over 60% of public-listed companies in Taiwan are controlled by families. And studies of Claessens *et al.* (2000) also showed that public-owned companies in Taiwan tend to have families which control shareholders and the board. Therefore, no matter it's in the east or the west, family is an important type of ownership (Chung & Chan, 2012). Characteristic of family operation is that ownership and administration are concentrated on family leaders and members. In the process of operation, family business could be limited by company manager's incompetence, family nepotism, and family controlling shareholder's exploitation on small shareholders, which damage company performance (Lin *et al.*, 2008; Azizi *et al.*, 2017). On the contrary, family business values reputation and long-term performance (Claessens *et al.*, 2000; Subramanian, 2018). Also, family business will be more conservative and risk-avoiding than non-family business, to keep family reputation, and to maintain long-term survival (Harijono *et al.*, 2004), which makes performance of family business better than that of non-family business (Deephouse & Jaskiewicz, 2013).

Azizi *et al.* (2017) show inconsistent results of family business under the literature review, which comes from different family operations from different area, culture, and system. However, family operation and administration are one of Chinese (oriental) business operation's major characteristics; ownership and controlling power are concentrated on single family (Chung, 2008). Its administrative characteristic include succession by owner's son or other family members, positions of top administration team taken by family members, as well as taking very long time for non-family members to be trusted and then promoted (Zapalska & Edwards, 2001). Chinese family business has a special guanxi network, which will limit development of non-family professional managers (Tsai *et al.*, 2013). Therefore, family business characteristic strongly affects company's operation (Lin *et al.*, 2005). However, in the west (especially, in US), characteristic of family business is professionalism oriented. In most cases, it's not succeeded by sons. It emphasizes enterprise system, and its relational network-building is not that strong as in the east (Chung & Dahms, 2018). Therefore, this paper should further see the different ownerships (family or non-family) and CEOs' behaviors (overconfidence) together.

More clearly, one important characteristic of family business is choosing a manager from family members to keep controlling company operation (Ahlstrom *et al.*, 2004; Lien *et al.*, 2005). Also, family business manager is responsible for reputation and extending life of family business, his (her)

behavioral attitude therefore has great impact on corporate performance and differs from that of non-family business manager (Subramanian, 2018). In addition, a recent study focused on relationship between managerial attitude and financial decision (Lin *et al.*, 2005; Lin *et al.*, 2008). They have found that managerial overconfidence is a key factor to affect investing and financing decisions. It's easy for an overconfident manager to take negative net-present-value (NPV) projects which will further damage company's interests. Therefore, manager with overconfidence is also an important factor that affects corporate performance.

Past researchers only explored the characteristics of family and non-family business (Yeh *et al.*, 2001; Andres, 2011). Little literature shows these two kinds of business from the aspect of different manager behavioral characteristics (Sreih *et al.*, 2019). Furthermore, a CEO's attitude (overconfident) is the key factor to impact ownership (Lin *et al.*, 2008). Therefore, this study intends, from if a CEO is overconfident, to explore how difference of managerial behaviors between family and non-family businesses affects financial performance. The purposes of this study are to examine (1) the relation between ownership structures (family and non-family) and corporate performance; (2) the association between ownership structures and CEO overconfidence; (3) the link between CEO overconfidence and corporate performance; (4) whether the interaction item between family ownership and managerial overconfidence affects corporate performance.

II. REVIEW OF RELATED LITERATURE AND HYPOTHESES

Family business is a major characteristic of business operations in Asian. Natures of business operations controlled by family are entrepreneurship and strong family cohesiveness. Chinese family management even reconciles Confucianism, making Chinese family business different from western family business. For example, Chinese people make strong promises to their family; family business company is just like extension of family system. In addition, in Chinese society, relative relationship (guanxi network) is pretty important among family members (Chen, 2001; Tsai *et al.*, 2013). Therefore, traditions combine with family relationship, loyalty and altruism, and then decide the use of company resources and value of family company created. Therefore, this study tends to start from ownership characteristic, to explore how it affects managerial attitude and corporate performance. The related hypotheses are as below.

A. The Relationship between Ownership Type and CEO Overconfidence

A manager with overconfident is related to his (her) own perceptual bias. In the process of dealing with perception, it includes wrong judgment or prediction. In addition, managerial overconfidence is often considered as perceptual bias caused by combining internal (mental) and external (business) decisions (Adam *et al.*, 2015). Therefore, managerial overconfidence not only affects how entrepreneurs found their companies but also shows in manager's abilities (Heaton, 2002; Koo & Yang, 2018). CEOs will become overconfident because of three

characteristics as following: (1) The overconfident CEOs believe that every decision result is under control. And when controlling performance, they become more overconfident (Huang *et al.*, 2011), even too overconfident; (2) CEOs will use personal wealth, reputation and working ability in the past to induce a guaranty of better corporate performance in the future (Goel & Thakor, 2008); (3) When CEOs themselves refer to information which is too ambiguous, cannot be sure of, they show specifically exaggerate their own skills to be better than those of others (Moore & Healy, 2008). All these are reasons why CEOs are overconfident. Therefore, the attitude held by CEOs not only is related to their past experiences but also environment they're in.

Characteristic of family business is family relationship melts in corporate structure; therefore, its family members often control senior managers, CEOs and the board of directors who are often selected from family members; owners of the company and family members usually play multiple roles (Goel & Thakor, 2008). Also, professionalism and loyalty of family managers come from reconciliation of company and family systems. Company operation is mainly to increase family's wealth and status. It makes family business managers to be regarded as stewards of family business and need to achieve from demands of family business. In addition, family members of family business are with altruistic tendency, unique loyalty and promises of long-term performance, and permanent strategies to leaders created. Therefore, family business CEOs not only work for personal interests but also have altruism for interests of organization and shareholders.

Family business usually relies on family business CEOs who are company's sole decision maker (Feltham *et al.*, 2005). His (her) personality, age, education, working experience and professional competence will affect company decisions. However, even a family business CEO has excellent professional competence and is perceptually overconfident, intends to make high-risk financing decisions, he (she) is limited a lot in decision making by characteristics of family business (such as, risk-avoiding, altruism, immediate family relationship, loyalty, security and stability) [30]. Furthermore, all family business assets are controlled by family shareholders (Chen, 2001), cannot be invested for conservation from family business concepts. Therefore, a CEO is limited more than in family business to compare non-family business. It makes CEO overconfident tendency to be lower in family business.

The characteristics of family's altruism, promises, loyalty and cohesiveness, or viewpoints of family supervision and family resources restricted, will limit CEO behaviors and attitudes. Thus, the assumption is:

Hypothesis One: family business CEOs have lower overconfidence than those in non-family business.

B. The Relationship between Family Ownership Characteristic and Financial Performance

When you submit your final version, after your paper has been accepted, prepare it in two-column format, including figures and tables.

Family business has its own characteristics. Family business can easily take actions of eliminating unreasonable personal interests in management such as using family

pressure, concentrated control rights, arranged chairman and top managers with family member to supervise company (Chu, 2011). In addition, Subramanian (2018) pointed out that nature of family investment is for long-term and is pursuing best efficiency of investment. When relatively long investment period comes out of shareholders, it can eliminate incentive of management myopia. Besides, Dyer (2006) revealed that there are three unique assets of family business, including (1) human assets related to family, (2) social assets related to family, and (3) financial assets related to family, which makes family business to be with resources advantage. A study also showed that employees considered steward in family business will have strong emotions and loyalty towards organization; they will be like to put organizational interests above personal benefits (Chang *et al.*, 2016).

On the contrary, Shleifer and Vishny (1997) revealed that in allocation of stock rights, the relationship between voting power and controlling power will be manipulated. That is controlling shareholders will pursue extra private interests from company. In other words, concentrated ownership such as founding family will pursue maximized personal interests, because personal financial interests cannot be separated from company financial interests. Therefore, transparency of financial reports of family business will be low (Anderson *et al.*, 2012). In addition, past studies also showed that family business is highly limited in human resources management. This is because, family members occupy top manager positions; the labor supply sources will be limited to recruit qualified employees with potential. Therefore, this limitation affects competitiveness. In addition, conservatism attitude will lead to weak innovation investments. Past studies found out that family business is low abilities of innovation, and family business is teamed up by lower differentiation (Migliori *et al.*, 2020). Therefore, conservatism and non-differentiation makes family operation to be in disadvantageous situation.

Family businesses in Taiwan lead to weak competitive advantages. This is because that they are with high self-protection, in order to avoid dilution of stock rights and protect family resources (such as, important positions only hire family members) (Lin *et al.*, 2008). In addition, families control stockholders exploit small shareholders for their own interests (Van Der Vert *et al.*, 2003). Moreover, family managers offer family interests through themselves or professional managers which further leads to lower corporate performance. Therefore, the hypothesis is:

Hypothesis Two: Financial performance of family business is worse than that of non-family business.

C. The Impact of CEO Overconfidence on Corporate Performance

Heaton (2002) found out that company's free cash flow will cause overconfident CEO's over-investing. An overconfident CEO believes that capital market underestimates company value, but indeed CEO overestimates the value of investee's projects. Therefore, when business is in the situation of abundant free cash flow, it's easy to make a wrong decision because of CEO overconfidence. All overconfident CEOs believe that results from decision are under control (Merkle & Weber, 2011). Also, overconfident CEOs are highly depending on personal

wealth, reputation and working ability in the past. This forms the phenomena of stubbornness and self-indulgence (Moore & Healy, 2008). However, overconfident CEOs will often underestimate risks and overestimate rewards. It makes performance risk and uncertainty of business to be increased, therefore, possibility of failure to be increased. Thus, the expectation is:

Hypothesis Three: The association between managerial overconfidence and corporate performance is negative.

D. The Relationship among Family Ownership, CEO Overconfidence and Corporate Performance

The characteristic of decision making in family business induces that family business managers do not to make decisions at their own will. Family business often relies on family business CEOs as company's sole decision maker (Goel & Thakor, 2008). However, family owner's personality, age, education, working experience and professional competence will not affect management policies, because of control of family business. Therefore, CEOs in family business will have more limitations in decision making as compared to those in non-family business which makes managerial overconfident tendency in family business to be lower.

As for impact of managerial attitude on performance, low-overconfidence managers have better performance and high-overconfidence managers have low performance (Heaton, 2002). This is because overconfident managers will ignore the risk and overestimate profit. Therefore, overconfident managers will create high-risk environment and make losses. By contrast, low-overconfidence managers will avoid the risk, it makes them more profit.

But if managers of family business are overconfident, they must have real controlling power and excellent past experience which get all other family members to follow overconfident decisions made by them (Dick *et al.*, 2020). Therefore, the extent of overconfidence will reconcile the control from family business ownership's effect and create better performance. That is the family business CEO with overconfidence leads to better performance. Therefore, the hypothesis is:

Hypothesis Four: The family business CEO with overconfidence leads to better performance.

III. METHODS

A. Data Sources

This study examines impacts of family ownership and managerial behaviors on corporate performance. Our sample includes firms listed on Taiwan's stock market during the period of 2009 to 2018, totally 6,612 samples. Financial information sources are expected to be from annual reports of firms listed on Taiwan's stock market and TEJ data base. As far as definition of family is concerned, in foreign countries, it's measured by shares of family and inside directors such as family shareholding ratio and shareholding ratio of inside directors of family members. And definition of domestic documents includes spouses as family members. If total shareholding ratio of family members or companies controlled by them is over 10% and seats of the board owned

or seats of the board occupied by family members are over 50%, it indicates the family business (Yeh *et al.*, 2001). This study uses this definition to measure family business.

B. Research Models

In order to test impacts of family business characteristic and CEO behaviors on corporate performance, this study builds 2 panel data regression models to test from hypotheses One to Four.

Model I is to test Hypothesis One (CEO overconfident tendency of different ownerships). Dependent variable is extent of CEO overconfidence (OC), independent variables are family business (FB) and non-family business. Control variables are education (De) and term (Te). Models and its explanations are as follows:

$$\text{Model I: } OC_{i,t} = \alpha_0 + \alpha_1 FB_{i,t} + \alpha_2 DE_{i,t} + \alpha_3 TE_{i,t} + \varepsilon_{i,t} \quad (1)$$

1) Overconfidence of CEO (OC): This study uses judging definition of overconfidence of Malmendier and Tate (2005) and Lin *et al.* (2008), shares held by CEO and shareholding ratio, with 3-year tenure, to be the criteria of overconfidence. When CEO's tenure is consecutive 3 years, these 3 years are to be mutually compared. If it's increased twice out of 3 times, then CEO is judged to be overconfident as 1, non-overconfident is 0.

2) Family business (FB): Refer to definition of La Porta *et al.* (1999), based upon the idea of ultimate controller, if total direct and indirect shareholding ratio of controllers like family members (including spouses) or their controlling companies is over 10% and family members occupy over half of seats of the board, it's family business (Chu, 2011). Therefore, if control stock is large 10% and board seats are over 50%, it is family business and set to 1, otherwise 0.

3) Education (DE): This study uses years of education of CEOs to measure manager's education level. Based upon common situations, elementary school is 6 years; junior high school is set to be 9; senior high school is 12; junior college is 14; college is 16; master is 18 and Ph. D. program is 22 (Kao *et al.*, 2018).

4) Tenure (TE): This study uses years of a manager (CEO) employed until the year he (she) be changed written in annual reports of listed firms (Goel & Thakor, 2008).

5) Standard error: $\varepsilon_{i,t}$

Model II is to test Hypotheses Two, Three and Four. This model explores relationship among ownership type, CEO overconfident tendency and corporate performance. Dependent variable is financial performance (Performance), independent variables are family business (FB), extent of overconfidence (OC), and the interaction item of overconfidence towards family business (FB*OC). Control variables are debt ratio (DEBT), industry categories (IND), company size (SIZE) and company age (AGE). The model is as follows:

$$\text{Model II: } Performance_{i,t} = \alpha_0 + \alpha_1 FB_{i,t} + \alpha_2 OC_{i,t} + \alpha_3 FB*OC_{i,t} + \alpha_4 DEBT_{i,t} + \alpha_5 IND_{i,t} + \alpha_6 SIZE_{i,t} + \alpha_7 AGE_{i,t} + \varepsilon_{i,t} \quad (2)$$

1) Financial performance: As far as dependent variables measuring performance are concerned, financial performance can be realized into accounting index. In financial

performance, this study uses the rate of return on equity (ROE) to measure corporate performance (Chung & Chan, 2012). ROE is net profit divided by average total equity book value.

2) Family business (FB): same with the above.

3) CEO Overconfidence (OC): same with the above.

4) The interaction item of family business and overconfidence (FB*OC): the association between CEO overconfidence in family business and financial performance.

5) Control variables: The definition is as follows: Debt ratio (DEBT): Because interest expenses will decrease company's profits and its tax shield effect will make managers to tend to choose high-risk projects which lower corporate performance. On the other hand, when holding shares of company administrators are lower or proportion of capital from long-term liabilities is bigger, from the viewpoint of agent theory, problems of equity agency and debt agency are bigger (Sreih *et al.*, 2019). Therefore, this study uses long-term liabilities ratio as control of financial leverage to affect company profitability. Industry, dummy variable (IND): In Taiwan, major subjects of investment of investors have become high-tech industry of national core enterprise (Chung & Chan, 2012). In order to examine their impacts on corporate performance which are different from conventional industries, industry dummy variable is therefore added to regression equation in this study. Therefore, if the company is in IT industry, it's set to 1, other conventional industries 0. Company age (AGE): Company will face lots of problems in long-term operation, when they happen, past experiences can help to effectively solve them and to keep company running. We therefore use founding years as measuring index (Chu, 2011; Kao *et al.*, 2018). Company size (SIZE): To expand company's production capacity, company's output and production will increase. Production cost can be reduced by extensive ordering which will increase sales volume and demand for employment. Therefore, this study uses natural logarithm of the company's total sales volume (SALES) and total employees (EMPLOY) to measure (Chu, 2011; Kao *et al.*, 2018).

IV. STATISTICAL RESULTS AND DISCUSSION

A. Descriptive Statistics Analysis

Descriptive statistics such as means and standard deviations of simple statistics analysis of this study are as shown at Table I. The mean of financial performance (ROE) is 0.11; maximum is 0.72; minimum is -1.47. Average company history (AGE) is 10.86; maximum value is 25; minimum is 4. Average natural logarithm of employees (employ) is 7.69; maximum is 13.2; minimum is 4.13. Average natural logarithm of company total sales volume (sales) is 9.47, maximum is 14.35; minimum is 0. Average education (DE) is 15.38 (between college and graduate school); maximum is 22; minimum is 6. Average tenure (TE) is 8.47; maximum is 45; minimum is 1. Average debt ratio (DEBT) is 0.46; maximum is 0.81; minimum is 0.08.

B. Pearson Correlation Analysis

Before performing the panel data regression, this study set up the Pearson correlation analysis for all variables as the first

step. The Pearson correlation coefficient matrix for of the variables is shown in Table II and III. Tables II and III are results from Pearson correlation matrixes. Table II indicates that overconfidence (OC) is significantly negatively correlated to family business (FB). Also, in Table III, the corporate performance (ROE) is significantly negatively correlated to family business manager (FB) and overconfidence (OC). all coefficients of variables are not over 0.6; relativity is not high. In addition, this study calculates variance inflation factors (VIF) of each variable. It finds out that VIF values of variables are all less than 10. It means problem of collinearity among independent variables is small.

TABLE I: DESCRIPTIVE STATISTICS OF SMAPLE

Variable	Mean	Standard deviation	Minimum	Maximum
Corporate performance (ROE)	0.11	0.12	1.47	0.72
Company history (AGE)	10.86	13.72	4.00	25.00
Total employees (EMPLOY)	7.69	9.39	4.13	13.20
Total company sales (SALES)	9.47	10.56	0.00	14.35
Industry dummy variable (IND)	0.24	0.39	0.00	1.00
Education (DE)	15.38	2.44	6.00	22.00
Tenure (TE)	8.47	7.65	1.00	45.00
Debt ratio (DEBT)	0.46	0.15	0.08	0.81

TABLE II: CORRELATION ANALYSIS FOR OWNERSHIP TYPE AND CEO OVERCONFIDENCE (MODEL I)

	OC	FB	De	Te
OC	1			
FB	-0.023(**)	1		
DE	0.079(**)	-0.041(**)	1	
TE	-0.073(**)	-0.005	-0.194(**)	1

** . Correlation is significant at the 0.01 level (2-tailed); * . Correlation is significant at the 0.05 level (2-tailed).

TABLE III: CORRELATION ANALYSIS FOR OWNERSHIP TYPE, CEO OVERCONFIDENCE AND CORPIRARE PERFORMANCE (MODEL II)

	ROE	FB	OC	DEBT	IND	EMPLOY	SALES	AGE
ROE	1							
FB	-0.094**	1						
OC	-0.012*	-0.022**	1					
DEBT	-0.260**	0.056**	0.063**	1				
IND	0.038**	-0.007	0.001	0.048**	1			
EMPLOY	0.028**	0.007	0.003	0.042**	0.033**	1		
SALES	0.042**	0.012	0.014	0.083**	-0.026**	0.312**	1	
AGE	-0.163**	0.255**	0.001	0.120**	-0.062**	0.058**	0.071**	1

** . Correlation is significant at the 0.01 level (2-tailed); * . Correlation is significant at the 0.05 level (2-tailed).

TABLE IV: PANEL DATA LOGIT REGRESSION ANALYSIS RESULTS (MODEL I)

Variable	Expected direction	$OC_{i,t} = \alpha_0 + \alpha_1 FB_{i,t} + \alpha_2 DE_{i,t} + \alpha_3 TE_{i,t} + \epsilon_{i,t}$			
		Type 1	Type 2	Type 3	Type 4
Constant		-0.65*** (-7.28)	-0.72*** (-8.92)	-0.49*** (-9.81)	-0.63*** (-7.41)
FB	-	-0.18** (-2.28)			-0.14* (-1.92)
DE	+		0.08*** (4.94)		0.07*** (4.59)
TE	?			-0.03*** (-4.68)	-0.02*** (-3.45)
Log likelihood		2966.52	2871.16	2889.94	2802.77
McFadden R-squared		0.0243	0.0562	0.0471	0.0841
Observation		6612	6612	6612	6612

***reaches significant level of 1%; **reaches significant level of 5%; * reaches significant level of 10%.

C. Multivariable Analysis

1) Hypothesis One

Types 1 and 4 of Table IV indicate that family business (FB) will positively affect CEO overconfidence (OC) and reach 10% significant level. This result supports hypothesis One (the CEO overconfidence in family business is lower than non-family business) of this study. It shows that under the supervision and control from family business, a CEO in family business is not easy to have an overconfident character which compared with that in non-family business. In addition, types 2 and 3 of Table IV show that education of CEO (DE) is significantly positively related to overconfidence (OC). It means that a CEO with higher education will has the overconfident character. Also, tenure of CEO (TE) is significantly negatively correlated to overconfidence (OC). It implies that the longer the tenure is, the more conservation he (she) is.

2) Hypothesis Two

Results from Types 1, 3 and 4 of Table V reveal that family business manager (FB) is significantly negatively related to corporate performance (ROE), consistent with Chu (2011). It means that to compare nonfamily business, family business will have negative impact on corporate performance. That supports Hypothesis Two (Corporate performance of family business is worse than that of non-family business) of this study. To compare other western countries, the majority of familial firms in Taiwan maintain comparatively high levels of concentrated equity ownership (Chu, 2009). There are Family business in Taiwan has more incentives to adopt more inappropriate wealth expropriation and institutional misalignment and leads to poor corporate performance.

3) Hypothesis Two

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4) Hypothesis Three

Types 2, 3 and 4 of Table V indicate that CEO overconfidence (OC) is negatively associated with corporate performance (ROE) and reaches at least 5% significant level. The result is consisted with Hypothesis Three (the link between CEO overconfidence and corporate performance is negative). This result implies when CEO overconfidence is higher, corporate performance is worse. From the decision behavior, overconfident CEOs always believe that decisions are under their own control, therefore, overestimate profits and underestimate risks. They do believe themselves as having excellent judgments and are more competent as compared to others. This recognition makes them be more positive in their own judgment to ignore dangerous (Malmendier & Tate, 2005). Therefore, overconfidence leads to low corporate performance.

5) Hypothesis Four

This study is to observe impact of CEO overconfidence on corporate performance, under different types of ownership. Whether the interact item (FB*OC) between CEO overconfidence (OC) and family business (FB) impacts the corporate performance. From the Type 4 of Table V, the result shows that the relationship between the interaction item (FB*OC) and corporate performance (ROC) is significantly positive. From the above results, coefficients of family business and CEO overconfidence are respectively negative related with corporate performance. Reversely, the interaction items of family business manager and overconfidence are the positive effect on financial performance. An overconfident CEO in family business have to dominate all family members, as well as uses advantages of family business (such as, 1. alignment of ownership and control, 2. superior information, presence, and financing, and 3. investment and long-term vision) to make better decisions. It means overconfident manager can compensate for Traditional-family conservatism and advantages, and lead to increased corporate performance. However, in family business, CEOs with overconfident tendency will increase financial performance. It therefore supports hypothesis Four (CEO overconfident tendency in family business leads to better corporate performance).

6) Empirical results of control variables

These results of other control variables of this study can be explained by Types 2 and 4 of Table V. Debt ratio (DEBT) is significantly negatively correlated to corporate performance

(ROE). This means the larger company's debt ratio leads to more interest expenses and debt agency problems. The size of company's total sales (SALES) is significantly positively related to financial performance. The results are the same with the findings of Kao *et al.* (2018). When company's productions (economic scales) are increased, production cost can be reduced, and sales volume (employees) increased. This leads to higher performance. Finally, coefficient value of company history (AGE) is significantly negatively related to financial performance. This implies that the longer company history leads to the higher political cost to be which makes enterprise value to be reduced.

TABLE V: PANEL DATA REGRESSION ANALYSIS RESULTS – RANDOM EFFECTS (MODEL II)

$$Performance_{i,t} = a_0 + a_1 FB_{i,t} + a_2 OC_{i,t} + a_3 FB * OC_{i,t} + a_4 DEBT_{i,t} + a_5 IND_{i,t} + a_6 SIZE_{i,t} + a_7 AGE_{i,t} + \epsilon_{i,t}$$

Variable	Expected direction	Type 1	Type 2	Type 3	Type 4
C		2.54*** (4.83)	2.42*** (4.35)	2.51*** (4.74)	2.62*** (4.67)
FB	-	-0.51* (-1.71)		-0.54* (-1.69)	-0.83*** (-2.74)
OC	-		-0.54** (-2.06)	-0.52** (-2.02)	-0.68*** (-2.89)
FB×OC	?				0.83*** (2.79)
DEBT	-	-0.75*** (-2.94)	-0.82*** (-2.87)	-0.94*** (-2.88)	-0.85*** (-2.78)
IND	+	0.60*** (3.22)	0.49*** (3.16)	0.45*** (3.18)	0.47*** (3.11)
SALES	+	0.21*** (2.90)		0.22*** (2.92)	0.22*** (2.89)
EMPLOY	+		0.11 (0.94)	0.10 (0.88)	0.11 (0.82)
AGE	-	-0.08*** (-3.12)	-0.08*** (-3.10)	-0.09*** (-3.21)	-0.09*** (-3.23)
Adjusted R-squared		0.23	0.21	0.20	0.21
F		34.64	37.75	36.15	34.12
Observation		6612	6612	6612	6612

***reaches significant level of 1%; **reaches significant level of 5%; * reaches significant level of 10%.

7) Robustness test

This study also uses rate of return on assets (ROA) and market capitalization (Tobin's Q) as dependent variables to test robustness. The results are similar. Also, this study takes CEOs whose tenure is at least 5 years as samples, in measuring overconfident tendency, to test robustness. Its result approximately coincides with the original. It shows that empirical results of this study are with robustness.

V. CONCLUSION AND RECOMMENDATIONS

This study mainly examines relationship among ownership type, CEO behavior and financial performance. The results reveal that financial performance of family business is worse than that of non-family business in Taiwan. It means that family interests of family business (majority shareholders) are higher than company interests which will exploit company (other shareholders). This has a poor influence on family business long-term operation (Lin *et al.*, 2005). In addition, in aspect of impact of ownership type (family or non-family business) on managerial behaviors

(overconfidence), this study finds out that overconfidence of family business manager is lower than that of non-family business. Therefore, the family control limits family business manager to have the overconfidence bias (Zapalska & Edwards, 2001; Dick *et al.*, 2020). On the other hand, in aspect of impact of managerial attitude on corporate performance, this study empirically finds out that overconfident manager leads to poor corporate performance. In other words, overconfident manager will damage company's survival (Adam *et al.*, 2015). Moreover. The result shows that overconfident manager in family business will increase corporate performance, showing that overconfident manager can compensate for conservativeness of family and increase corporate performance.

From managerial point of view, (1) the corporate governance mechanism toward family business should be different from that of non-family business; (2) in the investment, managerial overconfident tendency could be used as important explanatory factor of corporate performance; (3) overconfident manager is easy to make corporate performance worse; companies should be a set of serious recruiting mechanisms toward employing, to avoid overconfident manager joining, and a set of serious corporate governance mechanisms limits a bias of confident manager in business decision making.

This study is limited to use stocks held by manager and shareholding ratio to measure overconfidence. In measuring overconfidence, holding shares could still be affected by other factors which make managerial overconfident tendency not to be reflected correctly. And most family businesses are common property right systems, therefore, even holding shares of family manager are not supported by other family members, it could have consolidation effect of family common shareholding.

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