

# The Joint Effects of Geographical Diversification to MNEs' Performance Through China Investment

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## ABSTRACT

*This study mainly assesses the joint effects of country diversification and regional diversification on enterprises' performance with the publicly-listed Taiwanese Multinational Enterprises (TMNEs). We choose two special diversification variables (country and regional diversification factors) to analyze within the general theory of the TMNEs. We test our hypotheses using official data collected between 1999 and 2008. We find that through China investment (CI) can enhance TMNEs' performance. We find strong support for the argument that aspects of the methodology and multinational-diversification theory help to explain the CI of TMNEs in China. Furthermore, TMNEs adopt geographical diversification strategy through china investment will result in better performance. In addition, middle level country diversification and regional diversification is the best diversification portfolio for TMNEs to expand overseas and obtain better performance. The results show low positive relationship at high level country and regional diversification on performance. Furthermore, geographically-diversified TMNEs through middle level china investment is apparently associated with better performance.*

**Keywords:** *Geographical Diversification, China Investment strategy, Performance, Joint Effects, Taiwanese Multinational Enterprises (TMNEs)*

## INTRODUCTION

Most TMNEs had been export-oriented manufactures which played as the pioneers that starting to move to countries with relatively low cost in the factors of production in order to lower the labor, energy, land and capital associated expenses since 1980s. Several multi-nationalists suggest that geographical diversification provide diversified firms with the potentials to exploit more market opportunities, to spread market risks, and to seek less expensive inputs and less price-sensitive markets (Buckley and Casson 1976 ; Delios and Beamish 1999). In another words, geographical diversification in some way can be viewed as another international diversification strategy to some degrees and could be defined as expansion across borders of global regions and countries into different geographic locations or markets (Hill et al. 1992). Conceptually, geographical diversification provides firms with benefits but have to pay high costs (Tallman and Li 1996). However, transaction cost theory (Williamson, Paez, and Sanders, 1988) suggests that geographical diversification will incur heavy costs (including market entry costs, coordination costs among business units in different countries, and information-processing costs, etc). Under certain conditions, these costs might surpass the benefits (Sambharya, 1995). Geographical diversification has become increasingly an important issue these ten years, in the meanwhile, from the

prior research reviewed, geographical diversification has positive impacts on diversified firms' performance to high percentage. Ramaswamy (1993) went further and found that interactions between different measures of geographical diversification had more significant effects on MNEs' performance.

Strategic management literature has studied extensively the costs and the benefits of diversification strategy and its effect on competitive advantage for an organization (Chakrabarti, Singh, & Mahmood, 2007; Palich, Cradinal, & Miller, 2000). Researchers have particularly focused on the effect of business diversification which is defined as the synergy in different lines of business and international diversification or geographical diversification in a different market (Fang, Wade, Delios, & Beamish, 2007; Kim, Hwang & Burgers, 1989) on firm performance. The sample industries in our study are electronic manufacturing industry and machinery industry, in addition, electronic and machinery products occupied for nearly 64.87% of total exporting value. Therefore, electronic and machinery industry could be viewed as representative to Taiwanese industries, and we also believe that both industries can provide good example for academic research. It will be an crucial issue to explore for the reason that TMNEs have apparent increasing percentage investments in China from 1999 but decreasing from 2008, and have close relationship with China' economic development these ten years. Comparative with the existing geographical diversification literatures we have reviewed, the research model has some differences from the current diversification literature shown in two dimensions. This study mainly examines the jointed effects of among country and region diversification on TMNEs' performance and provide our crucial findings to the related literatures in several ways and from the final findings to reconcile somewhat conflicting evidence on the relation between geographic diversification and performance. The moderating role of "china investment usage" is used to be a moderator to examine the joint effects between geographical diversification and performance to see whether china investment usage has better enhancing effect to TMNEs' performance or not.

## **LITERATURE REVIEW AND THE THEORETICAL HYPOTHESES BUILDING**

### **Applied Theory on Geographical Diversification and Financial Performance**

Geographical diversification is often termed as another international diversification strategy for multinational researchers. From our research which shown was mainly focused on these two dimensions-country diversification (Daniels and Bracker 1989; Kim et al, 1989; Ramaswamy et al., 1996 ; Sullivan, 1994; Lu et al., 2004) and regional diversification (Li and Qian , 2005). Ramaswamy (1993) found that interactions between different measures of geographical diversification had more significant effects on MNEs' performance. It's believed that diversification across countries within a region incurs much lower costs than diversification across regions. The concept of geographic diversification may be more important given the need for most firms to expand markets overseas in Asia. Hitt, Hoskisson, and Kim (1997) classify firms that are horizontally or vertically integrated across different national markets as firms with international market diversification and suggest that firms often become internationalized in a step-by-step process in which investment opportunities in the least psychically distant foreign locations are developed first. Geographical/international diversification can improve firm performance by increasing sales in foreign markets, reducing the risk of economic downturn in the home market, lowering costs through economies of scale in manufacturing, R&D, marketing and distribution system (Sarathy, Terpstra and Russow, 2006 ; Contractor, 2007).

## **Theory and Separate Effect of Geographical Diversification to Performance**

Transaction cost theory suggests that geographical diversification will lead to produce heavy costs which were included market entry costs, costs of coordination among business units in different countries, and information-processing costs. Under certain conditions, these costs might surpass the benefits (Sambharya, 1995). We would try to find out the effect within every independent variable to TMNEs' performance, respectively. The scholars stated that country diversification is defined as the expansion into individual foreign countries, like Egypt or Vietnam. We will intend to draw mainly on three relevant theories (i.e., multinational theory, transaction cost theory, and organizational learning theory) to develop the analytical framework. Ramaswamy (1993) defined diversification as corporations operate in several different business fields simultaneously. From some international scholars' research (Tallman and Li 1996; Li and Qian, 2005), geographical diversification also drew researcher's attention to study these ten years. According to our research, we find that high levels of country diversification might not necessarily face risky or costly condition if a MNE could restrict its operations in a particular region where most of countries share with similar demand patterns and cultures. Wide country diversification provides the opportunities for multinational manufacturers to exploit market imperfections (e.g., differences in capital charges and labor costs) by performing many activities internally (Buckley and Casson 1976). In addition, wide country diversification can help a firm to build up its internal capital market and then to increase the performance by degrees (Hill et al. 1992).

As countries in the same geographic area share many similar market characteristics, customers there may accept similar product features. Standardization would incur by way of regional diversification, and standardization would save costs as it will result in providing economies of scale and scope (Hitt et al. 2006; Phene, and Almeida, 2008). Rugman & Oh (2008) chose 60 cases and were examined to establish the robust nature of this regional effect at the firm level. It was also demonstrated that whenever data on assets were provided by firms, the upstream production data also revealed a regional rather than a global effect. In addition, the employment data of large South Korean firms confirms the regional effect. Furthermore, multinational researchers suggested that similar market environments within a region help firms make it possible for diversified firms to standardize their products and rationalize production in the particular region (Tallman and Li 1996; Sarathy, Terpstra, Russow, 2006). Yamin and Forsgren (2006) consider that the preponderance of regional MNEs (it could also be viewed as TMNEs adopt regional diversification strategy) is consistent with Hoskisson, Hitt and Moesel (1993).

## **The Joint Effects of Geographical Diversification to Performance**

### *The Effects and Joint Effects of Diversification Configuration to Performance*

Transaction cost theory is suggested that such similarities could reduce coordination costs, distribution costs, management costs, information searching costs, and information processing costs, as the similarities reduce both managerial, technological, and coordination complexities and facilitate communications between different business units which were located in different countries. Whereas, low country diversification will limit market opportunities and growth potential for each product line to grow within a diversified firm as low country diversification limits market size (Chatterjee, & Wernerfelt, 1991; Delios and Beamish, 1999 ; Goerzen, & Beamish, 2003). Because geographically diversified firms will meet with difficulty in achieving large volumes with low country diversification, therefore, they can hardly spread R&D costs and promotion costs of each product line over a large volume and then lead to suffer high costs and possibly decrease their performance (Sarathy, Terpstra, Russow, 2006). Stulz(2005) emphasizes that country-diversification specific characteristics still matter a great deal in international

financial markets although the barriers to international investment have fallen abruptly. Yeung (2002) develops a geographical perspective on economic globalization. Li and Qian (2005) propose the configuration model for international diversification, if MNEs diversify into various countries within a region, they could enjoy increased market opportunities and growth potential. According to our findings, country diversification has positive effect on the firm performance at low level of regional diversification but becomes negative with high regional diversification. From the point view of country and regional diversification, it has positive effect on firm performance when level of regional diversification is middle.

Organizational learning theory is suggested that low regional diversification might facilitate business diversification and increase operations which were resulted from operations in various countries and possibly lead to produce/increase knowledge spillover effects between product lines. Furthermore, low regional diversification will also expose MNEs to similar environments but at the same time might not necessarily restrict the MNEs' market opportunities if the MNE diversifies into various countries within a particular region (Morck and Yeung 1991, Saloner et al. 2001). Low level regional diversification might also minimize the disadvantages of business diversification as MNEs face the environmental similarities and then reduce coordination costs between different product lines (Geringer et al. 2000). When MNEs diversify into various different regions, they have to deal with great varieties of environments and experience high complexities and managerial constraints and high diversification may dilute MNEs' focus to concentrate on their main target (Eddleston, Kellermanns, and Sarathy, 2008; Geringer et al. 2000; Rugman, 2007). For lack of focus which was combined with high levels of complexities and managerial constraints might make diversified MNEs vulnerable to cost competition from formidable competitors. There are related empirical literatures on globalization and regionalization were found that through regional diversification strategy can increase international trade amount and obtain better business performance between member countries, in the meanwhile, would not harm non-member countries' trade benefits (Baldwin & Venables, 1995; Zheng and Zhang, 2004). The effects of trade agreements on the level of regional diversification and foreign direct investment (FDI) will vary across the agreements and result in good performance (Fратиanni & Oh, 2009).

### **Summary and Hypotheses of the Joint and Moderating Effects between Geographical Diversification and Performance**

The degrees of geographical diversification will have the positive relation to the financial performance of TMNEs, that is to say, the higher geographically diversified, the better financial performance the MNEs will obtain. Early researchers found a linear relationship between multinationality and performance. Errunza and Senbet (1984), Grant (1987) found a positive linear relationship, while Siddharthan and Lall (1982) and Franko (1989) found a negative linear relationship and found that geographical diversification improved the performance of North American and European firms but did not raise the performance of Pan-Asian firms. Both positive and negative relationships can be explained by fundamental international business theories. There're two different thoughts inside this study. On one hand, the positive relationship (or benefits of geographical diversification) might be defended by the concepts which include (1) economies of scale, (2) economies of scope, (3) the international product life cycle, (4) factor speculation, (5) risk diversification, and (6) learning and knowledge transfer. On the other hand, the negative relationship (or costs of geographical diversification) might be supported by the concepts which include (1) the liability of foreignness, (2) coordination costs, and (3) institutional risks. (Gomes and Ramaswamy, 1999)

Eddleston, Kellermanns, and Sarathy (2008) pointed out that internationalization occurs as a result of a firm's drive to grow and maximize its benefits across diversified geographical locations and these location factors which include natural resources, human capital, technological resources, institutional factors, demand and other potential strategic assets can provide country-specific foreign competitive advantages. When MNEs enter into foreign markets to exploit its non-location firm-specific advantages, it will be subjected to the constraint of the liability of foreignness and it will be needed to learn how to offset the risk of foreign activity and be against the benefits of firm-specific advantages (Xu, Pan, Wu and Yim, 2006). Therefore, it seems that through geographical diversification will have raised the positive effects to the financial performance of TMNEs. According to the statements described above, we would propose the following hypotheses.

*H1: The country diversification has positive relation with the performance of TMNEs.*

*H2: The regional diversification has positive relation with the performance of TMNEs.*

TMNEs after years of proceeding in investment in China, from the past report shown, the TMNEs before 2001 entered into China had high-dependency investment in China and gained better competitiveness compared with the past years, simultaneously, we attempt to formulate relative hypotheses addressing this research question and draw a general picture of the relative performance of these TMNEs with stata statistical tool to explore the outcomes. Summarizing the statements described above, we proposed the following hypotheses.

*H3: TMNEs at the joint effects between country and regional diversification has positive relation to the performance of TMNEs.*

*H4: The diversification configuration at the squared effects has positive relation with the performance of TMNEs.*

*H4-1: Country diversification squared has positive relation to the performance of TMNEs.*

*H4-2: Regional diversification squared has positive relation to the performance of TMNEs.*

### **The Moderating Effects to both Geographical Diversification and Performance**

Multinational theories suggest that standardization of products and production is more possible when operating in more similar markets within a region (Tallman and Li, 1996). The reason is that countries in the same region share the same market characteristics, and therefore, the possibility of launching the same product and service is more conceivable. Standardization saves cost and makes economies of scale and scope possible. Moreover, it is easier for firms to exploit synergy (Hitt et al., 2006). Competencies developed in one country can be easily applied to another country in the same region, and then resources can also be delivered within shorter distance to save the transportation cost. (Tallman and Li, 1996) Organizational learning theory suggests that institutional and cultural factors are arduous elements of transferring marketing knowledge and product knowledge between different regions (Kogut and Singh, 1988). However, a decentralized system can be problematic also. They have to duplicate and repeat same functions or activities in different regions (Sambharya 1995). For TMNEs, it's a crucial issue to know how much investment amount and ratio in China or what degrees of country and regional diversification will fit the best performance will be examined in this article. Faced with intensifying international competition, Taiwan, whose economic growth was founded on international trade, also launched global investments in the 1990s. Since the beginning of the new millennium, unleashed cross-strait interactions of the private sectors and the rapid growth of the Chinese economy have resulted in a significant phenomenon – Taiwan's foreign investments have begun to concentrate on

China from 1999. For the statements mentioned above to examine CIU moderating effects to TMNEs' performance, we propose the following hypotheses.

*H5: The relationship between performance and country diversification vary positively with the moderating effect of middle level china investment usage.*

*H6: The relationship between performance and regional diversification vary positively with the moderating effect of middle level china investment usage.*

*H7: The relationship among performance, country and regional diversification has positive relationship with the moderating effect of middle level china investment usage.*

## **RESEARCH SAMPLES AND METHODOLOGY**

### **Data Collection and Description**

The samples in the research are mainly adapted from Taiwan Economic Journal Co., Ltd (TEJ databank) and Taiwan Security Exchange. Samples are collected by following rules: (1) public listed companies in the Market Observation, (2) The samples occupied about 63.87 % are electronic industry and machinery industry inside this study. The exogenous variable, china investment usage , will be viewed as a moderator to test the moderating effects between diversification configuration and performance. According to the annual report provided by Market Observation Post System (MOPS) established inside in Taiwan Stock Exchange Corporation TSEC, (Date: June, 2009). The export value of electronic industry and machinery industry are the top two on the list, which are 45.23% and 18.64% respectively in 2008 (totally occupied 63.87 % in dataset)and be collected in this study. The total number of firms which had invested overseas over 15 years, were chosen initially in this study is 279. However, after deleting the missing and incomplete data out, it would be necessary to make some adjustments to the original database, the number of firms collected is left 248 available to examine from TSEC (Taiwan Stock Exchange Corporation), and the period of time was from 1999 to 2008.

The data collection in this study is chosen from the list of the Taiwan's top 500 largest firms in 2008 as a base set to analyze the relationship between geographical diversification and performance for 10 years. First of all, the history of both of their product and geographical diversification is over 15 years and most of them have operated in multiple and disparate product and geographical markets. Secondly, we used a ten-year period from 1999 through 2008 for each variable in this study and these TMNEs have more financial resources to carry out geographical diversification and invested in China for more than fifteen years.

### **Variables and Operational Definitions**

From past studies, the degree of country diversification was commonly measured by the scale of foreign operations or multinationality, such as foreign sales in a host country as a percentage of total sales (Geringer et al. 1989; Grant et al.,1988), foreign assets in a host country as a percentage of total assets (Daniels and Bracker 1989; Ramaswamy 1993), and number of foreign employees in a host country as a percentage of total employees (Kim, Hoskisson and Wan, 2004). We define and calculated the country diversification index as the average from two of the three ratios(we collect FATA and FSTS in this study) and used the ratio to measure country diversification. Why not adopt the employees? The employees will be omitted because we thought the employees not so crucial and weighted to measure. The measurement and operational definition is shown as follows.(See Table 1)

## Regression Model

A panel data should potentially be very informative about the parameters to be estimated (Qian and Li, 2002). We pooled our cross-sectional data to take advantage of the greater degrees of freedom offered by pooling and to capture both the dynamic information and the variation due to cross-sectional panel-data. In order to find the relationship between different diversification configuration and performance and observe the effect of economic changes on degree of diversification at the same time, we pool the cross-sectional and time-series data into fit panel-data models and the statistical regression model. The following regression models will be shown: regression model for ROA and Systematic Risk to analyze. The regression model for ROA is stated as follows.

$$\text{PERF}_{\text{ROA}} = \beta_1 \text{cd} + \beta_2 \text{rd} + \beta_3 (\text{cd} \times \text{rd}) + \beta_4 \text{cd}^2 + \beta_5 \text{rd}^2 + \beta_6 (\text{cd} \times \text{ciu}) + \beta_7 (\text{rd} \times \text{ciu}) + \beta_8 (\text{cd} \times \text{rd} \times \text{ciu}) + \text{Control Variables} + \alpha_i + \mu_{it} ; \quad \alpha_i = \text{an unobserved effect} ; \mu_{it} = \text{idiosyncratic error}$$

**Table 1: Operational Definition of Variables**

Variables		Definition and Measurement
<b>Dependent</b>	<b>Performance</b>	<b>ROA</b> = Net income after tax / [(total assets of the starting year + total assets of the ending year) / 2] × 100%
<b>Independent</b>	<b>Geographical Diversification</b> Country Diversification	<b>Country Diversification</b> = (FATA + FSTS) / 2 in which FATA is the ratio of foreign assets to a firm's total assets, and FSTS is the ratio of foreign sales to a firm's total sales.
	Regional Diversification	<b>Regional Diversification</b> = $\sum_{i=1}^n p_i \times \ln(1/p_i)$ in which $P_i$ is the sales of global market region $i$ attributed to the total sales, and $\ln(1/P_i)$ is the weight given to region $i$ .
<b>Moderator</b>	China Investment Usage	<b>CIU</b> = Real investment amount in China / Total investment amount overseas invested by TMNEs
<b>Control</b>	Firm size	Firm size = The logarithm of group total employees
	Debt ratio R&D intensity	Debt ratio = The ratio of total debt to total equity R&D intensity = $RD_i / \text{Net sales amount}$ Where $RD_i$ is Firm $i$ average R & D expenditure

## EMPIRICAL RESULTS

### The Diversification Configuration to Performance

The main independent variables are entered, which are country diversification, regional diversification and business diversification. The country diversification is shown to be significant and positively associated with firm performance, regional diversification ( $P \leq 0.01$ ) is significant and positive associated with firm performance ( $P \leq 0.01$ ). We further test the squared term of country diversification and firm performance and the result is significant and positive. When TMNEs further diversified into more countries but less regional diversification will decrease the performance, it would gradually having a worse effect on firm performance than the range described above (significant but negative,  $p \leq 0.1$ ).

*The test results of H1-H4 are summarized as follows:*

*H1: The results show significant and strongly supported.*

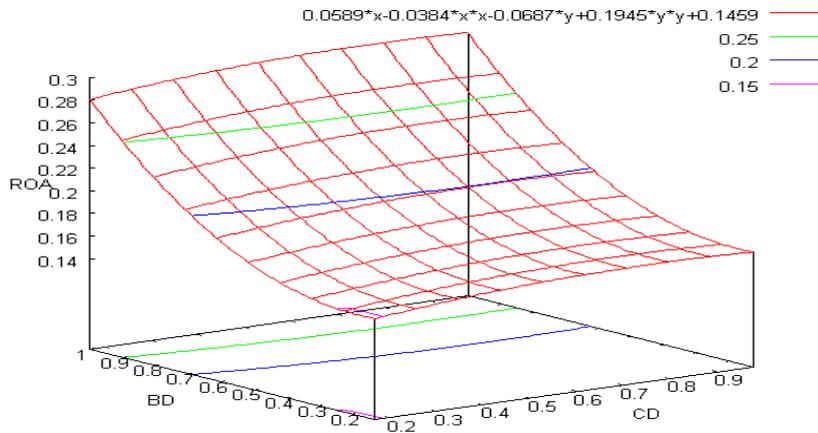
*H2: The results show significant and strongly supported.*

*H3: The results show insignificant and not supported.*

H4: The results show significant and supported.

H4-1: significant and strongly supported.

H4-2: significant and weakly supported.



### The Joint and Moderating Effects of China Investment Usage between Diversification Configuration and Performance

We further tested the joint effect between two dimensions of geographical diversification and the test for hypotheses H1-H4, whenever country diversification level is at between 0.5 and 0.6, regional diversification at about between the range 0.4 and 0.55 will get better performance, whereas, country diversification squared and regional diversification squared are both negative related to firm performance, but country diversification squared is significant to performance ( $p \leq 0.05$ ). The results show that joint effect of country and regional diversification are statistically significant and positively related to firm performance ( $p \leq 0.05$ ). Nonetheless, the joint effect of country diversification and regional diversification demonstrated a significant and positive result. More details of the joint and moderating effects of China investment usage between diversification configuration and performance will be illustrated with figures figure 1 and 2.

The configuration model demonstrates that middle level of country diversification (between 0.5 and 0.6) and approximately middle level of regional diversification (not more than 0.55) is the best portfolio for TMNEs to expand overseas. On the contrast, high level of country diversification and high level of regional diversification present the worse ROA performance in our result. Furthermore, we focus on explaining moderating effect of china investment usage, regional diversification has negative and curvilinear relationship to ROA when over 0.55. It indicates that obtaining middle level of regional diversification and middle level china investment usage (not over 0.5) will be an appropriate strategy for TMNEs to invest overseas. When China investment ratio is controlled below 0.5 and the degree of regional diversification is less than 0.55, ROA performs better. When regional diversification range not more than 0.55, china investment usage not over 0.5 and country diversification range from 0.5 to 0.6, firm performance will locate in the better area. The result indicates that firms engaging in regional diversification can spread risk and aggregate profit from investing different regions and firms will have better performance. The relationship between china investment usage and joint effect of regional diversification and country diversification did not reach the significance level, but it's statistically significant on the joint effect of business diversification ad regional diversification (ROA,  $p \leq 0.05$ ).

The test results of H5-H7 are summarized as follows:

*H5: significant and strongly supported on performance.*

*H6: significant but partially supported on performance.*

*H7: significant and strongly supported on performance.*

## CONCLUSION AND DISCUSSION

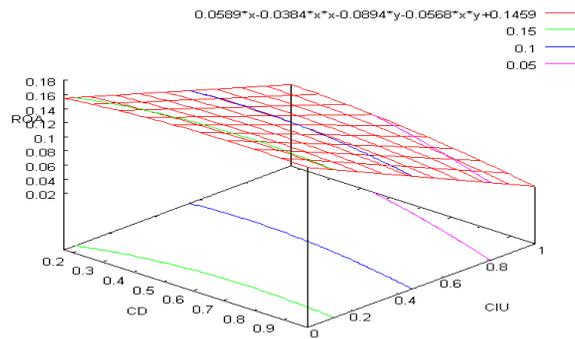
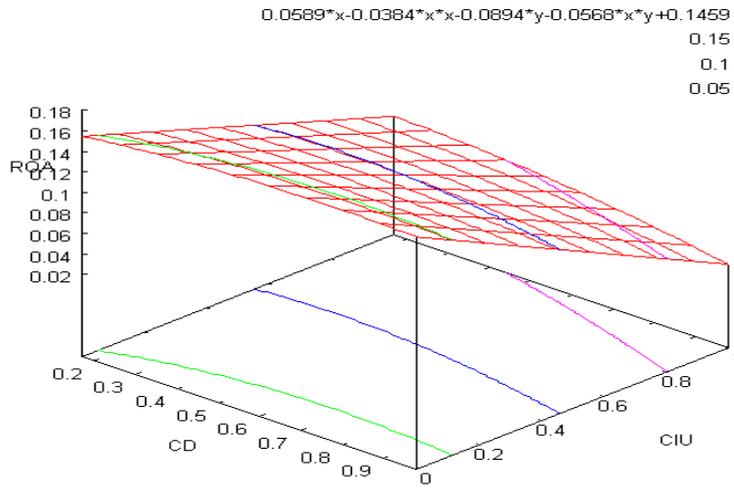
### Conclusion

From our findings, it is not very apparent that TMNEs' china-oriented investment policy has been failed but has to be careful in the context of change especially china government policy is changeable according the macro-economic adjustment. From our results, on the average level, TMNEs generated low operational business performance, on the other hand, the inflow and outflow of finances is not so flexible to operate and also limit the cash-flow efficiency to create better financial performance because TMNEs constrained to the governmental regulations. For the reasons stated above, TMNEs have to focus on the geographical diversification market rather than diversify into international (global) markets because the control and coordination costs of global diversification will more than offset its benefits for subsidiaries outside the TMNE's geographical diversification market. That is to say, there is a liability of inter-regional foreignness and the important implication inside is that TMNEs are unlikely to be sourced through a global supply chain, but rather through regionally diversified clusters to get better performance. As TMNEs expand internationally and the initial liability of foreignness causes performance to decline, but through adequate country and regional diversification strategy, the regional optimal effects occur and benefits will cover the operational cost and then performance increases. Whenever at the middle level of regional diversification firms can gain profit with competitive advantage like economic scale, economic scope or learning effect (Hitt, 1997; Kuo, 2008). However, after expanding to a certain point, firm performance becomes decreasing due to increasing management cost and transaction cost (Williamson, Paez, and Sanders, 1988; Hitt, 1994).

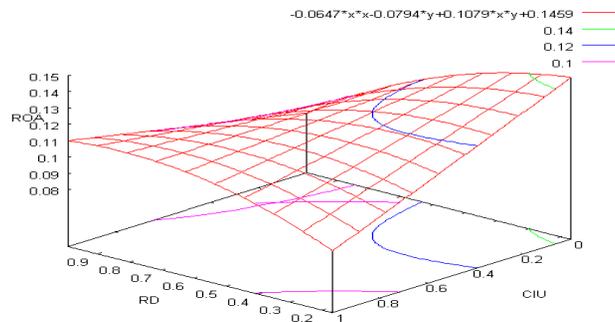
### Discussion and Managerial Implications

From the findings we have got, we found that for the consideration of cost and benefits analysis, some TMNEs has considered/decided to reduce investment amount by degrees for reason of the increasing production cost and political risk.(uncertainty factors are going high) As a result, some of the TMNEs considered to invest into Vietnam or other countries in the neighborhood of China , by way of adequate country and regional diversification strategy , TMNEs still has the chance to get rid of political risk or spread the operational risk due to uncertainty factors to maintain their market competitive advantages. For TMNEs, of course, though, still have advantages in capital, technology, managerial practice, and brand reputation. Furthermore, with adequate financial resources and excellent training programs, foreign multinational firms can attract, retain, and promote the best talent in China, further strengthening their competitive advantage in the quality of human resources. TMNEs have to be careful in how to maintain competitive advantages, especially keep key technology in hand and construct better investment environment for TMNEs to consider to invest domestically in deep. There is a common limitation in research on firm performance, and we were not able to remove this problem. On the other hand, we were not able to assess the effect of ownership reform directly or conduct a longitudinal analysis. We hope that the inclusion of an age control and country scope will be input inside to make up for the deficiencies. Future research should examine the validity of scale and scope metrics and identify the

difference in results across such performance measures. In addition, the geographical diversification and performance regression cannot profoundly control the host market environment, such as economic characteristics, political risk, cultural differences and geo-demographic characteristics.



**Figure 1: The relationship of three-dimension diagram among Country Diversification, China Investment Usage and Performance (CD-CIU-ROA)**



**Figure 2: The relationship of three-dimension diagram among Regional Diversification, China Investment Usage and Performance (RD-CIU-ROA)**

**Explanations for Figure 1, 2:** For the reason that 3D figures couldn't be shown in Microsoft Word version, 3D figures 1 and 2 in this research could only be represented in graphics style rather than Microsoft Word style.

GNUPLOT web site: <http://t16web.lanl.gov/Kawano/gnuplot/plotpm3d-e.html>

## REFERENCES

- Baldwin, R., & Venables, A. (1995). Regional economic integration. In Grossman, G. M., & Rogoff, K. (Eds.), *Handbook of international economics*. Amsterdam: North Holland Press. 3, 1597–1644.
- Buckley, P.J. and Casson, F. (1976). *The Future of the Multinational Enterprise*. London: Macmillan.
- Capar, N., and Kotabe, M. (2003). The Relationship between International Diversification and Performance in Service Firms. *Journal of International Business Studies*, 34(4), 345-356.
- Chakrabarti, A., Singh, K., & Mahmood, I. (2007). Diversification and performance: Evidence from East Asian firms. *Strategic Management Journal*, 28(2), 101–120.
- Chatterjee, S., & Wernerfelt, B. (1991). The link between resources and type of diversification: Theory and evidence. *Strategic Management Journal*, 12(1), 33–48.
- Contractor, F. J. (2007). The evolutionary or multi-stage theory of internationalization and its relationship to the regionalization of firms. In M. Alan & Rugman(Eds.), *Regional aspects of multinationality and performance*, 11–29. Oxford, UK: Elsevier.
- Daniels, J.D. and Bracker, J. (1989). Profit Performance: Do Foreign Operations Make a Difference? *Management International Review*, 29(1), 46-56.
- Delios, A. and Beamish, P.(1999). Geographic Scope, Business diversification and the Corporate Performance of Japanese Firms. *Strategic Management Journal*, 20, 711-727.
- Eddleston, K., Kellermanns, F. W., Sarathy, R. (2008). Resource configuration in family firms: Linking resources, strategic planning and environmental dynamism to performance. *Journal of Management Studies*, 45(1), 26-50.
- Errunza, V., & Senbet, L. (1984). International corporate diversification, market valuation and size-adjusted evidence. *Journal of Finance*, 39(3), 727–743.
- Fang, Y., Wade, M., Delios, A., & Beamish, P. W. (2007). International diversification, subsidiary performance, and the mobility of knowledge resources. *Strategic Management Journal*, 28, 1053–1064.
- Franko, G. (1989). Unrelated business diversification and global corporate performance. In A. Negandhi and A. Savara (Eds.), *International Strategic Management*, 221-241. Lexington, MA: Lexington Books.
- Fратиanni, M., & Oh, C. H. (2009). Expanding RTAs, trade flows, and the multinational enterprise. *Journal of International Business Studies*, 43, 187–204.
- Gomes, L. and Ramaswamy, K. (1999). An Empirical Examination of the Form of the Relationship Between Multinationality and Performance. *Journal of International Business Studies*, 30(1), 173-188.
- Grant, R.M., Jammine, A.P. and Thomas, H. (1988). Diversity, Diversification, and Profitability Among British Manufacturing Companies. *Academy of Management Journal*, 31(4), 771-801.
- Geringer, J. M., Beamish, P. W., & daCosta, R. C. (1989). Diversification strategy and internationalization: Implications for MNE performance. *Strategic Management Journal*, 10(2), 109–119.
- Geringer, J. M., Tallman, S., & Olsen, D. M. (2000). Product and international diversification among Japanese multinational firms. *Strategic Management Journal*, 21(1), 51–80.
- Goerzen, A., & Beamish, P. W. (2003). Geographic scope and multinational enterprise performance. *Strategic Management Journal*, 24(13), 1289–1306.
- Hitt, M. A., Tihanyi, L., Miller, T., & Connelly, B. (2006). International diversification: Antecedents, outcomes, and moderators. *Journal of Management*, 32(6), 831–867.

- Hill, C.W.L., Hitt, M.A. and Hoskisson, R.E. (1992). Cooperative versus Competitive Structures in Related and Unrelated Diversified Firms. *Organization Sciences*, 3, 501-521.
- Hitt, M.A., Hoskisson, R.E. and Kim, H. (1997). International Diversification: Effects on Innovation and Firm Performance in Product-Diversified Firms. *Academy of Management Journal*, 40 (4), 767-798.
- Hoskisson, R.E., Hitt, M.A., Johnson, R.A. and Moesel, D.D. (1993). Construct Validity of an Objective (Entropy) Categorical Measure of Diversification Strategy. *Strategic Management Journal*, 31, 771-801.
- Kim, C.W., Hwang, P. and Burgers, W.P. (1989). Global Diversification Strategy and Global Profit Performance. *Strategic Management Journal*, 10, 45-57.
- Kim, H., Hoskisson, R. E., & Wan, W. P. (2004). Power dependence, diversification strategy, and performance in keiretsu member firms. *Strategic Management Journal*, 25(7), 613-636.
- Kogut, B. and Singh, H. (1988). The Effect of National Culture on the Choice of Entry Mode. *Journal of International Business Studies*, 19 (3), 411-432.
- Li, L., & Qian, G. (2005). Dimensions of International Diversification: Their Joint Effects on Firm Performance. *Journal of Global Marketing*, 18(3/4), 7-35.
- Lu, J.W. and Beamish, P.W. (2001). The Internationalization and Performance of SMEs. *Strategic Management Journal*, 22, 565-586.
- Morck, R. and Yeung, B. (1991). Why Investors Value Multinationality? *Journal of Business*, 64 (2), 165-187.
- Palich, L. E., Cradinal, L. B., & Miller, C. C. (2000). Curvilinearity in the diversification-performance linkage: An examination of over three decades of research. *Strategic Management Journal*, 21(2), 155-174.
- Phene, A., Almeida, P. (2008). Innovation in multinational subsidiaries: the role of knowledge assimilation and subsidiary capabilities. *Journal of International Business Studies*, 39, 901-919.
- Qian, G. and Li, J. (2002). Multinationality, Global Market Diversification and Profitability among the Largest US Firms. *Journal of Business Research*, 55, 325-335.
- Ramanujam, V., & Varadarajan, P. (1989). Research on corporate diversification: A synthesis. *Strategic Management Journal*, 10, 523-551.
- Ramaswamy, K., Kroeck, K. G., & Renforth, W. (1996). Measuring the degree of internationalization of a firm: A comment. *Journal of International Business Studies*, 27(1), 167-177.
- Ramaswamy, K. (1993). Multinationality and performance: An empirical examination of the moderating effect of configuration. *Proceedings of Academy Management*, 142-146.
- Rugman, A.M. (2007), *Regional aspects of multinationality and performance*, Elsevier, Oxford.
- Rugman, A.M. and A. Verbeke (2007), Liabilities of regional foreignness and the use of firm-level versus country-level data: A response to Dunning et al., *Journal of International Business Studies* 38 (1), 200-205.
- Saloner, G., Shapard, A. and Podolny, J. (2001). *Strategic Management Journal*. New York: John Wiley & Sons, Inc.
- Sambharya, R.B. (1995). The Combined Effect of International Diversification and Business diversification Strategies on the Performance of US-Based Multinational Corporations. *Management International Review*, 35(3), 187-218.
- Sarathy, R., Terpstra, V., Russow, L. (2006). *Global Environment of Business*. Garfield Heights, OH: Northcoast Publishers.
- Sarathy, R., Terpstra, V., Russow, L. (2006). *International Marketing: Competing in Global Markets*, 9th Edition, 588-590. Garfield Heights, OH: Northcoast Publishers.
- Siddharthan, N. and S. Lall. (1982). Recent Growth of the Largest U.S. Multinationals. *Oxford Bulletin of Economics and Statistics*, 44(1), 1-13.
- Stulz, R. M. (2005). The limits of financial globalization. *Journal of Finance*, 60(4), 1595-1638.
- Sullivan, D. (1994). Measuring the Degree of Internationalization of a Firm. *Journal of International Business Studies*, 24(2), 325-342.

- Tallman, S.B. and Li, J. (1996). Effects of International Diversity and Product Diversity on the Performance of Multinational Firms. *Academy of Management Journal*, 39 (1), 179-196.
- World Investment Report (WIR, 2008), Transnational corporations and infrastructure challenge, United Nations Conference on Trade and Development (UNCTD), New York and Geneva.
- Xu Dean, Pan Yigang, Wu Changqi and Yim Bennett (2006), Performance of domestic and foreign-invested enterprises in China. *Journal of World Business*, 41(3), 261-274
- Yadong Luo, and Binjie Han (2009). Graft and business in emerging economies: An ecological perspective, *Journal of World Business*, 44(3), 225-237.
- Yamin, M and Forsgren, M (2006). Hymer's analysis of the multinational organization: Power retention and the demise of the federative MNE, *International Business Review*, 15 (2), 166–179.
- Yeung, H. W. (2002). The limits to globalization theory: A geographic perspective on global economic change. *Economic Geography*, 78(3), 285–305.
- Zheng, Y. Zhang (2004). *Globalization and state transformation in China*. Cambridge University Press, Cambridge, UK.