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Equity commitment under uncertainty: A hierarchical model of real option entry mode choices

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ABSTRACT

We develop a hierarchical model of real option entry mode choices under environmental uncertainty and test predictions using a unique sample of U.S. companies expanding in the countries of Latin America and the Caribbean between 1980 and 2005. Our results, based on a probit estimation with sample selection, show that country risk has a significant and negative effect at the primary level of the hierarchy. Sensitivity analysis further distinguishes between which entry modes dive our main results. Taken collectively, our findings suggest that prior acquisition experience, marketing intensity, size, as well as a higher proportion of specific or intangible assets, are key attributes for managers to consider when structuring foreign investments as a portfolio of options. Moreover, we find that international investment experience moderates the extent to which firm capabilities matter by weakening the predicted effects of prior acquisition experience and asset structure when firms make choices regarding equity commitment.

1. Introduction

How companies choose to establish their operations in foreign countries often reflects the need for flexibility or control, which to a great extent driven by the host country's political, economic, and financial stability (Brouthers, 2002; Li & Li, 2010). The real options approach to equity commitment in the form of wholly owned subsidiaries, acquisitions and greenfield operations, complements the leading theories of multinational enterprise (MNE) strategies and provides a natural framework to explore the effect of uncertainty on expansion choices (Hoskisson, Eden, Lau, & Wright, 2000; Li & Rugman, 2007; Brouthers, Brouthers, & Werner, 2008). At the core of the real options perspective is the prediction that toehold operations such as partial acquisitions, joint ventures and arm's-length transactions (e.g. exports, licensing, franchising, etc.) allow firms to defer large strategic investments until environmental contingencies at the host-country level are resolved or until information gathering and learning reduce informational uncertainty at the company level (Majd & Pindyck, 1987).

In the recent literature, the real options perspective has been utilized in analyses that model joint ventures (JVs) as toehold options toward full acquisition. In the context of emerging markets, JVs can be seen as a real option entry mode that offers MNEs a path to full ownership as exogenous uncertainty is resolved (Kogut, 1991; Reuer & Tong, 2005; Tong, Reuer, & Peng, 2008). At the same time, partial acquisition toeholds, as an option to full acquisition, can also be examined from a real options perspective (Hennart & Reddy, 2000; Xu, Zhou, & Phan, 2010). For example, Folta and Miller (2002) develop such an analysis for research-intensive industries, and show that toehold acquisitions provide opportunities for information gathering which gives the minority equity firm the advantage over outsiders when opportunities arise to buy out the majority partner.

Outside of the real options treatment of MNE's entry mode choices, the broader entry-mode literature also considers the question of equity commitment in the context where the alternative is a non-equity entry mode such as exports, licensing contracts, franchising, etc. For example, Pan and Tse (2000) develop a hierarchical model of entry mode where equity and non-equity modes offer different investment requirements and, therefore, require different levels of control. Specifically, non-equity entry modes require lower levels of control as they are

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much less investment intensive (Anderson & Gatignon, 1986). Thus, it would seem logical that integration of a real option non-equity category within the real option perspective would be an appropriate way to expand its predictions. However, non-equity entry as traditionally defined (i.e. exporting, licensing, franchising, etc.) does not serve the meaning of an option as it does not offer the firm opportunities for information gathering that leads to subsequent ownership through equity modes (Fisch, 2008). Empirically, Brouthers et al. (2008) find that traditional factors that predict the choice between joint ventures and wholly owned enterprises (such as asset specificity and investment uncertainties) fail to distinguish between the non-equity export mode and equity based investments in the form of joint ventures. Our analysis aims to improve upon the treatment of non-equity expansion in the entry mode choice set and shed further light on the factors that influence firm's decisions to commit equity under uncertainty.

The research objectives of this study are organized as follows. First, we develop a real options hierarchical model of entry mode choice that extends the previous literature by incorporating *representative offices* as a real option non-equity entry mode. At the primary level of the hierarchy, we propose that representative offices serve as a suitable proxy for real option non-equity expansion that can be evaluated relative to the non-option equity commitment mode. At the secondary level of the hierarchy, the real option JV mode is evaluated relative to the non-option mode of wholly owned enterprises. We note that while representative offices have rarely been studied as an entry mode (a notable exception here is Quer & Claver, 2008), they are a form of international expansion that fits the real options notion of a toehold quite well. Like exports, representative offices preserve full flexibility for the MNE, but unlike exports, allow the firm to engage in information gathering and learning through market research, as well as build relationships with local officials and current and potential customers. We therefore posit that representative offices can be integrated as a non-equity entry mode within a real options framework and thus contribute to current research with an appropriate real options hierarchical model in the tradition of Pan and Tse (2000).

Second, we empirically evaluate firms' entry mode choices at each level of the hierarchy using a unique sample of U.S. companies expanding in the countries of Latin America and the Caribbean (LAC) between 1980 and 2005. The LAC region has a long history of being a major investment destination for U.S. companies due to large markets, resources, and geographical proximity[1]. More importantly, the LAC countries are a suitable sample to study the effect of exogenous uncertainty on entry mode choices due to the frequent episodes of economic, political, and financial crises in the 1980s and 1990s (Tuman & Emmert, 2004; Nunnenkamp, 1997; Mortimore, 2000; Blanco, 2012). In addition, the LAC countries have remained relatively understudied in the International Business literature in comparison to other regions such as Europe and Asia (Canabal & White, 2008). Underscoring this point are studies like Xu and Meyer (2013). The authors note that out of 260 published articles between 2001 and 2010, only 13 focused on one or more countries in LAC, and only 3 on the region as a whole. Therefore, our study contributes to this empirical research gap by offering evidence on how companies choose expansion strategies under uncertainty in the LAC region.

The rest of the paper is structured as follows. We present our theoretical framework in Section 2 and develop testable hypotheses in Section 3. Section 4 describes our estimation methodology and defines the variables used in the estimation. We outline our sample construction methodology and provide summary statistics in Section 5. Section 6 discusses our empirical results based on the full sample as well as two subsamples designed to further explore the effects of company experience on entry mode strategies. It also presents our sensitivity analysis based on multinomial probit estimations that provide further detail on which entry modes drive our main results. Section 7 offers concluding remarks as well as implications for practitioners and future research.

2. Theoretical framework

2.1. Real options and entry mode choice

A key difference between Transaction Cost Economics (TCE), a popular theoretical framework guiding research on entry mode strategies, and the real options approach to sequential decision making under uncertainty, is the source of the uncertainty that firms face (Kogut & Kulatilaka, 2001; Rese & Roemer, 2004; Li & Rugman, 2007; Foss & Roemer, 2010). In the TCE framework, uncertainty is endogenous to the firm. Here, safeguarding against opportunistic behavior through the choice of governance structure and learning through investment can improve managers' ability to predict the success of their foreign operations. In contrast, the real options approach focuses on environmental uncertainty which is exogenous to the firm. Examples of environmental uncertainty include price volatility and demand uncertainty, both of which can be affected by the economic, political, or financial instability in the host-country where a firm invests. In the presence of environmental uncertainty, the choice between expansion through equity commitment and the non-equity entry mode depends on whether the firm's investment embodies ownership and/or internalization advantages (Rivoli & Salorio, 1996). Ownership advantages accrue to firms with a higher proportion of specific assets (i.e. assets that have fewer alternative uses) and such firms can delay investment in uncertain foreign markets as they face less threat that competitors will capture growth opportunities by investing first. Similarly, firms with a higher proportion of intangible assets (such a brand loyalty, managerial knowhow, etc.) possess internalization advantages that make investments less reversible under exogenous uncertainty.

Thus, in the real options framework, if a firm's investment can be either delayed (due to ownership advantages) or not easily reversed (due to internalization advantages), the firm may choose a "wait-and-see" approach to equity commitment. This flexibility is reflected in the choice of entry mode which gives managers the ability to respond to uncertainty as it is revealed and is enhanced through experiential learning. For example, Fisch (2008) argues that learning can reduce both endogenous and exogenous uncertainty by helping managers to better forecast the effects of environmental uncertainty on their operations and therefore devise better strategies to cope with unfolding adverse events.

Applications of real option theory to the analysis of MNE investment strategies have been growing in recent years. For example, Xu et al. (2010) show how uncertainties associated with the institutional environment in China encourage a strategy of sequential acquisitions. In this analysis, investors seek minority stake acquisitions to address valuation uncertainty and this becomes the real option entry mode allowing for potential full acquisition as informational asymmetries diminish and favorable conditions arise. Similarly, Li and Li (2010) use a real options framework to evaluate the effect of demand uncertainty on ownership strategies. The authors find that the attractiveness of more flexible ownership strategies increases with demand volatility but not uniformly so across industries. Finally, Brouthers

[1] Investment in LAC tends to be more oriented towards resource- and market-seeking. Historically, the region has always attracted resource-seeking investments. However, a combination of external protectionism and a difficult business climate tends to tilt investments toward market seeking as opposed to efficiency seeking investments oriented towards exports (Reyes & Sawyer, 2011).