

The Integrated Effects between Diversification and China Dependency Investment: A Review, Examination and Evidence

Pan Wei-Hwa

National Yunlin University of Science and Technology, Taiwan

panwh@yuntech.edu.tw

Chao Yuang-Shiang*

Candidate of PH.D program, National Yunlin University of Science and Technology,
& Senior Lecturer, Yu-Da University, Taiwan

ed5097@gmail.com

ABSTRACT

This study mainly assesses on the integrated effects of diversification configuration and china dependency investment (CDI) strategy to Taiwanese Multinational Enterprises' (TMNEs') performance and the panel data is got from Taiwan official institution collected from 1999 to 2008 and the findings provide preliminary support for the proposed research framework with two important diversification variables (country and regional diversification) to examine the theoretical hypotheses. From the results, through CDI strategy can apparently enhance TMNEs' performance. Furthermore, moderate country and regional diversification through moderate CDI outperforms than either higher or lower country and regional diversification, TMNEs' performance goes downward when at higher and/or lower level country and regional diversification. In addition, geographically-diversified TMNEs through middle level CDI strategy have resource-based advantages to create production cost and spread the operational risk to maintain their market competitiveness, and the integrated effects are apparently associated with better performance in the long term.

Keywords: *Diversification configuration, China Dependency Investment, Integrated Effects, Performance, Multinational Enterprise (MNE)*

*Corresponding author

INTRODUCTION

In the 1980s, the competitiveness of Taiwanese Multinational Enterprises (TMNEs) eroded due to increased operating costs, such as those of labor and real estate. Due to the worse environment in the 1980s, many TMNEs, especially those that were labor-intensive, relocated their operations in other emerging countries and the total foreign direct investment (FDI) approved by Taiwan government amounted to only US\$374.58 million in 1987, but by the end of 1998 it had surged to US\$18.61 billion. In 2006, Taiwan also jumped significantly in the world rankings for FDI according to the United Nations' Conference on Trade and Development's (UNCTAD) World Investment Report 2009. Taiwan ranked 19 out of 200 countries in 2008. Taiwan also ranked the third among Asian countries in terms of its FDI. During the late 1970s, China had engaged in a massive reorientation of its economy and it began its transition from a planned to a market economy. It began to aggressively engage in overseas FDI, with a view to increasing its influence on the international stage. China government had permitted foreign investors to participate formally from 1979 and most TMNEs are 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. The Chinese government adjusted its economic policy in order to speed up its economic reforms and to further open up its economy to foreign investment from 1980s. Recently, large number of global company starts to invest directly and establish subsidiary in Association of South East Asian Nations (ASEAN) and China with its rich nature resource and cheap labor force. It draws our attention that TMNEs gradually concentrate their investments more in China because China's economic development is rapidly growing and becomes a powerful country in the past decade. Therefore, with close relationship to these areas, foreign direct investment becomes a popular channel for Taiwan companies since late 1990s. Figure

1 indicates that the yearly amount of foreign investment from 1997 to 2008. The highest peak appears at 2007 but slump rapidly in 2008 with financial crisis.

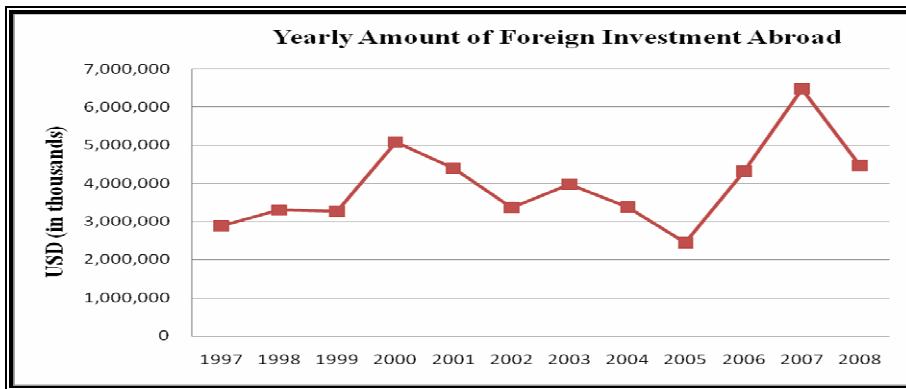


Figure 1 Yearly Amount of TMNEs' Foreign Investment Abroad

Source: Investment Commission, Ministry of Economic Affairs, Taiwan, R.O.C. (May, 2009)

The sources of FDI in China have been highly concentrated in the Greater China Circle, including Taiwan, Hong Kong, and Singapore. Their cumulative FDI alone constitutes over 70% of the total FDI in China over 1979–2001. In 1992, China still largely exported textiles, raw materials, and other traditional products. However, in 1999, the output of the IT sector in Taiwan began to dominate and become the leading export item. Up to 2008, most TMNEs still focused their major FDI amount in Asia, especially in Mainland-China.

Conceptually, diversification configuration provides firms with benefits but have to pay high costs (Tallman and Li 1996). However, transaction cost theory suggests that diversification configuration 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). Ramaswamy (1993) went further and found that interactions between different measures of diversification configuration 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; Ramanujam & Varadarajan, 1989). 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 diversification configuration in a different market (Fang, Wade, Delios, & Beamish, 2007; Kim, Hwang & Burgers, 1989) on firm performance. The sample industries in this study are focused on electronic manufacturing industry and machinery industry, in addition, electronic and machinery products occupied for nearly 65.87% of total exporting value. Comparative with the existing diversification configuration literatures, the model has some differences from the current diversification literature shown. The constructed models provide three distinct dimensions (including country, regional and business diversification) to differentiate with the past research to investigate the joint effects among country, region and business diversification on TMNEs' performance. In addition, china investment usage is chosen as a moderator to stand for the degrees of CDI strategy to examine the joint effects between diversification configuration and performance.

LITERATURE REVIEW AND THEORETICAL FOUNDATIONS

Theoretical Base on Diversification configuration and Performance

It's believed that diversification across countries within a region incurs much lower costs than diversification across regions, therefore, the term "multinationality" is too general to explain the costs and benefits associated with diversification configuration (Dunning, 2002). It's redefined that the practical meaning of diversification configuration is expansion across borders of global regions and countries into different geographical locations or markets by degrees. Geographic diversification is often considered as value-creating policies for diversified firms. Diversification

configuration is often termed as another international diversification strategy for multinational researchers. Johnson, Lenn and O'Neill (1997) 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. Diversification configuration 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 (Li and Qian,2005 ; Sarathy, Terpstra and Russow,2006). Hoskisson, Hitt and Johnson (1993) concluded that there are four major advantages from diversification configuration. In addition, MNE can also benefit from intensive international experience and leaning (Bartlett and Ghoshal, 1987; Kogut and Singh, 1988). Past research was mainly focused on two dimensions-country and regional diversification (Grant 1988; Geringer et al, 1989; Daniels and Bracker 1989; Kim et al, 1989; Ramaswamy,1993 ; Sullivan, 1994; Lu et al, 2004; Li and Qian, 2005). Ramaswamy (1993) found that interactions between different measures of diversification configuration had more significant effects on MNEs' performance.

Transaction cost theory suggests that diversification configuration 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. The multinational scholars stated that country diversification is defined as the expansion into individual foreign countries, like Egypt or Vietnam. From some international scholars' research (Tallman and Li 1996; Li and Qian, 2005), diversification configuration also drew researcher's attention to study these ten years. As countries in the same geographic area share many similar market characteristics, customers there may accept similar product features. 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 and it could be viewed as TMNEs adopt regional diversification strategy. The discrepancies may result from unlike measures or from nonlinearities in the relationship between business diversification and firm performance (Tallman and Li 1996). Hitt et al. (1997) showed that business diversification has positive relation with diversified firms' performance, whereas, Franko (1989) saw the opposite relation. We use the similar construct "business diversification" to take place product diversification.

Applied Theory and the 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 (Delios and Beamish, 1999). 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. Our findings are suggested that country diversification has positive effect on the firm performance at low level of regional diversification but becomes

negative with high regional diversification.

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). 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). 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). 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).

Applied Theory and the Separate Effects of Diversification configuration on Performance

We differentiate international operations into diversification configuration strategic approach into three main components including country and regional diversification, in addition to another component, China-investment usage used as the moderator to test the effects. The degrees of diversification configuration will have the positive relation to TMNEs' performance. Grant (1987) found a positive linear relationship while Siddharthan and Lall (1982) found a negative linear relationship and found that diversification configuration 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. It's 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 (Eddleston, Kellermanns and Sarathy, 2008). 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 needed to learn how to offset the risk of foreign activity and be against the benefits of firm-specific advantages. The performance is increased with the positive relationship to diversification configuration. Therefore, according to the statements described above, we would propose the following hypotheses.

H1: The country diversification has positive relation to TMNEs' performance.

H2: The regional diversification has positive relation to TMNEs' performance.

The Joint and Moderating Effects between Diversification Configuration and Performance

The Joint Effects between Diversification Configuration and Performance

TMNEs entered into China had high-dependency investment and gained better competitiveness compared with the past years, simultaneously, we attempt to formulate relative hypotheses addressing this research question. Li and Qian (2005) proposed when MNEs diversify into various different regions, they have to deal with great varieties of environments and experience high complexities and managerial constraints and business diversification may dilute MNEs' focus to concentrate on their main target. 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 (Geringer et al. 2000). Summarizing the statements described above, we proposed the following hypotheses.

H3: TMNEs' joint effect between country and regional diversification has positive relation to TMNEs' performance.

H4: The diversification configuration squared effect has positive relation to TMNEs' performance.

H4-1: Country diversification squared has positive relation to TMNEs' performance.

H4-2: Regional diversification squared has positive relation to TMNEs' performance.

Based on the literature reviewed and statements shown above, we drew on the extent theory from several disciplines (i.e., corporate strategy, diversification configuration, and foreign direct investment concepts) and specific theoretical domains (i.e., multinational theory, transaction cost theory, and organizational learning theory) to build the conceptual framework (shown in Figure 2) and propose the hypotheses.

The Moderating Effects of CDI to Diversification configuration and Performance

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). An emerging economy such as China is a critical institution that should leverage institutional support (financial and non-financial) to expand overseas markets in the process of global competition wherein these businesses suffer from late-mover disadvantages, shortfalls in distinctive capabilities, and liabilities of newness and foreignness. Taiwan, whose economic growth was founded on international trade, 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 invest more and put more attention in China from 1999, the total FDI investment by TMNEs is increasing on the average, but decreased in 2008 (See Figure 1: Yearly Amount of TMNEs' Foreign Investment Abroad). To take China dependency investment strategy into consideration to create better performance is an important issue and will be examined in this article. For the statements mentioned above, for moderating effects to TMNEs' performance, we intend to propose the following hypotheses.

H5: The relationship between performance and country diversification varies positively with china investment usage in the moderate level.

H6: The relationship between performance and regional diversification varies positively with china investment usage in the moderate level.

H7: The relationship among performance, country and regional diversification varies positively with china investment usage in the moderate level.

SAMPLES AND METHODOLOGY

Data Collection

The sample firms are selected from the statistics compiled by the Ministry of Economic Affairs' Investment Commission in Taiwan and the firm-level financial data are derived from the Taiwan Economic Journal (TEJ) database which covers macro-economic indicators and financial reports for companies listed and provided by Market Observation Post System (MOPS) which were traded on the Taiwan Stock Exchange (TAIEX). We adopt annual reports of the TEJ database covering the period 1999–2008 to compile the data set which includes the information needed to calculate the variables and the exogenous variable, china investment usage, is viewed as a moderator to test the

moderating effects between diversification configuration and performance. The total number of firms which had invested overseas over 15 years, were chosen initially in this study is 285. 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 242 available to examine, the period is from 1999 to 2008. We have three reasons to explain why selecting these 242 TMNEs in this study and we adopt data on TMNEs which are included in the list of the Taiwan's top 500 largest firms in 2008 as a base set to analyze the relationship between diversification configuration and performance. First of all, the history of both of their product and diversification configuration is over 15 years and most of them have operated in multiple and disparate product and geographical markets. Secondly, these TMNEs have invested in China with some/more percentage for many years. In order to get more correct analyzing results from the panel-data, we used a ten-year period from 1999 through 2008 for each variable in this study.

Research Variables

We explore the TMNEs' performance which was included three accounting-based measurements that were initially considered as crucial indicator of TMNEs' performance to examine ROAⁱ which has been commonly employed in strategic management research (Tallman and Li 1996; Hitt et al. 1997; Qian and Li 2002). Similar to past studies, the financial performance measures chosen are "ROA". Financial performance is a useful dependent variable in the analysis of diversification configuration and performance for two reasons. It is commonly considered that market performance (ROS) and accounting performance (ROA) can reflect a firm's operation profits. Financial performance is a useful dependent variable in the analysis of diversification configuration and performance for two reasons. It is commonly considered that market performance (ROS) and

accounting performance (ROA) can reflect a firm's operation profits. However, ROE and ROS was considered to be highly correlated, and might generate similar findings (Hitt et al, 1997), thus we drop ROS to be analyzed for more referential. Many prior studies utilize accounting based ROA and ROE to measure firm performance. Accounting based measurement can be considered adequately explained firm's performance. In testing for the efficiency of asset utilization while controlling for differences in financial structure, ROA and ROE suited for this type of research (Delios and Beamish, 1999] Hitt et al., 1997] Contractor et., al., 2003] Qian, 1998).

Operational Definitions of All Variables

Country Diversification (CD)

We define and calculated the country diversification index as the average from two of the three ratios (FATA and FSTS) 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 is shown as follows:

$$CD = (FATA + FSTS) / 2$$

Where "FATA" is the foreign assets as the percentage of a firm's total assets and "FSTS" is the foreign sales as the percentage of a firm's total sales.

Regional Diversification (RD)

For regional diversification, we apply the entropy measure suggested by Li and Qian (2005). The entropy measure was initially a way of assessing a firm's degree of regional diversification. Following the empirical concept, regional diversification is defined as follows:

$$Regional\ Diversification = \sum_{i=1}^n p_i \times \ln\left(\frac{1}{p_i}\right)$$

Where P_i is the sales attributed to global market region i attributed to the total sales within a firm

and $\ln(1/P_i)$ is the weight given to region i . This measure considers not only the number of global market regions in which a firm operates, but also the relative importance of each region to total sales. According to the World Bank (2009), there are six global regions/areas in the world. However, after observing Taiwan firm's characteristic and strategic diversification, *we divide all of oversea subsidiaries in our study into seven main regions, China, East North Asia, East South Asia, Europe, Americans, Tax Haven and other regions, totally seven regions to analyze and to calculate using the entropy measure.*

Control Variables

We followed previous studies (e.g., Geringer et al. 2000; Tallman and Li 1996) and included three main control variables which were included ***firm size***, ***debt ratio*** (long-term financial leverage), ***R&D intensity*** three control variables. Firm size is related to the resource under managerial control, including both physical and financial perspectives and has been shown strong relationship to performance and diversified level. Small firms are usually more resource-constrained and vulnerable to market competition, but large firms may incur greater coordination cost, which may reduce the synergy of diversification (Chang and Wang, 2007). Following previous studies, debt ratio is capable of measuring the resource availability and constraints of each firm. Furthermore, debt ratio was measured as the percentage of long-term debt to total capital (firm's debt plus equity) and was mainly used to control for the potential effect of non-capital financing on firm performance. R&D intensity is positively related to be a crucial choice to diversify for large firms (Montgomery and Hariharan, 1991), but for those firms with lower R&D intensity are more likely to engage in acquisitions. It is also proven that positively related to new product introduction (Hitt et al., 1996). R&D intensity usually played as an important determinant of firm's profitability and was measured

by using the firm's annual expenditure on R&D investment divided by annual revenues (Montgomery, 1985). The definitions of all variables are shown in Table 1.

Table 1 Summary of Operational Definition on All Variables

Variables		Definition and Measurement
Dependent Variable	Performance ROA	ROA = Net income after tax/[(total assets of the starting year + total assets of the ending year)]/2 × 100%
Independent Variable	Diversification Configuration Country Diversification Regional Diversification	<i>Country Diversification</i> = (FATA+FSTS) / 2 Where 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. <i>Regional Diversification</i> = $\sum_{i=1}^n p_i \times \ln\left(\frac{1}{p_i}\right)$ Where 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 .
Moderator	China Dependency Investment China Investment Usage	CIU = Real investment amount in China/Total investment amount overseas invested by TMNEs
Control Variable	1. Firm size 2. Debt ratio 3. R&D intensity	Firm size = The logarithm of group total employees 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

Regression Model and Analytical Methodology

A panel data should potentially be very informative about the parameters to be estimated (Qian, 1997). 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, in addition, we pool the cross-sectional and time-series data into fit panel-data models and the statistical regression model. The following regression model is shown regression model for ROA. To examine the joint and moderating effects between diversification and CDI, we estimate the following multivariate regression model with moderator (CIU) and control variables. The following is the model 6, full regression model.

$$\text{PERF}_{\text{ROA}} = \beta_1 \text{CD} + \beta_2 \text{RD} + \beta_3 [\text{CD} \times \text{RD}] + \beta_4 \text{CD}^2 + \beta_5 \text{RD}^2 + \beta_6 [\text{CD} \times \text{CIU}] + \beta_7 [\text{RD} \times \text{CIU}] + \beta_8$$

$$[\text{CD} \times \text{RD} \times \text{CIU}] + \text{Control Variables} + \alpha_i + \mu_{it} \quad (\text{Regression Model 6})$$

where PERF_{ROA} is ROA performance, $\text{CD} \times \text{RD}$ is interaction terms, then squared terms to test the non-linear relationship between the independent variables, others are $\text{CD} \times \text{CIU}$ and $\text{RD} \times \text{CIU}$, a to test the moderating effects. After the moderating test, we test the triple relationship between interaction and moderator to check the interaction and moderating effect. Firm characteristics are represented by control variables which are firm-adjusted relative measures, firm size, debt ratio and R & D intensity which are calculated by the difference between each variable and that of its median value of multiplier firms. α_i represents an unobserved effect and μ_{it} represents idiosyncratic error. To examine the synergy effect hypothesis, we re-estimate the base multivariate regression model (in regression model 4) with interaction variables such as $\text{CD} \times \text{RD}$. In addition, we estimate the base multivariate regression model through country and regional diversification squared (CD^2 and RD^2) to test the nonlinear relationship between diversification configuration and performance. In order to uncover the relationship between different diversification configuration and performance, at the same time, to observe the long-term influence of diversification configuration, we pooled the cross-sectional and time-series data into fit panel-data models using GLS statistical analysis and get the p-value test results to take the advantage of the greater degrees of freedom, and capture both the dynamic information of time series and the variation due to cross-sections (Lu and Beamish, 2000). Following the statements described, we construct the conceptual framework in Figure 2.

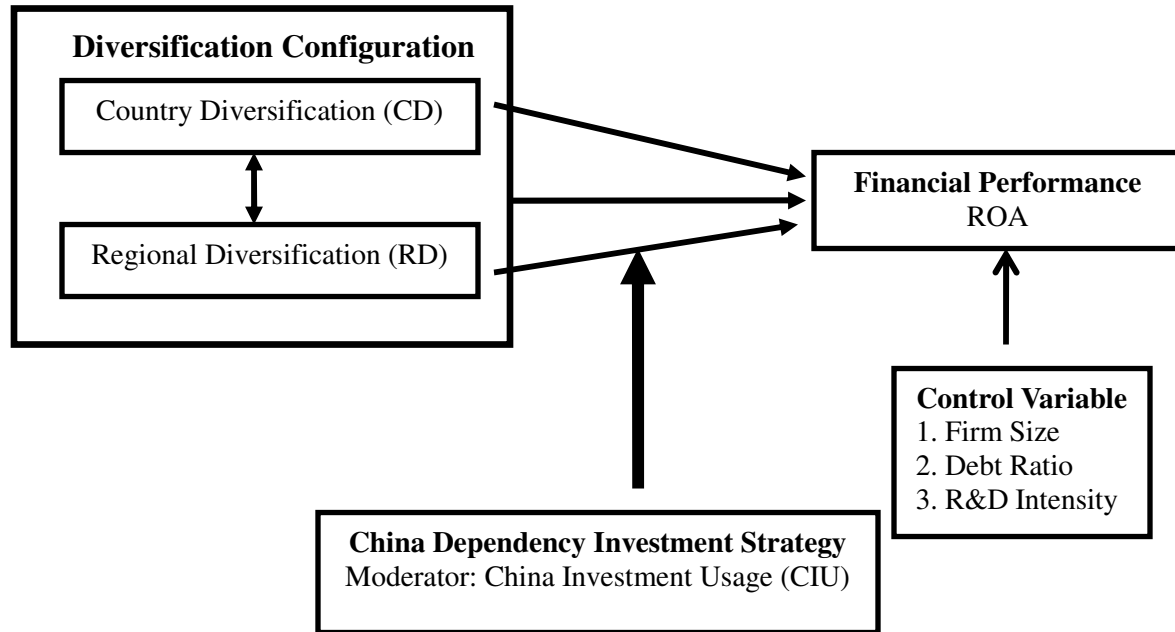


Figure 2 Conceptual Framework on Diversification and performance

EMPIRICAL RESULTS

Results on the Separate Effects between Diversification Configuration and 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 ($P < 0.01$) is significant and positive associated with firm performance ($P < 0.01$). We further test the squared term of three main explanatory variables in regression model 4, the relationship between squared term of country diversification and firm performance is significant and positive. When TMNEs further diversified into more countries but less regional diversification will decrease the performance which would gradually having a worse effect on firm performance than the range described above (significant but negative, $p < 0.1$). The test results of H1-H2 show significant and strongly supported (H1: $p < 0.01$; H2: $p < 0.05$). In addition, the relationship among country diversification, China investment usage and performance, the results imply that country diversification level at

about 0.45-0.6 and CIU level between 0.4 and 0.7 has positive effect to firm performance and reach the better performance (significant and $p \leq 0.05$), whereas, when TMNEs further diversified into more countries (country diversification level more than 0.6) will decrease the performance in the long term (the result is weakly significant but negative, $p \leq 0.1$). Therefore, the test results are H1, significant and strongly supported on performance ($p \leq 0.05$) and H2, significant and supported on performance ($p \leq 0.01$). The dynamic results are illustrated by three-dimension graphical software¹ in figure 3 and 4.

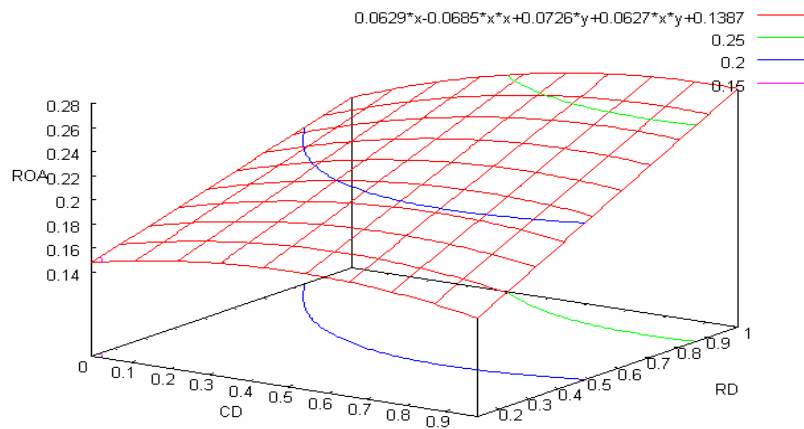


Figure 3 the relationship of three-dimension diagram among country, regional diversification and performance.(CD-RD-ROA)

¹ The three-dimension diagram is drawn from Gnuplot software which draws 3D figures with lines and/or points, in addition, Gnuplot version.4.0 allows to draw a color-mapped 3D figure by setting pm3d. The figure is shown on your screen as well as PostScript or some image formats like PNG/JPG. **Therefore, 3D figures couldn't be shown in Microsoft Word version, 3D figures from Figure 3 to Figure 5 in this research only could be represented in graphical style rather than Microsoft Word style in this study.**

Gnuplot Website: <http://t16web.lanl.gov/Kawano/gnuplot/plotpm3d-e.html>

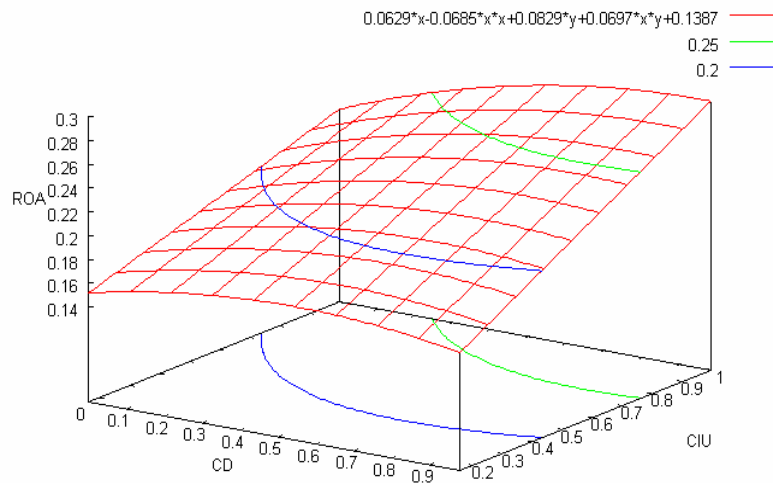


Figure 4 the relationship of three-dimension diagram among country diversification, CIU and performance.(CD-CIU-ROA)

Results on the Joint Effects between Diversification Configuration and Performance

We further tested the joint effect among diversification configuration and performance, whenever country diversification level is between the range 0.45 and 0.6, regional diversification between the range 0.5 and 0.7 will locate in better performance area, whereas, country diversification squared and regional diversification squared are both positively related to firm performance, but country diversification squared is significant to performance ($p \leq 0.05$). From the statistical analysis, moderate level diversification configuration outperforms than lower/higher diversification configuration. In addition, moderate level diversification configuration through CDI outperforms than TMNEs without CDI. Thus, it's obvious that moderate level diversification configuration is more appropriate for TMNEs to engage in FDI activity which is practical and acceptable to meet the current situation. Nonetheless, the joint effect of country and business diversification demonstrated a weakly significant and positive result ($p \leq 0.1$) because more diversification will decrease the economies of scale and scope.

The integrated effects of “country diversification and performance”, “regional diversification and performance” were initially positive and statistically significant for ROA ($p \leq 0.05$). Thus, the test results of H3 and H4, respectively are summarized as follows, H3, significant but partially supported on performance and H4, significant and partially supported on performance.

Results on the Moderating Effects of CDI Strategy to Performance

For the moderating effects, china investment usage is statistically significant and positively related to performance. According to statistical test, the regression model 5 results show that the joint effect between country diversification and regional diversification demonstrates a statistically significant result. The configuration model demonstrates that TMNEs' FDI investment with moderate level country (between 0.5 and 0.6) and regional diversification (between 0.45 and 0.7) is the best portfolio for TMNEs to expand overseas which can create better performance. On the contrast, if adopting high level country and regional diversification will lead to decrease performance. Furthermore, moderating effect between china investment usage and regional diversification has negative and curvilinear relationship to performance when regional diversification below 0.45 or over 0.7 level which implies only in moderate level regional diversification through china investment usage (between 0.4 and 0.7) will be an appropriate strategy for TMNEs to invest (test in regression model 6). The result indicates that firms engaging in regional diversification can spread risk and aggregate profit from investing different regions and obtain better performance. From the results, the relationship among china investment usage ratio and joint effect of regional diversification and country diversification reach the significance level on the average ($p \leq 0.05$). To make a summary, the hypothesis test result are indicated on the relationship among performance, country and regional diversification vary positively with moderate china investment usage is

supported ($p \leq 0.05$). The results are H5 significant and strongly supported ($p \leq 0.01$), H6 significant but weakly supported ($p \leq 0.1$) and H7 significant and strongly supported ($p \leq 0.05$). The hypotheses test results. Please see figure 5.

All the statistical test results are shown in Table 2: the coefficients of regression model test between diversification configuration and performance and Table 3: correlation matrix of diversification configuration (CD and RD) and performance (ROA).

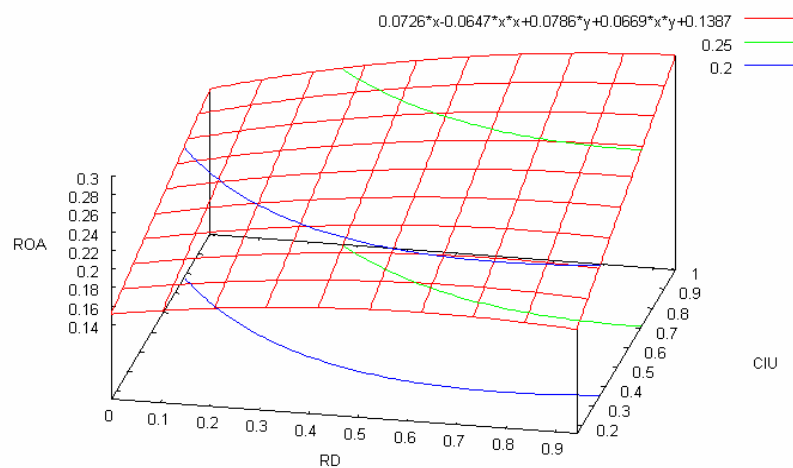


Figure 5 the relationship of three-dimension diagram among country diversification, CIU and performance (CD-CIU-ROA)

CONCLUSION AND DISCUSSION

Conclusion

From our findings, though it is very apparent that TMNEs' china dependency investment policy has been successful, TMNEs still have to take aware in the context of changeable environment especially china government policy. From our findings, the inflow and outflow of finances is not so flexible to operate in China, therefore, lead to limit the cash-flow efficiency to create better financial performance. TMNEs have to focus on the geographical diversification rather than into global market because the control and coordination costs of global diversification strategy offset its benefits

more than subsidiaries outside the TMNE's diversification configuration market which arises a liability of inter-regional foreignness. Furthermore, the important managerial implication 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, moderate country and regional diversification, the optimal effects and benefits will occur to cover the operational cost, spread risk and lead to enhance performance. Furthermore, country diversification is beneficial to ROA in the early stage, but after expanding to a certain point, however, firm performance would decline by degrees. Secondly, regional diversification has an inverted-U shape relationship with firm performance which means that regional diversification has a positive effect on firm performance in the early stage but decline afterwards. Regionally-diversified firms has the chance to gain profit with competitive advantage like economic scale, economic scope or learning effect on the second stage. However, after expanding to a certain point, firm performance becomes decreasing due to increasing management cost and transaction cost on the third stage (Hitt, 1994). Moderate country diversification has positive effect on firm performance when regional diversification connected with moderate china investment strategy. Low level country and regional diversification by increasing CDI strategy does not have an positive effect on TMNEs' performance, nor does high level country and regional diversification. In Figure 4 and 5, we illustrate the joint and moderating effects of between CDI and diversification configuration on ROA after adjusting CDI level to obtain good performance. Those graphs are visually captured on Figure 3, 4, and 5. When CDI is controlled between 0.45 and 0.7, (the average CDI level is 0.58), the moderating effects of CDI to performance is apparently augmented.

Discussion and Strategic Managerial Implications

The findings provide following important theoretical implications. First, the international diversification benefits and transaction costs can cancel each other out. In other words, the greater international diversification benefits a diversified firm desires to obtain, the higher transaction costs it has to pay. Therefore, it is important to determine an optimal level where firms can execute international diversification, at the same time, to minimize the transaction costs through international diversification. Furthermore, the findings offer a reasonable explanation for the long-lasting controversy over the firm value of different level of international diversification. That is, international diversification may create or destroy firm value, depending on the level of diversification in terms of the country and regional dimensions.

Global Strategic Thinking to Challenge the Global Economic Crisis

Global strategic business management in the present turbulent world economic crisis period has to be more pro-active and close to government-based approach to enhance MNE global crisis management to strive for the coming challenge because technology, production and consumption patterns are changing nowadays. In this context, global business management should be considered to connect with fundamental principles and practices of conducting adequate global business activities to think how to challenge the global economic crisis. Furthermore, the proper evaluation of international business opportunities and the optimum allocation of resources should be considered to embed with the business objectives in a global environment, especially for MNEs' FDI policy. In the wake of globalization and a rapidly integrated world in terms of tastes, preferences and even culture the organizational and geographical complexity of global or multinational companies are getting even more pronounced. Conceptually, to effectively conduct the global business of MNEs in far

flung areas of the world, and evaluate the business opportunities in remote corners of the globe have to be dealt with in collaboration with the new sociological, political and economic trends that emerge almost daily on the international front (Dunning, Pak and Beldona ,2007).

From the findings, for consideration of cost and benefits analysis, TMNEs still has the chance to spread the operational risk and keep on alert to maintain their market competitive advantages. Up to now, TMNEs still have advantages in technological R & D capability, managerial practice, good quality control management and brand reputation to compete with the other MNEs in the world. Furthermore, adequate financial resources and excellent training programs also can retain and promote the performance not only in China but also in the world. The main purpose in this study is to provide the crucial findings of CDI strategy in empirical analysis to MNE CEOs or decision-makers in China how to maintain competitive advantages, especially keep key technology in hand and adjust adequate CDI strategy to create better performance.

LIMITATIONS AND FUTURE RESEARCH

We missed the firms that failed or exited before 1999 due to data availability, we only used the period from 1999 to 2008 survey information and those firms included in our analysis may be winners of survival tests over the years. This 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. The findings failed to demonstrate significant differences between diversification groups for well-accepted measures (ROA and ROE; ROA and ROS), but others could also be considered for such research. We hope that the inclusion of an age control and country scope will be input inside to make up for the deficiencies. In addition, this research is worthy of making future research such as how to control the

host market environment which were included the following factors such as economic characteristics, political risk, cultural differences and geo-demographic characteristics. Future research should examine the validity of scale and scope metrics and identify the difference in results across such performance measures. Regarding the validity of diversification configuration and performance measures, several metrics have been proposed in order to test different theories and different aspects of internationalization.

REFERENCES

- Bartlett C.A. and Ghoshal S. (1987). Managing across borders: New strategic requirements. *Sloan Management Review*, 28, 7–17.
- Bettis, R.A. and Hall, W.K. (1982). Diversification Strategy, Accounting Determined Risk, and Accounting Determined Return. *Academy of Management Journal*, 25, 254-264.
- 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.
- Chakrabarti, A., Singh, K., & Mahmood, I. (2007). Diversification and performance: Evidence from East Asian firms. *Strategic Management Journal*, 28, 101–120.
- Chang, S. C., & Wang, C. F. (2007). The effect of business diversification strategies on the relationship between international diversification and firm performance. *Journal of World Business*, 42, 61-79.
- Chatterjee, S., & Wernerfelt, B. (1991). The link between resources and type of diversification:

- Theory and evidence. *Strategic Management Journal*, 12, 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* (pp. 11–29). Oxford, UK: Elsevier.
- Daniels, J.D. and Bracker, J. (1989). Profit Performance: Do Foreign Operations Make a Difference? *Management International Review*, 29, 46-56.
- Dean Xu , Yigang Pan , Changqi Wu and Bennett Yim (2006). Performance of domestic and foreign-invested enterprises in China. *Journal of World Business*, 41, 261-274
- Delios, A. and Beamish, P. (1999). Geographic Scope, Business diversification, and the Corporate Performance of Japanese Firms. *Strategic Management Journal*, 20, 711-727.
- Dunning, J.H. (2002). *Regions, globalization, and the knowledge-based economy*. Oxford University Press, Oxford.
- Dunning J.H. and Narula R. (2004). *Multinationals and industrial competitiveness: A new agenda*, Edward Elgar, Cheltenham.
- Dunning J.H., Pak Y. S. and Beldona S. (2007). Foreign ownership strategies of UK and US international franchisors: An exploratory application of Dunning's envelope paradigm. *International Business Review*, 16, 531-548
- Dunning J.H. and Zhang Feng (2008). Foreign direct investment and the locational competitiveness of countries. *Transnational Corporation*, 17, 1-30
- Dunning, J. H., Fujita, M., & Yakova, N. (2007). Some macro-data on the regionalization/globalization debate: A comment on the Rugman/Verbeke analysis. *Journal of International Business Studies*, 38, 177–199.
- 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, 26-50.
- Errunza, V., & Senbet, L. (1984). International corporate diversification, market valuation and size-adjusted evidence. *Journal of Finance*, 39, 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.
- Fратиanni, M., & Oh, C. H. (2009). Expanding RTAs, trade flows, and the multinational enterprise. *Journal of International Business Studies*, 43, 187–204.
- Geringer, J.M., Tallman, S. and Olsen, D.M. (2000). Product and International Diversification Among Japanese Multinational Firms. *Strategic Management Journal*, 21, 51-80.
- Goerzen, A., & Beamish, P. W. (2003). Geographic scope and multinational enterprise performance. *Strategic Management Journal*, 24, 1289–1306.
- 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, 173-188.
- Grant, R.M. (1987). Multinationality and Performance Among British Manufacturing Companies. *Journal of International Business Studies*, 18, 79-89.
- Grant, R.M., Jammine, A.P. and Thomas, H. (1988). Diversity, Diversification, and Profitability among British Manufacturing Companies. *Academy of Management Journal*, 31, 771-801.
- Geringer, J. M., Beamish, P. W., & daCosta, R. C. (1989). Diversification strategy and internationalization: Implications for MNE performance. *Strategic Management Journal*, 10, 109–119.

- Geringer, J. M., Tallman, S., & Olsen, D. M. (2000). Product and international diversification among Japanese multinational firms. *Strategic Management Journal*, 21, 51–80.
- Hitt, M. A., Hoskisson, R. E., & Kim, H. (1997). International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40, 767–798.
- Hitt, M. A., Tihanyi, L., Miller, T., & Connelly, B. (2006). International diversification: Antecedents, outcomes, and moderators. *Journal of Management*, 32, 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.
- Johnson, J.H., Lenn, D.J., and O'Neill, H.M. (1997). Many Paths Across Nations: How Business Level Strategies Influence the Extent of Internationalization of MNCs in the US Construction Equipment Industry. *Journal of Global Business*, 8, 33-43.
- 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, 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, 411-432.
- Li, L., & Qian, G. (2005). Dimensions of International Diversification: Their Joint Effects on Firm Performance. *Journal of Global Marketing*, 18, 7-35.
- Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of Management Journal*, 47, 598-609.
- Morck, R. and Yeung, B.(1991). Why Investors Value Multinationality? *Journal of Business*, 64, 165-187.
- Montgomery CA, Hariharan S. (1991). Diversified Expansion by Large Established Firms. *Journal of Economic Behavior and Organization*, 15, 71–89.
- Montgomery, (1985) Product Market Diversification, and Market Power, *Academy of Management Journal*, 28, 789–798.
- Palepu, K. (1985). Diversification Strategy, Profit Performance and the Entropy Measure. *Strategic Management Journal*, 6, 239-255.
- Palich, L. E., Cradinal, L. B., & Miller, C. C. (2000). Curvilinearity in the diversificationperformance linkage: An examination of over three decades of research. *Strategic Management Journal*, 21, 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. (1997). An Analysis of the Risk Performance of the Largest U.S. Firms 1982-92. *Journal of Global Business*, 8(15), 45-54.
- Qian, G. and Li, J. (2002). Multinationality, Global Market Diversification and Profitability Among the Largest US Firms. *Journal of Business Research*, 55, 325-335.

- Qian, G., Li, L., Li, J., & Qian, Z. (2008). Regional diversification and firm performance. *Journal of International Business Studies*, 39, 197–214.
- 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, 167–177.
- Rugman, A.M. (2005). *The regional multinationals: MNEs and 'global' strategic management*, Cambridge University Press, Cambridge, UK.
- 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, 200–205.
- Rugman, A.M. and Oh C. H. (2008), Korea's multinationals in a regional world, *Journal of World Business*, 43, 5–15.
- Rugman, A.M. and C.H. Oh (2009), Does the regional nature of multinationals affect the multinationality and performance relationship? *International Business Review*, 46, 1–10.
- Saloner, G., Shapard, A. and Podolny, J. (2001). *Strategic Management*. 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, 187-218.
- Sarathy, R., Terpstra, V., Russow, L. (2006). *Global Environment of Business*. 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, 1-13.
- Stulz, R. M. (2005). The limits of financial globalization. Journal of Finance, 60, 1595–1638.
- Sullivan, D. (1994). Measuring the Degree of Internationalization of a Firm. Journal of International Business Studies, 24, 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, 179-196.
- Wernerfelt, B. and C. A. Montgomery (1988). Tobin's q and the importance of focus in firm performance, American Economic Review, 78, 246–250.
- World Investment Report (WIR, 2006). FDI from developing and transition economies: Implications for development, United Nations Conference on Trade and Development (UNCTD), New York and Geneva.
- World Investment Report (WIR, 2008). Transnational corporations and infrastructure challenge, United Nations Conference on Trade and Development (UNCTD), New York and Geneva.
- 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, 166–179.
- Yeung, H. W. (2002). The limits to globalization theory: A geographic perspective on global economic change. Economic Geography, 78, 285–305.
- Zhang, Y. Zhang (2003). China's emerging global businesses: Political economy and institutional investigations, Palgrave Macmillan, Basingstoke.
- Zheng, Y. Zheng (2004), Globalization and state transformation in China. Cambridge University Press, Cambridge, UK.

Table 2 the Coefficients of Regression Model Test between Diversification Configuration and Performance

Dependent Variables (ROA)	Model 1 ROA	Diversification Configuration			China Investment Usage	
		Model 2 ROA	Model 3 ROA	Model 4 ROA	Model 5 ROA	Model 6 ROA
Intercept	0.1070	0.0895	0.0891	0.0899	0.8264	0.7987
Firm size	0.0873*	0.0127	0.0169	0.0167	0.0164	0.0168
R & D Intensity	(0.0498)**	(0.0510)**	(0.0550)**	(0.0537)**	(0.0562)**	(0.0546)**
Debt Ratio	(0.0561)***	(0.0563)***	(0.0598)***	(0.0610)***	(0.0600)***	(0.0594)**
Country Diversification		0.0475	0.0595*	0.0586*	0.0574*	0.0629**
Regional Diversification		0.0697**	0.0716**	0.0696**	0.0718**	0.0726**
CD (Squared)			0.0343	0.0358	0.0404	0.0485
RD (Squared)			0.0529	(0.0645)**	(0.0639)**	(0.0627)**
CD*RD				0.0283	0.0498	0.0487*
Moderator: China Investment Usage (CIU)					0.0563**	0.0578**
CD*CIU					0.0175	0.0468*
RD*CIU					0.0526	0.0548*
CD*RD*CIU						0.0641**
Wld chi2 / Prob >chi2	(113.02/ 0)	(133.70/ 0)	(146.04/ 0)	(152.88/ 0)	(198.82/ 0)	204.32/ 0
Log likelihood	3083.635	3087.946	3089.503	3088.061	3086.599	3093.613

* P<0.1 ** P<0.05 *** P<0.01

Table 3 Correlation Matrix of Diversification Configuration (CD and RD) and Performance (Observation=2420)

	cd	rd	lnsize	rd_tensity	debt_ratio	ciu	cd×rd	cd2	rd2	roa
cd	1.0000									
rd	0.0917	1.0000								
lnsize	-0.0668	-0.0090	1.0000							
rd_tensity	0.0833	0.0593	-0.0473	1.0000						
debt_ratio	-0.0063	-0.0997	0.0282	-0.0050	1.0000					
ciu	0.0403	0.0189	-0.1180	-0.0419	0.0402	1.0000				
cd×rd	0.6767	0.7184	-0.0327	0.1109	-0.0722	0.0196	1.0000			
cd2	0.9715	0.0872	-0.0655	0.0804	0.0029	0.0399	0.6611	1.0000		
rd2	0.0951	0.9687	-0.0219	0.0640	-0.0824	0.0076	0.7037	0.0986	1.0000	
roa	0.0262	0.0282	0.2352	-0.0457	-0.0724	0.1618	0.0170	0.0233	0.0156	1.0000

Explanations of Variables (See Table 1 Operational Definition of Variables)

cd: country diversification

rd: regional diversification

lnsize: Firm size = the logarithm of group total employees

debt_ratio: Debt ratio = the ratio of total debt to total equity

rd_sity: R&D intensity = RD i / Net sales amount, Where RD_i is Firm i average R & D expenditure

ciu: China investment usage = Real investment amount in China/Total investment amount overseas invested by TMNEs

cd2: country diversification squared

rd2: regional diversification squared

cd×rd: interaction term of country and regional diversification

Author Biographies**Chao Yuang-Shiang**

Candidate of Ph.D program in international business and strategy. Senior Lecturer, Dep. of Finance, Yu-Da University, Taiwan, R.O.C. Mr. Chao currently acted as an educator and researcher in both Finance and International Business field. He is interested in international business and firm competitive behaviour and global marketing strategy in emerging economies, especially in Mainland-China. He has published seven books and more than forty articles in IB and international finance field both in Chinese and English.



Dr. Wei-Hwa Pan Authorship

Dr. Wei-Hwa Pan is the deputy director of MBA and IMBA programmes in National Yunlin University of Science and Technology (NYUST) of Taiwan, Republic of China. He was a researcher at the Center for Research in Industrial Strategy, *University of Birmingham Business School*. He received his Doctorate in Commerce from the University of Birmingham, United Kingdom. Currently acts as an educator, consultant and researcher in International Business field. He is interested in international business and firm competitive behaviour in emerging economies, especially in Mainland-China. Up to now, he has published more than 100 academic writings in English and Chinese, some in SSCI, TSSCI and EI. Eight books with his book chapters or co-authorship can be found in Amazon.com.