INSTITUTIONAL ENVIRONMENT RELATEDNESS AND FOREIGN INVESTMENT FAILURES IN THE BRAZILIAN TELECOMMUNICATIONS INDUSTRY

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ABSTRACT

Many scholars have demonstrated that prior experience with foreign direct investment (FDI) leads to subsequent performance improvements. However, I find contrary evidence which suggests firms with dissimilar types of experience are more likely to fail. I hypothesize that firm heterogeneity of prior experience acquired in idiosyncratic institutional environments explains the variance in firm performance.

INTRODUCTION

The growing number of multinational firms with heterogeneous host country experiences places significance on understanding the effects of firm experience across sequential investments. Several scholars have demonstrated that firms with prior FDI experience are more successful in subsequent FDI ventures. Many have attributed this success to experienced firms' ability to mitigate risks more proficiently than firms that lack prior foreign direct investment experience. Generally, this theory upholds, as expectedly experienced firms benefit from having market specific knowledge (Johanson & Vahlne, 1977). However, the existing literature tells us little about the heterogeneity within types of experience. Moreover, existing empirical evidence in support of this theory provides limited wisdom in linking the causal mechanisms of experience that result in positive performance. This line of reasoning is important because heterogeneity in experience likely leads to heterogeneity in performance outcomes.

I find some relevant examples that illustrate this phenomenon. In examining FDI into the Brazilian telecommunications industry from 1997-2004, I find surprising evidence which reveals systematic failures of experience multinationals. For example, AT&T, with prior FDI experience in over 20 host countries, exited the Brazilian market in less than 5 years without making a profit while a Mexican competitor, America Movil, achieved positive financial results in their first year of investment and currently is one of the leading telecommunications firms in Brazil.

This exploratory data reveals results counter to the theoretical predictions that prior experience should lead to performance improvements in subsequent investments. Expectedly, firms with prior FDI should outperform firms with no prior FDI experience because of their ability to 1) assess the risk more accurately and 2) be more skilled at mitigating the ongoing market risks (Shaver, Mitchell & Yeung, 1997; Johanson & Vahlne, 1977; Davidson, 1980). These conflicting results suggest that there is more to understand about the relationship between prior experience and subsequent performance improvements. Perhaps these examples reveal that

it is not sufficient to just have any FDI experience, but the right type of prior experience is needed to achieve subsequent performance improvements. Thus, a study is warranted to further examine both the types of experience that lead to subsequent performance improvements and the specific mechanisms that drive investment success.

This paper attempts to explore both issues by first illustrating the types of experience that lead to subsequent performance improvements and then modeling the mechanisms that drive success. I will examine the heterogeneity of firms' prior FDI experiences in idiosyncratic regulatory environments across home and host countries and examine how firms' cumulative types of prior experience affect their overall ability to succeed. First, I begin with the assumption that not all types of FDI experience confer subsequent performance improvements. I argue that subsequent FDI performance improvements are predicated on firms' experience in similar institutional environments. Thus, if firms have conducted prior investments in countries with similar regulations and laws, they are likely to be more proficient at mitigating the risk of entry and adjusting to unpredicted market fluctuations. Experienced firms gain these advantages from acquiring market specific knowledge that is directly relevant to the host country environment. Conversely, I conjecture that firms with prior experience not related to the host country environment increase their likelihood of failure from utilizing inapplicable information, business practices and norms. Second, I present a model that clearly specifies the mechanisms linking a firm's prior experiences to subsequent performance. I reveal firms with similar institutional experience have three distinct mechanisms that drive their success in the market: 1) their ability to select better projects ex ante entry, 2) their ability to accurately predict cash flows and 3) their ability to mitigate the risk of market fluctuations. Based on event history data on FDI entry and exits into the Brazilian telecommunications industry, I utilize a MLE hazard rate model to empirically examine the likelihood of market exit given each firms type of prior experience. I expect to find the effects of having similar prior experience is a more significant indicator of subsequent success than the number of FDI entries alone.

The key contributions of this paper provides scholars and practitioners alike two valuable insights. Firms can optimize their success of FDI entry by strategically planning sequential investment patterns that maximize similar components of the institutional environments the firm has experienced. A key component of making this strategy effective is recognizing the similarities from one investment to the next which allows the firm to build competencies across investment experiences. Thus, experienced firms can select investments that appear to be more risky by utilizing their unique competencies to manage the uncertainties. The net conclusion suggests that the effects of prior experience on future investment outcomes is not solely based on having prior FDI entries, but a function of the type of experience acquired that provides relevant and applicable information to help the firm accurately assess the risk of entry.

THEORETICAL DISCUSSION

This paper is primarily concerned with the effects of prior experience acquired in heterogeneous institutional environments on subsequent investment decisions. Part of a firm's success in a foreign country hinges on their understanding the institutional dimensions, including the political and governmental structures, laws, regulations and means of social interaction that has the ability to effect the appropriation and expropriation of firm cash flows. North (1991;pg97) effectively defines the institutional environment as "humanly devised constraints that structure political, economic and social interactions. They consist of both informal

constraints (sanctions, taboos, customs, traditions and codes of conduct) and formal rules (constitutions, laws, property rights)".

Recent empirical studies on FDI address some of the parameters of the institutional environment that affect firms' foreign investments. Specifically, Henisz (2000) reveals the effects of political hazards on foreign investment strategies and Kogut & Singh (1988) examine the effects of culture on FDI decisions. Both of these studies find that foreign firms alter their entry mode strategies to effectively avoid market uncertainties. However, other aspects of both formal and informal institutional environments remain sufficiently understudied. There are still several components of the institutional environment, such as the regulatory conditions, laws, property rights, corporate governance structures as well as the behavioral norms that generate culture, that we know very little about how they affect FDI performance. In this paper, I focus on the effects of the formal institutionalized regulatory conditions within a country. Admittedly, all of the above mentioned institutional components are not mutually exclusive of each other. Correspondingly, I include the known variables as measures of control to tease out such previously studied effects (i.e., culture and political hazards).

The distinct contribution of this study is to design a measure that captures the heterogeneity within the regulatory environments across countries and codify a distance measure which represents the level of similarity from one FDI host country experience to another. I build upon the insight put forth by Shaver, Mitchell & Yeung (1997) which begins to suggest that *related* experience matters. This study finds that firms are more likely to survive given the existence of related industry and competitive entries. The key inference suggests that not all experience will lead to success but experience that is related to the given market context improves the likelihood of success. I draw upon this view and suggest that firms with experience in institutional environments that are related (i.e., similar) will also benefit from performance improvements because of the parallels in the market environments. For example, the infrastructural regulatory institutions are relatively similar between Brazil and Mexico versus Brazil and Sweden. This similarity in experience allows firms to directly understand the context of business norms, regulatory rules and practices, and results in more efficient and effective strategic decision making. To further illustrate this idea, a telecommunications executive from a Spanish firm that invested in Brazil provides the following perspective:

"The most important factor in being able to survive in the Brazilian market is the ability to manage through crises. I feel companies coming from a Latin markets are much more used to living through unstable situations. If you compare this (Brazil) market to Italy, Spain or Portugal prior to the EU, the background of managing business is very similar in terms of the political, economic and regulatory instability."

To capture the variance amongst types of prior experience for each firm, I create a distance measure (d_i), which measures the level of similarity between a firm's home and prior host country institutional environments (x_i) and the target country's institutional environment (y). There are two parts to calculating this measure. First, I develop an index to capture the level of regulation in each country by utilizing regulatory dimensions such as the number of regulatory agencies and their ability to create, enforce and set the laws. This regulatory index is captured across each country in the column vector v such that

$$v = \begin{bmatrix} v_1 \\ ... \\ v_n \end{bmatrix}.$$

Next, I generate a transposed vector for each firm i, $u_i = [u_1 \quad ... \quad u_n]$, which captures the home and host countries of investment prior to Brazil. Then, I utilize the inner product of $u^T v$ to represent each firm's prior experience. This measure, represented by x_i, is also weighted by home country versus foreign host countries and then averaged by the total number of countries of investment . y represents the institutional environment in the target host country of the subsequent investment, in this case, Brazil. Finally, to calculate the distance measure, I utilize a Euclidian distance measure averaging the square root of the sum of the distances squared, thus,

$$d_i = \sqrt{\sum_{i=1}^{n} |x_i - y|^2} .$$

The general intuition underlying this distance measure is firms that have the least amounts of distance between their experience and the target host country's regulatory environment should have higher success than firms with dissimilar experience. For robustness, I create a *depth* measure for the frequency of investment experience each firm has in each heterogeneous regulatory environment. As the amount of relevant similar experiences increases, it will only aid in the survival prospects of a firm's foreign investment. Likewise, as a firm lacks experience with similar institutional environments, their survival prospects will suffer from gross inaccuracies in predicting performance outcomes. Additionally, I create a *breadth* measure which captures the range of firms' prior types of experience over the life of all of their foreign investments. I conjecture that firms with more variance in the types of host countries they have entered will have a greater ability to mitigate the liabilities of foreignness in any market environment. The net effect of the three measures suggests that firms who have the right types of prior experiences and develop some competencies in risk mitigation in these areas will have a higher propensity to survive than firms with dissimilar types of experience.

EMPIRICAL SETTING

This empirical study examines foreign direct investment patterns into the Brazilian telecommunications industry expost the market privatization and liberalization. I examine the firms that entered and exited the telecommunications industry in Brazil during 1997-2004 and track firm performance measures and failure rates over time. This study is specifically designed to measure a firm's propensity to exit Brazil given the similarity in prior experience the firm acquired from previous host country investments.

DATA

The total number of firms in the telecommunications services industry (including SIC codes 4812, 4813 and 4822) in Brazil is 110 domestic and foreign firms. My sample consists of 96 foreign firms that entered the telecommunications industry in Brazil with local subsidiaries, acquisitions, consortia, or joint ventures partnerships. Data on firm entries and exits in the Brazilian market was obtained through the triangulation of several data sources including the Conselho Administrativo de Defesa Economica (CADE), ANATEL (the Brazilian

telecommunication regulatory agency) and the Dunn & Bradstreet Million Dollar Database. The majority (over 80 %) of these firms are publicly traded on at least one global stock exchange.

METHODS

To empirically test my hypotheses, I specify a dynamic analysis hazard rate model to determine the likelihood of two states: 1) a firm's success or 2) a firm's exit (divestiture) given their prior experience in heterogeneous host country regulatory environments. This hazard rate function will provide information about the duration that has lapsed, T, between each entry into Brazil and subsequent exit at a given point in time t. A hazard rate model is very appropriate for this setting and research question because of the necessity to capture the statistical differences between firm success and failure given the type of prior experience. Thus, the construction of the null hypothesis would infer that there is no statistical difference between firms with prior similar regulatory experience versus not. The hypotheses presented predict a rejection of this claim.

There are two key modeling requirements that I address in the empirical specification. First, what is the likelihood that a firm will succeed or fail given the events that occur in the Brazilian telecommunications industry from 1997 – 2004. I specify a static rate hazard model to provide this evidence. And secondly, how do the changes in the covariates across time t effect these success or failure rates. To address my later concern of capturing the changes over time that lead to failure, I specify a dynamic analysis hazard rate model as apposed to more static hazard functions because of the ability to capture not only the frequency of firm success and failure, but also the information about the changes leading up to a firm given state, Δt (Carroll, 1983). This feature of the dynamic analysis model, known as the *transition rate*, gives information about the probability of success or failure given the changes in two points in time, t and t + Δt. The function follows:

$$\lambda(t) = \lim_{\Delta t \to 0} \frac{\Pr ob(t \leq T \leq t + \Delta t \,|\, T \geq t)}{\Delta t}$$

Another concern that requires attention in utilizing hazard rate models is both left-hand and right-hand censoring. Since the market was effectively deregulated beginning in 1997, left hand censoring issues are primarily alleviated because the only firm in existence prior to 1997 was the state owned and operated telecommunications firm, Telebras. However, right-hand censoring could be problematic in interpreting the outcome of what will happen to firms that are in-between states of success and failure. By using a dynamic analysis model, I will have some evidence about the transitional probabilities and the end of the event history (e.g., in year 2004) that will give directional but non conclusive evidence about a firm, j.

After conducting this analysis, I expect to find a significant difference in the parameter estimates of 1) accuracy in cash flows, 2) project selection ability and 3) volatility to market fluctuations as it relates to the success and failure rate of firms who have invested in Brazilian telecommunications industry.

ENDNOTES
[1] Failures are measured by market exits anteceded by continual financial underperformance

REFERENCES

Benito, G. and Gripsrud, G. 1992. The expansion of foreign direct investment: Discrete rational location choice or a cultural learning process?, *Journal of International Business Studies*, 23(3): 461 – 476

Davidson, W. 1980. The location of foreign direct investment activity: Country characteisitics and expereince effects, *Journal of International Business Studies*, 11(2): 9-22.

Delios, A. and Henisz, W. 2002. Political Hazards, Experience and Sequential Entry Strategies: The International Expansion of Japanese Firms, 1980-1998. *The New Institutionalism in Strategic Management*.

Henisz, W. 2000. Institutional Environments for Multi-National Investment. *Journal of Law, Economics and Organizations* 16(2): 334-364.

Henisz, W. and Macher, J 2003. Technology, experience and politics: Plant location decisions in the global semiconductor industry, 1995-2000, *Working paper.*

Johanson, J. & Vahlne, J. 1977. The internationalization process of the firm – A model of knowledge development and increasing foreign market commitments, *Journal of International Business Studies*, 8(1): 23-32.

Khanna, T. 2002. Local institutions and global strategy, *Harvard Business School Press, Research Note*

Kogut, B. and Singh, H. 1988. The effect of national culture on the choice of entry mode. *Journal of International Business Studies*, 19(3): 411-432.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. 1998. Law and Finance, *The Journal of Political Economy*, 106(6): 1113-1155.

Li, J. 1995. Foreign entry and survival: Effects of strategic choice on performance in international markets, *Strategic Management Journal*, 16: 333-351.

Mitchell, W., Shaver, M. and Yeung, B., 1994. Foreign Entrant Survival and Foreign Market Share: Canadian Companies' Experience in United States Medical Sector Markets, *Strategic Management Journal*, 15: 555-567.

North, Douglas 1991. Institutions, *The Journal of Economic Perspectives*, 5(1): 97-112.

Shaver, M., Mitchell, W. and Yeung, B., 1997. The Effect of Own-Firm and Other-Firm Experience on Foreign Direct Investment Survival in the United States, 1987-1992, *Strategic Management Journal*, 18: 811-824.