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Entry mode selection for international construction markets: the influence of host country related factors

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The increasing necessity to establish a permanent presence in overseas markets challenges the tradition of tide-like market entry mode of international contractors and confronts them with an important dichotomous selection between permanent entry mode and mobile entry mode. By borrowing theories and previous findings from the general international business area, the hypotheses regarding the influences of specific host country related factors upon the selection between the two generic entry modes, including cultural difference, trade link, host market potential, investment risk, institutional entry barrier and competition intensity are developed. Measures are proposed for these factors as well as some control variables and the dependent variable (entry mode). Data were collected from multiple sources for these variables. A binary logistic regression analysis was performed to test the hypotheses and develop a statistical model for entry mode selection. The model is statistically significant and not all the hypotheses are supported, confirming the uniqueness of the population of international contractors in market entry mode selection.

Keywords: International business, marketing strategy, international construction, market entry strategy, market entry model.

Introduction

The international construction sector is an important part of the global economy. As more and more construction firms enter foreign markets, two questions, which are of interest to both academicians and practitioners, will be increasingly asked: 'How do construction firms enter individual foreign markets?', and 'How does this entry behaviour vary across different types of construction firms and different entry situations?'. The answers to these and other questions related to market entry mode are not at all clear. The existing knowledge of entry modes has been accumulated mostly in the context of the manufacturing sector. Given that the construction sector has unique characteristics that do not allow for the direct transfer of concepts and theories applied to the manufacturing sector, there is a need for adapting this knowledge and for developing new concepts and frameworks to meet the unique characteristics of the construction sector.

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Market entry in the project-based construction industry was believed for a long time to be a tide-like activity, as Ashley and Boner (1987) described:

> Multinational contractor operations abroad are project-specific; offices and key personnel are mobilized and set up prior to construction and are usually closed and withdrawn following project conclusion. When involved in multiple projects in one country over a prolonged period of time, the project office may acquire a greater degree of permanence and at some point can become recognized as a branch office of the firm. It rarely, however, develops the kind of permanence exhibited by a wholly owned subsidiary of a typical multinational enterprise.

Other researchers have made similar statements, e.g. Abdul-Aziz (1995) and Ofori (1996). There are, however, entrants who establish and localize (in terms of staff, technique and marketing) a more 'permanent' presence in overseas markets. For example, in the 1970s and 1980s Henry Boot International Ltd used a 'company approach' to working overseas, which, although 'has perhaps been different to that of most other contractors', 'non-the-less offers one approach to the winning and execution of major projects' (Duncan, 1984).

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However, some changes in the 1990s started to drive a tendency of market entries aiming at a more sustainable and permanent presence in new markets, including (1) the significant expansion of certain construction markets in high income economies such as the United States, where sustainable presence in these markets is profitable; (2) the continuous increased demand in some construction markets in low or middle income economies such as China and the Czech Republic. Early entry and establishment of permanent residence to exploit the rapid growth in these markets may be strategically important to the future of companies; (3) the emergence of innovative investment type entry modes, such as mergers and acquisitions; and (4) the increasing size of global construction players who place more emphasis on entry issues on a corporate level.

This new trend has been agreed by industry veterans. For example, the chief executive of a leading global player observed that 'a decade ago, it was still possible to function from headquarters in overseas markets', but 'the international business is becoming a more domestic business in other countries' (ENR, 2000).

However, the tendency for permanent and localized foreign subsidiaries and partnerships ('permanent entry' hereinafter) to become important institutional settings to access foreign markets does not mean that project by project entry ('mobile entry' hereinafter) is disappearing. Based upon an empirical study (Chen, 2005), the current international construction arena sees the popular mixed use of these two generic market entry modes.

Permanent entry and mobile entry can be differentiated by whether an entrant has ownership or equity in a permanent organization (i.e. a sole venture company, joint venture company, branch office/company or representative office) with strategic commitment for a long-term local business development in the host market which conducts support activities. This implies that even though there is a reduction in business in a market, the entrant using a permanent entry will maintain his presence and perform support activities such as business development and human resource management, while an entrant using mobile entry will suspend his support activities, lay off local employees and exit the market. If an entrant is lucky enough to have continuous contracts in a foreign market for years but keeps using contractual basic entry modes (e.g. sole venture project, joint venture project, local agent, BOT/PPP/PFI project), this is still classified as mobile entry. The way of carrying out works illustrates the entrant's opportunistic attitudes towards that market and this also often goes with limited resource commitment. When the market turns down or good luck ceases, the entrant would very possibly withdraw from the market. Although a BOT/PPP/PFI project involves a long time period (often 10–30 years), the project company is usually established to carry out the specific project rather than aim at local business development, and there are also various legal and financial channels for the entrant to exit the project at any time. It is therefore classified as mobile entry.

Some other differences exist between permanent entry and mobile entry (Chen, 2005). For example, in permanent entry, the entrants tend to localize staffing and marketing and focus on local projects. In mobile entry, more expatriates are sent overseas and large international projects are targeted (e.g. World Bank projects, projects invested by allied owners, or technically complicated projects that the host country cannot complete).

It must be noted that the primary differentiator utilized in this study focused on the functional aspects of entry modes, rather than the legal aspects. Therefore, if one entrant establishes a temporary organization with legal person status to execute a specific project (or a group of projects), but does not seek to sustain growth in the host market, it is considered to be a mobile entry mode. As a matter of fact, nowadays most of the significant construction markets require foreign contractors to have a local legal person status to execute construction business.

Both permanent entry and mobile entry have their advantages and disadvantages. In general, permanent entry requires more resources, involves more investment risk, and is less flexible than mobile entry (Chen, 2005). These differences in strategic effects constitute the basis of selection between them.

Although entry mode is normally taken as the institutional setting for a relatively short period of time (e.g. five years) to deliver entry and growth in a specific market until the growth is sustainable (Root, 1987), in reality the achievement of this 'sustainability' is very difficult to judge, especially in the cyclical and dependent construction market. Because the change of entry mode usually involves realignment of a lot of resources and can be time consuming, it is not an easy decision. Nevertheless in fact transitions between permanent entry and mobile entry are not unusual. For example, a contractor may initially adopt a mobile entry mode for a selected country market, and then when more local knowledge and networks are gained or the local investment environment improves, a permanent entry mode can be adopted. The opposite sequence also exists (Chen, 2005). For example, a contractor may set up a branch company with a long-term strategic perspective in a seemingly attractive foreign market, but later when it finds it hard to acquire a stable portfolio of jobs, it may dissolve the company and instead execute local jobs on a mobile basis from

the head office. This study therefore not only examines a longer time period of the sampled initial market entry process, but also focuses on the time periods when adjustment of entry mode is necessary even though the contractor first entered the market a long time ago.

Research goal, scope, assumption and method

This study aims to test the impacts of some host country related factors upon the selection between permanent entry and mobile entry to provide both theoretical and practical implications about entry mode selection for international construction markets. The analysis dominantly involved macro-level factors, but it is recognized that market entry decision involves many other firm-specific SWOT elements. This study therefore does not intend to provide a systematic and comprehensive decision support tool that can provide contractors with clear cut suggestions on which market entry mode is best for a specific market. However, it is expected that the practitioners can still draw valuable managerial implications from the findings of this study when they are evaluating the impacts of macro-level factors. It should also be noted that market selection/evaluation, entry mode selection, and project go/no-go decisions are closely related but different issues, and this study only focuses on market entry mode selection at corporate level. To simplify the decision, it is assumed that when a contractor selects between permanent entry and mobile entry (how to enter) it has already selected a specific market to enter (where to enter).

A hypothesis testing method was used for analysing the entry mode selection decision. Theories and paradigms dominant in the general international business area that may potentially influence the selection between permanent entry and mobile entry were reviewed and analysed to identify factors that may influence the selection and build the associated hypotheses. Data centring on the market entry behaviours of leading international contractors and their host and home country markets were collected from multiple sources to test the hypotheses and develop a model through binary regression analysis. Based on the results of the hypothesis testing and model development, theoretical and managerial implications were drawn.

Hypothesis development

The factors related to host country which can determine the optimum entry mode were identified based an extensive literature review. These factors include trade link, cultural distance, colonial link, language proximity, host market attractiveness, investment risk, entry restriction and competitive intensity. It is important to note that some other factors may also influence the selection (Chen, 2005).

Trade link

A longer trade history between countries can lead to a greater understanding between companies within the home and host countries. This would enable the entrant to set up its investment in the host market more easily. Such understanding would also foster efficient working relationships between the entrant and local government (Tse *et al.*, 1997). Accordingly, these firms would be more likely to adopt permanent entry modes. Pan and Tse (2000) proposed that the higher the volume of bilateral business between the two countries, the more knowledge firms have accumulated about the host country market, and the more confident they are in adopting investment entry modes.

It is therefore hypothesized:

Hypothesis 1: With other variables held constant, entrants are more likely to use permanent entry mode for markets of close trade link with its host country.

Cultural distance

Cultural distance has been widely analysed by researchers regarding entry mode selection (e.g. Erramilli and Rao, 1993; Luo, 2001; Erramilli *et al.*, 2002). Kogut and Singh (1988) argue that information acquisition activity will be proportional to the cultural distance between home and host countries. When management moves to a country that is culturally similar to the home country, it may have already known many of the rules to operate in the market; however, when entering a market with an unfamiliar foreign culture, it may have difficulty in imposing subjective judgement to determine how people should behave and evaluating hard-to-quantify inputs and results (Gatignon and Anderson, 1988; Erramilli and Rao, 1993). Or say, more resources commitment (for information collection) is needed where there is a significant cultural distance between the home and host countries. On a permanent basis, cultural distance becomes an important issue. The permanent organization must understand local culture very well to establish enduring cooperation with local parties, and internally manage relationships between local employees and expatriates.

It is therefore hypothesized:

Hypothesis 2: With other variables held constant, entrants are more likely to use permanent entry mode

for markets of little cultural distance from its host country.

Colonial link

Colonial link is often used by economists to measure similarities in political or legal institutions (CEPII, 2007). In international construction, colonial link also indicates a traditional cross-border trade. The internationalization process of the construction sector shows that in the early period of the global construction market, colonial countries were usually the overseas markets, especially for European contractors (Linder, 1994). Therefore, this link where two countries have political and legal proximity and a long-term trade relationship is a location advantage, and entrants may have more confidence and be willing to commit more resources.

It is therefore hypothesized:

Hypothesis 3: With other variables held constant, entrants are more likely to use permanent entry mode for markets with colonial link with the home country.

Language proximity

Language is a very common barrier for companies marketing their products and services in international markets (Karakaya and Stahl, 1991). Communication plays such an important role on construction sites where multiple organizations work together that it is a great location advantage for international contractors to know the local language (Ostler, 1998). This brings a comfort factor into operation in a new territory (Ostler, 1998).

It is therefore hypothesized:

Hypothesis 4: With other variables held constant, entrants are more likely to use permanent entry mode for markets with close language proximity.

Host market attractiveness

Market attractiveness has been an important determinant of overseas investment. In countries with a large and high-growth market, investment modes are expected to provide greater long-term profitability to a firm, compared to non-investment modes (Sabi, 1988). Market growth in a host market affects expected net returns and firm growth during international expansion. This in turn affects resource commitments, strategic orientations and entry mode decisions. In markets with high growth, firms prefer a long-term presence (Agarwal and Ramaswami, 1992). In contrast, multinational enterprises (MNEs) may favour a mode of entry entailing less resource commitment when the sales growth of a target industry is declining (Luo, 2001). Hill *et al.* (1990) found that other things being equal, MNEs may favour low resource commitment modes of entry when a host market is in its embryonic or declining state.

It is therefore hypothesized:

Hypothesis 5: With other variables held constant, entrants are more likely to use permanent entry mode for attractive host markets.

Investment risk

The investment risk in a host country reflects the uncertainty over the continuation of present economic and political conditions and overall policies which are critical to the survival and profitability of a firm's operations in that country (Root, 1987). In countries that have a high investment risk, a firm may be better off not entering; but if it does, it may favour the use of non-investment options (Agarwal and Ramaswami, 1992). When investment risk is high, MNEs would do well to limit their exposure to such risk by restricting their resource commitments (Kim and Hwang, 1992; Buckley and Casson, 1998).

It is therefore hypothesized:

Hypothesis 6: With other variables held constant, entrants are more likely to use permanent entry mode for markets of less investment risk.

Entry restriction

Gomes-Casseres (1990) noticed that numerous studies have ignored the effects of host government ownership restrictions on MNE choices. For example, such restriction can make an MNE form a joint venture even where theories would predict a wholly owned subsidiary. To protect the domestic construction market, barriers about ownership requirements, permit systems, rating systems and licensing systems that prevent permanent residence of foreign contractors are very common in a number of significant markets. These constraints make entrants only have access to projects that are normally funded by international organizations (e.g. the World Bank and regional development banks) and foreign governments; projects under special governmental treaty (USA–Japan public project program); and projects that domestic contractors are not qualified to complete.

It is therefore hypothesized:

Hypothesis 7: With other variables held constant, entrants are more likely to use mobile entry mode for markets with high entry restrictions.

Competitive intensity

Industrial organization economics assumes that the increase of number of firms in an industry will boost competition, thus lessening the level of profitability and slowing down the average growth rate of individual firm's sales (Scherer and Ross, 1990). Harrigan (1985) argued that any reduction in strategic flexibility may be unwise when competition is volatile, which requires quick responses from the firm. In such markets, firms tend to be less profitable and therefore do not justify a permanent organization which involves heavy resource commitments. Because resource commitments limit a MNE's ability to adapt to changing market circumstances without incurring substantial sunk costs, a MNE can be theorized to favour entry modes involving low resource commitments when competitive pressures in the host market are intense (Hill *et al.*, 1990).

It is therefore hypothesized:

> *Hypothesis 8*: With other variables held constant, entrants are more likely to use mobile entry mode for markets involving high competitive intensity.

Data collection

Types of data that were used include country- and market-specific data and firm-specific data.

Country- and market specific-data

Engineering News Record (ENR) reports the geographic presence of leading international contractors in approximately 150 countries each year. To focus the research, 42 country markets were selected to examine foreign contractors' entry into them. The regional distribution of these countries and the percentage of their construction spending over the total for each region are summarized in Table 1. These sampled countries constitute the majority of each region (except Africa) as well as the overall global construction market. Data were collected regarding these host countries.

Firm-specific data

The global construction market is dominated by a few large contractors and many medium-sized contractors in terms of international revenue. Most of the active international contractors are captured in the annual ENR Top 225 International Construction Firms. For example, the 225th largest international contractor in 2001 (SECOR International Inc., USA) had international revenues of only US$1 million. It can therefore be concluded that the ENR provides a relatively comprehensive sample of large and medium-sized international contractors. The rankings by ENR for the decade of 1992 through 2001 was used and it was found that there were 522 international contractors in this list for at least one of the years. However, not all these contractors reported the details of their entry modes. The entry particulars of only 122 out of these 522 contractors. Most of them are based in North America, Europe and Asia as summarized in Table 2.

It is important to note the limitations of the ENR data (US Department of Commerce, 1984; Linder, 1994); however, the ENR data on international construction are the best of its kind available.

Measurement

Measurement of the dependent variable: entry mode selection

The dependent variable is a binary categorical variable, which has two categories: mobile entry and permanent entry. There are two primary data sources with information on the selected 122 international contractors' entry modes for the 42 selected markets:

(1) ENR reports which countries each international contractor's revenue comes from for every year.

Table 1 Regional distribution of sampled markets

Regions	Number of sampled markets	Construction spending of sampled markets ($ million)	Construction spending of regions ($ million)	Percentage
North America	2	736 888	736 888	100%
Latin America	6	112 539	129 069	87%
Europe	11	778 785	1 032 755	75%
Middle East	7	62 373	78 214	80%
Asia/Pacific	12	1 072 239	1 120 586	96%
Africa	4	27 849	158 160	18%
Total	42	2 790 673	3 255 673	86%

Table 2 Contractors' original regions

Original regions	Number of contractors
North America	28
Latin America	1
Caribbean	0
Europe	27
Middle East	5
Asia/Pacific	59
North Africa	1
Central/South Africa	1
Total	122

This does not tell which entry mode was used for each market. For example ENR reported that Bechtel had revenue from China in 2000, but the operation can be based either on permanent entry mode or mobile entry mode.

(2) Other resources such as the website of each contractor, databases such as Who Owns Whom, annual reports of public firms, and other information sources e.g. www.hoovers.com and industry journal articles can tell in which countries a contractor has permanent residence. These sources tell whether an international contractor has permanent entry mode regarding a specific market.

By comparing sources (1) and (2), it can be judged whether an international contractor uses permanent entry or mobile entry regarding a specific market:

- If source (1) indicates that Entrant A had revenue from Market B in any year, and source (2) indicates Entrant A did not use any permanent entry mode for Market B, it can be concluded that Entrant A used a mobile entry mode for Market B.
- If source (2) indicates that Entrant A used a permanent entry mode for Market B, then no matter whether source (1) indicates Entrant A had revenue from Market B, it can be concluded that A used a permanent entry mode for Market B.
- If neither source indicates Contractor A had presence in Market B, it can be concluded that Entrant A has not entered Market B.

This measurement approach is not perfect, because it involves observations where the entrant was considering switching its market entry mode or was actually starting to do that regarding a specific market given the current internal and external environment. These inconsistencies between decision and behaviours can lead to flawed analysis. However the number of these types of observation is believed to be small because of the large sample size, punctuality of data sources and stability of strategy.

Measurement of the independent variables

Trade link

Trade link is measured with a dummy variable. If two countries are both members of a bilateral or multilateral trade agreement/organization, the value of this dummy variable is 1, otherwise it is 0. The trade agreements that are believed to influence the entry mode selection decision of international contractors include those of the European Union, the North America Free Trade Agreement, the Gulf Cooperation Council, the Association of Southeast Asian Nations, the Southern African Development Community, the Japan–USA 1988 Trade Act, the EU–USA annual summits. The World Trade Organization (WTO) is not included in the list because all countries investigated are WTO members.

Cultural distance

Hofstede (1980, 2001) conducted perhaps the most comprehensive study of how values in the workplace are influenced by culture. He not only proposes the concepts of power distance, uncertainty avoidance, individualism, masculinity and long term as five dimensions in his national culture paradigm, but also implemented extensive surveys to quantify different countries along these dimensions. All dimensions are scored with a 0 (low) to 100 (high) scale. Recent replications of Hofstede's original study found that there are no significant changes in these country scores (Hofstede, 1994).

Cultural distance measures the culture-related difference between a pair of countries. For a given country pair, the cultural distance is calculated as the arithmetic average of the deviations in Hofstede's five dimensions, correcting for the overall variance of each of these five dimensions (Kogut and Singh, 1988; Arora and Fosfuri, 2000). The formula is as follows:

$$CD_{jk} = \sum_{i=1}^{5} \left\{ \left(I_{ij} - I_{ik}\right)^2 \Big/ V_i \right\} \Big/ 5$$

where I_{ij} is the index for the *i*th cultural dimension and *j*th country, V_i is the variance of the index of the *i*th dimension, and CD_{jk} is the cultural distance of the *j*th country from the *k*th country.

Colonial link and language proximity

Colonial link is a relationship between two countries, independent of their level of development, in which one has governed the other over a long period of time and contributed to the current state of its institutions. It is

measured with a dummy variable. If a pair of countries has colonial link, the value of this dummy variable is 1, otherwise, it is 0. Language proximity is a relationship between two countries that have one or more than one language in common. Language proximity is measured with a dummy variable. If a pair of countries share at least a common official language, this dummy variable is 1, otherwise it is 0. A France-based research institute on the international economy, Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) has built and made available a dataset providing useful data for empirical economic research including colonial link and language proximity. The current version of the CEPII database contains 225 countries that include all 42 markets investigated.

Host country market attractiveness

Market attractiveness is measured with two constructs: market size and market growth. ENR (1998, 2000) reported the construction spending in US dollars of approximately 150 countries from 1996 through 2000. Influences from countries' currency fluctuation problems were adjusted based on the 1996 level. Regarding each market, the mean of these five years of construction spending is used as a measure of market size, and the average annual growth during the five years is used to measure market growth.

Investment risk

Investment risk is a broad risk comprised of multiple macro-level risks. The annual credit risk ratings by the journal *Institutional Investor* from 1992 through 2001 were used to measure the investment risk. The scores are based on ratings provided by 75 to 100 leading international banks. This risk rating score is on a scale of 0 to 100 where 0 represents the least creditworthy countries and 100 represents the most creditworthy countries. While the *Institutional Investor* credit ratings are based upon bankers' opinions, previous studies have confirmed that this risk rating is a suitable comprehensive measurement of investment risk (Cosset and Roy, 1991). Regarding each market, the mean of the country scores from 1992 through 2001 is used as a measurement of the average country investment risk.

Entry restriction

There are primarily two types of barriers that host governments can impose upon international contractors' entry mode selection: legal barriers for entry modes, especially those related to ownership requirements; and 'other barriers'. The scale in Table 3 is used to measure the strength of legal barriers of the selected 42 countries. The information regarding these barriers comes from each country's sector-specific commitments for construction and related engineering as a WTO member country, and major laws and regulations about foreign investment.

In the construction industry of many countries, other barriers can sometimes be stronger than legal barriers, including:

- permit/approval system;
- contractor rating/qualification system;
- mandated/institutional project share or size control (e.g. bidding discount for local bidders, traditional JV in practice);
- strict registration capital requirement (e.g. large registration capital required that cannot be used throughout projects);
- expatriation of profits/taxing conditions; and
- mobility of resources (e.g. executive/management qualification, professional licensing system, labour/material/equipment import/export constraints).

It is arbitrarily assumed that each of the above barriers has the same degree of impact in restricting foreign contractors' entry. The scoring is the sum of occurrences of the above items for a specific country, so it ranges from 0 (no other barriers) to 6 (significant other barriers). The information about each country regarding these barriers comes from an investigation of each country's construction systems.

The summated entry restriction is measured as the arithmetic average of the deviation of the two scores, correcting for the overall variance of each of these two dimensions. The formula is as follows:

$$RHG_i = \left(\frac{I_{1i}^2}{V_1} + \frac{I_{2i}^2}{V_2}\right) \Big/ 2$$

where RHG_i stands for the entry restriction value for country i; I_{1i}^2 is the score of legal requirement for

Table 3 Scale to measure legal barriers

Rating	Condition
4	SV is not allowed, and neither is JV with foreign control
3	SV is not allowed, but JV with foreign control is
2	Some other entry mode(s) (except VS and JV company) are not allowed (e.g. BO)
1	All entry modes are conditionally allowed (e.g. accessibility regarding project types or client type)
0	All entry modes are unconditionally allowed

country I; $I_{2i}{}^2$ is the score of TBT for *i*th country; V_1 is the variance of legal requirement scores of all 42 countries; and V_2 is the variance of 'other barriers' scores of all 42 countries.

Competitive intensity

Competitive intensity is associated with the number of competitors pursuing projects in the market. In many markets, the segmentation of the construction market opening to overseas contractors is limited. The competition is even fiercer among leading contractors. There are 522 international contractors that have been included in at least one year of the ENR Top 225 International Construction Firms from 1992 through 2001. ENR also reports the geographic distribution of business of these contractors. Therefore, the number of these contractors in a specific market for a specific year is available to measure the market competitive intensity. The formula to calculate the index for competitive intensity is as follows:

$$CI_j = \left(\sum_{k=1992}^{2001} \sum_{i=1}^{N} E_{ijk} \right) \Big/ 10$$

where CI_j stands for the competitive intensity for market j; E_{jkj} is a binary variable that is 1 when contractor i had revenue from market j in year k, and 0 when contractor i had no revenue from market j in year k; N is the number of international construction firms that had revenue from market j from 1992 through 2001 (522).

Control variables

There are some other country, industry and firm level variables that can potentially influence the selection between permanent entry and mobile entry; however, there are no hypotheses developed for them and they are used as control variables. For example, to account for regional difference in economic growth (for example, most high income countries are located in North America and Europe, and most lower income countries are in Asia and Africa), home country economic level is used as a control variable. Other control variables include home country market attractiveness, uncertainty avoidance, long-term orientation, firm size and multinational experience.

Data analysis

Correlation test

Prior to running the logistic regression analysis, a correlation test was performed to evaluate possible signs of multicollinearity. The existence of multicollinearity inflates the variances of the parameter estimates, which may result in a lack of statistical significance of individual independent variables while the overall model may be significant. In the worst situation, multicollinearity may also result in incorrect signs and magnitudes of regression coefficient estimates, and therefore incorrect conclusions about relationships between independent and dependent variables. Table 4 reports the intercorrelations between the measures. It should be noted that interval property is assumed to be met for dichotomous categorical variables including trade alliance (0 or 1), colonial link (0 or 1), language proximity (0 or 1) and home country economy level (lower middle income, upper middle income or high income economies). It is not surprising to see that quite a few correlations are statistically significant because of the large sample size (1998 data points). However, only four correlation coefficients have a magnitude greater than 0.5 and none of them is greater than 0.8. The calculation (refer to the following sub-section) of variance inflation factors (VIFs) (all VIFs are less than 5) further confirms that multicollinearity is not a serious problem.

Binary logistical regression analysis

Binary logistic regression is used when the dependent variable is a dichotomy to predict a dependent variable on the basis of independents, determine the percentage variance in the dependent variable explained by the independents; and rank the relative importance of independents. A binary logistic regression analysis was performed with the data using SPSS 12 for Windows. Table 5 shows the results.

The model is statistically significant because the p value is very small and less than 0.001. In the goodness-of-fit test, the Hosmer and Lemeshow statistic (0.172) is greater than 0.05, indicating that there is insufficient evidence to claim that the model does not fit the data adequately. The correction classification rate of the model is 64.76%, greater than 50%. The testing results of the hypotheses are shown in Table 6.

The beta values for trade link, investment risk, cultural distance, colonial link and language proximity have directions inverse to what we hypothesized based on theoretical reasoning, though one of them is statistically insignificant (trade link). This indicates that when contractors enter an unfamiliar, risky, different and competitive market, they are more likely to use permanent entry modes. There are at least two reasons that may contribute to this seemingly striking phenomenon:

Table 4 Correlation matrix

	#Mode	#Cultural distance	#Trade link	#Colonial link	#Language proximity	#Host market size	#Hose market growth	#Investment risk	#Entry restriction	#Competitive intensity	#Home market size	#Home market growth	#Uncertainty avoidance	#Long-term orientation	#Firm size	#Multinational experience	#Home country economic level
Mode	1																
Cultural distance	0.058**	1															
Trade link	−0.032	−0.318**	1														
Colonial link	0.039	−0.172**	0.220**	1													
Language proximity	0.063**	−0.156**	0.022	0.282**	1												
Host market size	0.002	−0.089**	0.360**	0.061**	−0.068**	1											
Host market growth	0.042	−0.065**	−0.076**	−0.002	0.011	−0.116**	1										
Investment risk	0.013	−0.140**	0.514**	0.172**	0.041	0.518**	−0.268**	1									
Entry restriction	−0.074**	0.096**	0.002	0.015	−0.058**	0.325**	−0.229**	0.137**	1								
Competitive intensity	0.155**	0.216**	−0.053*	−0.047*	0.066**	0.074**	0.098**	0.174**	0.071**	1							
Home market size	−0.126**	0.122**	0.066**	−0.002	−0.120**	0.005	−0.019	0.052*	0.026	−0.004	1						
Home market growth	−0.037	0.001	0.089**	0.101**	0.228**	−0.069**	0.034	−0.064**	−0.027	−0.075**	−0.083**	1					
Uncertainty avoidance	0.130**	−0.023	−0.141**	−0.102**	−0.207**	0.069**	−0.01	0.038	0.02	0.079**	0.017	−0.718**	1				
Long-term orientation	0.045*	0.483**	−0.244**	−0.115**	−0.075**	0.073**	−0.073**	0.03	0.101**	0.153**	0.160**	−0.118**	0.126**	1			
Firm size	0.120**	0.076**	−0.027	−0.012	−0.135**	0.022	−0.045*	0.065**	0.018	−0.029	0.298**	−0.343**	0.231**	0.108**	1		
Multinational experience	0.090**	0.006	−0.061**	−0.034	0.046*	0.042	−0.021	−0.001	0.047*	0.134**	−0.150**	−0.044**	0.111**	0.153**	−0.231**	1	
Home country economic level	−0.019	−0.253**	0.153**	0.092**	−0.080**	0.005	0.01	0.048*	−0.028	−0.026	0.317**	−0.478	0.268**	−0.485**	0.209**	−0.034	1
Mean	1.5661	2.7513	0.1562	0.0591	0.1151	81757	0.0423	57.542	4.1837	46.996	375767	0.024	64.237	46.625	3456.3	0.0188	3.7693
Standard deviation	0.4957	1.7984	0.3631	0.2358	0.3192	159832	0.0534	21.516	3.2237	17.292	278319	0.0453	22.957	35.543	3751.3	0.0313	0.6292

Notes: Correlation is significant at the 0.01 level. * Correlation is significant at the 0.05 level.

Table 5 Determinants of entry mode selection: binary logistic test (n=1998: mobile entry=867; permanent entry=1131)

Variables	B	S.E.	VIF
Constant	−1.155***	0.431	
Host country variables			
Trade link	−0.151	0.174	1.712
Cultural distance	0.100***	0.034	1.566
Colonial link	−0.471**	0.228	1.185
Language proximity	−0.375**	0.169	1.226
Host market size	3.956E-07	4.05E-07	1.601
Host market growth	0.665	0.985	1.196
Investment risk	−0.002	0.003	1.960
Entry restriction	−0.068***	0.017	1.210
Competitive intensity	0.017***	0.003	1.210
Control variables			
Home market size	−1.550E-06***	2.230E-07	1.620
Home market growth	10.729***	2.026	3.306
Uncertainty avoidance	0.021***	0.003	2.187
Long-term orientation	0.003	0.002	2.652
Firm size	0.000***	1.587E-05	1.325
Multinational experience	5.710***	1.964	1.190
Home country economic level			
Upper middle income level	−0.674**	0.280	1.215
High income economy	0.849	0.573	3.375
−2 log likelihood	2489.7		
P value	2.101E-42		
Cox & Snell R square	0.115		
Nagelkerke R square	0.155		
Hosmer & Lemeshow test (p value)	0.376		
Correct classification rate (%)	64.76%		

Notes: * p<0.05; ** p<0.01; ***p<0.001.

(1) International contractors take an aggressive attitude to unfamiliar business environments. To international contractors, permanent entry mode is a way to help them develop new capabilities. In an unfamiliar environment, contractors set up localized residence to get local status, accumulate local knowledge and establish enduring local networks, and develop other capabilities specifically for local operations.

(2) International contractors conventionally tend to use mobile entry modes. When the environment is comfortable, they would choose mobile entry modes with which they were historically familiar.

It was unexpected to find that contractors, when entering a market with intense competition, tend to use permanent entry mode instead of mobile entry mode. Although its direction is opposite to what was hypothesized in Hypothesis 8, this term is statistically significant in the model. There are possibly three reasons for the striking phenomenon regarding competitive intensity:

(1) The measure used for competitive intensity may be in fact another proxy of market attractiveness, because more attractive markets have more contractors competing in it.

(2) International contractors are aggressive and not afraid of competition which reflects the market situation in the concurrent 'interpenetration' trend: firms globalized during the Middle East oil boom have to compete against each other in a suddenly narrowed down but still potentially lucrative global market (Linder, 1994).

(3) In overseas markets, some contractors do not compete directly with other international contractors or local contractors, but look at some niche markets where they have a competitive advantage. For example Japanese contractors are good at tunnelling, UK contractors are good at bridge building and USA firms are good at petroleum process projects.

Therefore competitive intensity in specific market segments is the concern to the international contractor, instead of the overall competitive intensity.

Table 6 Testing results

Hypothesis	Independent variable	Sign	Significance	Support
1	Trade link	No	No	No
6	Investment risk	No	No	No
2	Cultural distance	No	Yes	Partially[a]
3	Colonial link	No	Yes	Partially[a]
4	Language proximity	No	Yes	Partially[a]
8	Competitive intensity	No	Yes	Partially[a]
5	Host market attractiveness (size)	Yes	No	Partially[b]
5	Host market attractiveness (growth)	Yes	No	Partially[b]
7	Entry restriction	Yes	Yes	Yes

Notes: [a] Significant, but sign is inverse to hypothesis. [b] Insignificant, but sign is consistent with hypothesis.

Trade link, investment risk and host market attractiveness were found statistically insignificant in the model. The result shows that contractors do not tend to determine entry mode based on these three variables when they select between permanent entry and mobile entry. Among them, the beta signs for host market attractiveness in terms of both size and growth are the same as hypothesized. This, however, implies that permanent entry mode is moderately superior to mobile entry modes in exploiting an attractive market.

Entry restriction is a significant term with a negative beta value, indicating that when the host market involves strong restrictive laws, policies and practices, contractors are more likely to use mobile entry modes than permanent entry modes. This is completely consistent with Hypothesis 7.

Only one of the eight hypotheses (Hypothesis 7) is fully supported by empirical data. This confirms that some general business theories, principles, rules of thumb and beliefs may not always hold true in the construction industry, and the characteristics unique to international contractors must be taken into consideration in explaining and predicting international contractors' market entry mode selection decisions.

Conclusion

A significant trend regarding market entry mode use was first identified: contractors face a selection primarily between mobile entry and permanent entry, a dichotomy defined by both setting characteristics and strategic effects. Theories and findings from other sectors, primarily manufacturing, were then tentatively applied in developing hypotheses centring on host country variables about market entry mode selection.

Based on empirical analysis, a regression model was successively developed that describes international contractors' practices in entry mode selection. Applicability of theories and paradigms from the general international business field was tested regarding the international construction sector. The results show that contractors do not tend to determine entry mode based on trade link, investment risk and host market attractiveness, but are more likely to use permanent entry than mobile entry when cultural distance or competitive intensity is significant, or colonial link, language proximity or entry restriction is insignificant. The results of statistical analysis show that international contractors appear to be adventurous risk-takers and aggressive competitors. They traditionally prefer mobile entry modes, but will use permanent entry modes to gain local knowledge, command new capabilities and establish local networks to surmount the challenges in overseas markets that are quite different from their home countries. The results also indicate that theories and previous findings primarily from the manufacturing sector do not apply to the construction sector and the culture of international contractors must be taken into consideration to explain and predict their market entry mode selection.

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