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## Article

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# Geographical relationships and CEO compensation contracts



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## ABSTRACT

In this paper, we empirically analyze the effects that the geographical relationships between chairman and CEO have on the latter's compensation contracts, based on samples of listed A-share private firms from 2005 to 2014. We find that geographical relationships are related to lower pay–performance sensitivity, and that the correlation mainly exists in poor performance periods, suggesting that geographical relationships weaken the effectiveness of compensation contracts. We also find that geographical relationships can be substituted by external formal institutions.

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## 1. Introduction

CEO compensation contracts lie at the core of firm governance. Effective contracts relieve the agency problems that stem from a separation between ownership and management (Jensen and Meckling, 1976; Jensen and Murphy, 1990). However, the compensation contract is not a perfect tool for situations involving information asymmetry and limited rationality. CEOs tend to take opportunistic actions in their pursuit of private benefits, and shareholders rarely know that it is happening. From a Western perspective, agency problems are thought to be solved by external institutions. Yet while perfect property protection systems and legal mechanisms can improve contract enforcement (Williamson, 1985), emerging and transitioning environments such

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as China cannot provide complete external institutional control, which can lead to inadequate property protection and legal penalty mechanisms (Chalos and O'Connor, 2004). As such, some studies treat social relationships as an alternative mechanism, as they provide motivation and reduce information asymmetry. The possible positive effects of social relationships are referred to as the substitution hypothesis (Wang, 2005; Zhao and Lv, 2015). Other research finds that social relationships reduce boards' supervision effectiveness. The possible negative effects of social relationships are referred to as the weakening hypothesis (Core et al., 1999; Hwang and Kim, 2009). In this paper, we test which of the aforementioned hypotheses is deterministic.

This paper focuses on representative social and geographical relationships to test their effects on compensation contracts. Geographical relationships are generated by one's proximity to another. From a sociological perspective, Chinese society is constructed through classifications and relationships. Classifications are the most fundamental informal social construct upon which relationships are built (Pan, 2000). "Countryman" is a common classification. As Fei (1948) says, Chinese social relationships form concentric circles, with home in the center. In addition to genetic relationships, geographical relationships and clanship are also important in China (Ma, 2008). In contrast to Zhao and Lv (2015), who focus on genetic relationships, we doubt the universality of altruism in genetic relationships (Wang et al., 2014; Wei and Chen, 2015). Compared with academic and colleague relationships, for which there is relatively little information, the effects of geographical relationships on contracts have been recorded (Cai et al., 2008) and are common in practice (Lu and Hu, 2014). Some studies find that geographical relationships influence economic behavior. For instance, informal financial organizations in Wenzhou built a credit network using geographical relationships to ultimately lower credit rates (Guo and Liu, 2002). However, geographical relationships can also increase firm risk (Lu and Hu, 2014) and reduce the effectiveness of internal control (Yu et al., 2017). Thus, the effects of social relationships on compensation contracts deserve to be explored.

We empirically analyze the effects of geographical relationships on the effectiveness of compensation contracts (compensation–performance sensitivity, also known as pay–performance sensitivity). We show that the sensitivity is lower in firms with geographical relationships. To distinguish between the substitution hypotheses and weakening hypotheses, we test the compensation stickiness and performance. According to the weakening hypothesis, geographical relationships can increase compensation stickiness. If geographical relationships act as umbrellas for CEOs' self-serving behavior, then compensation–performance sensitivity should only decrease in declining performance periods. According to the substitution hypothesis, CEO supervision does not rely on compensation contracts, and as such the reduction in compensation–performance sensitivity should be bi-directional. Our empirical result shows that the weakening effects of geographical relationships are only significant in declining periods, which supports the weakening hypothesis. We also test for the cross-sectional differences in institutions and find that the weakening effect is only significant in poor external institutions, indicating that governing by relationships may not be as powerful as doing so by institutional constraints. The abovementioned results remain robust after eliminating alternative mechanisms and endogeneity.

Our research makes several contributions to the literature. First, it supplements the relevant work being conducted in emerging and transitional markets. Studies on the effects of social relationships on compensation are largely based on developed markets (Core et al., 1999; Hwang and Kim, 2009; Fracassi and Tate, 2012). We also distinguish between two possible hypotheses and show how geographical relationships weaken CEO supervision. Second, unlike the research that focuses on clanship (Zhao and Lv, 2015), we explore geographical relationships to achieve a more universal conclusion. Finally, we emphasize the effectiveness of formal institutions to help guide regulators.

The remainder of this paper is organized as follows. The second section features a literature review, the third presents our theory and hypotheses, the fourth covers the research design, the fifth shares the empirical results and the final section concludes the paper.

## 2. Literature review

### 2.1. Board of directors and manager compensation

Early research is characterized by its focus on the effect of board structure on compensation contract effectiveness (Cyert et al., 1997), with board size as a deterministic factor of CEO variable compensation. When the

CEOs also serve as chairpersons, their compensation is typically 20–40% higher than average. Moreover, CEO compensation is negatively related to board shareholdings, and [Brickley et al. \(1997\)](#) confirm the positive relationship between duality and higher payment. [Core et al. \(1999\)](#) measure board effectiveness using an eight-structure index with items such as CEO–director separation and board size. They find that board effectiveness is negatively related to CEO payment. [Cordeiro and Veliyath \(2003\)](#) show that the ratio of independent directors is positively related to CEO cash payment. [Chhaochharia and Grinstein \(2009\)](#) reveal that following the Sarbanes–Oxley Act (2002), increases in independent director ratios lead to reduced CEO compensation.

Some Western studies explore the effect of boards on managerial compensation from a social network perspective. They suppose that every economic organization and person exists within a social network, such that all decisions are influenced by others and a firm's governance is influenced by its network. [Core et al. \(1999\)](#) show that in firms where the directors have more extensive external social relationships, CEO compensation is excessive, and ultimately damages managerial supervision. [Larcker et al. \(2005\)](#) confirm that in firms with social directors, CEO compensation is significantly higher, but future business performance is poorer. Some studies discuss how the private relationships between directors and CEOs affect managerial compensation. [Hwang and Kim \(2009\)](#) measure the private relationships between directors and CEOs based on army service experience, graduation from the same college, shared hometowns and shared major acquaintances. In firms where the directors have no private relationships with the CEOs, the latter's compensation is lower (reduced by \$3.3 million on average). In firms where the directors and CEOs share private relationships, the latter's compensation– and layoff–performance sensitivity are lower. [Engelberg et al. \(2013\)](#) find that the presence of private relationships between CEOs and directors is related to higher CEO payment (increased by \$17,000 on average), based on 2700 CEOs of large listed firms from 2000 to 2007. [Faleye et al. \(2011\)](#) confirm that private relationships between directors and managers increase managers' compensation. [Armstrong et al. \(2006\)](#) show that in firms where directors and managers share private relationships, compensation is higher, but future firm performance is poor.

## 2.2. Geographical relationships and firm behavior

In China, relationship culture is deeply rooted in the public psyche and thus tends to dominate behavior. [Lin and Sun \(2005\)](#) find that in situations lacking formal institution, geographical relationships can reduce search and trust costs between organizations and improve informal finance development. [Guo and Liu \(2002\)](#) find that geographical relationships provide informal financial institutions in Wenzhou with adequate information about the operating conditions, backgrounds and credit of mid- and small-sized firms, which reduces the credit risk. This also relieves the small-to-medium enterprise financing problem. Close relationships between shareholders and managers also largely reduce supervision costs and the likelihood of negative behavior. [Liu and Chen \(2012\)](#) also show that informal financial institutions in Wenzhou use social relationships to reduce credit risk. Industry clusters formed from geographical relationships benefit from the continuous interaction between firms and economy of scale ([Li, 2008](#)). However, there has been little research on internal geographical relationships' effects on internal behavior. [Lu and Hu \(2014\)](#) discuss the geographical relationships between directors and CEOs at the firm risk level and find that firms with them suffer higher financial risk and more takeovers.

Some researchers are aware of the effects that geographical relationships have on compensation contracts. Some studies show that such relationships have wide-reaching and profound effects when external institutions are inadequate. However, there is not enough research in the Chinese context, which makes our research both valuable and necessary.

## 3. Theory and hypotheses

### 3.1. Geographical relationships and the effectiveness of compensation incentives

Research on geographical relationships and how they influence the effectiveness of compensation incentives can be conducted from two sides: supervision and incentive.

From the supervision side, social relationships weaken contract enforcement. Social norms replace formal regulations in guiding behavior (Uzzi, 1996). Social relationships can reduce directors' independence and CEOs' sense of responsibility to maximize shareholders' benefits. For instance, Hwang and Kim (2009) find that in firms where the directors and CEOs have private relationships, the payment- and lay-off-performance sensitivities are lower. Kramarz and Thesmar (2013) also find that CEOs with private relationships are less likely to be replaced for poor performance. Lu and Hu (2014) show that in firms with geographical relationships, director supervision is relaxed, increasing firm risk. These results suggest that social relationships can reduce directors' supervision incentives, which may reduce the effectiveness of compensation contracts.

From the incentive side, both compensation contracts and social relationships can provide incentives for CEOs to reduce agency costs. Becker (1974, 1976) proposes altruism incentives. When family members serve as CEOs, the clanship can provide incentives to reduce dependence on compensation contracts (Zhao and Lv, 2015). Social relationships can also protect reputations. Pan (2000) shows that the social relationship between two individuals is also an indication of individual existence in certain groups. For example, in a geographical relationship, both parties are from the same hometown group, and any opportunistic behavior may damage a member's reputation in the group (Standifird and Marshall, 2000). Finally, social relationships reduce information asymmetry (Adams and Ferreira, 2007), as directors' are less likely to demand accounting numbers by which to judge CEO performance (Yang et al., 2014). Thus, from the incentive side, social relationships reduce the demand for compensation contracts, along with their effectiveness.

Both the weakening hypothesis and the substitution hypothesis suggest that social relationships reduce the effectiveness of compensation contracts. Hence, we propose the first hypothesis:

**H1.** *Ceteris paribus*, compensation-performance sensitivity is lower in firms with geographical relationships.

### 3.2. Weakening or substitution?

Both the weakening hypothesis and the substitution hypothesis refer to lower compensation-performance sensitivity, but the effects of geographical relationships on compensation contract effectiveness differ between them. Compensation stickiness can be a good entry point to distinguish between the two hypotheses. Under the supervision hypothesis, geographical relationships reduce director supervision, resulting in lower compensation-performance sensitivity during poor performance periods because the ineffectiveness makes CEOs more likely to behave opportunistically. When firm performance is poor, CEOs tend to protect their own benefits first, keeping compensation high despite the drop in performance. When firm performance is good, CEOs may pursue higher compensation, creating a positive relationship. Under the substitution hypothesis, geographical relationships provide CEOs with incentives to reduce their self-serving behavior. Then, the payment-performance sensitivity is low, regardless of firm performance. Meanwhile, if geographical relationships become the protection system in a hometown group, the reputation-pursuing incentive drives CEOs to decrease their self-serving behavior. Finally, as Ouchi (1980) and Adams and Ferreira (2007) mention, geographical relationships can reduce information asymmetry and make performance judgments independent of financial numbers, reducing payment-performance sensitivity independent of firm performance.

Accordingly, we propose two alternative hypotheses:

**H2a.** *Ceteris paribus*, the negative connection between geographical relationship and compensation-performance sensitivity only exists in poor performance periods.

**H2b.** *Ceteris paribus*, the negative connection between geographical relationship and compensation-performance sensitivity exists both in good and poor performance periods.

## 4. Research design

### 4.1. Sample and data sources

In terms of CEO compensation, we focus on CEOs' salaries because stock-based incentives are not common at present, and salaries are still the primary composition of executive compensation (Xin et al., 2007; Fang, 2009).

We use the private listed companies that issued A-shares from 2005 to 2014 as the initial sample. We exclude (1) companies with incomplete board chairman and CEO information; (2) companies with a dual chairman/CEO; (3) financial and insurance firms; (4) special treatment (ST) or particular transfer (PT) firms; (5) companies where the chairman and the CEO are the same person; and (6) companies for which financial data are missing. Our final sample includes 4017 firm-year observations for the 2005–2014 period. To avoid the effects of extreme values, all of the continuous variables are winsorized at both the top and bottom percentiles.

Using executive information (name list, tenure, etc.) from the China Stock Market and Accounting Research (CSMAR) listed company database, we manually collect personal information from prospectuses, annual reports, company Websites, the SINA Finance website and other public channels. To characterize the strength of the geographical relationship, we quantify the distance (proximity) between the chairman and the CEO using the latitude and longitude of his or her birth location using Google Earth. We then obtain external governance circumstance data from the Fan et al. (2011) marketization index. Other financial data are from the CSMAR databases.

### 4.2. Empirical model and variable constructions

Following the compensation model developed by Xin and Tan (2009) and Fang (2009), we estimate the following regression model:

$$\text{Comp}_{it} = \beta_0 + \beta_1 \text{Geodist}_{it}(\text{Province}_{it}) + \beta_2 \text{ROA}_{it} + \beta_3 \text{Geodist}_{it}(\text{Province}_{it}) * \text{ROA}_{it} + \beta_{4-12} \text{Control Variables}_{it-1} + \varepsilon_t$$

The dependent variable, Comp, refers to the CEO's compensation. The independent variables refer to the geographical relationships, and we proxy for these connections using two variables: Province and Geodist. Province is an indicator variable that is equal to 1 if the birthplaces of the board chairman and the CEO are in the same province, and 0 otherwise. Geodist is the negative distance between the birthplaces of the board chairman and the CEO. All of the variables are as defined in Table 1.

## 5. Results

### 5.1. Descriptive statistics

Table 2 presents our descriptive data. The mean and standard deviation (SD) of CEO compensation (Comp) are 12.63 and 0.86, respectively. The mean and SD of geographical relationship (Province) are 0.46 and 0.50, respectively. Geodist, another indicator of geographical relationships, has a minimum value of 11.89, a maximum value of 0, a mean of 0.54 and an SD of 0.71, indicating a larger difference in the geographical relationship between board chairpersons and CEOs. In addition, the mean of return on assets (ROA) is 0.04, with a median ROA of 0.03, suggesting that the majority of the firms are profitable.

### 5.2. Empirical results

Based on Model 1, we use a regression and a two-way cluster (in the firm and two standard error dimensions) to test our hypotheses, and the results are as follows.

Table 1  
Variable definitions.

Name	Definition
Comp	Natural log of CEO compensation
Province	Indicator variable that is equal to 1 if the birthplaces of the board chairman and the CEO are in the same province, and 0 otherwise
Geodist	Negative distance between the birthplaces of the board chairman and the CEO (mileage)
Law	Marketization index of 'market intermediary organizations and the legal system environment index' from the <a href="#">Fan et al. index (2011)</a>
Size	Natural log of total assets
Lev	Total liabilities divided by total assets
ROA	Net income divided by total assets
RET	Stock market annual return rate
Listage	Number of years the firm has been listed
First	First major shareholders' holdings divided by the total number of shares
Growth	Average sales growth over the past two years
Age	CEO's age
Degree	Indicator variable that is equal to 1 if the CEO has had higher education experience, and 0 otherwise
Gender	Indicator variable that is equal to 1 if the CEO is male, and 0 otherwise
Director_totco	Number of positions in other company
Year	Year control variable
Industry	Industry control variable

Table 2  
Descriptive statistics.

Variable	N	Mean	Std	Min	Lower quartile	Median	Upper quartile	Max
Comp	4017	12.63	0.86	4.94	12.11	12.69	13.20	16.12
Province	4017	0.46	0.50	0	0	0	1	1
Geodist	4017	-0.54	0.71	-11.89	-1.05	-0.30	0	0
Law	4017	8.71	1.93	4.81	7.27	8.77	10.42	11.80
Size	4017	21.71	1.14	19.27	20.88	21.60	22.39	25.14
Lev	4017	0.50	0.20	0.08	0.36	0.51	0.64	0.97
ROA	4017	0.04	0.06	-0.19	0.01	0.03	0.06	0.22
RET	4017	0.38	0.96	-0.75	-0.28	0.03	0.80	4.03
Listage	4017	12.47	4.44	0	9	12	16	30
First	4017	0.38	0.15	0.09	0.26	0.36	0.50	0.75
Growth	4017	0.21	0.49	-0.65	-0.01	0.14	0.30	3.20
Age	4017	46.87	5.92	33	43	47	51	61
Degree	4017	0.35	0.48	0	0	0	1	1
Gender	4017	0.95	0.22	0	1	1	1	1
Director_totco	4017	1.00	2.10	0	0	0	1	11

Table 3 presents the regression results of the effects of geographical relationships on compensation–performance sensitivity. The second and fourth columns report the results after controlling for correlated variables. As the results show, the coefficient on the interaction terms between Province and ROA is negative and significant at the 5% level, regardless of controls or other correlated variables. Similarly, we find that the coefficient on the interaction terms between Geodist and ROA is negative and significant at the 1% level. Taken together, these results provide some support for H1, that geographical relationships decrease compensation–performance sensitivity, consistent with the previous research.

We further find that the adverse effects of geographical relationships on compensation–performance sensitivity are caused by monitoring decreases in the effectiveness of the board, or the alternative role played by geographical relationships in relation to compensation contracts. Table 4 reports the results.

Columns 1 and 2 of Table 4 present the effects that geographical relationships have on compensation–performance sensitivity when performance is good (higher than last year). As the results show, the coefficients on

Table 3  
Geographical relationships and CEO compensation.

	(1)	(2)	(3)	(4)
Province * ROA	-0.775** (-2.08)	-0.804** (-2.55)		
Geodist * ROA			-0.682*** (-2.92)	-0.594*** (-2.82)
Province	-0.036 (-1.16)	0.008 (0.31)		
Geodist			-0.027 (-1.30)	-0.039** (-2.21)
ROA	4.426*** (12.08)	3.980*** (10.82)	4.349*** (8.44)	3.248*** (10.15)
Law		0.088*** (7.25)		0.089*** (7.36)
Size		0.212*** (13.03)		0.211*** (13.12)
Lev		0.031 (0.36)		0.034 (0.41)
RET		-0.008 (-0.49)		-0.007 (-0.46)
Listage		-0.003 (-0.80)		-0.0037 (-0.85)
First		-0.426*** (-3.61)		-0.4150*** (-3.52)
Growth		-0.046* (-1.68)		-0.0463* (-1.77)
Age		0.011*** (4.00)		0.0101*** (3.86)
Degree		0.024 (0.68)		0.0225 (0.64)
Gender		0.073 (1.10)		0.0759 (1.17)
Director_totco		0.035*** (4.20)		0.0349*** (4.19)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	11.882*** (111.28)	6.351*** (15.08)	11.925*** (71.09)	6.356*** (15.54)
N	4017	4017	4017	4017
Adj. R <sup>2</sup>	0.239	0.355	0.137	0.357

Standard errors are in brackets.

\* Statistical significance at the 10% level.

\*\* Statistical significance at the 5% level.

\*\*\* Statistical significance at the 1% level.

the interaction terms between geographical relationships and ROA are also negative, but not significant. In contrast, Columns 3 and 4 present the effects of geographical relationships on compensation–performance sensitivity when performance is poor (lower than last year). As the results show, the coefficient on the interaction terms between geographical relationships and ROA is negative and significant ( $p < 0.01$  and  $p < 0.05$ , respectively).

Thus, the negative effects that geographical relationships have on compensation–performance sensitivity only appear in cases of poor performance, supporting H2a. We find that in companies with geographical relationships where the directors' monitoring effectiveness has been reduced, there is less performance–sensitive CEO compensation.



Table 4  
Performance, geographical relationships and CEO compensation.

	Good performance		Poor performance	
	(1)	(2)	(3)	(4)
Province * ROA	-1.019 (-1.56)		-0.924*** (-3.12)	
Geodost * ROA		-0.625 (-1.38)		-0.689** (-2.20)
Province	0.046 (1.21)		-0.010 (-0.45)	
Geodist		-0.029 (-0.75)		-0.045** (-2.18)
ROA	4.600*** (10.62)	3.727*** (7.15)	3.839*** (8.01)	3.006*** (8.23)
Law	0.086*** (6.61)	0.087*** (8.64)	0.090*** (6.41)	0.090*** (9.99)
Size	0.203*** (11.66)	0.201*** (9.07)	0.218*** (10.79)	0.218*** (11.25)
Lev	0.161 (1.37)	0.167 (1.29)	-0.053 (-0.60)	-0.051 (-0.51)
RET	-0.022 (-0.83)	-0.022 (-1.10)	0.009 (0.90)	0.011 (0.42)
Listage	-0.008 (-1.58)	-0.008 (-1.58)	-0.000 (-0.05)	-0.000 (-0.07)
First	-0.382** (-2.13)	-0.371*** (-2.61)	-0.449*** (-3.94)	-0.437*** (-3.66)
Growth	-0.059 (-1.16)	-0.060* (-1.88)	-0.028 (-1.28)	-0.026 (-0.83)
Age	0.010** (2.44)	0.006** (2.52)	0.011*** (4.65)	0.010*** (3.61)
Degree	0.036 (0.76)	0.035 (0.83)	0.012 (0.34)	0.011 (0.30)
Gender	0.137* (1.69)	0.146 (1.48)	0.024 (0.30)	0.023 (0.36)
Director_totco	0.038*** (4.51)	0.038*** (4.31)	0.032*** (3.07)	0.031*** (3.12)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	7.142*** (16.07)	7.208*** (13.69)	6.232*** (13.27)	6.217*** (13.94)
N	1495	1495	2522	2522
Adj. R <sup>2</sup>	0.314	0.317	0.369	0.371

Standard errors are in brackets.

\* Statistical significance at the 10% level.

\*\* Statistical significance at the 5% level.

\*\*\* Statistical significance at the 1% level.

### 5.3. Further analysis and robustness checks

#### 5.3.1. The substitution effect between formal institutions and geographical relationships

Our main analysis shows that geographical relationships have complex effects on CEO compensation. Nevertheless, it is important to determine whether such an informal institution is necessary. Theoretically, if the external formal institutions are perfect, there is no need to resort to the informal institution. In this section, we further test the substitution effect between formal institutions and geographical relationships, as it influences the effects that geographical relationships have on CEO compensation under different institutional environments. As Table 5 shows, geographical relationships only significantly affect CEO compensation in cases of

Table 5  
Geographical relationships and CEO compensation under different institutional environments.

	Good institution		Poor institution	
	(1)	(2)	(3)	(4)
Province * ROA	-0.521 (-0.92)		-0.873** (-2.30)	
Geodost * ROA		-0.586 (-1.37)		-0.563* (-1.73)
Province	-0.073* (-1.85)		0.075* (1.93)	
Geodist		-0.065** (-2.20)		-0.008 (-0.29)
ROA	3.747*** (6.07)	3.152*** (6.74)	4.245*** (12.59)	3.493*** (8.27)
Law	0.105*** (4.15)	0.100*** (4.08)	0.045** (2.25)	0.047** (2.43)
Size	0.214*** (8.54)	0.216*** (8.07)	0.215*** (9.50)	0.213*** (10.12)
Lev	-0.003 (-0.03)	-0.005 (-0.04)	0.101 (1.03)	0.107 (0.81)
RET	0.007 (0.33)	0.009 (0.47)	-0.022 (-0.78)	-0.021 (-0.94)
Listage	0.000 (0.03)	0.001 (0.10)	-0.008 (-1.15)	-0.009 (-1.61)
First	-0.273* (-1.81)	-0.258 (-1.59)	-0.584*** (-4.15)	-0.576*** (-4.16)
Growth	-0.069** (-2.03)	-0.075** (-2.15)	-0.029 (-1.11)	-0.025 (-0.88)
Age	0.007** (2.35)	0.007* (1.89)	0.012*** (3.22)	0.012*** (3.17)
Degree	0.092* (1.77)	0.089* (1.77)	-0.032 (-0.92)	-0.034 (-0.80)
Gender	0.007 (0.09)	0.015 (0.19)	0.138 (1.27)	0.137 (1.33)
Director_totco	0.039*** (4.00)	0.038*** (4.13)	0.030** (2.58)	0.029*** (2.61)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	6.665*** (9.99)	6.147*** (9.50)	7.753*** (13.94)	7.852*** (15.78)
N	2068	2068	1949	1949
Adj. R <sup>2</sup>	0.266	0.269	0.356	0.356

Standard errors are in brackets.

\* Statistical significance at the 10% level.

\*\* Statistical significance at the 5% level.

\*\*\* Statistical significance at the 1% level.

poor institutional environments, suggesting that formal institutions have a substitution effect on geographical relationships.

### 5.3.2. The effects of other types of social connections

A number of recent papers emphasize how other types of social connections (relatives, colleagues, etc.) between executives or directors affect CEO compensation, and as such may affect our conclusion reliability. To account for such a possibility, in this section, we perform two tests. First, following [Zhao and Lv \(2015\)](#), we delete the samples with related connections between board Chairman and CEO. Second, we control for colleague connections by creating a new variable, *Inside*: an indicator variable that is equal to 1 if the CEO

Table 6  
Control for other types of social connections.

	(1)	(2)
Province * ROA	-0.957*** (-2.59)	
Geodist * ROA		-0.737** (-2.37)
Province	0.040 (1.26)	
Geodist		-0.021 (-0.88)
ROA	3.962*** (10.24)	3.082*** (8.60)
Inside	0.074** (2.39)	0.074** (2.03)
Law	0.089*** (6.12)	0.090*** (9.69)
Size	0.207*** (11.96)	0.205*** (10.81)
Lev	0.074 (0.80)	0.075 (0.74)
RET	-0.012 (-1.07)	-0.012 (-0.71)
Listage	-0.002 (-0.34)	-0.002 (-0.40)
First	-0.419*** (-3.47)	-0.409*** (-3.34)
Growth	-0.044 (-1.49)	-0.045* (-1.86)
Age	0.012*** (3.85)	0.011*** (3.50)
Degree	0.031 (0.82)	0.031 (0.83)
Gender	0.105 (1.57)	0.109 (1.42)
Director_totco	0.041*** (5.05)	0.041*** (5.22)
Year	Yes	Yes
Industry	Yes	Yes
Constant	7.215*** (16.77)	7.293*** (15.56)
N	4017	4017
Adj. R <sup>2</sup>	0.349	0.351

Standard errors are in brackets.

\* Statistical significance at the 10% level.

\*\* Statistical significance at the 5% level.

\*\*\* Statistical significance at the 1% level.

comes from inside the company, and 0 otherwise. As Table 6 shows, after excluding other types of social connections, the results are similar to those in Table 3.

### 5.3.3. Endogeneity

A concern with these regressions is endogeneity. To grant our analysis more generality, we extend our analysis by testing whether our results may be driven by omitted variables. We also apply other sample specifications – board chairman or CEO turnover – that lead to changes in geographical relationships. Table 7 presents the results of these tests, which address the concern that our results may be driven by an unobserved characteristic.

Table 7  
Changes in geographical relationships.

	(1)	(2)	(3)	(4)
Province * ROA	-0.708 (-1.40)	-0.629* (-1.78)		
Geodost * ROA			-0.763*** (-3.87)	-0.673** (-2.37)
Province	-0.021 (-0.89)	-0.002 (-0.07)		
Geodist			-0.018 (-0.90)	-0.055*** (-3.02)
ROA	4.012*** (7.88)	3.133*** (7.04)	4.176*** (8.04)	2.470*** (6.03)
Law		0.094*** (5.81)		0.094*** (6.01)
Size		0.238*** (10.41)		0.237*** (10.19)
Lev		-0.066 (-0.78)		-0.060 (-0.71)
RET		-0.011 (-0.41)		-0.011 (-0.44)
Listage		-0.005 (-0.92)		-0.005 (-0.88)
First		-0.508*** (-3.37)		-0.498*** (-3.37)
Growth		-0.044 (-1.53)		-0.042 (-1.49)
Age		0.010*** (4.45)		0.009*** (4.04)
Degree		0.061 (1.55)		0.059 (1.51)
Gender		0.019 (0.18)		0.020 (0.19)
Director_totco		0.035*** (3.07)		0.035*** (3.14)
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Constant	13.014*** (99.08)	6.719*** (10.71)	12.412*** (59.58)	6.715*** (10.66)
N	1616	1616	1616	1616
Adj. R <sup>2</sup>	0.235	0.354	0.134	0.357

Standard errors are in brackets.

\* Statistical significance at the 10% level.

\*\* Statistical significance at the 5% level.

\*\*\* Statistical significance at the 1% level.

## 6. Conclusion

There is growing interest in CEO compensation, both in practice and in the academic literature. Most studies focus on formal institutions, yet due to the traditional social structure and the imperfection of external institutional environments, informal institutions such as *GuanXi* have had widespread influence in corporate governance practices. In this study, we explore whether social connections among board chairpersons and CEOs affect CEO compensation. In particular, we inquire whether geographical relationships influence CEO compensation. Using data on private listed companies that issued A-shares from 2005 to 2014, we find that firms with geographical relationships typically exhibit lower levels of compensation–performance sensitivity. Further testing shows that the effects of geographical relationships only weaken compensation–performance sensitivity significantly in cases of poor performance. These findings suggest that geographical relation-

ships reduce boards' monitoring effectiveness. We also find that geographical relationships only have significant effects on CEO compensation in cases of poor institutional environments and SOE, suggesting that formal institutions have a substitution effect on geographical relationships. Controlling for other types of social connection and endogeneity, our results are also statistically and economically significant.

We analyze the effects of geographical relationships on CEO compensation. In doing so, our work complements the literature by adding a new dimension to our understanding of the factors that affect CEO compensation. Our results highlight the influence that informal institutions can have on firm governance, and the importance of improving external formal institutions.

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