FACTORS INFLUENCING MALAYSIAN CONSTRUCTION FIRM’S ENTRY MODE DECISIONS INTO INTERNATIONAL MARKETS

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International construction firms raise their level of competitiveness in the global markets by exploiting opportunities using the right entry modes (EM). The objective of this research is to determine the significant factors influencing Malaysian construction firms’ EM decision in international operations. The firm’s EM decision was the dependent variable and four groups of factors (country, market, firm, and project) were the predictor variables. Using a sampling frame provided by the Malaysian Construction Industry Development Board, 62 firms responded to the questionnaire survey. The findings indicate that a majority of firms adopted a combination of equity (EQ) and non-equity (NEQ) modes. A multinomial logistic regression analysis was used to establish a predictive model for the EM decision, where the probability of choosing both modes can be determined with firm factor as the strongest predictor. The model is of significance for construction firms to determine appropriate EM strategies. Firms have to increase their level of knowledge, information, and experience related to project management competency, specialist expertise, and technology, organisational capability, risk management, reputation, and performance together with research and development activities. These strategies are effective when firms increase their knowledge, information and experience to adopt suitable EM.

Keywords: entry mode, international markets, Malaysian construction firms

INTRODUCTION

A firm commonly faces questions to select a location or country to plan the right timing of entry and to adopt an appropriate entry mode to expand into international markets. Changes in technological innovation, communication, information and reduction in trade barriers have caused dramatic international market expansion of firms including Malaysian construction firms. The increasing size and complexity of projects have increased the need of the construction firms' participation in international markets (Comu et al., 2015). A worldwide trend towards international market expansion has driven huge research efforts. Extensive studies on construction firms have been carried out on international market entry strategy (Ling et al., 2008; Chen et al., 2009; Polat and Donmez, 2010; Comu et al., 2015). There are challenges related to country factors such as global competition with other foreign companies in host country (Wong, 2012), market factors such as the effects of globalisation and

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liberalisation and impacts of financial crisis, firm factors, for example, unsound business plan, lack of resources, knowledge and information on market structure and accessibility (Awil and Abdul- Rashid, 2001; Wong, 2007) and project factors, for example, increasing project size and complexity (Comu et al., 2015). Idris and Tey (2011) revealed that the Malaysian firms adopted joint ventures abroad mainly to expedite profit generation and market penetration. Thus, it is compulsory for construction firms to have a global mind-set, supported by strong resources in terms of sufficient human capital and technological innovation and most importantly, strong financial capacity. This study focuses on factors (related to country, market, firm and project aspects) that influence Malaysian construction firms’ decisions to adopt suitable entry modes (EM) in their international operations.

**Entry Mode (EM) decisions**

Entry mode (EM) is an institutional arrangement for organising and conducting an international business transaction or in a simple and a widely accepted term, a decision concerning “how” to enter the market. Root (1994) described the EM decisions as various arrangements to make possible the entry of a firm’s products, technology, human skills, management or other resources into a foreign country. Previous studies have shown that choosing a suitable EM is crucial to ensure the performance of projects (Chen and Messner, 2009). For the selection of a suitable EM, Ozorhon et al., (2007) suggested the incorporation of an extensive environmental scanning, determination of opportunities and threats in international markets, followed by their matching with the firm strengths. However, each EM decision comes with its own benefits and risks, since each EM arrangement requires a different level of resource commitment, investment risk and strategic flexibility (Chen and Messner, 2011). Ahmad and Kitchen (2008) looked into international expansion strategies of Malaysian construction firms focusing on the EM choices and motives for investment. These firms used international joint ventures (JV), which permits firms to access locally-based complementary assets and markets. In this study, the EM decisions were categorised under EQ and NEQ modes based on the definitions used by previous researchers (Chen et al., 2011). The strategic alliance, local agent, licensing, representative office, JV project and sole venture (SV) project were grouped under non-equity (NEQ) modes, while JV Company, SV Company, branch office/company, BOT/equity project and wholly-owned subsidiary were grouped under equity (EQ) modes. Since a comprehensive theoretical framework of both EQ and NEQ has not yet emerged, as claimed by Gudergan et al., (2012), this study chose the EQ and NEQ modes in measuring the EM decision to contribute empirical aspect of the EM strategy.

**Factors influencing EM decisions**

Numerous researchers have proposed different plans in crafting the right EM decisions. In this study, the factors related to the EM decisions were grouped under country, market, firm and project themes based on previous studies.

**Country factors**

There are many important characteristics of internationalisation from the country policy or regulation perspectives related to the firm’s EM decision including investment risks (Agarwal and Ramaswami, 1992), economic and social uncertainties, such as corruption, political risks, and international competition in the host country (Musso and Francioni, 2009; Teixeira and Grande, 2012). Much of these country risks reflect the uncertainty over the continuation of present economic and political
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conditions and government policies that are critical to the survival and profitability of a firm’s operations in that country. Teixeira and Grande (2012) found that in the presence of markets with high levels of corruption, the firms prefer low equity (joint ventures with local partners) or non-equity (exports and contracting) EM choices. Nevertheless, it also reveals that, in some specific cases such as cultural proximity, even when there is pervasive corruption, the multinational corporations may enter via wholly-owned subsidiaries.

However, institutional export support (Musso and Francioni, 2009) and support from home country office together with political backing by the home government were anticipated by firms operating in international markets (Ling et al., 2008). In addition, the bilateral business activities for construction works in international markets were found highly promoted by the host country governments instead of the home government (Lu et al., 2014). Thus, the home and host government support on export promotion was found to be one of the important variables in determining foreign market EM decisions. They have adopted the NEQ modes such as, by having representative or branch offices to sustain their overseas’ revenue (Chen, 2005). It was found that the Chinese contractors have established a permanent EM in Nigeria (Zhao and Atchike, 2015) through project financing by Chinese government concessional loans. Thus through this arrangement, the representative office is independent of the branch office and is organised to help the company headquarters in identifying potential projects in the foreign market.

Market factors
The EM decisions are also affected by external factors such as the market environment, for example, the level of globalisation, industry risks related to production inputs and investment risks (Puljeva and Widen, 2007). Firms have chosen the FDI mode to establish long term market presence, even if economies of scale were not promising (Agarwal and Ramaswami, 1992). It is expected that firms are attracted to a country with promising opportunities and potentials. However, there were firms that entered relatively lower potential markets by adopting sole venture mode to fulfil their firm’s strategic objective to operate in international markets (Bartlett and Ghoshal, 1986).

Firm factors
There are vital needs for the construction firms to improve their dynamic capabilities and competitive advantages in order to grab the opportunities and face the challenges in international markets (Ling et al., 2009). These internal factors are related to the firm’s environment (Puljeva and Widen, 2007). These factors have important characteristics of internationalisation in influencing the EM decisions that include firm’s dynamic capabilities (number of employees, the relative size of the subsidiary and technology of the business) (Chen and Chang, 2011) in order to achieve the targeted profit and sustainable growth. Agarwal and Ramaswami (1992) stated the importance of choosing the right EM, as it requires significant resource commitment that may lead to financial burden and time loss, and is influenced by ownership, location and internalisation advantages. Thus, firms prefer the complete control of their foreign operations because overall profit maximisation requires that their foreign ventures be tightly subordinated to the parents.

The size of the firm is based on the number of employees and international experience by the number of years the firm has been conducting business abroad (Ferreira et al., 2013). Korkmaz and Messner (2008) in their study indicated that firm’s size includes
experience and reputation to measure firm’s resource capabilities. Logically, larger firms have more ability to raise the needed resources for large scale and complex projects assuming more risks when they invest in international projects. In relation to EM decisions, Argawal and Ramaswami (1992) found that larger firms preferred EQ modes. Firms with specific resource capabilities acquired the competitive advantages. Musso and Francioni (2009) revealed that the EM decisions were primarily influenced by firm-specific factors, above all organisational culture. Meanwhile, institutional factors have made significant contributions to the understanding of the EM decisions of Japanese manufacturing firms and partly overrode the effect of firm-specific factors proven in the earlier study (Kawai and Jonas, 2009). The EM decision was found to be influenced by the firm’s long-term orientation that were more likely to use permanent entry than mobile entry when home market size is insignificant, and uncertainty avoidance, firm size or multinational experience is significant (Chen and Messner, 2011). Ling et al., (2008) found that the most effective EM decisions are: setting up wholly owned foreign subsidiaries (EQ mode) and forming joint venture projects (NEQ) with local firms which are influenced by providing a superior product or service and paying close attention to client satisfaction.

**Project factors**

Ling et al., (2008) have included project duration, financing, equity, price competitiveness and host country subcontractors, in their study as the project factors influencing the EM decisions. Moreover, project size was also referred to in terms of project value (Eybpooosh et al., 2011) together with project time-scale (Ofori, 2003; Park and Papadopoulou, 2012) to determine construction performance (Korde et al., 2005) or construction project success (Gudien et al., 2013). In analysing projects, Bauml (1997) used average project size as a rating factor. For example, if there are few projects with a very large scope, the firms could face excessive risk concentration. On the other hand, a large number of smaller projects can have the effect of diluting management resources, thus reducing control. Products in construction are unique and different in characteristics compared to products in other industries. In construction, the product refers to the physical product and/or services offered to the client. Product and/or service differentiation is one of the strategies in achieving client's satisfaction. Competitors might not pose any risk to the firms or as a barrier to delay the firms’ entry if they were able to offer products/services that were different and unique from the competitors, which further enhanced their level of competitiveness (Polat and Donmez, 2010).

**METHODOLOGY**

A quantitative approach was adopted using self-administered questionnaire survey. A qualitative approach using interviews were also carried out to validate the quantitative findings and the developed decision model. However, the findings from the interviews are not presented in this paper. Managers from construction firms were targeted to be enquired for their opinions and perceptions regarding the international market entry strategies adopted by their firms. The units of analysis are the Malaysian construction firms engaged in international business activities with foreign market experience. They were registered as Grade 7 with the Malaysian Construction Industry Development Board (CIDB). This study used a sampling frame from CIDB, where 115 firms were engaged in international projects in various sectors, such as buildings, infrastructure, branches of engineering such as mechanical and electrical, power transmission and plant facilities, and oil and gas. The respondents were the top managers of these construction firms. They were asked to choose the EM adopted by
their firms based on a given list of EM grouped under EQ and NEQ modes. Under EQ modes, there are joint venture (JV) company, sole venture (SV) company, branch office/company, BOT/Equity and wholly-owned subsidiary. Under the NEQ modes, there are strategic alliance, local agent, licensing, representative office, JV project and SV project. A categorical type of scale was used to measure the EM decision: 0 = EQ modes; 1 = NEQ modes; and 2 = BOTH modes.

Based on literature review, 44 factors were selected and grouped under four independent (predictor) variables; country, market, firm and project factors. Amongst the country factors used in this study are attitude and intervention of host governments, the similarity of host country/market, proximity, economic and non-economic risks and other foreign competitors in the host country. Market factors include profit potential/attractiveness, competition intensity, product/service growth, entry barriers, innovative and entrepreneurial opportunities and market demand. Under firm factors there are competencies (project management, specialist expertise and technology), superior management and organisational dynamic capabilities, risk management attitude, reputation, performance based on ROI/sales/assets, research and development (R&D), size, assessment of market signals and opportunities, international experience, long-term and strong management strategic orientation and financing capacity. Finally, some of the project factors include product differentiation, brand name, reputation, project size and types, and project technical complexity. Analysis for the dependent variable was then carried out using MLR modelling against the four independent variables.

ANALYSIS AND DISCUSSIONS

Sixty-two managers holding various posts were involved in the survey. The distribution of the respondents is Vice President (3.2%), General Manager (4.8%), Managing/Project/Technical Director (12.9%), Senior Project Manager (4.8%), Senior Project Engineer (3.2%), Project Coordinator (3.2%), Project Manager/Planner (9.7%), Project Engineer (24.2%), Contract/Quantity Surveyor/Financial Manager (14.5%) and other managers (19.4%). They were directly involved in their firm’s international operations and acquired years of experience in planning, managing and controlling construction projects in international markets. About 26% of the respondents acquired more than ten years of international experience, 29% with the experience between 5 to 10 years and 45% with experience between 1 to 5 years. Based on their experience in years and from performing different leading positions within their firms, the respondents were all knowledgeable about international operations to give reliable opinions in the survey. The descriptive analysis shows three types of EM decisions adopted by the firms: (1) firms that chose equity modes only (EQ), (2) firms that chose non-equity modes only (NEQ) and (3) firms that chose both equity and non-equity modes (BOTH). An MLR analysis was carried out in this study as an appropriate multivariate procedure to describe and test relationships between the dependent variables (EM decisions) and the independent variables (predictors) as described in the following section.

Firms’ Entry Mode (EM) decision

An enquiry related to the EM decision required the respondents to select the EM adopted by their firms, which were grouped under equity (EQ) and non-equity (NEQ) modes. Joint venture (JV) company, wholly owned subsidiary (WOS), branch office/company, sole venture (SV) company and Build-Operate-Transfer (BOT) are
grouped under EQ modes, while under the NEQ modes, there are strategic alliance, licensing, local agent, representative office, SV project and JV project.

**Multinomial Logistic Regression (MLR) analysis**

Generally, an MLR is used to obtain the maximum likelihood estimates of the main effect and interaction parameters. For the EM decisions, the dependent variable consists of a nominal variable with more than two levels. In this case, three type of choices are allowed for MLR analysis to be used (Mooi and Sarstedt, 2011). The MLR model for EM decision was established to determine the effect of an increment of each of the independent variable (factor) on the type of the value that occurs for the variable for the EM decision, i.e., value 0 (equity modes only - EQ), value 1 (non-equity modes only - NEQ) and value 2 (both types of modes - BOTH). Similar MLR models were used by Agarwal and Ramaswami (1992) in which all three of these models fit the data well. The analysis involved: (1) determining the predictive ability of the model, (2) model evaluation and (3) assessing the contribution of individual predictors. Two additional tests namely a test of homogeneity of variance (Levene’s test) and analysis of variance (ANOVA) were also carried out.

(1) **Predictive ability**

A classification table was established to describe the predictive ability of the EM decision model to indicate how well the model predicts group membership by distinguishing the firms that adopted the EQ mode, NEQ mode and BOTH modes in their international operations. The result shows that the EM decision model has an acceptable predictive ability of 58.3% to predict correctly the firms that adopt “BOTH” modes. It also predicts correctly those firms that adopted the EQ modes 21.1% of the time and those firms that adopted the NEQ mode 47.4% of the time. The overall accuracy of classification shows that the model correctly classified 43.5% of the firms. Thus, the model has a moderate ability to predict the correct category for each EM decision based on the selected (well fitted) predictor variables. It is expected that the firms prefer to adopt both types of modes depending on their firm’s resource capabilities and technical competencies.

(2) **Model evaluation**

The classification table for the EM decision did not give any measure of significance, and it was not easily comparable to measures of fit in linear regression. In the MLR analysis, four groups of predictor variables were regressed against the firm’s EM decision to adopt EM in their international projects. Thus, the following measures of model fit were carried out.

First, Pearson and Deviance statistics tests for Goodness of Fit (GoF) revealed that both results are significant: \( \chi^2 (108) = 114.421 \) with a significance level of 0.322 \((p>0.05)\) and \( \chi^2 (108) = 117.466 \) with a significance level of 0.251 \((p>0.05)\). Hence, both tests indicate that the data fits the model. The results from the GoF tests for the EM decision model indicate sufficient evidence to claim that the model is worthwhile. Thus, the assessment of the GoF of the model determined the appropriateness of the model. Second, Cox and Snell R-square, Nagelkerke R-square and McFadden R-square tests indicate the amount of variation in the dependent variable (EM decision in choosing EQ, NEQ or BOTH modes) which are explained by the predictor variables. The values suggest that between 7.1% and 16.3% of the variability is explained by the set of predictor variables towards the EM decisions. The MLR provides the maximum likelihood estimates of the main effect and interaction parameters. Finally, the likelihood ratio tests were carried out to ascertain the significance of predictors of the
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EM decision model. The Sig. value for each predictor (0.227, 0.642, 0.065 and 0.356) indicates that there is no significant main effect on the EM decision (p-value < 0.05). However, when the cut point for p-value was set to be < 0.10, only the firm factor has a significant main effect towards the dependent variable with Sig. value of 0.065 [$\chi^2 (2) = 5.460$, p < 0.10]. The ratio test shows that only one predictor (firm factor) was statistically significant, indicating that the model was able to distinguish between firms that choose BOTH modes.

(3) Assessing the contribution of individual predictors

An assessment of the contribution or the impact of each predictor on the likelihood of the firm’s EM decision provides information on the importance of each of the predictors in the EM decision model. The decision model was established with NEQ modes as the reference category and contains four independent (predictors) variables (country, market, firm and project factors). Coefficients (B) and Wald statistic values were used to identify the strong predictors and to assess the successive accuracy of a model by evaluating its ability to predict correctly the category for cases for which the outcome is known. Out of four predictors, for EM decision model (BOTH modes), only firm factors with Sig value of 0.043 (p < 0.05) contributed significantly to the predictive ability of the EM decision model for equity of the “BOTH” modes. Thus, for a firm’s EM decision using “BOTH” modes, depends on the firm factors.

The result shows that the predictor variable for firm factors corresponds to the B values of 2.590. Based on the “coefficient of predictor variables in the equation”, a fitted EM decision model (BOTH modes) is: Logit (p) = 1.470 + 2.590Firm; where p is the probability of choosing to adopt both types of equity modes with firm factors as the strongest predictor variables.

The interpretation of the odds ratio (OR) of the values was provided by the Exp (B) value in which the B values were used in the equation to calculate the probability of a case falling into a specific category of the EM decisions in this case, choosing “BOTH” modes. The strongest predictor is the firm factor (B = 2.590, p < 0.05), recorded OR of 13.327 (OR>1). This indicates that a firm with more knowledge on firm factors is 13.327 times more likely to adopt BOTH modes as compared to a firm with less knowledge on firm factors, with all other factors being equal. For each increase in firm factor score, the odds of a firm adopt BOTH modes increase by a factor of 13.327 relative to the NEQ modes. In simple terms, the more knowledge a firm has on firm factors, the more likely a firm will adopt BOTH modes.

Test of homogeneity of variance

Levene’s test was carried out to compare the factors influencing the decisions between EQ, NEQ and BOTH modes by the firms. It established whether there is any similarity between the equity modes (EQ), non-equity (NEQ) modes and BOTH modes categories. The Levene’s test showed: country factor (p = 0.713); market factor (p = 0.721), firm factor (p = 0.913) and project factor (p = 0.594). All values are greater than 0.05. Thus, the assumption regarding the homogeneity of variance is acceptable in which the variances of across groups for all factors are homogeneous.

Analysis of variance (ANOVA)

ANOVA F-tests were carried out to find whether there exist statistical differences between the EM decisions and the factors. It revealed that there exists no statistical difference between all types of EM decision and all four factors: country: [F (2, 59) = 1.225, p = 0.301]; market: [F (2, 59) = 0.851, p = 0.432], firm: [F (2, 59) = 0.018, p = 0.982] and project: [F (2, 59) = 0.347, p = 0.708]. Since all p-values are greater than
0.05, the four groups of predictor were normally distributed with no statistical difference between types of EM decision. The MLR model for the EM decision has a good predictive ability in determining the firm’s EM decisions. The predictive model indicates that a firm’s knowledge on firm factors significantly influenced the firm’s decision to adopt both EQ and NEQ modes in their international operations. The most significant firm factors influencing EM decisions are financial capacity, competencies (project management, specialist expertise and technology), superior management and organisational dynamic capabilities, management of risk attitude, reputation, performance based on ROI/sales/assets, and R&D. Tjosevik and Refsland (2012) emphasised that foreign operations require huge financial capital investments. Difficulties in assessing loans, other forms of financial assistance, incentives and supports lead to issues in financial capacity (Che Senik, 2010) such as delay in the target markets and lack of commitment and engagement of the supply of other resources. It was established that efficient human resource management in delivering a quality product or service through achieving on-schedule and within-budget goals using modern project management tools (Gunhan and Arditi, 2005), was found important and symbolised by the firm’s strong brand name (Lu et al., 2013). Argawal and Ramaswami (1992) found that large firms preferred EQ modes. In general, larger firms have the strong financial ability to raise the needed resources for large-scale and complex projects. Since there was a mixture of different sizes of firms, both EQ and NEQ modes were adopted. Positive risk management attitude was used when they invested in high-risk international projects. By having a high level of international experience among their managers, the firms' ability to compete in international markets was increased (Ahmad and Kitchen, 2008) and also supported by increasing activities in R&D. As the level of knowledge increases, the risks involved in international markets is subsequently minimised. Thus, firms need to update and seek relevant market information or knowledge about particular destinations and engage in extensive R&D on market potentials (Che Senik, 2010).

CONCLUSIONS

An empirical contribution from this study is the establishment of the EM decision predictive model for construction firms represented by Logit (p) = 1.470 + 2.590Firm; where p is the probability of choosing both types of equity modes. It shows a significant relationship between the EM decision and firm factors as the strongest predictor. The predictive model suggested that in order for construction firms to adopt both EQ and NEQ modes, they are required to increase their level of knowledge, information, and experience related to firm factors such as project management competency, specialist expertise and technology, organisational capability, risk management, reputation and performance together with R&D activities. The findings from this study are in line with the development of internationalisation strategy by the Malaysian government (CITP: 2015-2020) to define EM strategy. The findings enhance the existing body of knowledge related to international market entry by contributing to a deeper understanding of the EM decision for construction firms in Malaysia and beyond. Further research could also examine other dimension of entry strategy, for example, the entry timing (ET) by determining the ET decision dimensions and factors influencing this decision.
REFERENCES


