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FDIs by high-tech firms from newly-industrialized economies in emerging markets: The role of resources on entry strategy

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International investments by firms from Newly-Industrialized Economies (NIEs) in other less-developed emerging economies were increasingly important due to the rise of labor cost in the home economy. This paper investigated how resources of high-tech Taiwanese firms influenced their entry strategy in Mainland China. The results indicated that the parent firms' knowledge-based and property-based resources impacted their equity ownership in overseas subsidiaries. Taiwanese firms usually with limited resources and capability were concerned about appropriation hazard of their technological know-how in Mainland China market, therefore took larger equity ownership to assume greater strategic control over their subsidiaries. Firms having more marketing resources assumed larger equity ownership to streamline their marketing programs and practices to achieve marketing efficiency in Mainland China, where price competition was intense. Organizational slacks proved to be necessary to buffer firms from unprecedented adverse circumstances as firms occupying more slack were likely to maintain larger equity ownership in Mainland China market. Slack also acted as a substitute for more restricted externally raised financial resources. Besides, firms possessing greater internally generated financial resources, which imposed fewer restrictions of deployment, tended to commit larger equity ownership in their subsidiaries. This study might be generalizable to other NIEs and emerging markets.

Key words: Foreign direct investment, newly-industrialized economies, emerging markets, resources, entry strategy, equity ownership, high technology, Taiwan, Mainland China.

INTRODUCTION

Asian developing economies increasingly become an important source of Foreign Direct Investments (FDIs) (Gao, 2005; Petri, 2010). Particularly in Asia, the majority of these FDIs come from newly industrialized economies (NIEs) such as Hong Kong, Singapore, South Korea, and Taiwan. Much of developing Asia's outward FDIs goes to other developing economies, but is more confined by distance. In developing countries, access to market information is generally more limited due to greater institutional barriers (Gao, 2005). Therefore, when invest-ting in these countries, familiarity with the local context, which can be proxied by distance between the home and the host country, becomes more important. Mainland China, an obvious example, receives nearly 70% of FDI inflows that fuel its rapid economic growth in recent decades from developing Asian countries (Gao, 2005).

Many studies about entry strategy investigate FDIs among developed industrialized countries or from developed countries to other developing countries. How-ever, international investments made by firms from NIEs are increasingly important (Filatotchev et al., 2007; Gao, 2005; Gubbi et al., 2010; Makino et al., 2002; Petri, 2010). Firms from NIEs experience increasing labor cost in their home country, thus they are motivated to invest in other emerging or less-developed economies (Makino et al., 2002). These firms usually have limited resources and capability and thus entry into an emerging economy with inefficient and incomplete markets is a challenge for them, as it may relate to high level of information asymmetries and risks associated with underdeveloped legal and business environments (Hoskisson et al., 2000; Wright et al., 2005).

To contribute to this line of literature, this paper in-vestigates how resources of high-tech firms from Taiwan,

a newly-industrialized economy, influence their entry strategy into Mainland China, an emerging market. In particular, this study examines the entry strategy in terms of equity ownership of Taiwanese parent firms in Mainland China subsidiaries (Filatotchev et al., 2007; Makino et al., 2002). Equity ownership of the parent firm in its overseas subsidiaries is an important aspect of entry strategy because larger equity stake of the parent firm in its overseas subsidiary allows the parent firm to gain more strategic control over its subsidiary.

High-tech firms in this study well represent the distinct strategy of firms in emerging markets since their technological resources are extremely important and meanwhile, these resources are highly vulnerable to the appropriation hazard in emerging economies, where the protection of intellectual property rights is not well developed. Given that resources embedded in organizations range widely, this paper classifies these resources into knowledge-based resources, which relate to particular know-how and skills, and property-based resources, which relate to specific and well-defined assets (Miller and Shamsie, 1996; Tseng et al., 2007).

This study employs Taiwanese FDIs in Mainland China as the research context for the following reasons. As a well-developed newly industrialized economy with a large population of overseas Chinese similar to many other emerging economies in Asia (Filatotchev et al., 2007), Taiwan provides a good research opportunity for further generalization to many other Asian NIEs. Besides, Mainland China, as the largest emerging economy in the world, is a suitable context to be probed into with respect to its incomplete and transitional market institutions.

THEORETICAL BACKGROUND

According to OLI paradigm (Dunning, 1977) which is further refined in the knowledge-capital models (Carr et al., 2001; Markusen, 1995), FDIs require that the source firm owns some production-related assets (that is, brands, technology, or management skills). Further, production facilities in the host country have to benefit from localization advantages (that is, tax preferences). Besides the source firm has to realize more benefits from internalization through FDIs than those from licensing or contracts. FDI decisions are usually driven by cost concerns (Helpman, 1984), market-access concerns (Brainard, 1997; Horstmann and Markusen, 1992), or a combination of these concerns (Carr et al., 2001). In the knowledge-capital model (Carr et al., 2001), which combines both cost and market-access motives of FDIs, countries occupying more advanced technology and larger endowments of skilled labor are likely to be the source of FDIs.

Intra-Asian FDIs are dominated by flows from economies with relatively high technology to those with relatively low technology, while FDIs elsewhere primarily involve flows among economies with relatively high technology (Petri, 2010). Such technological upgrading plays a critical role in East Asian economic development. Firms from East Asian economies acquire technologies ranging from imitation of foreign technologies to licensing and direct investments (Petri, 2010). Despite the fact that NIEs are not among the most technologically advanced economies, they do possess advantages over many other lower-income developing economies where their FDIs are destined. The pioneering Asian economies such as Japan, Korea, and Taiwan, typically rely on reverse engineering and occasional licensing, whereas the late developers such as Southeast Asian economies, Mainland China, and recently India, emphasize on technology imports through FDIs. These late developers increasingly import technologies from those pioneering economies as a significant source of technological know-how and investments.

This paper focuses on two types of production-related assets (Dunning, 1977), which are knowledge-based resources and property based resources. Knowledge-based resources are collective goods within the firm that can be shared by multiple agents without diminishing their value available for others (Miller and Shamsie, 1996). This type of knowledge often takes the form of for example, technical, creative, and collaborative skills. Technical and creative expertise can help firms develop competitive products and market them successfully, whereas collaborative skills can assist experts in various fields to work and learn together effectively. Property-based resources are private goods that tie up a specific and well-defined asset, and their use by one party reduces the possibility of being used by others (Miller and Shamsie, 1996). Drawing upon resource-based view (Barney, 1991), this paper further identifies technological resources and marketing resources, as knowledge-based resources, and identifies organizational slacks, as well as internally generated financial resources and externally raised financial resources, as property-based resources.

HYPOTHESES DEVELOPMENT

Technological resources

Firms enter into international markets for many reasons, however the level of technological development is considered to be one of the critical determinants of FDIs (Kobrin, 1991; Dunning, 1993). Technological resources refer to the assets employed to develop new products or innovative manufacturing processes (Moorman and Slotegraaf, 1999; Silverman, 1999). Firms from technology intensive industries frequently enter into foreign markets to recover their costly R&D investments in the home country, to prevent product obsolescence, and to gain market share (Harris and Ravenscraft, 1991). Through a foreign entry, firms transfer and share their

proprietary technologies, skills, and knowledge with local organizations hoping to gaining additional profits or amortizing the costs of R&D over a larger quantity of products sold at home and abroad (Tihanyi and Roath, 2002).

Transaction cost economics predicts the circumstances under which firms would choose to establish either one of alternative types of subsidiary (that is, wholly-owned subsidiary or joint venture) (Gomes-Casseres, 1990; Hennart, 1991). Parent firms with advanced proprietary technologies are likely to transfer technologies to foreign ventures to gain competitive advantage over indigenous firms (Dunning, 1993). Since transferring this tacit advanced technological know-how is costly, the internal transfer becomes a warrant alternative (Kogut and Zander, 1993).

Technology is often the critical asset of source firms, thus the investor is often concerned with the protection of their intellectual property right in the host countries. In emerging economies, the diffusion of proprietary knowledge is of a particular concern due to the under-developed legal and business institutions, especially the efficient protection of intellectual property rights. Unlike physical or financial resources, technological know-how can be replicated and disseminated without incurring full costs of recreating it (Caves, 1971, 1996; Martin and Salomon, 2003). Hence, technology-intensive firms would prefer fully controlled ventures rather than ventures with shared ownership. By fully internalizing their transactions in high-tech goods and services, including the transfer of production know-how, assessment of market opportunities for innovative products, as well as the training of sales and service personnel, the parent firms can minimize the risk of opportunism on the side of the foreign partner and the potential loss of proprietary technologies after the transfer to a venture with shared ownership.

In line with the earlier research (Gatignon and Anderson, 1988; Hennart, 1991), these firms are inclined to opt for entry via wholly owned subsidiaries rather than ventures with shared ownership. By taking larger ownership and thus assuming a greater strategic control in the overseas ventures, parent firms are able to minimize the appropriation hazard of their proprietary technological know-how. Therefore, the influence of technological resources on equity ownership is hypothesized as follows:

H_1: High-tech Taiwanese firms with more technological resources are likely to take larger ownership in Mainland China subsidiaries.

Marketing resources

Firms can employ marketing resources to differentiate their products from competitors and to build up positive brand images by steering resources into the development of marketing programs and marketing management practices (Erramilli et al., 1997; Kotabe et al., 2002;

Tseng et al., 2007). Higher levels of marketing resources allows firms to better offer common marketing programs and practices on a global basis by drawing upon the experience and expertise of operating in their home country and other countries and allocating these marketing resources to foreign locations at relatively low costs (Chung, 2003; Dunning and McQueen, 1981). These marketing resources also enables firms to provide more consistent offerings to their customers, as well as more uniform marketing planning and control procedures to their various overseas operations (Chung, 2003). Such application has a great potential to increase the strength of brand images, to facilitate the achievement of marketing scale economies, and to enhance bargaining power with distributors and consumers (Levitt, 1983).

In terms of transferring the proprietary marketing knowledge which is usually tacit, firms would need to internalize necessary transactions. Internal transfer can reduce the costs associated with transferring such tacit marketing knowledge including the assessment of market opportunities for innovative products as well as the training of sales and service personnel (Kogut and Zander, 1993). With respect to firm characteristics, the entrant firm having greater marketing knowledge can experience lower uncertainty and can perceive lower risk in the host country (Erramilli and Rao, 1990). As a result, they tend to be less cautious in their foreign market involvement (Erramilli and Rao, 1990). In contrast, firms are more willing to team up by sharing the equity ownership with external entities in foreign markets to compensate for their deficiency in market knowledge. Therefore, to achieve the marketing efficiency, particularly in Mainland China market where price competition is imminent and to facilitate the transfer of tacit marketing knowledge, taking larger ownership, and thus assuming greater strategic control, in the subsidiaries becomes necessary. Accordingly, the influence of marketing resources on equity ownership is hypothesized as follows:

H_2: High-tech Taiwanese firms with more marketing resources are likely to take larger ownership in Mainland China subsidiaries.

Organizational slacks

Slack is defined as a cushion of resources that allows an organization to adapt successfully to internal pressures for adjustments or to external pressures for changes in policy as well as to initiate strategic changes with respect to the external environment (Bourgeois, 1981). Especially in emerging markets, the role of organizational slacks is substantial when an environmental turbulence takes place, resulting in the change of environmental munificence. Even though slack is not available without costs, it can help firm performance by buffering a firm's technical core from environmental upheavals (Cyert and

March, 1963; Pfeffer and Salancik, 1978; Thomson, 1967) or allow it to undertake risky strategies (Hambrick and D'Aveni, 1988). Slack also allows firms to confidently take more aggressive strategic actions, including experimenting new strategies such as introducing new products and entering new markets (Thompson, 1967). Besides, firms occupying higher levels of slack can adopt offensive strategic reorientation in response to the crisis (Tan and See, 2004).

Thus, slack is necessary to help ensure the long-run survival of firms. Particularly, during turbulent times, slack enables firms to become more stable (Sharfman et al., 1988). While slack resources are an additional cost to the organization and an excessive level of slack is untenable, given the complex trade-offs, the benefits of slack outweigh its costs (Galbraith, 1973). Accordingly, firms possessing more slack are more tolerant to the risk and uncertainty of FDIs, especially in emerging economies. These firms are more willing to involve in an emerging market with larger equity ownership than those possessing less slack. Therefore, the influence of organizational slacks on equity ownership is hypothesized as follows:

H_3: High-tech Taiwanese firms with more organizational slacks are likely to take larger ownership in Mainland China subsidiaries.

Internally generated and externally raised financial resources

Undertaking FDIs is a costly strategic decision that often requires significant internal and external financial resources (Doukas and Lang, 2003). Wealthy firms with abundant financial resources have a greater latitude to contemplate foreign expansion opportunities and to make the expansion process smoother (Ito and Rose, 2002; Mishina et al., 2004; Tseng et al., 2007). Lacking of financial resources can constrain the international presence of firms in pursuing global leadership, which in turn, makes firms lagging behind their rivals. Financial resources occupied by a firm come from various sources. Firms have to align their FDI strategies with the expectations of different types of financial resource providers who can influence their entry strategies.

Financial resources can be yielded from inside or outside of the firm. Firms generate financial resources internally as a result of profits or retained earnings from their own investments. They can also raise funds from external sources in the form of equity through capital markets, or in the form of debts through banks and other financial institutions. Internal funding, usually in the form of retain earnings, has fewer restrictions and less costs concerns. It can be readily reinvested into the firm to facilitate international investment activities, thereby strengthening the firm's competitive position against its rivals in host markets. Possession of adequate internal

financial resources allows firms to move along the planned international developments with fewer restrictions, giving the firm more confidence in accelerating its entry into new foreign markets (Tseng et al., 2007).

Fewer constraints associated with the deployment of such internally generated financial resources allow firms more freedom to undertake a greater resource commitment in potential FDIs. Therefore, the influence of internally generated financial resources on equity ownership is hypothesized as follows:

H_4: Taiwanese firms possessing more internally generated financial resources are likely to take larger ownership in Mainland China subsidiaries.

Due to the substantial funds required for international investments, firms often need external sources of funding. External funding through equity or debt entails substantial costs of deployment as it obliges a firm for dividend payout on equity and interest payment on debt. Debt financing, for instance, requires a firm to repay a specific amount of loans on a periodical basis, no matter how much profit it makes. Managerial actions are also often disciplined and monitored by creditors and shareholders (Jensen, 1986). The pressures to meet the debt obligation and to remain lucrative to the shareholders can discourage firms to undertake risky operations, like FDIs in emerging markets.

Outside fund providers are at a disadvantage in assessing firm value associated with various strategic decisions of firm managers (Myers and Majluf, 1984). The information asymmetry between managers and potential suppliers of financial resources is exacerbated particularly when financing investments in emerging markets where environmental uncertainties are substantial. FDIs in emerging markets may require a longer time to attain profitability, making risk estimation more difficult. The high uncertainties in emerging markets also make it difficult for the outside fund providers to assess the ability of the firm management to operate this new business. Fund providers are often reluctant to support investments in distant overseas markets, which often cause instability in the firm's future earnings. External find providers may not support such risky FDIs or they may charge higher interest or discount rates. These fund providers may even request firms to withdraw from unprofitable overseas operations to ensure the firm's ability to repay loans.

With higher financial leverages, firms will accordingly evaluate foreign operations including equity involvement more cautiously. They may even delay or give up such risky operations. Therefore, the influence of externally raised financial resources on equity ownership is hypothesized as follows:

H_5: Taiwanese firms with more externally raised financial resources are likely to take smaller ownership in Mainland China subsidiaries.

Interaction between organizational slacks and externally raised financial resources

Pursuing FDIs requires substantial financial resources. Slack has different effects on firms' strategic response to environmental shifts (Cheng and Kesner, 1997). Slack allows firms to confidently and instantly take more aggressive strategic actions, including entering new markets (Thompson, 1967), or adopting offensive strategic reorientation in response to the crisis (Tan and See, 2004). External financing, no matter through equity or debt, however, entails many restrictions, particularly when the fund is to be used in a risky investment project (that is, FDIs in emerging markets). Besides, external funds also oblige a firm for dividend payout on equity and interest payment on debt.

Therefore, with higher levels of slack, firms undertaking FDIs have greater freedom as they are still able to fund FDIs without being limited by various restrictions imposed by external fund providers. Even if external financing is available, banks, for example may demand high interest rates to compensate for greater uncertainties for FDIs in emerging markets. Under this circumstance, slack can be a substitute for externally raised financial resources as it can still readily and instantly facilitate the firm's various entry strategies in these emerging markets. Therefore, the interaction effect between organizational slacks and externally raised financial resources on equity ownership is hypothesized as follows:

H_6: Organizational slacks positively moderate the relationship between externally raised financial resources and equity ownership of Taiwanese firms in Mainland China subsidiaries.

METHODOLOGY

The empirical context for the analysis of FDIs in this study is Taiwanese FDIs in Mainland China. These Taiwanese firms are selected from electronics and computer industry which is the most important high-tech industry in Taiwan. The choice of Mainland China as the host economy is made on the grounds that it is the largest emerging market in the world and it has been the host to vast amounts of FDI from many different countries over the past three decades. Taiwan is selected as the home economy because Taiwan is a relatively open, well-developed, and medium-size Asian NIE with substantial numbers of companies publicly listed on the domestic stock exchange. Many of these firms are engaged in FDIs and thus provide reliable and accurate data about firm-specific information.

Data sources and sample

Firm-level data are obtained from the listed companies' annual reports and Taiwan Economic Journal (TEJ), which is the most reliable database that archives historical reports of publicly listed Taiwanese firms. The FDI data are detailed and recorded for all available individual FDI projects from 2004 to 2009. The data for firm resources used in the analysis relate to the year before the relevant subsidiary is established. For instance, the data of firm resources in 2008 are used for FDI projects that are established in 2009. All entries are the first-time entry into Mainland China for a particular project. There are total 791 entries with complete information.

Dependent variable

Entry strategy (EOS_{ps})

This variable is measured in terms of the percentage of equity stake ownership taken by the Taiwanese parent company in its Mainland China subsidiaries (Filatotchev et al., 2007). As the percentage of equity stake ownership of Taiwanese parent firm in a particular subsidiary is higher, the firm is likely to assume a greater strategic control in that subsidiary.

Independent variables

Technological resources ($TECH_p$)

This variable is measured by the parent firm's R&D expenditure as a percentage of total annual sales (Davidson and McFetridge, 1985; Erramilli et al., 1997; Gatignon and Anderson, 1988; Grant et al., 1988; Hennart and Park, 1993).

Marketing resources ($MKTG_p$)

This variable is measured by the ratio of marketing-related expenses to total annual sales (Erramilli et al., 1997; Gatignon and Anderson, 1988; Grant et al., 1988; Vachani, 1995).

Organizational slacks (AS_p)

As slack can be stored in an organization by different forms, prior studies have classified it into available (unabsorbed) and unavailable (absorbed) slack (Sharfman et al., 1988; Tan and Peng, 2003). Available slack corresponds to the uncommitted resources readily available to support new initiatives. This type of slack features a capacity that can be easily redeployed elsewhere, thus allows for a greater managerial discretion. Unavailable slack, on the contrary, is already absorbed into the cost structure of the firm, thus it is not readily available for a discretionary use. Therefore, this study focuses only on available slack because such resource is more readily and instantly employable for managers to buttress foreign business activities. Consistent with the previous studies (Bourgeois, 1981; Bromiley, 1991), this variable is the company's current ratio or current assets divided by current liabilities.

Internally generated financial resources ($INTFIN_p$) and externally raised financial resources ($EXTFIN_p$)

The variable of internally generated financial resources is calculated by the return on investment which denotes the internal profits generated from the present investments (Tseng et al., 2007). The variable of externally raised financial resources is calculated by the ratio of cash flow to invested capital (Tseng et al., 2007). The data for cash flow are derived from cash received from or cash paid to financing-related transactions, such as cash dividends, issuance or reduction of long-term debt, and an addition of equity stock.

Control variables

Size of the parent firm (EMP_p)

Large firms typically possess greater financial and managerial

capability as they can share their resources to realize economies of scale and scope across operations. Larger parent firms may prefer to take larger ownership (that is, wholly-owned ventures in the foreign operations (Gatignon and Anderson, 1988; Kogut and Singh, 1988). This variable is measured from the log of the number of employees in the parent firm in the year of entry (Geringer et al., 2000; Tseng et al., 2007).

Size of the subsidiary firm (TA_s)

Size of the subsidiary firm (TA_s)

Investments in foreign subsidiaries are mostly irreversible. Thus, larger subsidiaries can be associated with greater investment risks incurred by parent firms. Accordingly, parent firms may involve the level of equity ownership in larger overseas subsidiaries more cautiously. This variable is measure from the log of the total assets of a particular subsidiary in the year of entry.

Age of the parent firm (AGE_p)

Older firms usually possessing more experience may be more willing to take larger ownership in the foreign operations. The experienced firms can be better at realizing the economies of scale and scope through the entry in foreign countries. This variable is measured by the log of the number of years of the parent firm's operating experience since its establishment until the year of entry.

Past Performance ($ROIC_{p\,(t-1)}$)

Past performance of the parent firm may affect the present FDI decisions. Parent firms with good performance in the year prior to the year of entry are likely to accumulate more resources available to support the international investment activities. These firms may be more willing to take a larger equity involvement in overseas subsidiaries. This variable is the return on investment capital (ROIC) of the parent firm in the year prior to the year of establishing a particular FDI project. ROIC is used to assess how well, for instance, in terms of profitably, a company's management is able to allocate capital into its operations. It is calculated from the ratio of the parent firm's net income after dividends over its total invested capital. Because some companies can receive incomes from other sources or they can have other conflicting items in their net income, net operating profit after tax is used in this study instead. Therefore, net income in this study is the net operating profit after tax. Total invested capital includes long term debt, common stocks, and preferred stocks. Invested capital can be in the form of buildings, projects, machinery, other companies, etc.

Statistical models

Initially, descriptive statistics are employed to analyze the data, and then Tobit regressions are performed to investigate the effects of various firm resources on the entry strategy. A Tobit model is an econometric model appropriate to handle the limited dependent variable (Greene, 2001; Tobin, 1958). The Tobit model estimates latent values for all observations, but assumes that these observations are realized only above or below a censoring limit. The values of equity ownership of the parent firm in its subsidiaries, as an entry strategy in this study, are all non-zero, as only firms with FDI projects are included in the sample and this variable is limited to the maximum value of 100%.

The empirical specification for the determinant of the equity stake ownership taken by the Taiwanese parent company in its Mainland China subsidiaries is the often used gravity model (Greene, 2001). The first step is to evaluate the overall validity of the regression model by including only the control variables in the base model as shown in Equation 1:

$$EOS_{ps} = \alpha_p + \beta_1 \ln(EMP_p) + \beta_2 \ln(TA_s) + \beta_3 \ln(AGE_p) + \beta_4 ROIC_{p(t-1)} + \varepsilon_{ps}, \quad (1)$$

where p and s are parent and subsidiary indexes respectively, EOS_{ps} is the percentage of equity stake ownership taken by the Taiwanese parent firms in Mainland China subsidiaries, α_p is the parent firm's specific intercept, $\ln(EMP_p)$ is the log of the parent firm's number of employees, $\ln(TA_s)$ is the log of the subsidiary firm's total assets, $\ln(AGE_p)$ is the log of the parent firm's age, $ROIC_{p(t-1)}$ is the parent firm's performance in terms of return on investment capital in the year prior to the year of entry in Mainland China.

To test H_1 and H_2 that knowledge-based resources in terms of technological resources ($TECH_p$) and marketing resources ($MKTG_p$) of the Taiwanese parent firm influence its equity ownership in Mainland China subsidiaries, these two variables are added in Equation 1 as shown in Equation 2:

$$EOS_{ps} = \alpha_p + \beta_1 \ln(EMP_p) + \beta_2 \ln(TA_s) + \beta_3 \ln(AGE_p) + \beta_4 ROIC_{p(t-1)} + \beta_5 TECH_p + \beta_6 MKTG_p + \varepsilon_{ps}, \quad (2)$$

where $TECH_p$ is the parent firm's R&D expenditure to total annual sales, $MKTG_p$ is the parent firm's marketing-related expenses to total annual sales.

To test H_3, H_4, and H_5 that property-based resources in terms of organizational slack (AS_p), internally generated financial resources ($INTFIN_p$), and externally raised financial resources ($EXTFIN_p$) of the Taiwanese parent firm influence its equity ownership in Mainland China subsidiaries, these three variables are added in the model in Equation 2 as shown in Equation 3.

$$EOS_{ps} = \alpha_p + \beta_1 \ln(EMP_p) + \beta_2 \ln(TA_s) + \beta_3 \ln(AGE_p) + \beta_4 ROIC_{p(t-1)} + \beta_5 TECH_p + \beta_6 MKTG_p + \beta_7 AS_p + \beta_8 INTFIN_p + \beta_9 EXTFIN_p + \varepsilon_{ps}, \quad (3)$$

where AS_p is the parent firm's current ratio, $INTFIN_p$ is the parent firm's return on invested capital and $EXTFIN_p$ is the parent firm's ratio of cash flow to invested capital.

To test H_6 that organizational slacks of the Taiwanese parent firm moderates the influence of its externally raised financial resources on its equity ownership in Mainland China subsidiaries, the interaction term between these two resources ($AS_p*EXTFIN_p$) are added in Equation 3 as shown in Equation 4.

$$EOS_{ps} = \alpha_p + \beta_1 \ln(EMP_p) + \beta_2 \ln(TA_s) + \beta_3 \ln(AGE_p) + \beta_4 ROIC_{p(t-1)} + \beta_5 TECH_p + \beta_6 MKTG_p + \beta_7 AS_p + \beta_8 INTFIN_p + \beta_9 EXTFIN_p + \beta_{10}(AS_p*EXTFIN_p) + \varepsilon_{ps}, \quad (4)$$

where ($AS_p*EXTFIN_p$) is the interaction term between available slack and externally raised financial resources.

The estimation method used across all four Equation s is the censored Tobit regression model. The expected signs of the relationship between various firm resources and equity ownership are summarized as shown in Table 1.

RESULTS

From all publicly listed Taiwanese companies in electronics and computer industry that made one or more direct investments in Mainland China from 2004 to 2009, there were 791 entries with complete information for the

Table 1. Summary of variables and their relationship with the equity ownership.

	Variable description	Abbreviation	Test Equation	Test model	Expected sign
	Dependent variable				
1	Equity Ownership of Parent Firm in Subsidiary	EOS_{ps}	1-4	Base, 1-3	
	Independent variable				
2	Technological Resources (H_1)	$TECH_p$	2	1-3	Positive
3	Marketing Resources (H_2)	$MKTG_p$	2	1-3	Positive
4	Available Slack (H_3)	AS_p	3	2-3	Positive
5	Internally Generated Financial Resources (H_4)	$INTFIN_p$	3	2-3	Positive
6	Externally Raised Financial Resources (H_5)	$EXTFIN_p$	3	2-3	Negative
7	Interaction between Available Slack and Externally Raised Financial Resources (H_6)	$AS_p \times EXTFIN_p$	4	3	Positive
	Control variable				
8	Size of the parent firm	$\ln(EMP_p)$	1-4	Base, 1-3	Positive
9	Size of the subsidiary firm	$\ln(TA_s)$	1-4	Base, 1-3	Negative
10	Age of the parent firm	$\ln(AGE_p)$	1-4	Base, 1-3	Positive
11	Return on investment capital lagged one year	$ROIC_{p(t-1)}$	1-4	Base, 1-3	Positive

analysis. Table 2 provides the descriptive statistics and correlation matrix of all variables in this study. Taiwanese parent firms made a relatively high entry commitment in Mainland China as they held the average equity ownership (EOS_{ps}) of 80% in their subsidiaries. Their average operating experience since the date of establishment to the year of entry was 15 years. Taiwanese parent firms had on average 812 employees. The range of correlation among explanatory variables was between 2% and 25%, thus multicollinearity was not a problem in this study. The multicollinearity was also tested in the regression models for each explanatory variable to ensure that the variance inflation factor (VIF) of each variable in the regression models was less than 10.

In terms of technological resources ($TECH_p$) and marketing resources ($MKTG_p$), Taiwanese parent firms invested around 3 and 5% in R&D and marketing related expenses to total annual sales accordingly. Their current ratio as an indicator for available slack (AS_p) was 1.95. These firms generated 20% of fund on their invested capital internally ($INTFIN_p$) and raised 11% of fund on their invested capital externally ($EXTFIN_p$).

Table 3 provides Tobit regression results with equity ownership (EOS_{ps}) as the dependent variable. The control variables included size of the parent firm (EMP_p) and its subsidiary (TA_s), age of the parent firm (AGE_p), and performance of the parent firm in the year prior to the year of entry into Mainland China ($ROIC_{p(t-1)}$). Base model included only these control variables, which correspon-ded to Equation 1. To test H_1 and H_2, knowledge-based resources in terms of technological resources ($TECH_p$) and marketing resources ($MKTG_p$) were added into the base model as shown in model 1, which corresponded to

Equation 2. Consistent with Equation 3, model 2 tested H_3, H_4, and H_5 by including property-based resources in terms of available slack (AS_p), internally generated financial resources ($INTFIN_p$), and externally raised financial resources ($EXTFIN_p$) into model 1. To test the interaction effect in H6, the interaction term between available slack and externally raised financial resources ($AS_p * EXTFIN_p$) was added into model 2 as shown in model 3, which corresponded to Equation 4.

Among four control variables, the performance of the parent firm in the year prior to the year of entry ($ROIC_{p(t-1)}$) related significantly and positively with the equity ownership (EOS_{ps}) in all models at level 0.05. Taiwanese parent firms having better performance in the year prior to the year of entry tended to take larger equity owner-ship in Mainland China subsidiaries in the subsequent year of entry as expected. The number of employees in Taiwanese parent firms (EMP_p) related significantly and positively with the equity ownership (EOS_{ps}) only in model 1, 2, and 3 at level 0.10. Partially, larger Taiwanese parent firms usually had more experience and thus tended to take larger equity ownership in Mainland China subsidiaries. The size of Mainland China subsidiaries (TA_s) and the age of Taiwanese parent firms (AGE_p) showed the negative and positive relationship with the equity ownership (EOS_{ps}) accordingly as expected, how-ever their relationship was not significant in all models.

In terms of knowledge-based resources in model 1, 2, and 3, technological resources ($TECH_p$) and marketing resources ($MKTG_p$) of the parent firms related signi-ficantly and positively with the equity ownership (EOS_{ps}) at level 0.05 and 0.10 accordingly. Therefore, H_1 and H_2 were supported. Due to underdeveloped intellectual property

Table 2. Means, standard deviations and correlations among all variables.

	Variable	Mean	Std. dev.	1	2	3	4	5	6	7	8	9	10
	Dependent variable												
1	EOS_{ps}	0.8011	0.1866	1									
	Independent variable												
2	$TECH_p$	0.0287	0.0108	0.4163	1								
3	$MKTG_p$	0.0497	0.0281	0.2144	0.1192	1							
4	AS_p	1.9527	1.1821	0.1881	0.0531	0.0284	1						
5	$INTFIN_p$	0.2002	0.1051	0.2258	0.0481	0.1516	0.2272	1					
6	$EXTFIN_p$	0.1064	0.0904	-0.0079	0.0949	0.1263	0.0635	0.0237	1				
	Control variable												
7	$\ln(EMP_p)$	6.6995	1.0651	0.1422	0.0718	0.1713	0.2115	0.0376	0.0188	1			
8	$\ln(TA_s)$	8.0031	1.1898	-0.1369	0.0143	0.0506	0.0034	0.0752	0.0102	0.0489	1		
9	$\ln(AGE_p)$	2.7241	0.5587	0.0489	0.1174	0.0199	0.0921	0.1498	0.0522	0.1092		1	
10	$ROIC_{p(t-1)}$	0.2403	0.1154	0.2985	0.2211	0.1398	0.1456	0.2498	0.0803	0.0097	0.0004	0.0712	1

Observations = 791.

Table 3. The Tobit regression results for the equity ownership model.

Variable	Base model			Model 1			Model 2			Model 3		
	Coefficient		VIF	Coefficient		VIF	Coefficient		VIF	Coefficient		VIF
$\ln(EMP_p)$	0.118	(0.023)	1.61	0.116*	(0.021)	1.56	0.113*	(0.022)	1.54	0.114*	(0.024)	1.61
$\ln(TA_s)$	-0.075	(0.086)	3.03	-0.077	(0.089)	3.15	-0.079	(0.091)	3.19	-0.081	(0.097)	3.31
$\ln(AGE_p)$	0.22	(0.047)	1.27	0.216	(0.045)	1.23	0.202	(0.044)	1.17	0.232	(0.064)	1.23
$ROIC_{p(t-1)}$	0.297**	(0.090)	2.09	0.305**	(0.095)	2.11	0.319**	(0.097)	2.25	0.325**	(0.114)	2.31
$TECH_p$				0.895**	(0.019)	2.55	0.794**	(0.023)	2.72	0.662**	(0.028)	2.99
$MKTG_p$				0.267*	(0.014)	3.39	0.272*	(0.018)	3.78	0.277*	(0.022)	3.81
AS_p							0.222*	(0.029)	1.64	0.319*	(0.044)	2.95
$INTFIN_p$							0.387***	(0.019)	2.09	0.401***	(0.021)	2.11
$EXTFIN_p$							-0.029	(0.071)	1.2	-0.108	(0.118)	3.01
$AS_p \times EXTFIN_p$										0.274**	(0.097)	2.98
Constant	1.351**	0.038		1.449***	0.041		1.536***	0.044		2.118**	(0.105)	
Log likelihood	-669			-595			-542			-499		
Model Chi-squared	211.96***			188.67***			171.15***			155.78***		

Observations = 791; Dependent variable: EOS_{ps} (p—parent firm, s—subsidiary firm); Standard errors are in parentheses. *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level. VIF < 10 is a criterion to pass multicollinearity test.

intellectual property right protection in Mainland China, Taiwanese firms possessing more technological resources were inclined to opt for entry via larger equity ownership to exercise greater strategic control over their Mainland China subsidiaries, which minimized the appropriation hazard in their proprietary technology. To achieve marketing efficiency, particularly in Mainland China where the price competition was relatively intense, Taiwanese firms with more marketing resources needed to streamline their marketing programs and practices by taking larger equity ownership and thus greater strategic control in their Mainland China subsidiaries.

With respect to property-based resources in model 2 and 3, only available slack (AS_p) and internally generated financial resources ($INTFIN_p$) significantly and positively related to the equity ownership (EOS_{ps}) at level 0.10 and 0.001 accordingly. Therefore, H_3 and H_4 were supported. Taiwanese firms occupying more available slack were able to take larger ownership and thus larger resource commitment in Mainland China subsidiaries since such resources could help them encounter the uncertainties in Mainland China emerging market instantly. Similarly, internally generated financial resources were usually less restricted and were readily available to be reinvested back into the firm for international investments. Taiwanese firms with more of such internal financing preferred to take larger ownership for greater strategic control to achieve efficiency in Mainland China subsidiaries. Externally raised financial resources ($EXTFIN_p$) showed negative relationship with the equity ownership (EOS_{ps}) as expected, however its relationship was not significant. Therefore, H_5 was not supported.

The result from testing H_5 also revealed that the externally raised financial resources ($EXTFIN_p$) did not restrict firms from taking larger equity ownership (EOS_{ps}) in emerging markets. This was because firms could still deploy readily available organizational slacks as the substitute for the externally raised funds to facilitate FDI activities. Under higher levels of available slack (AS_p), firms undertaking FDIs were still able to fund FDIs without being limited by various restrictions imposed by externally raised financial resources. In particular, this rationale was further confirmed by the subsequent result that the interaction term between available slack and externally raised financial resources ($AS_p*EXTFIN_p$) significantly and positively related to the equity ownership (EOS_{ps}) at level 0.05. Accordingly, H6 was also supported.

CONCLUSIONS AND DISCUSSION

This study shows how knowledge-based and property-based resources of high-tech firms from NIEs influence their entry strategy in emerging economies. The empirical context employed to examine this influence is high-tech Taiwanese parent firms undertaking direct investments in

Mainland China. High-tech firms from NIEs usually possessing limited resources and capability are concerned about less mature business and legal environments in emerging markets, especially the protection of intellectual property right (Meyer, 2001; Meyer and Peng, 2005; Meyer et al., 2009; Petri, 2010; Yiu and Makino, 2002). Therefore, these firms tend to enter into emerging markets by taking a larger portion of equity ownership in overseas subsidiaries to assume as much strategic control as possible to minimize the appropriation hazard of their proprietary technological know-how as well as the risk of opportunism on the side of the foreign partners.

Parent firms from NIEs possessing more marketing resources tend to standardize their marketing programs and practices for more consistent offerings to their customers through a more uniform marketing planning and control. Hence, these firms prefer to enter into emerging markets with relatively high level of equity ownership to maintain such strategic control. Especially in Mainland China where the low-cost competition is imminent, the efficiency of deploying marketing resources is necessary to minimize the cost of the products and to compete effectively in the market. Nevertheless, in the context other than Mainland China, there can be some impediments arising from such marketing strategy since various national distinctions can obstruct the replication of the entrant's marketing know-how and the entry into foreign lands (Erramilli et al., 1997; Madhok, 1997).

Slack resource in this study proves to be important to buffer firms from unprecedented adverse circumstances. Parent firms with more slack resources are able to invest in larger equity ownership in the risky but promising emerging markets like Mainland China. However, slack can sometimes be detrimental. Some managers may use slack to pursue their own goals by engaging in inappropriate strategies (Jensen and Meckling, 1976). Firms can become less prudent in their strategies and utilization of their resources. Slack may dissuade firms to terminate unattractive projects (Staw et al., 1981) and the existence of slack indicates managerial incompetence (Williamson, 1964). Therefore, one should adopt a contingency perspective in studying organizational slacks (Tan and Peng, 2003). Particularly, for FDIs in emerging economies with high level of uncertainties and risks, the parent firm's available slack can have an important contribution to firm performance. The ability to quickly tap into a firm's readily available resources is essential not only to counter the unexpected adverse impacts, but also to swiftly capture newly emerged opportunities in emerging economies.

Financial resources can be yielded internally or externally. Parent firms with greater internally generated financial resources which have fewer restrictions in the deployment can decide more easily to take larger equity ownership in risky emerging markets. In particular, Taiwanese parent firms with more internally generated funds are more willing to take greater risk by involving

larger equity ownership in Mainland China subsidiaries. Further, high-tech firms are more concerned about the appropriation hazard of their proprietary technology in the emerging markets (Petri, 2010). Thus, no matter where the source of fund is from, these firms need to maintain high strategic control through securing larger equity ownership in their overseas subsidiaries to minimize such hazard. When there are restrictions from the use of external financing, firms occupying more slack can employ this slack as a substitute for more restricted external financing, allowing them to undertake FDIs through the higher equity ownership in risky but promising emerging markets.

The results from Taiwanese FDIs in Mainland China in this study are consistent with the prior literature that entrants originating from countries with lower distance proximity to emerging countries are more likely to establish wholly-owned subsidiaries (Gatignon and Anderson, 1988; Gomes-Casseres, 1989; Kogut and Singh, 1988; Meyer, 2001). The average equity ownership of Taiwanese firms in Mainland China subsidiaries in this study is 80%, also consistent with the findings in the prior literature. Lower psychic distance, particularly in language and culture, between Taiwan and Mainland China reduces the need for Taiwanese firms to invest in information, to train local staff, and to adapt management processes to the local environment (Oxley, 1999). Greater psychic distance can result in the entrants' lacking of familiarity with institutions in emerging markets, which increases establishment costs, and thus discourages complex operations and wholly-owned subsidiaries.

Firms from NIEs do not usually possess a lot of resources and capability when compared with those from developed industrialized economies. Thus, future research should discuss on the firms' need of resources and capability in the host markets and its influence on the entry strategy. Entry by joint ventures or acquisitions, for instance, allows the combination of resources between a foreign entrant and a local firm. The mode choice of entry thus depends on the extent to which foreign entrants require such local resources. In emerging economies, investing firms usually require context-specific resources to achieve competitive advantages and therefore the involvement of the local partners in the ventures can be a critical success factor (Delios and Beamish, 1999; Meyer and Peng, 2005). Apart from examining the characteristics of resources to be transferred (Kogut and Zander, 1993) and the characteristics of the investing firm (Anderson and Gatignon, 1986; Hennart and Park, 1993), future study can look into the characteristics of needed resources in the host countries and their influence on the entry strategies as well.

The choice of appropriate ownership for foreign pro-duction facilities is a critical success factor. Undertaking direct investments in a foreign market is an irreversible strategic decision. The switching costs in shifting such shifting from such FDIs to an exporting one, for instance, can be extremely high. When deciding on the equity involvement in foreign subsidiaries, the uncertainty of the exchange rates can become the main influential factor (Kouvelis et al., 2001). Particularly, in emerging markets where the macroeconomic factors including exchange rate can be highly volatile, how the change in these macroeconomic factors influence the entry strategies of firms from NIEs in these markets can be a future research agenda. Strongly depreciated home currency can favor an exporting policy where no direct equity ownership in the foreign entities is involved. On the contrary, strongly appreciated home currency can motivate direct investments in production facilities in the foreign market. The degree to which the foreign firms are willing to take the equity ownership in the foreign subsidiaries, hence, can be affected by the appreciation and the depreciation of the currency in the host countries and the home country.

Besides, the switching costs between strategies and the uncertainty in exchange rates can cause inertia in the strategic decisions even though the immediate operating profits warrant switching strategies (Kouvelis et al., 2001). The equity ownership can be a convenient tool in serving foreign market demand while waiting for further resolution of exchange rate uncertainty. In early trends of home currency appreciation, the firm may initially enter or gradually increase equity ownership in the foreign production subsidiaries while in early stages of home currency depreciation, the firm may also use a gradual disinvestment in foreign production subsidiaries. In both situations, the firm can have more strategic flexibility under the exchange rate uncertainty to pursue the most appropriate strategies in the future when the uncertainty is partially or completely resolved.

Finally, the analysis and results from this study that employs Taiwanese firms investing in Mainland China can be a role model for analyzing the international business strategy of firms from other NIEs investing in other emerging and transition markets.

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