

Does Subnational Region Matter? Taiwanese Subsidiaries Performance in Mainland China

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Abstract— In researching for corporate performance as described in the main source of theme literatures, current researches presume that countries have the same environment in different regions within a country regardless if it is the environment of one country or multiple countries in which does not consider the impact of regional influences on firm performance. This paper collects data from Taiwan's conglomerates in mainland China as a sample, which decomposed subsidiary performance into industry effects, regional effects, parent company effect, subsidiaries effects and annual effects to analyze the source of performance variance. Studies have shown that regional factor is one of the important factors affecting the performance of subsidiaries and regional effects and industry effects jointly affect the performance of the subsidiary. In the comparative study of the different regions, we find that in the explanation of company performance variance, the internal effects (the parent company and the subsidiary effects) are more important in a higher level of institutional development of the region (Yangtze River Delta (YRD)); on the contrary, the external effects (regional and industry effects) are more important in a higher level of institutional development of the region (Pearl River Delta (PRD)).

Keywords—Region; Taiwan Investor's Performance; Institutional Theory

I. INTRODUCTION

There are two major theoretical perspectives in the literature of the different source on corporate performance. First, the point of the theory of industrial organization thinks basic factors of affecting the long-term profits is industrial structure, therefore, performance difference on inter-industry is greater than difference of performance on intra-industry between corporate. Second, the point of the resource-based theory thinks the resources and capabilities of the enterprise itself is a major source of maintaining sustainable competitiveness, so the performance difference of enterprise is greater than performance difference of inter-industry. Perspective of emerging institutional theory thinks the business activities are embedded in the institutional environment; institutional environment is one of the sources of the performance differences on enterprises (Peng Weigeng

2009).

Taiwan investors¹ pay more attention to location selection when invested in mainland China. The conditions of regional investment are an important factor for Taiwan investors. The research of Taiwan businessmen invested in mainland China mainly focused on the location, but failed to further explore the impact of location factors on the Taiwan investors performance differences, we have not yet found the study about the sources performance differences of Taiwan investors. Although the existing research shows that industry factors, the company's resources and capabilities, the institutional environment of the host country are important factors which affect the performance differences of the foreign-funded enterprises, but it failed to further explore the impact of regional factors affecting on the performance differences of the foreign-funded enterprises. We believe that regional institutional environment provides a unique operating environment for Taiwan investors, having a profound impact on its strategy and performance (Chan et al, 2008), is an important factor to influence the Taiwan investor's performance differences. Therefore, we will combine the theory of industrial organization, resource-based theory and institutional theory, then focusing on the perspective of institutional theory to explore the impact of regional factors of Taiwan investor's performance, and identified the regional effect of Taiwan investor's performance differences, effects of the parent company and industry effects. This has an important reference value for the construction of the regional investment environment and Taiwan's strategic decision-making.

The other part of the paper is organized as follows: the second part reviews the literature of sources on the differences of enterprise performance; the third part discusses how regional factors influence the theoretical basis of the foreign-funded enterprises performance; the fourth part is the research methods and empirical results; the final part is conclusions.

II. LITERATURE REVIEW

To explore the source of differences in enterprise performance, some scholars analyzed contribution of a country, an industry, a company and a business in their unit level to evaluate business unit performance within the environment one country. Early studies found that effects of business units are the largest which explains the majority of business unit performance variance, after that is the industry effects and firm effects (Rumelt, 1991; McGahan and Porter, 1997). As McGahan and Porter (1997)'s research illustrate, business unit and industry effects explain variance of business unit performance of 31.7% and 18.6%, respectively, but the company effect explains the other 4.3%. Proportion of the industry effect in which explained is less than the effect of business units, that is to say the difference in performance of business unit is greater than the difference in performance of industry effect, which support the point of view of the resource-based theory. Chang and Hong (2002) extended the research in this area, their research does not use business unit as the unit of analysis instead they use the South Korean conglomerates (business group) as a sample to draw consistent conclusions, which is, the amount of performance variances a subsidiary contribute can be summarize as followed: subsidiary effects, conglomerates effects, industry effects, annual effects.

The difference of company performance between different countries have induced the attention of scholars, many studies have shown that the effect of the country is one of the important factors that affects the performance of the company, the differences of company performance is closely related to the difference of policies in different national backgrounds. Makino et al. (2004) used the data of the overseas subsidiaries from Japanese multinationals as a sample and then came up with Performance of subsidiary which divided into national effects, industry effects, the effects of parent company, subsidiaries effects, and annual effects. Studies have shown the order as follows, subsidiaries effects (31.4%), effects of parent company (10.8%) industry effects (6.9%), national effects (5.5%), annual effects (0.1%). The studies suggest that the impact of external effects (industry and national effects) on firm performance is relatively small in developed country with relatively equipped institution, while the impact of external effects on firm performance is relatively big in developing country with imperfect institution.

Relevant research literature about sources of firm performance can be divided into two categories, one is to study industries, companies and business units (subsidiaries) which is affecting the differences of business unit (subsidiary) performance within the environment of one country; Another is to study countries, industry, the parent company and its subsidiaries in which affecting subsidiary performance differences under a multinational environment. Existing research considered a country as a single investment region to assume that a country's environment is homogeneous within various regions. But that is not the case, regional economists think that the difference between regions is even larger than the differences between countries (Krugman, 1991). Within China, the noticeable difference is apparent in both of the level of economic development and the social cultural

environment. Therefore, we need to explore the effect of regional level on corporate performance in order to make up for the deficiencies of the existing research.

III. THEORY ANALYSIS

One of our views is that the performance difference of foreign capital enterprise is not only reflected by the parent companies and industries; it is also reflected by the different regions. Referenced to the studies by Chang and Hong (2002), Makino et al. (2004), Chan et al. (2010), the factors affecting corporate performances are divided into regional effects, industry effects, the effects of parent company, subsidiary effects and yearly effects. The effects are defined as follows:

Regional effect: the difference of mean performance levels on subsidiary in different regions.

Industry effects: the difference of mean performance levels on subsidiary in different industries

Effects of parent company: the difference of mean performance levels on subsidiary in different parent companies

Subsidiary effects: the difference of mean performance levels in subsidiaries.

Yearly effects: the difference of mean performance levels on subsidiary in different years.

Theoretical analysis of the relationship between the regional effects and other effects will provide a theoretical explanation for the regional factors as an important factor which affects corporate performance.

A. Parent company effects and regional effects

The core resources of a foreign subsidiary are originated from the parent company, which can be treated as a part of the whole parent company. However, it can also be treated as a local company, because of using local manpower and material resources, local infrastructure, and complied with local laws and regulations to compete with local companies. In this sense, a foreign subsidiary and the parent company is not hang together completely, also not independent of the parent company (Ghemawat, 2001). The parent company properties and regional properties have an important influence for the performance of foreign subsidiaries.

One opinion shows that the differences of the parent company are the main source of performance differences on foreign subsidiary. Proponents of this view took parent company's firm-specific advantage (FSA) as determining factor of the main company's performance. Parent company's firm and the specific advantage is from the unique resources of the company which create value to form sources of competition barriers and it is difficult for local competitors to imitate (Makino et al, 2004). There are two forms of these resources; one is special abilities and assets of the company, such as patent design and processes, and sharing know-how of company employees. Another resource format is the organizational learning ability (Prahalad and Hamel, 1990). In this view it considered the establishment of a subsidiary by the

parent company that has a special advantage can get better performance comparing with the host rivals. However, the parent companies have difficulty and cost to transfer these unique advantageous resources and to the subsidiary. Owing to the fact that the tacit element exists on transferring the special advantageous resources, there is distance institutionally between the home and host countries thus that barriers exist on transferring advantages between the parent company and the subsidiaries. There is a considerable different institutional environment in various regions of Mainland China and is not on the same level in terms of perfection for the institutional environment in different cities (Ni Pengfei, 2008). Different regional institutional environments reflect the difference in the protection of property rights, administrative efficiency, socio-cultural and market-oriented degree. Therefore, the ability is different which diverts resources of the parent company to the subsidiary operating in different regions institutional environment. In general, improving the institution of the protection of copy right, a fair judicial environment and a relatively high degree of market environment is conducive to the transferring of advantageous resources from parent company to the subsidiary.

Another view is that the differences in the regions are the main determinant factor of the performance differences of foreign subsidiaries. This highlights the influence of Location-Specific Advantage (LSA) to economic performance. Local special advantage comes from the different elements of cost in different regions, such as capital, labor and land, which create an advantage for foreign subsidiary to invest in the local (Dunning, 1988). This view shows that the performances of foreign subsidiaries are different due to the difference of advantages in the region. The performances are different due to different regional advantages even if the subsidiaries are from the same parent company. The local unique advantages can be shared by companies operating in the same region which is different from the unique advantages of the company. So, the local unique advantage is to no special contribution to the company's performance when different companies operate in the same region. Even so, it is necessary for a company to avoiding a long-term disadvantage to develop a local unique advantage (Ghemawat, 2001).

However, some local unique advantages are only valuable for some companies, which have a Location-bound Firm - Specific Advantage (LFSA). LFSA is from companies in a particular location (country) which have special resources (Dunning, 1998). LFSA can only be owned by the company in a particular place which is different with the FSA. It is also different with LSA, because it can only be owned by the local special companies. The company can take advantage of the Location-Specific Advantage (LSA), so as to establish their own Firm -Specific Advantage (FSA). Such as when Xinjiang Uni-President Enterprises Food Corporation Limited was taking advantage of Xinjiang local region to bloom into a crutched food companies as halal instant noodles, drinks and tomato products, lastly, it constructed the unique advantage based on the local company.

In short, the foreign subsidiary went through the FSA, LSA and LFSA of parent company to obtain higher

performance. It should be noted that the parent company, the FSA is only one source of the performance of its subsidiaries. It is inadequate for sources to understand foreign subsidiary performance in the international business environment by going through the different interpretation of FSA from the parent company alone. Because the performance differences in foreign subsidiaries may be caused by difference of the LSA and LFSA in different regions (or countries).

B. Industry effects and regional effects

The key issues of inspecting industrial effects is to test the performance differences of foreign subsidiaries which was caused by industrial properties or regional attributes, with it, it can explain performance differences better. In fact, different regions have different comparative advantages and competitive advantage, and the property of these regional has an important implications to industry effects.

As the classical theory of international trade, the theory of comparative advantage is widely applied to the study of regional economic. Regional comparative advantage is usually formed by a regional geographic conditions, natural resource endowments, labor and capital factors in order to develop favorable conditions (Wei Houkai, 2006). The theory of comparative advantage considered that the price of elements is different in the different regions due to the abundance of factors about how production is different in regions, such as land, labor and capital. Second, the relative cost of production (cost of an industry relative to other industrial production) will vary in different regions due to the fact that different densities of the industrial elements and different prices on production vary in the regional areas. In particular, the theory of comparative advantage proposed that a particular industry can produce cheaper products in a region (or country) because it uses relatively intensive production factors, and such elements are affluent in the region (or country), so the industry has a comparative advantage and becomes something special. Labor-intensive Taiwan firms often choose to invest in cheap labor and land in the region which is relatively low so they can have an edge in costs. Porter argued that competitive industries usually aren't evenly distributed in the country's economic institution, and then shows the geographic concentration which is the cluster characteristics (Porter, 1990). In general, the industry will promote the competitiveness in a whole region to form cluster competitiveness for affecting the industry performance through a variety of ways, such as reducing costs, stimulating innovation, improving efficiency, increasing competition.

The degree of development of industrial clusters is different in regions of mainland China, which is a significant difference in industrial agglomeration in various cities (Zhang Haoran, 2012). Foreign investors in a particular industry cluster will naturally get benefit from the cluster effect. At the same time, foreign investors tend to seek investment opportunities in industrial clusters, such as investment of Taiwan investors showing cluster characteristics, for example, the Taiwanese computer manufacturing centralized in Suzhou, Dongguan.

The above discussion argued that the impact of industry on foreign subsidiaries is inevitably limited by the region. Because factor endowments are different in different regions, thus affecting the comparative cost of production on the different industries in the region. Because industry clusters are different in Regions, thus affecting production efficiency, innovation and competitive advantage of the enterprises in the region. If we assume that the foreign subsidiaries has the difference in performance in different industries and that the cost difference and the competition in which the subsidiaries are competing, we can then affirm that the comparative theory provided us with how we understand the subsidiaries' performance is spread out in different zones and different time structures. Competitive advanced theory however explained how foreign subsidiaries' performance within the industry spread in different zones and it changes with the time as well. (Makino et al, 2004). A study shows the effect of a single country as a whole and the industry in it cannot isolate the industry effect from the special effects in two regions, at least, that is, the regional effect affects the performance differences of foreign subsidiaries on different industries in the same region and the performance differences of subsidiary in the same industry in different regional. In order to test the impact of industry on the performance of foreign subsidiaries, cross-regional research is necessary so the regional effects can be separated from the industry effect.

C. Regional institution environmental and regional effects

The institution has been defined as the rules of the game which contains the official rules (such as the law) and informal rules (such as the Code of Conduct). These rules build a region or socio-economic, political and social relations (North, 1990; Scott, 2008), as well as the evolution of path dependence to form the differences in regional economic, political and social institutions. Regional institutional environment provides foreign investors with a unique business environment, both opportunities and constraints that have far-reaching impact on its strategy and performance (Chan et al., 2008)

Regional economic institutions provide supportive services for the enterprise market intermediaries (including brokers, consultants, lawyers, merchants, financial institutions, etc.) and the infrastructure to support regional economic development (Porter, 1990). Intermediaries can provide information services for the enterprise to communicate with potential traders to increase trading opportunities. Foreign-funded enterprises to enter certain regions need to rely on the products and services provided by local companies to be competitive. The mainland China region is very uneven in its economic development. Regional economic institutions are better established for foreign investors to provide more trading opportunities, reduce transaction costs and improve operational efficiency.

Regional political institution, including the government and other political participators, are establishing the rule of law and implement to decide the foreign direct investment policy. Various regions are in a fairly stable macroeconomic and political environment in mainland China, however, the

regional political institution is still at a certain difference. Main features: (1) as a institution of independent interest entities, the local government has legislative power and autonomy (Jin Taijun and Wang Bo, 2003). In order to improve investment environment and develop economic, different local government will formulate different policies. (2) Foreign policy is formulated at the national level, but the execution is carried out at the local level. In order to attract foreign investment, competitions are conducted between local governments to provide different incentives for foreign investors (Yan Hua Fang et al, 2007), such as tax incentives, financial incentives, etc. Regional foreign policy is not only affecting the inflow of foreign capital, but also affecting the business cost in different regions.

A social institution is from the habits and behavior of the people (Scott, 2008). Different regional social institutions attribute to the unique traditions and cultural values of different places. Unique local traditions and cultural values will affect the level of trust, professional ethics, work attitudes, political trust and social capital between people and these factors will affect the cost of business activities (Lenartowicz and Roth, 2001). For example, trust can promote cooperation, reduce transaction costs, and improve efficiency, thereby creating a higher level of economic performance. China's vast and numerous national, local history, culture, customs and habits are considerable different and social institutions are not the same. (Yan Aiping, 2010).

To summarize, the above brief comments argue that performance difference of foreign subsidiary is not only reflected in the parent companies and industries, but also reflected in the different regions of mainland China, because different regions have different comparative advantages and competitive advantage for foreign subsidiary that are provided in different institutional environment. The purpose of this paper is to interpret the performance differences of Taiwan business in mainland China and to test the differences among the region, the parent company and the industry.

IV. RESEARCH METHODOLOGY

A. Sample

In this study, the data comes from Taiwan's Commercial Times which published the "1000 Taiwan businessmen in mainland China", the report of Taiwan business in mainland China is defined as: (1) the mainland China legally established enterprise; (2) directly or indirectly held by Taiwan enterprises or individuals reached or exceeded 45% of the shares (through the offshore islands holding company invested to set up, etc.). Five years of data collected from 2005-2009"1000 Taiwan businessmen in mainland China", observations are 5000. We removed some of the samples in order to form the sample for this study: (1) samples which lack of investment by Taiwan enterprise or group; (2) Bowman and Helfat (2001) argued that only a subsidiary will have blurred effect of parent company, so, we removed only a subsidiary of the conglomerates. (3) Lack of important information. The final sample was 2596 subsidiaries which served as observations, including 209 conglomerates that have

832 subsidiaries and involved with 34 industries located in 45 cities. In this study, the region was defined as city because the city is a place of the institution entities, which is used to promote the development of local institutional environment that constitute a relatively homogeneous institution environment within the city. In order to compare differences in wider regions, we chose two regions of that Taiwan businesses are most intensive, namely the Pearl River Delta and Yangtze River Delta region, to compare Taiwan business performance between these two regions². Relevant sample information is in Table 1.

Table 1 sample information

	Total Sample	Samples of Yangtze River Delta	Samples of the Pearl River Delta
Group number	209	169	130
Number of industries	34	34	29
Number of cities	45	17	8
Number of subsidiaries observations	832 2596	169 1248	264 872
years	2005 - 2009	2005 - 2009	2005 - 2009

B. Research variables

There are six variables in this study. City effect variable represents the differences between cities where Taiwan invested. Industry Effects variable represents the difference in Taiwan business industries. The industry classification is in accordance to the SIC Code (2-4 digits) classification method and the main product of Taiwan businesses. The total sample consisted of cities and industries are shown in appendix A and appendix B .

The subsidiaries effects are different between the subsidiary and the parent company effects which are also different in conglomerates of Taiwan³. It includes cities -- industry which has an interaction effect variable in model of this study, because the industrial structure of different cities is different, the competitiveness in same industry in the different cities is also different. Yearly effect variable represents the observation period (2005-2009) and year macroeconomic environment which affecting Taiwan business performance.

In this study, the dependent variable is the result of subsidiary's performance. This study used the return on sales (ROS) as a measure of subsidiary performance, and the ROS evaluates the ability of enterprise profit through the sales to indicate that how much net profit are the enterprises able to get from per dollar of sales. The higher proportion of net profit indicates the stronger ability to expand sales for revenue. In a globalized environment, ROS is considered to be a relatively good metrics, which can better reflect the operating

2 According to the statistics of the ministry of economic affairs, in 1991-2011, totaling of Taiwan investment in mainland China is \$11168.9 billion, among them, the Guangdong (mainly in the pearl river delta) accounted for 21.7%, Yangtze river delta accounted for 54.9% .

3 Taiwan conglomerates were treated as the parent company of its subsidiaries.

performance of the changing business environment. (Christmann et al, 1999).

C. Research mode

Following the previous related research (such as McGahan and Porter, 1997; Makino et al., 2004, Chang and Hong, 2002). The study used the subsidiary of Taiwan conglomerates in mainland China as unit of analysis to apply variance component analysis which is then used to test the sources of performance in subsidiaries. The model is as follow :

$$(1) \eta_{ijkl} = \mu + \alpha_i + \beta_j + \gamma_k + \lambda_l + (\beta\gamma)_{jk} + \tau_t + e_{ijkl}$$

η_{ijkl} represents at t year, region k , industry j , parent company l , subsidiary i performance indicators (ROS) . η_{ijkl} is the total average μ , Subsidiary effect α_i , Industry effect β_j , regional effect γ_k And the effect of the parent company λ_l , industry and regional interaction effect $(\beta\gamma)_{jk}$, year effect τ_t and error effect e_{ijkl} linear combination error effects represent the effect of the model which did not take other factors into account. All independent variables are treated as random effects variables. The subsidiaries performance variance components can be decomposed into:

$$(2) \sigma_{\eta}^2 = \sigma_{\alpha}^2 + \sigma_{\beta}^2 + \sigma_{\gamma}^2 + \sigma_{\lambda}^2 + \sigma_{\beta\gamma}^2 + \sigma_{\tau}^2 + \sigma_e^2$$

The variance of subsidiary performance σ_{η}^2 can be decomposed into variance between subsidiaries σ_{α}^2 , variance between industries σ_{β}^2 , Regional variance σ_{γ}^2 , variance between the parent company σ_{λ}^2 , industry and regional interaction variance $\sigma_{\beta\gamma}^2$, year variance σ_{τ}^2 and other factors variance σ_e^2 .

D. Empirical results

In this study, the Software SARS was used to analyze variance component. The estimation and interpretation of the percentage in performance variance on effect variance of the subsidiary in the total sample were shown in table 2. Model 1 test city effect, industry effect, the parent company effect, a subsidiary effect and year effect of subsidiary performance, and the effect is very significant.

Table 2 Variance component analysis results

(total sample)

Variance Component	Model1		Model2		Model3	
	Estimated Value	%	Estimated Value	%	Estimated Value	%
Year	0.049*	0.05	0.022*	0.02	0.026*	0.03
Subsidiary	32.086**	31.82	25.701**	26.09	24.907**	24.89
Parent company	19.006**	18.85	15.658**	15.9	16.300**	16.29
City	1.877**	1.86	-	-	1.460**	1.46
Industry	4.732**	4.69	-	-	2.913**	2.91
City*Industry	-	-	13.995**	14.21	11.369**	11.36
Other factor	43.091**	42.73	43.129**	43.78	43.106**	43.07
Total	100.841	100	98.505	100	100.081	100

*p<0.05, **p<0.01

Obviously, city effects, industry effects and parent company effects are important factors to affect corporate performance. The subsidiary effects (31.82%) is the most important determinant of the subsidiary performance of Taiwan conglomerates, then, the parent company of effects (18.85%), industry effects (4.69%), city effects (1.86%), year effects (0.05%). Existing research (e.g., Makino et al., 2004) think that business unit (subsidiary) effect is largest impact to the performance of the business unit (subsidiary), followed by the parent effect, industry, country, and annual effect. This study found that similar.

Table 3 Variance component analysis results
(Samples of Yangtze River delta and the Pearl River delta)

Variance Component	Yangtze River Delta		Pearl River Delta	
	Estimated Value	%	Estimated Value	%
Year	0.534*	0.60	0.099*	0.09
Subsidiary	35.432**	39.83	21.325**	20.20
Parent company	16.930**	19.03	5.999**	5.68
City	2.234**	2.51	4.150**	3.93
Industry	3.461**	3.89	9.341**	8.85
Other factor	30.372**	34.14	64.641**	61.24
Total	88.963	100.00	105.555	100.00
Sample size	1248		872	

* p<0.05, **p<0.01

Model 2 includes the variables of city - industry interaction effects. The results show that the interaction effect explained 14.21% of the total variance. Model 3 includes the independent variables and interaction variables, the interaction effects were 11.36% but the city effects decreased from 1.86% to 1.46%, industry effects dropped to 2.91% from 4.69%. The study shows that the influence industry and city effects on subsidiary performance is not independent, but commonly affects the performance of the subsidiary. City - industry interaction effect is much higher than city effects and industry effects, which means that industry effects are highly localized. Table 3 provides analysis results of Taiwan Conglomerates subsidiary performance variance components in the Yangtze River Delta and Pearl River Delta region.

From the analysis result in table 3, we can find several noteworthy. First, the city effect of Pearl River Delta is greater than the city effect in the Yangtze River Delta; city effect in the PRD is 3.93% higher than the city effect 2.51% in Yangtze River Delta. Second, compared with the Yangtze River Delta region, industry effect for the Pearl River Delta region is more important. Industry

Effects of the Pearl River Delta region is 8.85%, 3.89% higher than in the Yangtze River Delta region. These results indicate that the effect of "external environment" in Pearl River Delta region (i.e., industry and city effects) is more important than in Yangtze River Delta region. Third, an effect of parent company in the Yangtze River Delta region is higher than in Pearl River Delta region. Studies have shown that the effect of the parent company in the Yangtze River Delta region is 19.03%, higher than the 5.68% of the Pearl River Delta region. Fourth, a subsidiary effect in the Yangtze River Delta region is higher than the Pearl River Delta region; studies have shown that the subsidiary effect of the Yangtze River Delta region is 39.83%, higher than the 20.2% of the Pearl River Delta region. These results suggest that effects are from "internal conditions" (i.e. the parent company and the subsidiary effect) in the Yangtze River Delta region, which is more important than in the Pearl River Delta region.

V. CONCLUSION AND DISCUSSION

The study examined the sources of performance differences on subsidiary in the Conglomerates, and focuses on the impact of the regional effect to subsidiary performance. The analysis results show the following conclusions. First, the results of this study show that the region is an important factor affecting the performance of Taiwan business in mainland China. The findings of this study show that regional factors and industry factors are important factors affecting business performance. Although the existing research uses the theory of industrial organization and the resource-based theory to explain the performance of business unit, they fail to identify impact of regional factors on firm performance. Enterprise performance in the future research needs to consider the

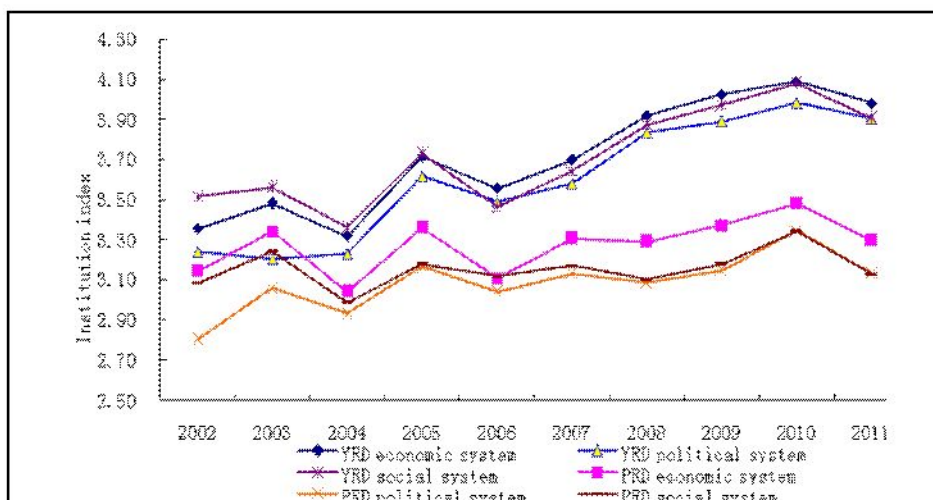


Figure 1 City institution environment in Pearl River delta and Yangtze River delta

Source: report on electrical electronic industrial of trade from 2002-2011: "mainland China region investment climate and risk survey".

Note: values in the figure are the average of city of institutions in the Pearl River delta and Yangtze River delta. The survey institution of index is 5 scales, the higher score according to the investment environment, the better.

factors of the region where the business is located, in order to more fully understand the various factors affecting business performance.

Second, in a comparative study of the Yangtze River Delta and Pearl River Delta region on subsidiary performance of Taiwan Conglomerates, the research results show that the external effects (regional and industry effects) in the Pearl River Delta region is even more important, on the contrary, the internal effects (subsidiary and parent Company effect) in the Yangtze River Delta region is even more important. The research findings suggest that the smaller the impact of external factors on performance differences in the Yangtze River Delta region for subsidiary, but in the Pearl River Delta region, the influence of external factors is greater. One possible explanation is that the institutional environment of the Yangtze River Delta region is rather perfect, so less interference by the external environment to Taiwan business, and in explaining of subsidiary performance, therefore, the internal effects (parent and subsidiaries) can play a more important role. In contrast, the institutional environment of the Pearl River Delta region is not perfect; the Taiwan business is vulnerable interference by the external environment. In explaining of subsidiary performance, therefore, the external effects tend to play a more important role. This is similar to Makino et al. (2004) study showing that they believe the external effects (industry and country effects) has less impact on business performance in the perfect institution in the developed countries, while the external effects on firm performance has more impact on business performance in the imperfect institution of the developing countries. This confirms the finding of “mainland China investment environment and risks survey”. From the view of the annual investigation, the economic institution, political institution and social institution environment (see appendix of related investigations) in the Yangtze River Delta is better than in the Pearl River Delta (Figure 1).

Thus, we can consider that, with the different levels of development in the regional institution, the internal and external factors affecting the performance of Taiwan businessmen are subject to change. Determination of corporate performance is mainly from the internal strengths, and internal effect on the subsidiary's performance which is more important, however there is a smaller impact on the external effect of the subsidiary's performance in the institution which has a relatively high development level of institution in the region; the greater impact of external effect is for subsidiary performance with a relatively low level development of institution in the region. The study confirms that Taiwan investment's choice of location also transfers from the Pearl River Delta to the Yangtze River Delta.⁴ With the changes in development of the regional economy and the layout of Taiwan business, an interesting study is to examine how the change of relative importance of external effects and internal effects by time.

⁴ Taiwanese investment in the Yangtze River Delta accounted for the proportion of the annual amount rose from 14% in 1991 to 51% in 2011, Guangdong proportion decreased from 42% in 1991 to 15.3% in 2011.

Third, the study found that the impact of performance on interaction of regional and industrial subsidiary is larger than the independent variables of regional effects and industry effects, which means that the relative importance of the industry is different in different cities or the city's relatively importance is different for different industries. One explanation is the industry's comparative advantage in different cities is different. Another explanation is that the decentralization policy provides incentives to protect local industry for the city to form a local industrial policy environment, and its consequences affect the structure and profitability of these industries. For a better understanding of the determinants of performance, it is necessary to test the impact of local factors and non-local factors on the industry in the future.

Of course, there are some shortcomings in this study, such as not testing why there are differences in subsidiary at different levels. This study only revealed that each effect can explain how much of the variance subsidiary performance had. More research in the future is needed in order to expand in this region. There are ways to identify attributes of regional specialty, such as regional capacity, institutional rules and implementation mechanism, and how to examine their impact on performance of foreign-funded enterprises. In addition, our study sample is a Taiwan-funded enterprise. The conclusions may not apply to other foreign-funded enterprises. Therefore, the future study is able to do research for other foreign-funded enterprises, such as the Japanese-owned, US-funded enterprises.

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Appendix A Distribution of Taiwan business

City	Number of samples	City	Number of samples	City	Number of samples
Yangtze river delta cities					
		Hangzhou	36	Zibo	8
Shanghai	277	Jiaying	6	Qingdao	24
Nanjing	40	Pearl river delta cities		Shenyang	15
Kunshan	337	Guangzhou	162	Harbin	6
Suzhou	233	Shenzhen	264	Hefei	6
Wuxi	71	Dongguan	261	Wuhu	6
Wujiang	61	Zhongshan	72	Changsha	7
Zhenjiang	34	Huizhou	45	Nanchang	7
Changshu	23	Jiangmen	10	Taiyuan	7
Changzhou	22	Foshan	41	Chendu	16
Jiangyin	17	Zhuhai	17	Chongqing	21
Taicang	14	Other cities		Wuhan	33
Nantong	11	Beijing	49	Xiamen	73
Yancheng	10	Tianjin	95	Fuzhou	54
Yangzhou	7	Dalian	11	Putian	17
Ningbo	49	Yantai	9	Zhangzhou	12
Total	45 Cities, Total sample 2596				

Appendix B Sample of industry distribution

No	Industry	Number of samples	No	Industry	Number of samples
1	Food	192	18	Power equipment	15
2	Textile	67	19	Home Appliances	22
3	Clothing	26	20	Lighting and wiring devices	73
4	Furniture	8	21	Home video equipment	37
5	Paper making, printing	70	22	Communications equipment	80
6	Chemical product	170	23	Electronic Components	305
7	Plastic and rubber products	148	24	Printed circuit board	129
8	Leather ware	54	25	Semiconductors and related devices	52
9	Stone, ceramic, glass, cement products	58	26	Electrical coils, transformers, sensors	44
10	Metal	125	27	Batteries and other electronic equipment	19
11	Industrial equipment	82	28	Other electronic equipment	17
12	Computer and office equipment	118	29	Transportation equipment	128
13	Electronic computer	170	30	Optical instruments, measuring and control equipment	71
14	Computer Terminals	107	31	Other Manufacturing	16
15	Computer Peripherals	27	32	Retail & commodities	31
16	Other Office Equipment	41	33	Construction, power	11
17	Power transmission and distribution equipment	63	34	Other Services	20

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