NON-FAMILY CEO COMPENSATION AND FIRM PERFORMANCE: EVIDENCE FROM CHINESE LISTED FAMILY FIRMS

A Thesis

Presented to the Faculty of the Graduate School

of Cornell University

In Partial Fulfillment of the Requirements for the Degree of

Master of Science

by

Kefan Lu

May 2020

ABSTRACT

Family firms account for more than half of listed firms in China, and they are confronted with the serious challenge of introducing professional CEOs. In this paper, my research focuses on the performance implication of non-family CEO compensation. I study how non-family CEO compensation and their compensation gap with family members impact firm performance in the Chinese market. I find that firm performance is positively related to both non-family CEO compensation and their compensation gap with family members, indicating that not only the absolute level but also the relative level of non-family CEO compensation could impact firm performance.

Keywords: family firm, non-family CEO, compensation gap, firm performance

BIOGRAPHICAL SKETCH

Born and raised in China, Kefan Lu received her Bachelor's degree in Economics from the Renmin University of China in 2018. She majored in International Economics and Trade during her undergraduate study and participated in several field research before entering the postgraduate program. She received her Master's degree in Applied Economics and Management from Cornell University in 2020.

ACKNOWLEDGMENTS

I would like to thank Cornell University, Prof. Byoung-Hyoun Hwang, and Prof. Jawad M. Addoum for providing thesis advice in the past year. I also like to thank the China Scholarship Council for providing a full scholarship to me to pursue my Master's degree in the United States. I almost finished all the school work from home due to COVID-19 and I know it is not easy for most people. So I want to thank every medical personnel for their hard work of making things better so that I can stay healthy and complete the thesis in time.

TABLE OF CONTENTS

1 Introduction

The family firm is an important organizational form in the world. They account for a considerable percentage of large firms: 44% in Western Europe and over two-thirds in East Asian countries(Cheng, 2014). Recently, Chinese family firms are going through rapid growth both in quantity and in firm size. The number of Chinese families listed firms is 2327 in 2018, accounting for 64.5% of total listed firms[1]. This number has increased from 164 in 2003 to 2327 in 2018. However, since the original purpose of the establishment of China's stock market was to support fundraising activities for the state-owned enterprises when China changed from a planned economy to a socialist market economy, family firms were less able to acquire IPO approvals earlier(Cheng, 2014). Thus, compared to European and American family firms, most listed family firms in China are still at an early stage. According to a survey conducted by PwC, most of the family firms in China are quite young: 75% are still under the control of the first-generation founders[2]. As to the handover of family firms, only 21% of family owners have established a succession plan, and only 41% of which intend to hand over the power (either ownership or management power, or both) to the next generation. This indicates that lots of family firms in China have not been prepared for continued operations after the founder leaves, and once the founder leaves, there would be potential urgent demand for professional managers to help run the business. This is consistent with another finding that attracting and retaining talented employees becomes

[1] Note that The number is based on the data available from CSMAR database.
[2] All the data is coming from a report of Pwc China -《Global Family Firms Survey 2018》

the most popular short-term goal among Chinese family firms[3]. Although there are many reasons for family firms to resist the employment of an external CEO, hiring an external CEO may have become the tendency: many firms have already brought in outside managers. Among 2327 family firms in 2018, 1149 has a non-family member CEO.

Family firms may need to bring in outsiders as managers for various reasons. Some of them need a professional manager to fill in as the bridge between the older age and the younger one(C. Aronoff & Ward, 2011), some need some critical skills such as technical or industry expertise available from a professional CEO that the family business lacks(Astrachan, Keyt, Lane, & Yarmalouk, 2002). Many studies confirm that the existence of an outside CEO indeed has a positive impact on family firm performance, especially in firms with low cash-flow rights and weak control(Lin & Hu, 2007), firms with more dispersed ownership(Miller, Minichilli, & Corbetta, 2013), and firms with non-family managers monitored by multiple major family owners instead of a single owner (Miller, Le Breton-Miller, Minichilli, Corbetta, & Pittino, 2014). One of the challenges family firms confronts when they replace a family CEO with non-family CEO is how to make appropriate CEO compensation contracts. Non-family CEOs are struggling in the idiosyncratic cultures of family firms. They are a piece of the business yet not part of the family framework (Mitchell, Morse, & Sharma, 2003). Therefore even though they are hired to be the firm leader, the actual role of non-family often turns out to be a management trainer or consultant (S. B. Klein, 2000). They are dismissed

[3] The finding is coming from a report of PwC China -《Global Family Firms Survey 2018》

of several important opportunities such as possessing ownership and further advancement (Astrachan et al., 2002) while family members get to receive promotional opportunities, salaries, or other benefits more easily regardless of their actual contribution because family owners tend to offer these benefits out of altruism(Lubatkin et al., 2007). The social nature of family communication competence and personal biases between relatives could also put non-family executives at disadvantage(Marett, Marett, & Litchfield, 2015)

Considering all these factors, whether non-family CEO compensation is proper becomes an important issue. Even though prior literature has discussed how professional executives contribute to family firms(Pieper, 2007), few of them are focused on the performance implication of non-family CEO incentive contracts in family firms. The majority of literature studying CEO compensation level in Chinese family firm focuses on how to determine professional CEO compensation by firm performance based on the model of a rational behavior of an economic man of agency theory, but rarely looks at the reverse relationship: how does non-family CEO compensation impact firm performance? Faced with a less developed and less mature market with fewer attempts in the field of hiring professional managers, Chinese family firms do not have much experience at how to work with and supervise external managers, although professional CEOs are playing a more and more important role and the level of them involved in the family business has been expanding (Klein & Bell, 2007). Thus, in this paper, I look into two aspects of non-family CEO compensation in Chinese family firms: the absolute level of non-family CEO compensation(cash compensation) and the relative level of their compensation (compensation gap with family executives).My goal is to evaluate the impact of these two factors on firm performance. I extend the extant literature on family firms and professional managers and provide advice on how family firms with a professional manager should formulate a reasonable incentive contract.

The remainder of the paper is organized as follows. Section 2 provides an overview of the literature on non-family CEO compensation in family firms and develops the research hypotheses. Section 3 describes the samples and variables. Section 4 presents the empirical results and Section 5 presents the robustness check of the result. Section 6 provides a discussion of the results. Section 7 gives a brief conclusion.

2 Literature Review

2.1 The absolute level of non-family CEO pay

Compensation incentives for executives of a public company have always been a popular topic of much research and the center of controversy. As one of the important governance mechanisms in modern corporate governance, executive compensation is considered to be a key to solving agency problems between shareholders and management. Agency theory holds that a reasonable incentive contrast could mitigate the conflict of interest between principals and agents by tieing manager's compensation to performance and subsequently reduce agency cost(Jensen & Meckling, 1979). The latent logic here is that agents care about the absolute amount of their rewards and will adjust their input according to their rewards.

Hiring a non-family member as CEO inevitably brings the agency problem between CEO and family owner because non-family CEO and family members have different corporate governance goals. Family members as managers are inclined to pursue the development of the firm in the long run, while non-family CEOs are concerned more about short-term performance (Davis, Schoorman, & Donaldson, 1997). To solve this conflict, agency theory suggests a pay-to- performance constraint, especially for family firms without the active participation of family members(C. E. Aronoff, McClure, & Ward, 1993). In this way, CEO compensation is determined by how much of their contribution and the firm's performance serves as a potential exogenous factor of CEO compensation. A considerable body of research has studied the relationship between manager compensation and firm performance based on this view, providing evidence from markets in multiple countries (Brunello, Graziano, & Parigi, 2001; Kato, Kim, & Lee, 2007; Kato & Kubo, 2006; Raithatha & Komera, 2016). However, one of reasons why the manager's incentive is so important is its effect on firm's performance. Non-family CEOs are motivated to work harder as their pay increases. Thus an effective compensation incentive mechanism should produce better performance. Therefore, CEO compensation determined by firm performance could conversely impact firm performance(Brick, Palmon, & Wald, 2006). However, little literature studied how the CEO pay impacts firm for family listed firms. A few studies provide evidence of a positive relationship between firm performance and executive pay in other listed firms, indicating that incentive-based contracts are effective. For instance, Lilling finds that when controlling for simultaneity, market value of the firm is positively linked with CEO compensation (Lilling, 2006). Stanwick finds a strong positive relationship between CEO compensation and some key financial indicators of the firm(Stanwick & Stanwick, 2001). Sun et al find that firm revenue efficiency is positively and significantly related to CEO cash compensation(Sun, Wei, & Huang, 2013). Research in New Zealand finds that the impact of CEO compensation on firm performance depends on the ownership structure. When the structure is lower concentrated,the impact is positive, and a negative impact comes with a highly concentrated structure (Jiang, Habib, & Smallman, 2009).

Literature shows that both theory and empirical research support the applicability of agency theory in the Chinese market(Yang, Huang, Steven, & Buscin, 2010). Hence, we expect an effective compensation incentive mechanism in Chinese family firms. On the one hand, firms offering higher compensation can hire professional CEOs with stronger management capabilities to improve the correctness of corporate decision and execution efficiency, thereby improving firm performance; on the other hand, higher compensation can effectively motivate current professional CEOs to work harder to avoid being replaced by external job seekers. The substitution effect here will ultimately improve company performance. Therefore, as to how non-family CEO pay level impacts firm performance, I suggest the following hypothesis:

Hypotheses 1: Family firm performance is positively related to the Non-family CEO's compensation level.

2.2 The relative level of non-family CEO pay compared to family members

The behavioral theory believes the model of agency theory is too simplistic so they made four modifications to it. As a complement to agency theory, they point out that agent's work motivation is important and thus one of the four modifications is that fairness and inequity aversion could affect behavior(Pepper, 2019), people judge and evaluate themselves by comparing with others, so as to form a perception of justice(Suls & Wheeler, 2013) .This means executives care not only about the absolute amount of their compensation, but also the equity or inequity of their rewards compared to their peers (Pepper, 2019). If their inputs (labor or time) and outputs (rewards) are decently proportionated, agents will feel satisfied and have motivation to keep on contributing to the organization. Otherwise, they will be demotivated and refuse to work hard at the same level. Many studies confirm the impact of such justice perception on individual work outcomes as well as firm performance. It is positively related to individual organizational commitment, including emotional attachment to, individual identification with, and active involvement in the organization(Allen & Meyer, 1990; Downes & Choi, 2014). Additionally, greater injustice perception may cause a lower job satisfaction(Al-Zu'bi & Management, 2010; Janssen & Van Yperen, 2004)and a lower individual productivity(Cohen-Charash & Spector, 2002). Also, a considerable body of research put forward that some unique attributes of family firms have already constituted to potential sources of inequity perception of non-family members(Sieger, Bernhard, & Frey, 2011), including 'founder-centric' cultures(Kelly, Athanassiou, & Crittenden, 2000), lack of delegation, altruism, and nepotism(Padgett & Morris, 2005). Such inequity perception ends up to be connected with non-family members' job satisfaction(Janssen & Van Yperen, 2004) and affective commitment (Van Dyne & Pierce, 2004). Lubatkin et al. find that individuals tend to reduce their inputs to receive a reasonable reward(Lubatkin, Ling, & Schulze, 2007). Research also indicates that the injustice perception resulting from the bifurcated treatment of family and nonfamily individuals can negatively affect firm performance(Madison, Daspit, Turner, & Kellermanns, 2018).

The relative level of non-family CEO compensation compared to family executives as a measure of the equity of CEO compensation, as represented by the compensation gap, has been investigated in the past several decades as one of the most important properties of the compensation system . Researches on the relationship between the compensation gap and firm performance have yielded inconsistent results(Gupta, Conroy, & Delery, 2012). Most of these studies are based on equity theory and tournament theory, which have opposite views on how the pay gap impacts firm performance. In short, tournament theory argues a positive motivation for executives generated from the pay gap and thereby leading to a positive effect on firm performance(Lazear & Rosen, 1981), while equity theory argues the injustice perception represented by the pay gap may lead to negative individual performance(Adams, 1963)which firm effect is consistent with. Previous empirical results provide support for both theories. However, research also finds that the tournament incentives may go inefficient in a family firm(Schulze, Lubatkin, & Dino, 2002) because upper administration position is more frequently taken by or reserved for family members, so that family firms are unable to tempt or motivate non-family members using the possibility of further advancement.

Some literature points out that non-family CEO should be paid more to compensate for the loss of opportunities compared with family managers. It is difficult to determine a criterion to evaluate whether the compensation structure is appropriate, but considering that non-family CEO will compare themselves with other executives (especially family executives in my case) to see if they are fairly treated, the relative level of compensation could be employed to assess the compensation structure among managers. When non-family CEO is paid more than family members, as their relative income increases, they are more able to perceive fairness, and then individual satisfaction increases, which in turn results in stronger team cohesion, firm performance is thus improved. On the contrary, if family members get better pay than non-family CEO with a significant pay gap, non-family CEO in this situation will feel they are not getting what they deserve, which results in a sense of deprivation, low productivity, satisfaction reduction, and eventually a reduction in firm performance. Thus the relative level of non-family CEO compared to family members could result in the change of firm performance by affecting non-family CEO's perception of justice. My analysis leads to the following hypothesis:

Hypothesis 2: Firm performance is positively related to the relative level of non-family CEO compensation.

3 Method

3.1 Sample

My empirical test is based on data of Chinese family firms listed on Shanghai and Shenzhen stock exchange between 2015-2018. All the data are drawn from China Securities Market &Accounting Research (CSMAR)database and Wind database and went through several filter processes. First of all, I selected family firms from all the samples. There have not been unified criteria for defining a family firm so far. Prior literature often defined a family firm by blood relation, ownership, or property right, etc,(Westhead & Cowling, 1998). In this paper, I followed a widely accepted way of defining a family firm among Chinese scholars(Wei Zhang, Ling Chen, & Jian an Zhu, 2018). There are three requirements a firm should meet to be considered as a family firm. First of all, the actual controller of the firm should be able to be traced back to a family or a family member, and the family controlling right is ≥15%[4]. Secondly, in addition to the actual controller, at least one family member should participate in the family firm affair by holding shares, holding a position in management, or controlling the parent company if it exists. If only one family member meets this requirement, and he/she only holds shares in the parent company, the actual controller of the parent company must also be the actual controller of the family firm. Last but not least, to make sure every sample remains unique characteristics of a family firm, the firm should be originally founded by a family or a family member, rather than being transferred from a state-owned enterprise to a private enterprise by equity transfer, corporate restructuring,etc..After deciding on the family firm sample selection criteria, I excluded firms flagged with ST and ST*, firms having B share traded, and firms with severe data missing. Since almost 80% of the family firm in China are in the manufacturing industry[5] and ROA, the dependent variable in this paper is an indicator more suitable for comparing firms in the same industry, I exclude firms in other industries to control the industry effect. These data filter steps lead to a final dataset of 509 observations on 228 family firms. The sample size of each year is presented in Table 1.

3.2 Variable

In this paper, I employ Return on asset(ROA) as the dependent variable.ROA is usually found in business and accounting pieces of literature as a measure of market-based firm

---

[4] The actual controller can be determined either by being directly disclosed in annual reports or being calculated based on the controlling stacks in annual reports.

[5] Looking into all the family firms listed in China between 2015 and 2018, we find that an average percentage of 75%- 80% of family firms are in manufacturing industry.

performance(Al-Matari, Al-Swidi, Fadzil, & Al-Matari, 2012; Ronald C. Anderson & David M. Reeb, 2003; Lee, 2003; Miller et al., 2014). The independent variable for hypothesis 1 salaries compensation of CEO(log-transformed to achieve normality). Following Zhang et al.,(Wei Zhang, Liang Chen, & Jian an Zhu, 2018) I use the ratio of CEO compensation to average non-family executive compensation[6] to represent the compensation gap for hypothesis 2[7]. The total compensation of an executive is the sum of all types of cash compensation, and does not include long-term incentives such as stock options and restricted stocks, because these are rarely exercised in China(Hu, Pan, & Tian, 2013)

Regarding control variables, I included firm age, firm size[8], Debt/Asset Ratio, annual revenue growth as well as previous year's financial performance in our regressions, which are commonly used as control variables in prior studies of family firms (Miller et al., 2014). Besides, I controlled for some variables representing characteristics of family firms. The number of independent directors is included since the previous study demonstrates that family firms with the presence of outside directors perform better than firms with family-dominated boards(Anderson & Reeb, 2004). Also, considering that founder-family ownership is found to be related with firm performance(Ronald C Anderson & David M Reeb, 2003; Maury, 2006), and the controlling shareholder(in the case of family firms this usually refers to the family owners)has been proved to be

[6] Average family executive compensation is calculated by total family management compensation divided by the total number of family members in management . The data of total family compensation is readily available from CSMAR database.

[7] $\text{PayGap} = \frac{\text{CEO compensation}}{average\ family\ compensation}$

[8] Firm size was log transformed to achieve normality.

critical for the agency problem, I use the balance indicator[9] defined by the CSMAR database to measure the balance between major shareholders. The family control proportion[10] of the firm is also included to refer to the voting right of the family controller. For the same reason, the ratio of family members to the total number of people in management is also included. I also control for the management generation of family members involved in the firm business.

3.3 Descriptive Statistics

Table 1 reports descriptive statistics for samples identified by the year. Average non-family CEO compensation has increased yearly, from an average of 669.9 k to 918.6 k (Yuan). Average family executive compensation has increased simultaneously but at a lower rate. On average, family executives receive less total pay than non-family CEOs, which is consistent with previous studies that professional managers receive more total pay than family executives (Gomez-Mejia, Larraza-Kintana, & Makri, 2003; McConaughy, 2000). However, family executive compensations are more dispersed than those of non-family CEOs, indicating that in certain firms family members probably receive an abnormal high compensation compared to the industry-wide average. The average ratio of non-family CEO compensation to family executive compensation demonstrates an upward tendency, with the average of all years 1.86. However, the large standard deviation indicates that it is more common in family firms that other executives receive higher compensation than CEO:: 38% of the sample firms

---

[9] Balance Indicator: balance of shareholder power. It is the ratio of total share of 2nd to 5nd largest shareholder to the share of first largest shareholder

[10] Control proportion: Calculated by CSMAR database according to (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999)(1999) and (Claessens, Djankov, & Lang, 2000) to refer to the control proportion owned by family members.

have family executives receiving more compensation than CEO. However, in a non-family firm, the CEO usually receives more than other executives. Descriptive statistics of control variables also conveys information about the characteristics of firms employing non-family CEO. Generally, these firms are younger infirm age, larger in firm size, have higher R&D input, and less family involvement and control of the firm compared to family firms with family CEOs[11].

Table 1 Descriptive Statistics

	2015		2016		2017		2018		All years	
Observation	105		129		136		139		509	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
ROA	0.045	0.037	0.052	0.037	0.049	0.036	0.049	0.041	0.049	0.038
EPS	0.287	0.261	0.321	0.269	0.338	0.312	0.351	0.349	0.327	0.303
Sal_CEO	669.8	536.2	758.9	571.8	810.9	632.7	918.6	659.5	798.0	611.2
Sal_Fam	563.2	538.5	633.7	545.6	672.1	555.5	678.5	542.7	641.7	546.3
PayGap1	1.854	2.499	1.809	3.129	2.025	4.655	1.755	1.599	1.861	3.196
FirmSize	21.90	0.926	22.02	0.947	22.12	0.901	22.03	0.948	22.02	0.931
Firmage	14.79	4.542	15.84	4.42	16.97	4.755	17.18	4.115	16.29	4.540
DtoA	0.387	0.178	0.353	0.174	0.357	0.167	0.362	0.16	0.363	0.169
RDRatio	0.044	0.03	0.045	0.029	0.047	0.035	0.047	0.033	0.046	0.032
Indirector Num	3.038	0.499	3.047	0.498	3.037	0.411	3.065	0.454	3.047	0.463
YtoY	0.352	0.676	0.333	0.482	0.265	0.45	0.17	0.373	0.274	0.499
FamExecutive Ratio	0.134	0.06	0.132	0.061	0.133	0.065	0.138	0.06	0.134	0.062
Control Proportion	42.45	14.91	41.91	13.79	41.42	14.24	43.74	15.25	42.39	14.54
Balance Indicator	2.768	3.033	2.607	2.722	2.439	2.644	2.39	2.554	2.536	2.721
Management Generations	1.124	0.331	1.178	0.384	1.184	0.389	1.194	0.397	1.173	0.379

[11] The analysis is based on the comparison with 526 observation of family firms with family CEO between 2015-2018 .

3.4 Correlation

Pearson Correlation coefficients among variables are reported in Table 2. Correlation between CEO compensation and ROA are positive and significant. Coefficients of the pay gap with ROA is smaller but still significant. Except for the lagged variables of firm performance, coefficients are consistently between -0.3 and 0.3, indicating the absence of significant collinearity problems.

Table 2 Correlation among variables

	Variable	1	2	3	4	5	6	7	8
1	ROA	1							
2	EPS	0.724*	1						
3	Sal_CEO	0.241*	0.265*	1					
4	PayGap1	0.037*	0.024*	0.139*	1				
5	Lag_ROA	0.727*	0.506*	0.248*	-0.066	1			
6	Lag_EPS	0.542*	0.733*	0.273*	-0.064	0.723*	1		
7	FirmSize	0.067	0.289*	0.342*	0.006	0.033	0.263*	1	
8	Firmage	0.190*	0.123*	0.207*	-0.051	0.149*	0.088*	0.016	1
9	DtoA	-0.244*	0.024	0.047	-0.074	-0.265*	0.008	0.524*	-0.013
10	RDRatio	-0.123*	-0.155*	0.024	0.153*	-0.042	-0.117*	-0.270*	-0.131*
11	IndDirect Number	-0.019	0.054	0.081	-0.108*	-0.014	0.053	0.228*	-0.007
12	YtoY	-0.076	-0.043	-0.050	0.047	-0.085	-0.061	-0.011	-0.056
13	FamRatio_ Exe	0.030	-0.015	-0.025	-0.009	0.050	-0.010	-0.109*	-0.001
14	Control Proportion	0.191*	0.131*	0.094*	-0.044	0.205*	0.160*	-0.089*	-0.029
15	Balance Indicators	-0.031	-0.085	-0.033	-0.064	-0.132*	-0.138*	-0.002	-0.028
16	Manageme nt Generation s	0.057	0.089*	0.115*	-0.049	-0.008	0.059	0.113*	0.178*
	Variable	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
9	DtoA	1							

Table2 (Continued)

10	RDRatio	-0.305*	1						
11	IndDirectNumber	0.151*	0.013	1					
12	YtoY	0.031	0.068	-0.002	1				
13	FamRatio_Exe	-0.083	-0.021	0.008	-0.057	1			
14	Control Proportion	-0.117*	-0.065	-0.113*	-0.051	0.219*	1		
15	Balance Indicators	0.164*	-0.091*	0.007	-0.007	-0.083	0.196*	1	
16	Management Generations	0.019	-0.078	0.032	0.040	-0.072	-0.002	0.051	1

Note: correlations significant at $p<0.05$ are marked *.

4 Analysis and Results

To test my hypotheses, I ran panel regression fixed effects estimations of the impact of CEO compensation and compensation gap on firm performance. Hausman tests were performed in advance and produced statistically significance, suggesting that fixed-effect models were more appropriate than random-effect models(in model 1,$\chi 2$=93.33; in model 2, $\chi 2$=91.45).Thus, I included firm fixed effects so that I can control unobserved firm-level attributes which could have affected the results. Regression results are reported in Table3 and Table 4.

Table 3 reports the results of hypothesis 1. The coefficient of CEO compensation is positive and significant for the non-family CEO, indicating that firm performance is positively related to the compensation level of the non-family CEO, which is consistent with my prediction. Besides, the regression result also confirms that firm age, Debt to

Asset Ratio, the ratio of R&D inputs of total revenue, and balance between large shareholders could also have an impact on firm performance

Table 3 Panel regression analysis of CEO compensation impact on ROA

	ROA
Sal_CEO	0.013**
	(0.01)
Lag_ROA[12]	0.003***
	(0.00)
Lag_EPS	
FirmSize	-0.005
	(0.01)
Firmage	-0.009**
	(0.00)
DtoA	-0.050**
	(0.02)
RDRatio	-0.539***
	(0.17)
IndDirectNumber	0.011
	(0.01)
YtoY	0.001
	(0.00)
FamRatio_Exe	0.046
	(0.06)
ControlProportion	-0.000
	(0.00)
BalanceIndicators	0.005*
	(0.00)
ManagementGenerations	0.001
	(0.00)
Year	Control
_cons	0.083
	(0.24)
N	509
R-squared(Within)	0.273

Standard errors are in parentheses, computed using the heteroscedasticity robust standard error, clustered by firm. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

[12] Note that including the lagged dependent variable here may cause the OLS estimates with fixed effect to be biased because the fixed effects and the lagged dependent variables are correlated by construction.So does the following models.

Next, I ran the regression to see how the compensation gap between family members and non-family CEOs could impact firm performance. Results are reported in Table4. Coefficients of the compensation gap are positive and significant, thus hypothesis 2 is supported.

Table 4 Panel regression analyses of Pay dispersion's impact on ROA

	ROA
PayGap1	0.158***
	(0.03)
Lag_ROA	0.285***
	(0.09)
Lag_EPS	
FirmSize	-0.453
	(0.91)
Firmage	-0.833**
	(0.39)
DtoA	-6.000**
	(2.43)
RDRatio	-52.474***
	(18.17)
IndDirectNumber	1.031
	(0.79)
YtoY	0.222
	(0.24)
FamRatio_Exe	3.486
	(6.33)
ControlProportion	-0.008
	(0.05)
BalanceIndicators	0.496*
	(0.28)
ManagementGenerations	0.264
	(0.34)
Year	Control
_cons	24.996
N	509
R-squared(Within)	0.274

Standard errors are in parentheses, computed using the heteroscedasticity robust standard error, clustered by firm. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

5 Robustness Check

To establish the robustness of our results, I performed an additional test using an alternative measure of the compensation gap. Following (Hu et al., 2013), I adopted the log of difference between CEO compensation and average family compensation as the compensation gap[13]. The results are reported in Table 5. Consistent with the findings in Table 4, firm performance is positively related to the compensation gap. Both the compensation variable in hypothesis 1 and the compensation gap variable here are in logarithmic form, and the coefficients of compensation are smaller than the coefficients of the log-transformed pay gap, indicating that the impact of compensation gap may be greater than the impact of compensation level of non-family CEO.

Table 5 Robustness check- Alternative measure of compensation gap

	ROA
PayGap2	2.490*
	(1.48)
Lag_ROA	0.266***
	(0.08)
Lag_EPS	
FirmSize	-0.426
	(0.91)
Firmage	-0.835**
	(0.41)
DtoA	-5.981**
	(2.49)
RDRatio	-52.722***
	(18.07)
IndDirectNumber	0.968
	(0.75)
YtoY	0.187
	(0.24)
FamRatio_Exe	2.678
	(6.23)

[13] $\text{PayGap} = \text{Log}(\text{CEO pay} - \text{Family pay})$

Table5 (Continued)

ControlProportion	-0.002
	(0.04)
BalanceIndicators	0.487*
	(0.29)
ManagementGenerations	0.222
	2.490*
Year	Control
_cons	5.499
N	509
R-squared(Within)	0.262

Standard errors are in parentheses, computed using the heteroscedasticity robust standard error, clustered by firm. ***, ** and * indicate significance at the 1%, 5% and 10% levels respectively.

6 Discussion

In this paper, I studied how the incentive compensation for non-family CEO and their compensation gap with family executives could impact firm performance in the Chinese market. Existing research has provided suggestions on how to formulate an incentive compensation system for family firms who hire external CEOs, but previous studies have not studied how the compensation of external CEOs affects corporate performance.My empirical results show that. on average, increasing CEO compensation will improve corporate performance of family firms with a non-family CEO. This indicates that the compensation incentive mechanism implied by agency theory for non-family CEO is effective. However, although non-family CEOs are motivated to contribute at a higher level as they are paid more, the overall compensation design for these professional CEOs is not fairly equity compared with those in other public firms. Family firms have a dispersed distribution of compensation gap, with quite a several firms having family members receiving more cash compensation than non-family CEOs, which is certainly uncommon in other public firms. Regarding the compensation gap between non-family CEO and family executives, I find the relationship between the compensation gap and firm performance is positive.This demonstrates that not only the absolute level of non-family CEO compensation but also the relative level compared to family members could impact firm performance. The more compensation paid for non-family CEO relative to family executives, the better the firm performance. Although the model supported by tournament theory can also reach to the same conclusion, my interpretation of the empirical result is that the positive effect on the firm performance does not come from the tournament incentive, because family firms do not meet relevant requirements. Non-family CEO does not have certain important opportunities such as obtaining equity and further promotion.They do not have equal opportunity for some benefits compared with family members due to family nepotism. Under this circumstance, the compensation gap between non-family CEO and family members act as an offset of their less opportunity and less-fair working environment than in other public firms. Recall the critical characteristics of family firms: altruism, nepotism, lack of delegation, and founder-centric culture.Along with limited opportunities and unfair competition, and unfair compensation under these circumstances will cause them to withhold effort, increases the cost of monitoring agent's behavior, and leads to a negative impact on firm performance. While a relative higher compensation than family members compensate for the family bias, alleviating the agency problem to some extend. When non-family CEOs are less paid than family members, the larger the gap, the stronger the injustice they perceive, causing a decrease in CEO productivity and team cohesion, and ultimately lead to a decrease in performance; When non-family CEOs are more paid than family members, the injustice perception is offset by the compensation gap, the more they are paid, the more they perceive fairness and motivated to work harder and contribute more, leading to an improvement on firm performance.

7 Conclusion

This paper studied how the absolute and relative levels of non-family CEO compensation in Chinese family firms affect firm performance.My empirical results show that both the absolute level of non-family CEO compensation and the pay gap between non-family CEO and family executives will have a positive impact on ROA of family firms, with the effect of pay gap greater than that of compensation level.

7.1 Contribution

My empirical results reflect the current situation of Chinese family firms to some extent. Despite the increased demand for professional managers, the problem of adverse selection is still common in family firms, and family owners sometimes make decisions based on nepotism.This puts non-family CEOs at disadvantage, giving them less incentive to compete with or monitor other's behavior. In the meantime, unfair treatment to non-family CEO will lead to serious moral hazard. Our advice to those Chinese family owners who already have a professional manager or are planning to have one in the future is that, not only do they need to tie the incentive compensation for professional CEOs to performance, they also need to provide competitive compensation for non-family CEOs compared to family members, making the distribution in a way that could have a positive effect on the perception of fairness of professional managers, thereby reducing agency costs and achieving effective governance.

7.2 Limitation

Due to the limitations of our research in terms of data and research perspectives, there are still some deficiencies need to be further improved in subsequent studies. First of all, although my goal is to study the impact of compensation on firm performance and it is commonly acknowledged that two core issues of setting CEO compensation are the compensation level and compensation structure, this study only studied the compensation level of the cash compensation disclosed in the 10-K because some long-term incentives such as stocks and stock options are rarely applicable in current Chinese family firms. Therefore, once applicable in future research, more abundant compensation data can be added to obtain a more reliable research conclusion on the impact of compensation structure on firm performance. Secondly, the CEO's characteristics such as age, education are not included in my control variables because this information is not available in annual reports, and the accuracy of information founded on social media can not be guaranteed. Subsequent research can continue to explore the impact of these factors on the results to reach more accurate conclusions.

References

Adams, J. S. (1963). Towards an understanding of inequity. *The Journal of Abnormal and Social Psychology, 67*(5), 422.

Al-Matari, E. M., Al-Swidi, A. K., Fadzil, F. H., & Al-Matari, Y. A. (2012). The impact of board characteristics on firm performance: Evidence from nonfinancial listed companies in Kuwaiti Stock Exchange. *International Journal of Accounting and Financial Reporting, 2*(2), 310-332.

Al-Zu'bi, H. A. J. I. J. o. B., & Management. (2010). A study of relationship between organizational justice and job satisfaction. *5*(12), 102.

Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *63*(1), 1-18. doi:10.1111/j.2044-8325.1990.tb00506.x

Anderson, R. C., & Reeb, D. M. (2003). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500. *58*(3), 1301-1328. doi:10.1111/1540-6261.00567

Anderson, R. C., & Reeb, D. M. (2003). Founding‐family ownership and firm performance: evidence from the S&P 500. *The journal of finance, 58*(3), 1301-1328.

Anderson, R. C., & Reeb, D. M. (2004). Board Composition: Balancing Family Influence in S&P 500 Firms. *49*(2), 209-237. doi:10.2307/4131472

Aronoff, C., & Ward, J. (2011). More Than Family: Non-family Executives in the Family Business. doi:10.1057/9780230116160

Aronoff, C. E., McClure, S. L., & Ward, J. L. (1993). *Family Business Compensation*.

Astrachan, J., Keyt, A., Lane, S., & Yarmalouk, D. J. P. F.-i. H. (2002). Non-family CEOs in the family business: Connecting family values to business success. 183-199.

Brick, I. E., Palmon, O., & Wald, J. K. (2006). CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance, 12*(3), 403-423. doi:https://doi.org/10.1016/j.jcorpfin.2005.08.005

Brunello, G., Graziano, C., & Parigi, B. (2001). Executive compensation and firm performance in Italy. *International Journal of Industrial Organization, 19*(1), 133-161. doi:https://doi.org/10.1016/S0167-7187(99)00026-0

Cheng, Q. (2014). Family firm research – A review. *China Journal of Accounting Research, 7*(3), 149-163. doi:https://doi.org/10.1016/j.cjar.2014.03.002

Claessens, S., Djankov, S., & Lang, L. H. (2000). The separation of ownership and control in East Asian corporations. *Journal of Financial Economics, 58*(1-2), 81-112.

Cohen-Charash, Y., & Spector, P. E. (2002). The role of justice in organizations: A meta-analysis: Erratum.

Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a Stewardship Theory of Management. *The Academy of Management Review, 22*(1), 20-47. doi:10.2307/259223

Downes, P. E., & Choi, D. (2014). Employee reactions to pay dispersion: A typology of existing research. *Human Resource Management Review, 24*(1), 53-66. doi:https://doi.org/10.1016/j.hrmr.2013.08.009

Gomez-Mejia, L. R., Larraza-Kintana, M., & Makri, M. (2003). The Determinants of Executive Compensation in Family-Controlled Public Corporations. *The Academy of Management Journal, 46*(2), 226-237. doi:10.2307/30040616

Gupta, N., Conroy, S. A., & Delery, J. E. (2012). The many faces of pay variation. *Human Resource Management Review, 22*(2), 100-115. doi:https://doi.org/10.1016/j.hrmr.2011.12.001

Hu, F., Pan, X., & Tian, G. (2013). Does CEO pay dispersion matter in an emerging market? Evidence from China's listed firms. *Pacific-Basin Finance Journal, 24*, 235-255. doi:https://doi.org/10.1016/j.pacfin.2013.07.003

Janssen, O., & Van Yperen, N. W. J. A. o. m. j. (2004). Employees' goal orientations, the quality of leader-member exchange, and the outcomes of job performance and job satisfaction. *47*(3), 368-384.

Jensen, M. C., & Meckling, W. H. (1979). Theory of the firm: Managerial behavior, agency costs, and ownership structure. In *Economics social institutions* (pp. 163-231): Springer.

Jiang, H., Habib, A., & Smallman, C. (2009). The effect of ownership concentration on CEO compensation‐firm performance relationship in New Zealand. *Pacific Accounting Review*.

Kato, T., Kim, W., & Lee, J. H. (2007). Executive compensation, firm performance, and Chaebols in Korea: Evidence from new panel data. *Pacific-Basin Finance Journal, 15*(1), 36-55. doi:https://doi.org/10.1016/j.pacfin.2006.03.004

Kato, T., & Kubo, K. (2006). CEO compensation and firm performance in Japan: Evidence from new panel data on individual CEO pay. *Journal of the Japanese and International Economies, 20*(1), 1-19. doi:https://doi.org/10.1016/j.jjie.2004.05.003

Kelly, L. M., Athanassiou, N., & Crittenden, W. F. (2000). Founder Centrality and Strategic Behavior in the Family-Owned Firm. *Entrepreneurship Theory and Practice, 25*(2), 27-42. doi:10.1177/104225870002500202

Klein, S., & Bell, F.-A. J. E. J. o. F. B. S. (2007). Non-family executives in family businesses: A literature review.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *The Journal of Law, Economics, and Organization, 15*(1), 222-279.

Lazear, E. P., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy, 89*(5), 841-864.

Lee, J. (2003). A canonical correlation analysis of CEO compensation and corporate performance in the service industry. *Review of Accounting and Finance*.

Lilling, M. S. (2006). The link between CEO compensation and firm performance: Does simultaneity matter? *Atlantic Economic Journal, 34*(1), 101-114.

Lin, S.-h., & Hu, S.-y. (2007). A Family Member or Professional Management? The Choice of a CEO and Its Impact on Performance. *15*(6), 1348-1362. doi:10.1111/j.1467-8683.2007.00650.x

Lubatkin, M. H., Ling, Y., & Schulze, W. S. (2007). An Organizational Justice-Based View of Self-Control and Agency Costs in Family Firms. *44*(6), 955-971. doi:10.1111/j.1467-6486.2006.00673.x

Madison, K., Daspit, J. J., Turner, K., & Kellermanns, F. W. (2018). Family firm human resource practices: Investigating the effects of professionalization and bifurcation bias on performance. *Journal of Business Research, 84*, 327-336. doi:https://doi.org/10.1016/j.jbusres.2017.06.021

Maury, B. (2006). Family ownership and firm performance: Empirical evidence from Western European corporations. *Journal of Corporate Finance, 12*(2), 321-341.

McConaughy, D. L. (2000). Family CEOs vs. Nonfamily CEOs in the Family-Controlled Firm: An Examination of the Level and Sensitivity of Pay to Performance. *13*(2), 121-131. doi:10.1111/j.1741-6248.2000.00121.x

Miller, D., Le Breton-Miller, I., Minichilli, A., Corbetta, G., & Pittino, D. (2014). When do Non-Family CEOs Outperform in Family Firms? Agency and Behavioural Agency Perspectives. *51*(4), 547-572. doi:10.1111/joms.12076

Miller, D., Minichilli, A., & Corbetta, G. (2013). Is family leadership always beneficial? *, 34*(5), 553-571. doi:10.1002/smj.2024

Padgett, M. Y., & Morris, K. A. (2005). Keeping it "All in the Family:" Does Nepotism in the Hiring Process Really Benefit the Beneficiary? *Journal of Leadership & Organizational Studies, 11*(2), 34-45. doi:10.1177/107179190501100205

Pepper, A. (2019). Behavioural Agency Theory. In *Agency Theory and Executive Pay: The Remuneration Committee's Dilemma* (pp. 101-116). Cham: Springer International Publishing.

Pieper, T. M. (2007). *Mechanisms to assure long-term family business survival: A study of the dynamics of cohesion in multigenerational family business families*: Peter Lang Frankfurt.

Raithatha, M., & Komera, S. (2016). Executive compensation and firm performance: Evidence from Indian firms. *IIMB Management Review, 28*(3), 160-169. doi:https://doi.org/10.1016/j.iimb.2016.07.002

Schulze, W. S., Lubatkin, M. H., & Dino, R. N. (2002). Altruism, agency, and the competitiveness of family firms. *Managerial and Decision Economics, 23*(4‐5), 247-259. doi:10.1002/mde.1064

Sieger, P., Bernhard, F., & Frey, U. (2011). Affective commitment and job satisfaction among non-family employees: Investigating the roles of justice perceptions and psychological ownership. *Journal of Family Business Strategy, 2*(2), 78-89. doi:https://doi.org/10.1016/j.jfbs.2011.03.003

Stanwick, P. A., & Stanwick, S. D. (2001). CEO compensation: does it pay to be green? *Business Strategy and the Environment, 10*(3), 176-182. doi:10.1002/bse.284

Suls, J., & Wheeler, L. (2013). *Handbook of social comparison: Theory and research*: Springer Science & Business Media.

Sun, F., Wei, X., & Huang, X. (2013). CEO compensation and firm performance. *Review of Accounting and Finance*.

Van Dyne, L., & Pierce, J. L. (2004). Psychological ownership and feelings of possession: Three field studies predicting employee attitudes and organizational citizenship behavior. *25*(4), 439-459.

Westhead, P., & Cowling, M. (1998). Family firm research: The need for a methodological rethink. *Entrepreneurship Theory and Practice, 23*(1), 31-56.

Yang, Q., Huang, T., Steven, T., & Buscin, Y. B. (2010). 中国上市公司 CE O 薪酬存在激励后效吗? *Financial Research, 355*, 165.

Zhang, W., Chen, L., & Zhu, J. a. (2018). Are non-family managers more worried about pay inequity? Impact of CEO Identity on pay dispersion between CEO and non-family managers.

Zhang, W., Chen, L., & Zhu, J. a. (2018). Are non-family managers more worried about pay inequity?—Impact of CEO identity on pay dispersion between CEO and non-family managers. *Journal of business economics, 325*.