Internationalization, Regional Diversification and Firm Performance: The Moderating Effects of Administrative Intensity

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Abstract

Recent research on the internationalization of firm gives little attention to the distinction between country and regional diversification. This paper thus examines the effect of regional diversification, as well as the moderating effect of administrative intensity. Using longitudinal data containing firm-level operation information during 2002-2005, the empirical investigation indicates that an inverted U-shaped relationship exists between regional diversification and performance. We find that country diversification has less impact on firm performance, and regional diversification acts as a significant determinant on firm performance. Additionally, the administrative intensity moderates the relationship between internationalization and performance. For administrative intensity at lower level of regional diversification, higher administrative intensity will result in better performance.

Keywords: Internationalization, country diversification, regional diversification, administrative intensity.

1. Introduction

Over the past decade, internationalization has been widely studies in the strategic literature. In order to gain competitive advantage, organizations are expanding their business operations into different regions (Ramaswamy, 1993). Previous research suggests that internationalization may enhance firm performance. Consequently, the impact of internationalization on firm performance has captured the interest of researches in strategic management. The relationship between internationalization and performance has been adequately studies but produces mixed results. Since internationalization encompasses dimensions of country as well as regional diversification, we argue that the reason for these mixed results is partially attributed to the lack of distinction between country and regional diversification.

Internationalization can be defined as expansion across the borders of global regions and countries into different geographic locations (Hitt et al., 1997). Accordingly, this paper suggests that two distinct modes of diversification should be identified: country and regional. Both country and regional diversification play key roles in the strategic behavior of internationalization. Prior literatures have argued that regional diversification has important influences on the performance of multinational firms (Li & Qian, 2005; Sushil, 1991). Nevertheless, research on internationalization has generally not studies the effect of regional diversification. This study attempts to fill this gap by providing empirical evidence that regional diversification is likely to moderate the relationship between internationalization and performance. Regional diversification, in terms of no balanced geographical dispersion of sales across the world market, thus has important implications for IB research (Rugman & Verbeke, 2004). Li & Qian (2005) define country diversification as the expansion into individual foreign countries, like Egypt or Vietnam; in constrast, regional diversification is seen as diversification into countries within a relatively homogeneous region, like Africa or South-East Asia.

This concept is analogous to related and unrelated product diversification. Regional diversification can be defined as diversification into a relatively homogeneous cluster of countries which are physically and culturally less distant. The physical proximity and cultural similarity should have lower costs of transaction and coordination (Sushil, 1991), and significantly influence the strategy of internationalization (Li & Qian, 2005). Multinational firms gain competitive advantages through their firm-specific assets that are not available to local firms (Inkpen & Beamish, 1997). Nevertheless, it is necessary that multinational firms possess a fitting organization structure in realizing the competitive advantages (Markides & Williamson, 1996). The virtual organization structure even be formed by multinational companies to maximize the specific competence of each participant of strategic alliances (Kotabe & Murray, 2004). Consequently, this study address that changes in organizational control and structure arrangement must occur to fit diversification strategies. The purpose of this paper therefore is to examine the influence of country and regional diversification on performance, and the moderating effect of administrative intensity on the relationship between internationalization and performance.

2. Background and theoretical framework

Hitt et al. (1997) define internationalization as the expansion across borders of global regions and countries into different geographical locations or markets. Diversification, no matter in what form, is considered a performance-enhancing strategy, and internationalization is considered as new ways for value creation (Hitt et al., 2006). Internationalization provides several benefits to firms. Foreign direct investment allows firms to exploit the benefits of internalization (Hymer, 1976), and has been considered as a way of transferring competitive advantages across borders to minimize costs (Grant, 1987). International diversification enables firms to overcome market imperfections across different countries (Buckley & Casson, 1976), and helps firms to achieve economics of scale and scope (Kim et al., 1993; Kogut, 1985). Moreover, researchers suggest that international diversification permits firms to spread investment risks by reducing fluctuation in revenue (Kim et al., 1993). All of these benefits bolster a positive relationship exits between internationalization and performance. Internationalization not only reaps benefits but also comes with a set of costs. While a firm diversifies into a wide variety of world regions, it will have to manage different cultures, new competitors, and complex environment factors, like political or legal regulations. Thus, multinational firms suffer the problem of liability of foreignness (Hymer, 1976), which significantly enhance the transaction costs (Hitt et al., 1994). Managerial constraints increase with multi-regional diversifications (Grant, 1987), and the coordination costs also increase greatly (Hitt et al., 1997). Kogut & Singh (1988) argued that these transaction costs, like communication, coordination, control, and motivation, will lead to many problems.

The costs and the benefits of international diversification are thus considered collectively in the literature, and a curvilinear relationship is formed. An inverted U-shape relationship is obtained by researchers (Brock et al., 2006; Garbe & Richter, 2009; Gomes & Ramaswamy, 1999) who stress that the benefit of internationalization will increase to a point, the so-called "internationalization threshold", and then the cost will eventually exceed the advantages of accessing new resources. Some scholars who posit a U-shape relationship between internationalization and performance have stated another possibility for this (Capar & Kotabe, 2003; Thomas, 2006). In the early stage, internationalization may increase a firm's cost because of newly generated complexity for governance. Nevertheless, performance will start to increase after firms get acquainted with the environment and acquire new knowledge and capabilities. Moreover, Contractor et al. (2003) and Riahi-Belkaoui (1998) found a sigmoid-shaped relationship between internationalization and performance. Lu & Beamish (2004) also supported such a relationship, and noted that liabilities and costs are reduced through learning, experiences, and economies of scale and scope. The above review identifies that the empirical evidence on the relationship between internationalization and performance has been mixed and led to conflicting results. A key gap in this literature stream is the lacking attention paid to the distinction between country and regional diversification. As the conceptual framework in Figure 1, this study suggests that country and regional diversification are two dimensions with regard to internationalization. More importantly, we expect administrative intensity to moderate the relationship between internationalization and performance.

2.1 Country and regional diversification

This paper suggests that two distinct modes of diversification should be identified: country and regional. In order to clarify the impact of internationalization on performance, country and regional diversification should be considered simultaneously.

Country diversification solely can not deal with internationalization strategy, since internationalization encompasses both country and regional dimensions of diversification. Thus to examine the relationship between internationalization and performance, this paper integrates country and regional dimensions of diversification. Lu & Beamish (2004) points out that the costs associated with increasing internationalization are the liabilities of newness and coordination costs. Moreover, increasing geographic dispersion will significantly increase transaction costs (Hitt et al., 1994). Consequently, the costs of transaction rise with geographic dispersion, and the increasing pressure of coordination costs create further challenges for the senior management team (Hitt et al., 1997). Internationalization primarily offers the benefits of internalization in international markets (Hymer, 1976), which gives firms the opportunity to generate advantages such as economies of scale and scope (Kogut, 1985). However, the benefits of economies of scale and scope can incur a high level of transaction costs and coordination efforts for international diversifying firms. That is, if firms expand into international markets, the costs associated with geographic dispersion then start to outweigh the benefits. The studies indicate that, while there are benefits at first stage of internationalization, the costs of transaction and coordination associated with higher level of internationalization gradually diminish the level of performance. This suggests that country diversification is negatively associated with firm performance.

Country and regional diversification do not achieve equal outcomes from internalization opportunities. Nor do they generate the same costs of transaction and coordination through geographic dispersion. Regional diversification can be defined as diversification into a relatively homogeneous cluster of countries which are physically and culturally less distant. The physical proximity and cultural similarity should lead to lower costs of transaction and coordination (Sushil, 1991). Multinational firms face high costs related to cultural differences which are associated with difficulties in transferring competitive advantages and knowledge between different regions (Kogut & Singh, 1988). However, at the lower level of regional diversification, the divergence of culture may be minimal. For example, multinational firms that operate in countries clustered in a homogeneous region may face lower cost than countries clustered in several heterogeneous regions. Moreover, multinational firms that expand into countries clustered physically close to each other should have lower transaction and coordination costs (Grant, 1987). The similarities of homogeneous areas can thus affect a multinational's ability to earn profits.

Multinational theory suggests that standardization of products and production is possible when operating in markets within a homogeneous geographic region (Tallman & Li, 1996). The reason is that countries in a homogeneous region share the same market characteristics, and therefore, the possibility of launching the same products and service is more likely. Standardization saves costs and makes economies of scale and scope possible. It is also easier for firms to exploit synergy (Hitt et al., 2006), as the competencies developed in one country can be easily applied to another in the same region (Tallman & Li, 1996). Resources can also be delivered within a reasonable distance. Consequently, a lower level of regional diversification that can deliver economics of scope and synergies is expected to exhibit higher performance. The similarities of homogeneous areas greatly enhance the benefits and curtail the costs associated with internationalization. The lower level of regional diversification may increase benefits because of the standardization of products and synergy, and decrease the costs of transaction and coordination. The maximum of benefits and the minimum of costs cause the rise in benefits and the fall in costs, which firms can be expected to favor profits that exceed its costs at the margin.

Nevertheless, with continued expansion, as firms achieve a higher level of regional diversification, transaction and coordination costs escalate to the point where they can outweigh the benefits, and firm performance will start to diminish. The arguments presented above indicate that the relationship between regional diversification and performance is nonlinear. Regional diversification will enhance firm performance up to a certain point beyond which the transaction and coordination costs associated with managing extensively scattered operations outweigh the advantages. We argue that although internationally diversified firms may be affected by international geographic diversification, the influences may not the same for the degree of country and regional diversification. Hence, this study summarizes the arguments above in the following hypothesis.

Hypothesis 1a. Country diversification is negatively associated with firm performance.
Hypothesis 1b. The relationship between regional diversification and performance will be inverted U-shaped curvilinear, with the slope positive at low levels of regional diversification, and negative at high levels of regional diversification.

2.2 The moderating effects of administrative intensity

According to Burns & Stalker (1961), organizations are classifiable into mechanistic and organic organizations. Organic organizations have a relatively wider span of control which means less administrative expenses and more self-management (Kreitner, 2000). Organic organizations have flat structure (Burns & Stalker, 1961) which has the characteristic of low administrative intensity. Researchers have observed that uncertain environments lead to organic organization (Schilling & Steensma, 2001). Hitt et al. (1998) propose that organizations will require flexible operation to survive in a global environment characterized by uncertainty. International diversification resides in an environment of uncertainty. Therefore, firms with international diversification will have organic structures and develop low administrative intensity to fit uncertain environments.

However, some scholars posit that organizations operating in uncertain environments have higher levels of administrative intensity (Jones, 1977; Sine et al. 2006). Siddharthan & Lall (1982) indicate that increasing degrees of internationalization and environmental complexity may eventually exhaust managerial capacity. The high levels of dispersion often accentuate administrative complexities and thus increase demands on top managers(Dunning, 1993; Hirsch, 1976). Increased dispersions also stifle transfers of intangible assets across locations because of the inherent problems associated with managerial communication (Nelson & Sidney, 1982). Therefore, when the level of international diversification is increased, a greater amount of coordination and control will be needed to obtain superior performance. With an increase in the level of international diversification, the administrative intensity of the top management team raises due to the needs of coordination and control. These arguments seem to be contradictory, and whether or not administrative intensity affects internationalization and firm performance is still unverified.

Mechanistic organizations are too slow in responding to market changes as information flow between hierarchy layers within firms is inefficient (Hitt et al., 1997). However, organic organization can also be problematic. Organic organizations lead to a waste of resources. Resources are difficult to share if business units are spread across different regions. Moreover, organic organizations may increase the chance of competition for resources between business units in different regions. Habib & Victor (1991) suggest that from an organization learning point of view, a similar environment within a region will facilitate learning and knowledge acquisition. Therefore, organizations with the higher administrative intensity will be needed for a learning mechanism (Sine et al., 2006), and operating efficiency will be derived. Results from previous research indicate a strong relationship between performance and firm operation or governance, so this research applies administrative intensity as the moderator to evaluate the effect on the relationship between internationalization and firm performance. This study proposes the last hypothesis.

Hypothesis 2. Administrative intensity moderates the curvilinear relationship between international diversification and firm performance, such that the effect of international diversification will be more favorable under higher administrative intensity.

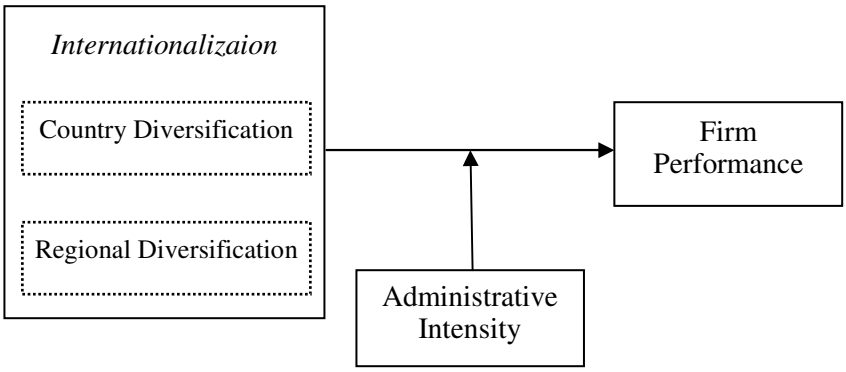

Figure 1. Hypothesized relationship: Administrative intensity as a moderator of the internationalization-performance relationship.

3. Methods

3.1 Sample selection

The sample for this study was drawn from the *Business Groups in Taiwan* databank published annually by China Credit Information Service Ltd. The sample was selected according to the following criteria: (1) publicly listed companies in the Market Observation System, and (2) business that operate in the high-tech industry. This study used firm-level panel data from the *Business Groups in Taiwan* databank. For R&D intensity and administrative expense information, data were collected from the financial statements offered by the Market Observation System. Samples with missing information were removed, the final sample consists 281 firms which contained longitudinal data from 2002 to 2005.

3.2 Dependent variable

Performance. Accounting information is the most widely used measurement of performance in diversification research (Li & Qian, 2005). Previous diversification research applies accounting-based measures for indicators of firm performance: return on equity (ROE), return on sales (ROS), and return on assets (ROA) (Grant, 1987; Hitt et al., 1997). No commonly accepted set of performance indicators exist. Each indicator has strengths and weaknesses. ROE is one of the most widely used accounting measures in the international business research (Qian, 1997). ROE can reflect the productivity of capital employed (Varadarajan & Ramanujam, 1987), and represents the managerial and strategic outcome that utilized shareholders' disburse. The choice of using ROE is partially due to data availability.

3.3 Independent variables

Country diversification. Previous studies have used several measures of international diversificatio for this construct. The most commonly used form is the single-item measure (Hitt et al., 1997), and the majority of previous studies use the measure of foreign sales to total firm sales (FSTS) (e.g., Capar & Kotabe, 2003; Grant, 1987; Habib & Vivtor, 1991), foreign assets to total firm assets (FATA) (e.g., Ramaswamy, 1995), and foreign employee number to total firm employee number (FETE) (e.g., Kim et al., 1989). Sullivan (1994) recommends the use of multidimensional measure. The multidimensional index has great fidelity (Gomes & Ramaswamy, 1999). In the present study, the degrees of country diversification are considered a multidimensional index, and performed by obtaining the mean of a composite index encompassing three dimensions (sales, assets, and employees). However, due to the lack of subsidiary-level employment data, FETE is removed, and the index is calculated with only FATA and FSTS. **Regional diversification.** For regional diversification, this research applies the entropy measure suggested by Li & Qian (2005). The entropy measure was initially a way of assessing a firm's degree of product diversification proposed by Jacquemin & Berry (1979). Following the empirical concept, regional diversification is defined as$\Sigma[P_i \ln(1/P_i)]$, where P_i is the sales of 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 the number of global market regions in which a firm operates and the relative importance of each region to total sales (Hitt et al., 1997). To calculate the entropy measure, this study classifies the regions into the Americas, South-East Asia, North-East Asia, Europe and other regions, and tax havens.

Administrative intensity. Administrative intensity is measured by the ratio of managerial personnel to the number of total employees (Jones, 1977), and also refers to as an indicator of management overhead (Blau & Schoenherr, 1971). This study uses the accounting data of management overhead to measure administrative intensity. The measure of administrative intensity used in this study is the ratio of administrative expense to net sales. The reason that the present study chooses administrative expense is that this cost is incurred during the controlling and directing of an organization. It contains the material and employee expenses of senior executives, and the costs of general services (such as accounting, contracting, and industrial relations).

3.4 Control variables

Firm size. Firm size is frequently used as a proxy of competitive positioning, including market power and scale economies (Grant et al., 1987). Small firms are usually more resource-constrained and vulnerable to market competition (Doukas & Lang, 2003), but large firms may incur greater coordination cost, which may reduce the synergy of diversification (Chang & Wang, 2007). Thus firm size influences international diversification of firm (Dass, 2000).

This study includes this measurement and measures it by taking the natural logarithm of firm total assets. **Debt ratio.** The financial structure of the firm plays an important role in its performance. The debt ratio is capable of measuring the resource availability and constraints of each firm. This ability will naturally affect the capability of a firm to diversify and use resources for business group enterprises (Chang & Hong, 2002), and thus the debt ratio significantly affects firm performance (Palich et al., 2000). Here, this study measures debt ratio by using the ratio of long-term debt plus current liabilities divided by common equity.

4. Results

Table 1 shows the descriptive statistics and correlations for the dependent, independent, and control variables in this study. The software used in this study is STATA v.9.0.

Table 1: Means, Standard Deviations, and Correlations

Variable	Mean	s.d.	1	2	3	4	5
1. Performance	8.6	14.54					
2. Country diversification	0.7	0.47	0.05				
3. Regional diversification	0.6	0.37	0.07	0.17*			
4. Debt ratio	0.4	0.17	−0.05	0.09	−0.10		
5. Firm size [a]	7.7	0.60	−0.04	−0.04	0.28**	−0.43**	
6. Administrative intensity	3.4	2.79	0.05	0.11	0.14	0.07	−0.18*

[a] Log-transformed variable.
* p<0.05
** p<0.01

Table 2: Results of Regression Analysis

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
1. Intercept	26.84	29.63	37.42*	29.03	29.97	30.69
2. Debt Ratio	−4.17	−2.34	−2.67	−2.75	−2.94	−2.95
3. Firm Size	−2.22	−1.96	−3.45	−3.89	−3.01	−2.38
4. Administrative Intensity		0.85	0.91	1.15†	1.01†	1.09†
5. Country Diversification		−5.19*	−6.54*	−5.48	−4.95	−5.15
6. Regional Diversification			19.83*	19.16*	11.61†	11.85†
7. Regional Diversification (Squared)			−11.52*	−12.02*	−9.87†	−9.97†
8.Country Diversification × Administrative Intensity				0.05		
9.Regional Diversification × Administrative Intensity					−12.09†	
10.Regional Diversification(Squared) × Administrative Intensity						−3.28
R^2	0.010	0.008	0.019	0.038	0.042	0.042
Prob > chi2	0.844	0.171	0.016	0.006	0.000	0.000
F-Statistic	0.83	18.03	19.07	22.29	31.31	32.41

†p<0.10, *p<0.05, **p<0.01

Table 2 shows the results of regression analysis. Model 1 is the baseline model that includes only the two control variables. This research uses Model 1 to test the effects of the control variables on firm performance, and then adds the main effect of country and regional diversification in Model 2 and Model 3. Hypothesis 1a predicts a negative linear relationship between country diversification and performance. The result, shown in model 2, is statistically significant ($\beta = -5.19$, $p < 0.05$). Thus, the result does support hypothesis 1a. Hypothesis 1b predicts an inverted U-shaped relationship between regional diversification and performance.

This research tests Hypothesis 1b using Models 3, in which this research builds the test of the inverted U-shaped relationship by adding the linear term and the squared term of regional diversification. The results for Model 3 show an inverted U-shaped relationship, with the slop positive (β =19.83, $p < 0.05$) at low levels of regional diversification, and negative (β =−11.52, $p < 0.05$) at high levels of regional diversification. The result is statistically significant, and supports Hypothesis 1b.

Model 4, Model 5 and Model 6 are the models for demonstrating the moderating effect of administrative intensity to the diversification-performance relationship. The results show that the moderating effect on country diversification is not significant in Model 4. Additionally, Model 5 and Model 6 comprise the interaction term of administrative intensity with regional diversification to examine the moderating effect. Administrative intensity in model 5 is statistically significant (β =−12.09, $p < 0.05$) and has a negative relationship with regional diversification and firm performance. However, the interaction between administrative intensity and regional diversification square term does not reach a significant level in Model6. Although the relationship is not significant in Model 6 and only one of the interaction terms in Model 5 is significant, this still partially supports Hypothesis 3. This signifies that lower administrative intensity may help firm performance.

5. Conclusion

The findings of this research suggest that an inverted U-shaped relationship exists between regional diversification and performance. An inverted U-shaped relationship indicates that lower level of regional diversification, obtaining economics of scope and scale, are expected to exhibit higher performance. For a low level of regional diversification, the similarity of the demands and culture may increase knowledge of the market, and thus, increase performance. Additionally, the lower level of regional diversification may also increase benefits because of the standardization of products and synergy, and decrease the costs of transaction and coordination. With increasing international expansion, performance will start to increase after firms get acquainted with the environment and acquire new knowledge and capabilities. However, when a firm heavily diversifies into multiple regions, the different behaviors, tastes, cultures, and contexts derived from various backgrounds will increase the cost for the management team. Thus, multinational firm's cost might be increased due to newly generated complexity for governance.

The results of this study have several implications for businesses that extend their geographical operations. From the results of this study, increasing country diversification might degrade firm performance due to increased differences between nations. Thus, whether operating in a single or multiple regions, managers must be aware of the expansion scope of countries and they must try to balance the costs and benefits. In addition, the administrative intensity and contingency of the organization structure are also crucial for international diversification success. For lowly regional diversified firms, a mechanistic structure is preferred due to the relatively stable and certain environment. Operational efficiency is more likely to be achieved through centralized control and resource allocation. In contrast, for highly regional diversified firms, an organic structure is suggested because differences in conditions between regions might be enormous. A decentralized decision-making system is appropriate for a constantly changing environment. International diversification strategies require environmental and organizational contingency to have the best performance.

Specific structures, communications, and managerial mechanism relate to the configurations of regions and countries. Figure 2 shows one such relationship. Figure 2 is a composite of regional diversification, country diversification, and administrative intensity. With low levels of both diversification strategies, a higher level of administration intensity for firms will generate the best performance. When a firm expands into different region around the world, a decentralized control and managerial system may help generate greater performance. A high level of country diversification will often be harmful to firm performance due to increasing transaction costs, so firms will experience a performance downturn. This figure is useful as a reference for firms when developing their multinational strategy.

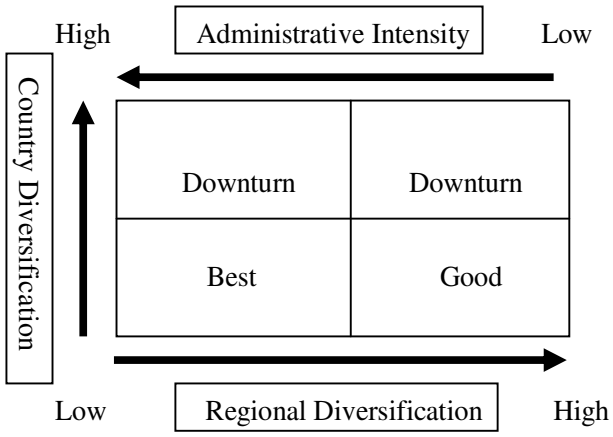

Figure 2. Interplay of Internationalization and administrative intensity on firm performance.

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