THE STUDY OF RELATIONSHIPS AMONG OFFICE LOCATIONS, CORPORATE GOVERNANCE AND BUSINESS PERFORMANCE: EVIDENCE FROM CHINA LISTED COMPANIES

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ABSTRACT

Purpose - Based on Tobler's first law of geography, this paper applies the concept on friction of distance, and assumes that business performance and corporate governance are interrelated with the locations where the according businesses site their headquarter offices.
Methodology - A Differencing Location Factor survey was designed and used to examine the impacts within. The author first use a multiple regression to analyze Business Performance, then the single-factor and multivariate analysis of variance for Corporate Governance, and the Principal component analysis for comparing the quality of Corporate Governance.
Findings- As per empirical results: 1) Corporate business performance significantly correlates with corporate governance and office locations, with a significant difference between various areas; and 2) For enterprises in China , the quality of corporate governance significantly correlates and varies with their office locations.
Conclusion- Regarding these results the office location is one of the factors that affect corporate governance and business performance. This also explains the United States, China and Taiwan scholars research that the headquarters office has a tendency to move towards the metropoliscentral in time trajectory.

Keywords: Corporate governance, business performance, location theory, multiple regression, multivariate analysis of variance, Principal component analysis.
JEL Codes: G34, M10, R39

1. INTRODUCTION

In the early 1930s, American academia began to discuss "corporate governance." It was not until investors and regulatory authorities witnessed various corporate governance issues—from the financial crises and malpractices in enterprises to national economic recession and the financial tsunami—did they realize the importance of a perfect corporate governance mechanism to optimize capital markets and attract more international capital (Yin-Hua Ye et al., 2002). This impelled regulatory authorities to reflect on corporate governance so as to legislate mechanisms thereof. The OECD expressly argued that imperfect corporate governance was one of the key causes of failure of enterprises to enhance their international competitiveness. Research data shows that an imperfect corporate governance mechanism is one of the main causes of a financial tsunami (Rajan and Zingales, 1998).

Are locational factors important, and do the locations of enterprise headquarters correlate with corporate governance and business performance? Enterprises are established to earn maximized profits. To this end, it is important to gain competitive advantage, by prices or quantities, from a short-term perspective; adopt state-of-the-art production technologies from a medium-term perspective; and select appropriate headquarter locations from a long-term perspective. The locations of factories or offices with a geographical advantage that reduces the clients' transport costs, while also attracting more clients and, in particular, enterprise headquarters—from where enterprises primarily issue orders and make decisions—are vital to overall enterprise operation (Ming-Yi Huang and Jin-E Jhang, 2000).

In 2017, the US president Trump put forth the "Biggest Tax Cut in American History" and the "Made in America" policy. This is likely to influence the economic development and financial status of other countries. For example, several large enterprises in Taiwan and Japan have planned to establish factories in the US. On April 1st, 2017, the Central Committee of the Communist Party of China and the State Council jointly announced a "millennial project" to develop the Xiongan New Area, as strategically important as the development in Shenzhen and Pudong. The goal of this project is to build a core area for developing innovative technologies, and make it the Silicon Valley of China.In order to reduce the intensity of investment in the Chinese Mainland and dependence upon foreign trade, the Taiwanese government carried out the "Go Southwards" policy, thus diversifying the investment risk and opening up new markets. Hence, the author began focusing on the influence of corporate governance and location theory.

Government policies stipulate general economic guidelines, which are of great concern to the business orientation of enterprises, national economy, and people's livelihood. Therefore, such policies should be treated with prudence. This paper discusses the correlation between the spatial locations of enterprise offices, quality of corporate governance, and business performance. Do the office locations of China listed enterprises correlate with the quality of their corporate governance and business performance? This paper will focus on the two types of correlation and the relationship between them.

2. LITERATURE REVIEW

2.1 Corporate Governance

Yin-Hua Ye (2016) defined corporate governance mechanism as the design and implementation of corporate institutions that are intended to improve the efficiency of strategic management. On the other hand, Shleifer and Vishny (1997) defined it as a way to ensure capital providers were duly rewarded. According to Cheng-En Ke (2000), corporate governance refers to corporate institutions that are intended to protect the due rights and interests of enterprises' capital providers. In his view, corporate capitals are mainly provided by the shareholders; however, the self-interested principal shareholders or managers responsible for corporate management will not necessarily take into full account the due rights and interests of general shareholders. Therefore, it is imperative to build a supervisory mechanism to coordinate the interests between managers and shareholders to reduce agency costs and realize higher corporate value.

Corporate governance primarily deals with ensuring senior managers effectively create wealth for shareholders, while they are provided with autonomous rights and incentives (Epps and Cereola, 2008). A board of directors acts as a bridge between shareholders and managers, and on behalf of the shareholders, tries to protect and increase the enterprise's long-term interests (Veliyath, 1999). The corporate governance mechanism regulates managers' behaviors, which is directed toward ensuring that the enterprise investors receive a reasonable return on investment and preventing the losses of capital providers due to managers' misconducts (Shleifer and Vishny, 1986). The OECD (1999) proposes six guidelines for corporate governance, which are to 1) strengthen the functions of the board of directors, 2) exert the role of supervisors (the Audit Committee), 3) value the rights of shareholders and interested parties, 4) ensure the transparency of information exposure, 5) build and carry out an internal control and audit system, and 6) appoint high-caliber accountants and lawyers prudently.

To summarize, corporate governance is a system that protects the rights and interests of enterprise's capital providers. It is intended to solve the agency problem, reduce the agency costs, supervise the organizational activities of the enterprise effectively by implementing a reasonable check-and-balance design, and, ultimately, maximize the enterprise's economic value.
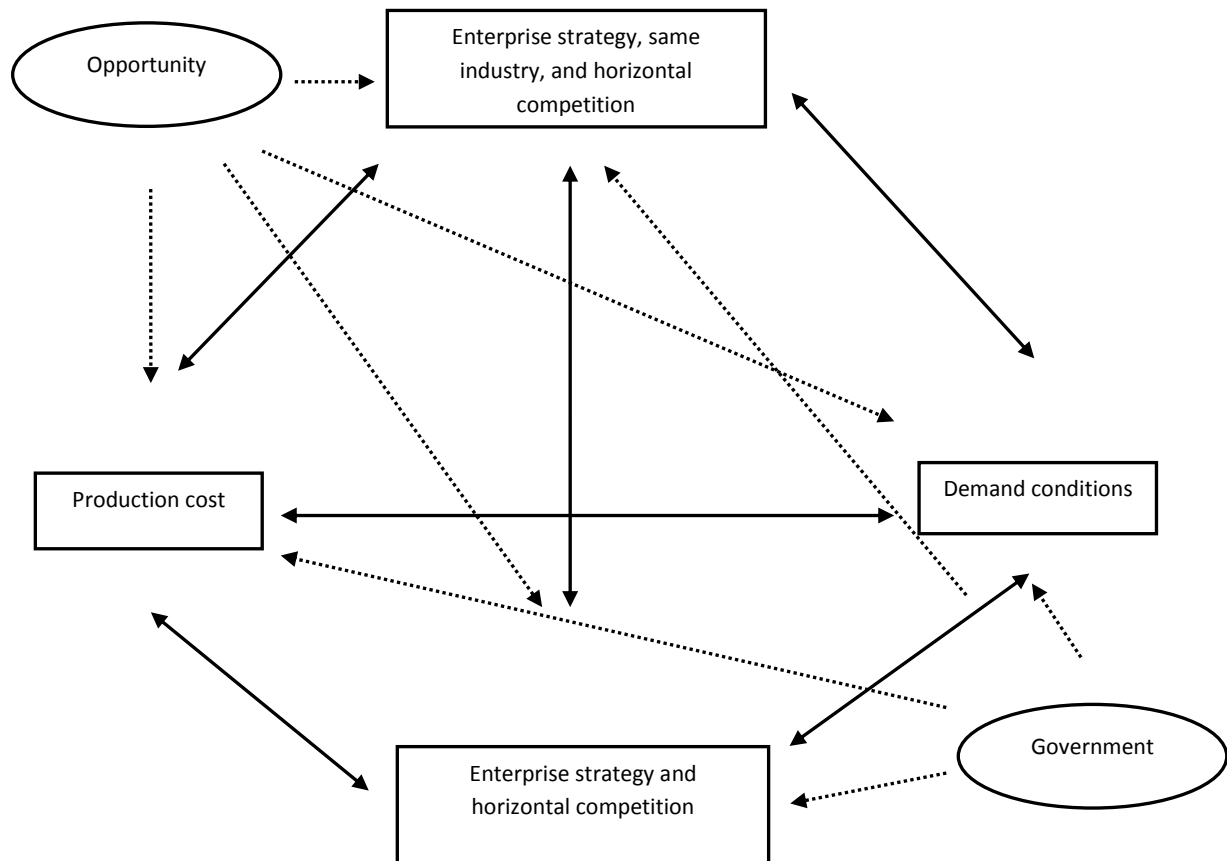
2.2 Location Theory

"Location" is built on the concept of social grouping. The location theory is a solution that scientists have proposed with respect to the competition and co-existence of ethnic groups, in nature, under resource-constrained conditions (Dimmick and Rothenbuhler, 1984). This theory relates to the selection of spatial locations for human economic behaviors with optimal combination of economic activities in those locations (Wei-Jhou Hu, 2006). The location theory is an important concept in the field of economic geography, and it gives a clear exposition of the division of industrial location that arises from the difference in the conditions of the spatial locations.

Weber (1909) applied the location theory to scientific management. To select appropriate factory sites, he put forth the concept of "factory location," thus laying the basis for location selection. In 1909, Weber published the industrial location theory, where he argued that industrial locations were primarily influenced by three factors—transport costs, labor costs, and agglomeration economy.

Currently, M.E. Porter and P. Krugman are considered the leading authorities in location theory. In 1990, M.E. Porter published "The Competitive Advantage of Nations," which stated that industrial clustering reflected a set of corporate

organizations that were geographically adjacent to and interacted with each other in a particular field. He argued that organizations were linked with each other due to the communality and complementarity between them. Hence, industrial clustering is an important cause of a nation's competitive advantage. Weber proposed a diamond system regarding the competitive advantage of nations, as shown in Figure I.

Figure I: Architecture of Diamond System

The location theory was originally oriented toward manufacturing activities. With the advance in industrial transformation, office-based economic activities became increasingly important, which some scholars successively studied (Rubin, 1978; Pivo 1993). The advantages, degree of concentration, and change with respect to the locations of enterprise offices influences enterprise competitiveness and urban development. Holloway and Wheeler (1991) found that the location changes of enterprise headquarters were continued on an intra- and inter-industry basis, while Shilton and Stanley (1999) found that 40% of the enterprise headquarters in the US were clustered in 20 cities.

3. DATA AND METHODOLOGY

3.1 Research Hypotheses

1) Locational Factor I: Urban-Rural Differences (Metropolitan Areas versus Non-metropolitan Areas) and Corporate Governance

Ruei-Jhao Deng et al. (2008) stated that economic globalization widened the economic gap between urban and rural areas. Specifically, urban areas obtained more resources and opportunities to increase public expenditures and improve infrastructure, thus creating better environments for local residents and enterprises. In contrast, rural areas were confronted with problems, such as population outflow, population aging, and resource shortage, thus lagging far behind urban areas.

Jhao-Lan Wang et al. (2008) studied government performance of 23 counties and/or cities of Taiwan. They found that 1) the relative efficiency of Taipei City, Taipei County, Taichung City, and Kaohsiung City was 1; and 2) the efficient values of most of Taiwan's 23 cities and/or counties decreased progressively from north to south, when Taipei city/county is taken as the

core of overall competitiveness. Considering that the urban-rural differences influence enterprises, this paper proposes the following hypothesis:

H1: Enterprises located in metropolitan areas exhibit higher quality of corporate governance.

2) Locational Factor II: Traffic Convenience (Distance to International Airports) and Corporate Governance

Siao-Lin Yang (2012) studied the influence of geographical locations on the quality of board governance. The study found that, for smaller enterprises farther from (high-speed) railway stations, the quality of board governance was influenced more significantly by the adequacy of resources of local directors.

On the other hand, Liang-Jie Sie (2013) analyzed the entrepreneurial performance of micro-enterprises around the Science Park. This study found that the entrepreneurial performance was mainly influenced by key factors, such as prior knowledge and competence, market demand, innovative products, cooperation with the enterprises located in the Science Park, storefront location selection, and traffic convenience. Considering that the differences in traffic convenience influence enterprises, this paper proposes the following hypothesis:

H2: Enterprises located closer to International Airports exhibit higher quality of corporate governance.

3) Office Locations, Quality of Corporate Governance, and Corporate Business Performance

Ertugrul and Hegde (2001) found that enterprises with high quality of corporate governance also had high corporate value and good business performance. Furthermore, a study by Jhu-San Wang (2009) found that R&D and capital expenditures influenced enhancement in corporate value, and could be achieved indirectly through good corporate governance.

Klapper and Love (2004) studied the reports on the rating of corporate governance of 495 enterprises in 25 emerging market countries. They found that the quality of corporate governance positively correlated with their market value and business performance. Based on the combination of hypotheses 1 and 2, this paper proposes the following hypotheses regarding corporate business performance:

H3: Under the urban-rural differences, an enterprise located in a metropolitan area, and with high quality of corporate governance, is more likely to exhibit better business performance.

H4: Given the differences in traffic convenience, an enterprise located closer to a International Airport , and with higher quality of corporate governance, is more likely to exhibit better business performance.

3.2 Data Source

The object of this research is the China ShenZhen Stock Exchange listed enterprises sampled during the period of January 2010 to December 2016. We use 12,380 samples, for analysis, to discuss the correlation between the locational factors of offices, quality of corporate governance, and corporate business performance. The financial data is available from the annual reports of the China listed enterprises, Taiwan Economic Journal (TEJ).

3.3 Sample Analysis

The research samples are based on the headquarters addresses registered with the Department of Commercial Affairs. One thousand nine hundred and thirty four China enterprises are surveyed.

1) There are 1,023 enterprises located in Tier Ⅰ cities , which account for 52.8% of the enterprises. Tier Ⅱ cities has 407 enterprises (21.1%), Tier Ⅲ cities has 193 enterprises (10.0%), and the non-metropolitan areas have 311 enterprises (16.1%).

2) There are 882 enterprises with a distance of less than 50 km from International Airports, which account for 45.6% of the enterprises. There are 648 enterprises (33.5%) at a distance of 51–100 km from International Airports, 129 enterprises (6.7%) at a distance of less than 101–150 km from International Airports, and 275 enterprises (14.2%) at a distance of more than 150 km from International Airports.

3.4 Definition and Measurement of Variables

3.4.1 Definition of Pointer Variable of Corporate Governance

1) Director shareholding percentage (DSP) : (number of shares by directors) ÷ (number of circulating ordinary shares) x 100%

Dalton and Kesner (1987) confirmed that the DSP positively and significantly correlated with business performance. If the majority share equity is held by directors, they are usually sufficiently motivated to supervise the managers, which impel

these managers to improve business performance and minimize harmful behaviors towards shareholders and the enterprise.

2) Director pledge percentage (DPP): (number of shares pledged by directors) ÷ (number of shares held by directors) x 100%. An-Lin Chen et al. (2013) argued that the DPP positively and significantly correlated with business performance. Specifically, if the directors overused financial leverage to increase their shareholding ratio, the inflated shareholding ratio could only strengthen their management rights, but would affect the corporate business performance.

3) Independent director number (IDN): Fama (1980) found that the IDN positively and significantly correlated with corporate business performance. Specifically, independent outside directors have considerable expertise and experience, and are usually scholars, experts or social elites. Therefore, they can assist the enterprise to make major decisions and provide professional services.

4) Share earnings deviation (SED): SED refers to the ratio of "the right for shareholding" to "the right to claim for cash flow". A number of factors lead to the deviation, such as the insufficient information exposure, due to which some shareholders may become more motivated to plunder the benefits of the enterprise or deprive other minority shareholders. As a result, this will bring about higher agency costs, degradation in business performance, and reduction in corporate value (Claessens et al., 2000).

5) Cross-shareholding (CS): CS refers to the mutual shareholding between different enterprises with the aim of attaining a special purpose. Yin-Hua Ye et al. (2002) argued that, when the controlling shareholders won the control right through CS, a major negative embezzlement would be produced, thus reducing the corporate business performance.

3.4.2 Definition of the Variables Related to Locational Factors

1) In light of the allocation of government resources and administrative efficiency under Hypothesis I, China is divided into metropolitan areas (including Tier Ⅰ cities, Tier Ⅱ cities and Tier Ⅲ cities) (APPENDIX), non-metropolitan areas (including other districts that districts not listed).

2) In light of the ease of shareholder supervision and distance to International Airports under Hypothesis II, the sampled enterprises are classified into four levels—Level 1: a distance of 0–50 km from the nearest International Airports ; Level II: a distance of 51–100 km from the nearest International Airports ; Level 3: a distance of 101–150 km from the nearest International Airports ; and Level 4: a distance of more than 150 km from the nearest International Airports .

3.4.3 Definition of Corporate Business Performance

Klapper and Love (2004) used the Return on Assets (ROA) to identify deficient legal systems in corporate governance. An enterprise with high quality of corporate governance usually had a positive market value and business performance. On the other hand, Huson et al. (2004) used ROA to measure the influence of the replacement of senior managers on corporate business performance. They found that after the CEOs were replaced, the accounting performance of the enterprises would improve significantly. In this research, ROA is used as a variable for measuring corporate business performance. The after-tax net profit per 1-TWD assets is equal to (post-tax profit or loss) + (interest expenses) x $(1 - \text{tax rate}) \div$ (average total assets).

3.5 Design of Research Model

From the perspective of office directions, this paper discusses the correlation between corporate governance and business performance. We specifically estimate and analyze the correlation by using the fixed effect of Panel Data Regression, descriptive statistics, single-factor and multivariate analysis of variance, principal component analysis, and different multiple regression models. Model (I): In order to measure the influence of corporate governance and office location on corporate business performance, the following regression model is built In light of H3 (Under the urban-rural differences, an enterprise located in a metropolitan area or with high quality of corporate governance is more likely to exhibit better business performance.). The following regression equation is developed:

$$ROA_{it} = \beta_0 + \beta_1 (DSP_{it}) + \beta_2 (DPP_{it}) + \beta_3 (SED_{it}) + \beta_4 (IDN_{it}) + \beta_5 (CS_{it}) + \beta_6 (AREA\text{-}F_{it}) + \beta_7 (AREA\text{-}S_{it}) + \beta_8 (AREA\text{-}T_{it}) + \varepsilon_{it} \qquad (1)$$

where AREA-F is the office location (Tier Ⅰ cities), AREA-S is the office location (Tier Ⅱ cities), AREA-T is the Office location (Tier Ⅲ cities) and ε_{it} is the residual value.

In light of H4 (Under the differences in traffic convenience, an enterprise closer to a International Airport or with high quality of corporate governance is more likely to exhibit better business performance.), the following regression equation is developed:

$$ROA_{it} = \beta_0 + \beta_1(DSP_{it}) + \beta_2(DPP_{it}) + \beta_3 (SED_{it}) + \beta_4 (IDN_{it}) + \beta_5 (CS_{it}) + \beta_6 (DHK\text{-}1_{it})+ \beta_7 (DHK\text{-}2_{it})+ \beta_8 (DHK\text{-}3_{it}) + \varepsilon_{it} \qquad (2)$$

where DHK-1 is enterprises with a distance of 0–50 km from a International Airport, DHK-2 is enterprises with a distance of 51–100 km from a International Airport, DHK-3 is enterprises with a distance of 101–150 km from a International Airport, and DHK-4 is enterprises with a distance of more than 150 km from a International Airport .

Model (II): In order to measure the influence of office locations on various corporate governance variables, the single-factor and multivariate analysis of variance is used. The analysis framework is as follows:
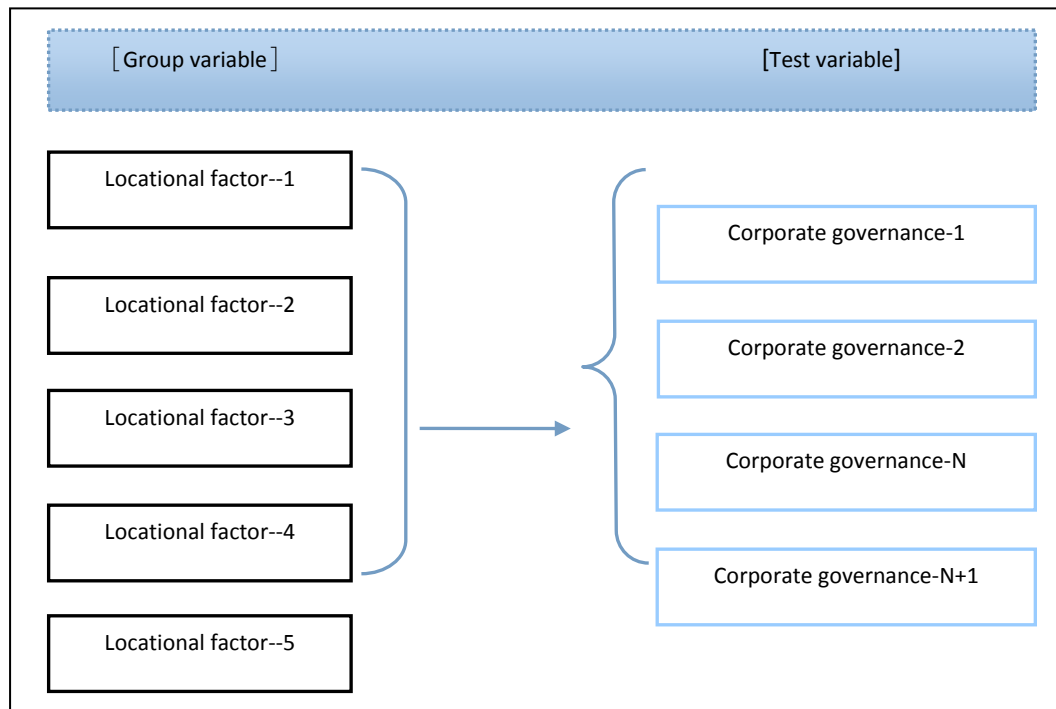
MANOVA mathematical formula:

$$\beta_1(DSP_{it}) + \beta_2(DPP_{it}) + \beta_3 (SED_{it}) + \beta_4 (IDN_{it}) + \beta_5 (CS_{it}) = (AREA_{it}) \qquad (3)$$

The code names are the same as those under Model (I):

Urban-rural differences under Hypothesis I:

$(AREA_{it})$ = [Location (Tier Ⅰ cities, Tier Ⅱ cities and Tier Ⅲ cities, other districts)]

Differences in the distance to International Airports under Hypothesis II:

$(AREA_{it})$ = [Location (enterprises in the area that are closest to International Airports, enterprises in the area that are the second closest to International Airports, enterprises in the area that are the second farthest from International Airports , and enterprises in the area that are the farthest from International Airports)]

The null hypothesis tested by the MANOVA is as follows: The mean vectors of horizontal groups are all equal, and are all available from the same group.

$$H0: \begin{pmatrix} U11 \\ U21 \\ U31 \\ U41 \\ U51 \end{pmatrix} = \begin{pmatrix} U12 \\ U22 \\ U32 \\ U42 \\ U52 \end{pmatrix} = \begin{pmatrix} U13 \\ U23 \\ U33 \\ U43 \\ U53 \end{pmatrix} = \begin{pmatrix} U14 \\ U24 \\ U34 \\ U44 \\ U54 \end{pmatrix} = \begin{pmatrix} U15 \\ U25 \\ U35 \\ U45 \\ U55 \end{pmatrix}$$

Model (III): Principal component analysis uses fewer variables to explain the majority of variables in the original data, as well as the composite pointers of the data. The main purpose is to set several indexes, and specifically: 1) determine the weight of each variable and obtain the weighted average of variables, 2) assign a high weight to a critical variable and a low weight to a relatively unessential variable, and 3) set the overall index accordingly.

Regarding the principal component equation, the overall index (Y) is a linear combination that comprises K analysis variables. We assume that the only three analysis variables are standardized as (Z_1, Z_2, and Z_3), and the weights of their principal components are set as (a_1, a_2, and a_3). The principal component equation is then expressed as follows:

$Y = a_1 * Z_1 + a_2 * Z_2 + a_3 * Z_3$ (4)

where, Y is the overall index, Z_k is the k-th analysis variable (k=1, 2, 3........), and a_k is the weight of the k-th analysis variable, namely, the weight of principal component.

The variance of the principal component Y is listed as follows:

$$Y = [a_1\ a_2\ a_3\ ] * \begin{pmatrix} z_1 \\ z_2 \\ z_3 \end{pmatrix} \qquad VAR(Y) = [a_1\ a_2\ a_3] * \begin{pmatrix} 1 & r_{12} & r_{13} \\ r_{21} & 1 & r_{23} \\ r_{31} & r_{32} & 1 \end{pmatrix} * \begin{pmatrix} a_1 \\ a_2 \\ a_3 \end{pmatrix}$$ (5)

where R = $\begin{pmatrix} 1 & r_{12} & r_{13} \\ r_{21} & 1 & r_{23} \\ r_{31} & r_{32} & 1 \end{pmatrix}$ is the correlation coefficient matrix of (Z_1, Z_2, Z_3).

a = [$a_1\ a_2\ a_3$] is the weight vector of principal component.

Next, we use the maximized variance of principal component as the objective function, and use the constraint equation, where the sum of square weights is equal to 1, to ensure the uniqueness of the solution:
MAX : $VAR(Y) = a' * R * a$

S.T : $a' * a = 1$

where $a' * a = 1$ is the constraint equation where the sum of square weights is equal to 1.

To solve the above objective set, it is translated into a Lagrange equation.

$$L = [a_1 a_2 a_3] * \begin{bmatrix} 1 & r_{12} & r_{13} \\ r_{21} & 1 & r_{23} \\ r_{31} & r_{32} & 1 \end{bmatrix} * \begin{bmatrix} a_1 \\ a_2 \\ a_3 \end{bmatrix} - \lambda * \left([a_1 \quad a_2 \quad a_3] * \begin{bmatrix} a_1 \\ a_2 \\ a_3 \end{bmatrix} - 1 \right)$$ (6)

In the equation (6), λ is the lagrangian multiplier. Through the principal component analysis mode of the statistical software, we determine the λ value and principal component weight [$a_1\ a_2\ a_3$]. The λ value can be used to measure the

representativeness of the principal component, namely, whether the principal components can represent all variables effectively. The [a_1 a_2 a_3] are the elements used to construct the principal components.

4. FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics Analysis

Table 1 presents descriptive statistics analysis of the research samples involves average numbers and standard deviations.

Table 1: Descriptive Statistics Data Table (N = 12,380)

Variable	Hypothesis I	Average Number	Standard Deviation	Hypothesis II	Average Number	Standard Deviation
DSP	Metropolitan area– Tier Ⅰ cities	14.75	11.852	The nearest	13.92	12.016
	Metropolitan area– Tier Ⅱ cities	16.23	11.705	The second nearest	15.51	12.466
	Metropolitan area– Tier Ⅲ cities	18.12	14.309	The third nearest	15.44	12.365
	Non-metropolitan area	15.38	11.335	The farthest	18.36	14.522
DPP	Metropolitan area– Tier Ⅰ cities	9.29	18.114	The nearest	7.48	16.117
	Metropolitan area– Tier Ⅱ cities	8.16	16.147	The second nearest	6.12	13.811
	Metropolitan area– Tier Ⅲ cities	8.91	17.802	The third nearest	7.13	17.253
	Non-metropolitan area	7. 04	16.184	The farthest	8.22	16.255
IDN	Metropolitan area– Tier Ⅰ cities	3.87	1.119	The nearest	3.20	1.888
	Metropolitan area– Tier Ⅱ cities	3.12	1.064	The second nearest	3.43	1.650
	Metropolitan area– Tier Ⅲ cities	3.23	1.064	The third nearest	3.48	1.733
	Non-metropolitan area	2.40	1.051	The farthest	2.30	1.457
SED	Metropolitan area– Tier Ⅰ cities	4.18	8.331	The nearest	3.28	9.811
	Metropolitan area– Tier Ⅱ cities	3.65	7.259	The second nearest	3.47	10.087
	Metropolitan area– Tier Ⅲ cities	3.39	10.303	The third nearest	3.88	10.654
	Non-metropolitan area	4.86	10.123	The farthest	3.32	10.112
CS	Metropolitan area– Tier Ⅰ cities	.22	.356	The nearest	.20	.352
	Metropolitan area– Tier Ⅱ cities	.18	.329	The second nearest	.17	.320

Metropolitan area– Tier Ⅲ cities	.19	.335	The third nearest	.15	.317
Non-metropolitan area	.16	.310	The farthest	.12	.328

The statistical results show that the DSP correlates with the mode of management. In those surveyed areas, such as Tier I cities, where there is a large proportion of family enterprises, there is a high ESP ratio; and a low DSP ratio when a large number of enterprises are managed by professional managers (for example, Tier Ⅰ cities). The IDN of enterprises in the Tier Ⅰ cities is obviously higher than that in other districts. The SED of the enterprises in the non-metropolitan areas is higher than that in the metropolitan areas. For enterprises in the metropolitan areas and a short distance from International Airports , the CS proportion is relatively high. This shows that such enterprises are good at gaining the corporate control right by means of CS.

4.2 Stepwise Multiple Regression Analysis

When stepwise multiple regression analysis is conducted in light of the urban-rural differences under Hypothesis I and differences of traffic convenience under Hypothesis II, office locations are replaced with dummy variables. In order to prevent multicollinearity, one of the dummy variables (the enterprises in other districts of the non-metropolitan areas under Hypothesis I and the enterprises with a distance of more than 150 km from International Airports under Hypothesis II) is removed from the analysis. According to the Table 2 and Table 3 multiple regression model, both hypotheses are statistically significant (< 0.05) in terms of office locations with a difference between the different areas. This shows that corporate business performance will be influenced by locational factors. All corporate governance variables under both hypotheses are statistically significant, which shows that the quality of corporate governance is of great concern to corporate business performance.

Table 2: Hypothesis III: Statistical Table of Regression Model

Model		Unstandardized Coefficient		Standardized Coefficient		
		B	Standard Error	Beta	T	Significance
Office location	(Constant)	-.387	.087		-3.213	.000
	Local- Tier Ⅰ cities	2.229	.106	.209	21.742	.000
	Local- Tier Ⅱ cities	1.780	.122	.128	15.060	.000
	Local- Tier Ⅲ cities	0.315	.088	.032	3.217	.000
Corporate governance	IDN	.228	.017	.075	13.359	.000
	DPP	-.010	.001	-.048	-8.215	.000
	DSP	.013	.002	.041	7.210	.000
	CS	-.242	.049	-.027	-4.790	.000
	SED	-.008	.002	-.024	-3.223	.001

Table 3: Hypothesis IV: Statistical Table of Regression Model

Model		Unstandardized Coefficient		Standardized Coefficient		
		B	Standard Error	Beta	T	Significance
Distance to International Airports	(Constant)	.777	.105		7.334	.000
	0 to 50 km	.475	.101	.062	4.449	.000
	51 to 100 km	.448	.105	.060	4.011	.000
	101 to 150 km	.323	.112	.042	2.467	.009
Corporate governance	IDN	.233	.016	.092	13.020	.000
	DPP	-.011	.003	-.059	-8.120	.000
	DSP	.018	.005	.071	10.336	.000
	CS	-.013	.004	-.042	-5.833	.000
	SED	-.159	.050	-.033	-3331	.001

4.3 Multivariate Analysis

Multivariate analysis is used to analyze whether the quality of corporate governance varies significantly with locational factors. If the level of significance reaches 0.05, Scheffe test is conducted for post hoc comparison.

The multivariate analysis on Hypotheses I and II involves four types of multivariate statistics: Pillai's tracking value, Wilks' Lambda (λ) value, Hotelling's tracking value, and Roy's maximum root value. The P values (=000) of the significant difference test of them are all smaller than 0.001; the level of significance (0.05) is reached, and the centroid difference is significantly evident. This shows that there is a significant difference between various office locations in terms of the average number of at least one dependent variable in the difference comparison for the dependent variables of corporate governance.

Table4: Hypothesis I: Internal-subject Effect Test Analysis

Source	Dependent Variable	Sum of Squares of Category III	df	Square of Average Value	F	Significance
Urban-rural difference	DSP	34190.97	4	8547.492	41.698	.000
	DPP	14375.16	4	3593.860	11.746	.000
	IDN	602.070	4	150.523	90.705	.000
	SED	11911.654	4	2982.558	24.544	.000
	CS	41.043	4	10.261	51.527	.000

Table 5: Hypothesis II: Within-subject Effect Test Analysis

Source	Dependent Variable	Sum of Squares of Category III	df	Square of Average Value	F	Significance
Distance to International Airports	DSP	14964.755	4	3896.223	18.112	.000
	DPP	72883.885	4	16663.551	58.529	.000
	IDN	125.442	4	30.325	18.594	.000
	SED	3850.532	4	987.654	7.898	.000
	CS	40.011	4	8.566	49.777	.000

Table 6 presents Scheffe test is used for the single-factor and multivariate analysis of variance regarding the two ypotheses. The results of post hoc comparison in Table IV and V are summarized as follows: Discussion of the urban-rural differences: There is a significant difference between the various areas in terms of DSP, SED, and IDN; there is a significant difference between enterprises in non-metropolitan areas and enterprises in other areas in terms of DPP and CS. Discussion of the differences in traffic convenient: There is a significant difference between various areas in terms of DSP, DDP, IDN, and CS, while there is no significant difference between them in terms of SED.

Table 6: Multiple Comparisons between the Various Areas: Scheffe Test

Dependent Variable	Metropolitan Area versus Non-metropolitan Area Results of Significant Difference	Distance to International Airports Results of Significant Difference Results of Significant Difference
DSP	For 1: (3)>(2)>(4)>(1) For 2: (3)>(2)>(4)>(1) For 3: (3)>(2)>(4)>(1) For 4: (3)>(2)>(4)>(1)	For 1: (4)>(2)>(1) For 2: (4)>(2)>(1) For 3: (4)>(3) For 4: (4)>(2)>(3)>(1)
DPP	For 1: (1)>(4) For 3: (3)>(4) For 4: (1)>(3)>(4) For 5:	For 1: (1)>(2) For 2: (4)>(1)>(3)>(2) For 3: (3)>(2) For 4: (4)>(2)
IDN	For 1: (1)>(3)>(2)>(4) For 2: (1)>(2)>(4) For 3: (1)>(3)>(4) For 4: (1)>(3)>(2)>(4)	For 1: (3)>(1)>(4) For 2: (2)>(4) For 3: (3)>(4) For 4: (3)>(2)>(1)>(4)
SED	For 1: (4)>(1)>(2) For 2: (4)>(1)>(3)>(2) For 3: (4)>(1)>(3) For 4: (4)>(1)>(3)>(2)	For 1: (3)>(1) For 3: (3)>(1) For 4: (3)>(4)>(1)

CS	For 1: (1)>(2)>(4) For 3: (3)>(4) For 4: (1)>(3)>(4)	For 1: (1)>(2)>(3)>(4) For 2: (1)>(2)>(3)>(4) For 3: (1)>(2)>(3)>(4) For 4: (1)>(2)>(3)>(4)

Metropolitan areas versus non-metropolitan areas: 1: Tier Ⅰ cities, 2: Tier Ⅱ cities, 3: Tier Ⅲ cities, 4: non-metropolitan areas

Distance to International Airports: 1: 0–50 km, 2: 51–100 km; 3: 101–150 km; 4: at least 151 km

4.4 Principal Component Analysis

Principal component analysis is used to extract the common factors for factor analysis. The number of common factors depends on whether the eigenvalue is greater than 1. As a result, three principal factors are selected in total to account for 68.559% of total variance.

To discuss the influence of locational factors on corporate governance, this paper converts the extracted reliability into the validity of corporate governance performance indexes, and determines the weight of each corporate governance index accumulatively. According to Hypothesis I, this paper determines that enterprises in metropolitan areas are superior to those in non-metropolitan areas in terms of corporate governance (table 7). According to Hypothesis II, this paper determines that enterprises that are closer to International Airports exhibit better quality of corporate governance (table 8). The findings are consistent with the expected results.

Table 7: Reliability of Principal Component Analysis for Hypothesis I

Local	Factor 1	Factor 2	Factor 3	Average
Metropolitan areas	0.0132	0.0878	-0.0283	0.0727
Non-metropolitan areas	-0.0152	-0.1115	0.0270	-0.0997

Table 8: Reliability of Principal Component Analysis for Hypothesis II

Distance to International Airports	Factor 1	Factor 2	Factor 3	Average
0 to 50 km	0.0102	0.0858	-0.0345	0.0615
51 to 100 km	0.0323	-0.0750	0.0381	-0.0046
101 to 150 km	-0.1581	0.1419	-0.0385	-0.0547
151 km	-0.1035	-0.2882	0.1437	-0.2480

5. CONCLUSION

This research is intended to probe the correlation between the office locations, corporate governance, and business performance of China's enterprises. The research findings are summarized as follows:

1) Empirical results show that the business performance of China's enterprises positively and significantly correlates with their corporate governance mechanisms, which is consistent with the expected argument of this research. Specifically, the better the corporate governance is, the better the business performance, which is also consistent with the research findings obtained by other scholars.
2) Empirical results show that under a specific corporate governance mechanism, various locational factors (including urban-rural differences and traffic convenience) significantly correlate with business performance. Specifically, corporate business performance varies significantly among China's different areas.
3) Empirical results show that various locational factors (including urban-rural differences and traffic convenience) correlate with the quality of corporate governance significantly. Specifically, the quality of corporate governance varies significantly with the locational conditions.

4) Empirical results show that the quality of corporate governance of enterprises in the metropolitan areas is higher than that of the enterprises in the non-metropolitan areas. Furthermore, the quality of corporate governance of the enterprises close to International Airports is higher than those that are further away from such stations. This shows that the differences in spatial locations will influence the mentality, ideas, and decision-making of enterprises' top managements. For example, it is difficult for the government to regulate a relatively remote enterprise. Its shareholders cannot manage their business status from time-to-time due to the long distance. In the absence of government regulation or shareholders' supervision, a negative effect is produced on the managers. The managers may fail to work hard or seize personal power at the expense of the benefits of minority shareholders, thus degrading corporate governance and business performance.

Finally, this paper gives the following suggestions for subsequent research:

1) The industrial sectors in question may be subdivided to discuss whether the quality of corporate governance would be influenced by different industrial sectors and locational factors.

2) China ShenZhen Stock Exchange listed enterprises is not a large region, which may restrict further possibilities of differences, although the differences in locational factors bring about significant differences in the quality of corporate governance. Subsequent research may be extended to the Chinese Mainland all companies or European and American countries. This would make the regional differences more significant, thus possibly leading to different results.

3) In the current research, the pointer variables of corporate governance mainly focus on the equity structure and structure of the board of directors. Considering the difficulty in data acquisition, subsequent research may incorporate the pointers on transparency of information disclosure and the indexes of enterprise social responsibility. This would, thus, cover as many indexes of corporate governance performance as possible.

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APPENDIX

China's urban classification list (Based on GDP scale, per capita income, airport throughput)

1) Tier Ⅰ cities (19 cities)：

Beijing City	Shanghai City	Guangzhou City	Shenzhen City	Chengtu City	Hangzhou City
Wuhan City	Chongqing City	Nanjing City	Tianjin City	Suzhou City	Xian City
Changsha City	Shenyang City	Tsingtao City	Zhengzhou City	Dalian City	Dongguan City
Ningbo City					

2) Tier Ⅱ cities（30 cities）：

Xiamen City	Fuzhou City	Wuxi City	Hefei City	Kunming City	Harbin City
Jinan City	Foshan City	Changchun City	Wenzhou City	Shijiazhuang City	Nanning City
Changzhou City	Quanzhou City	Nanchang City	Guiyang City	Taiyuan City	Yantai City
Jiaxing City	Nantong City	Jinhua City	Zhuhai City	Huizhou City	Xuzhou City
Haikou City	Urumqi City	Shaoxing City	Zhongshan City	Taizhou City	Lanzhou City

3) Tier Ⅲ cities（70 cities）：

Weifang City	Baoding City	Zhenjiang City	Yangzhou City	Guilin City	Tangshan City
Sanya City	Meishan City	Huzhou City	Hohhot City	Langfang City	Luoyang City
Weihai City	Yancheng City	Linyi City	Jiangmen City	Swatow City	Taizhou City
Zhangzhou City	Handan City	Jining City	Wuhu City	Zibo City	Yinchuan City
Liuzhou City	Mianyang City	Zhanjiang City	Anshan City	Ganzhou City	Daqing City
Yichang City	Baotou City	Xianyang City	Qinhuangdao City	Zhuzhou City	Putian City
Jilin City	Huaian City	Zhaoqing City	Ningde City	Hengyang City	Nanping City
Lianyungang City	Dandong City	Lijiang City	Jieyang City	Binzhou City	Zhoushan City
Jiujiang City	Longyan City	Cangzhou City	Fushun City	Xiangyang City	Shangrao City
Yingkou City	Sanming City	Bengbu City	Lishui City	Yueyang City	qingyuan City
Jingzhou City	Taishan City	Quzhou City	Panjin City	Dongying City	Nanyang City
Maanshan City	Nanchong City	Xining City	Xiaogan City	Qiqihar City	