MODELING INTERNATIONAL EXPANSION

Xavier Martin, Anand Swaminathan and Laszlo Tihanyi

ABSTRACT

Strategy deals with decisions about the scope of the firm and related choices about how to compete in various businesses. As such, research in strategy entails the analysis of discrete choices that may not be independent of each other. In this paper, we review the methodological implications of modeling such choices and propose conditional, nested, mixed logit, and hazard rate models as solutions to the issues that arise from non-independence among strategic choices. We describe applications with an emphasis on international strategy, an area where firms face a multiplicity of choices with respect to both location and mode of entry.

Strategy research addresses decisions about the allocation of resources for the purpose of developing and maintaining competitive advantage that enables superior corporate performance (Hofer & Schendel, 1978). It places emphasis on large, discrete moves such as the decision to enter (or withdraw from) a certain business, or the choice to undertake such investment via a given mode of governance. As a result, empirical samples may be obtained by observing any number of investments undertaken by a set of firms over time. However, for theoretical as well as measurement reasons, most
empirical studies focus on a subset of possible choices and associated predictors. This implies the analysis of a partial set of discrete choices while ignoring other choices when the included and omitted choices may in fact not be independent of each other.

For instance, research on product–market diversification may examine the behavior of firms diversifying from one industry into another. In that case the sample may consist of firms that were initially present in a given industry or set of industries, and that diversify into a given industry or set of industries. The means of diversifying may vary as well. Product–market diversification may occur organically, via acquisition, and/or via alliances and joint ventures with other firms. Yet many studies focus exclusively on a given modality, such as acquisitions.

This diversity of choices is especially prominent for research in international strategy, which deals with the antecedents and consequences of decisions about where to operate internationally, and how to govern such operations. Firms that consider expanding internationally, often do so to respond to international competition. Firms may implement their international expansion by choosing among a wide array of potential host countries. Indeed, the range of location opportunities has increased in recent decades as the unraveling of the Cold War and developments in physical and informational infrastructure have opened new nations to foreign trade and investment. For the same reasons, foreign investors make increasingly specific decisions not only about countries of their operations; but also about specific locations (region, city, or neighborhood) within selected countries (Chang & Park, 2005; Shaver & Flyer, 2000).

International strategy also entails a diverse set of choices about the governance of activities abroad, which are commonly referred to as mode of entry (MOE) decisions. MOE choices include the wholly owned subsidiary; collaboration with a partner as in an alliance or equity joint venture; contractual arrangements such as licensing or franchising; and trade solutions such as exporting or importing. Furthermore, wholly owned as well as partially owned subsidiaries may come about as a result of either the acquisition of an existing business, or the creation of a new local organization where none existed before (often labeled, accordingly, greenfield entry). In this paper, we first review typical research designs that have been used to model international expansion. Second, we describe international expansion as a firm-level choice process and suggest appropriate modeling strategies. Finally, we discuss implementation issues in modeling international expansion.
CURRENT RESEARCH DESIGNS FOR STUDYING INTERNATIONAL EXPANSION

Empirical research on international expansion typically focuses on a subset of countries.\(^1\) In some instances, the analysis is limited to a single home country (or region) and a single host country (or region). Such studies may be motivated by the salience of this pair of locations, where salience may result from the presence of critical industry participants or specific competitive or regulatory conditions. For instance, Martin, Swaminathan, and Mitchell (1998) examined the propensity of Japanese automotive suppliers to build plants in the United States and Canada (treated as a common host location by virtue of a long-standing free trade pact in automobiles) – thus capturing learning and competitive effects within a subset of the worldwide automobile industry that was the largest in population and sales, and where distinctive practices in buyer–supplier relationship management existed. In other instances, authors study investment from multiple home countries into a single host country. Such studies often rely on databases collected by governments for the purpose of tracking inbound investment, including the U.S. International Trade Administration’s report on “Foreign Direct Investment in the United States, (various years) Annual Transactions” (Shaver, 1998; Chung & Alcácer, 2002). Yet others study investments from a single home country into multiple, heterogeneous host countries. These studies are often based on industry sources such as corporate directories or on national financial databases. For instance the Toyo Keizai Directory has been used in a number of recent studies on the foreign direct investment behavior of Japanese firms (Hennart & Reddy, 1997; Isobe, Makino, & Montgomery, 2000; Delios & Beamish, 2001; Berry, 2006). Between them, these three categories of studies (single home to single host, multiple homes to single host, and single home to multiple hosts) far exceed in number those studies that examine both multiple home countries and multiple host countries – though the latter type of studies can be found in the study of industries with a predominantly global trade and investment profile, such as semiconductors (Martin & Salomon, 2003a).

The research designs described above may lend themselves to the study of causal mechanisms for firm-level outcomes at various levels. Independent variables that signify these causal mechanisms follow from different theories. Studies of multiple host countries, in particular, draw on macroeconomic predictors. The relative wages and other input factor costs
of a country, for instance, is a likely predictor of how attractive producing in that country may be. While it is much less common to use macroeconomic variables to describe home-country characteristics, other variables have also been used to predict outward investment. For example, the concentration of the industry in a firm’s home country has been used as an indicator of oligopolistic pressure to emulate rivals’ moves (Knickerbocker, 1973).² The most common category of predictor variables, however, consists of firm-level characteristics. Two types of firm-level characteristics are especially prominent in research on international expansion (e.g. Martin & Salomon, 2003a): intangible assets, since internalization theory (a powerful theory developed by Buckley and Casson (1976) which uses arguments related to transaction cost economics and agency theory) predicts that foreign direct investment is justified when a firm possesses intangible assets that cannot be safely transacted across firm boundaries; and organizational learning through experience (Barkema & Vermeulen, 1998).

**SINGLE- AND MULTIPLE-MODE OF ENTRY STUDIES**

Likewise, different studies may sample different MOEs. Indeed, studies that focus on a single entry mode are the most common. For example, there has been a voluminous stream of research on joint ventures and other forms of alliances (e.g. Barkema, Shenkar, Vermeulen, & Bell, 1997; Contractor & Lorange, 1988, 2002). Other studies focus on a mix of wholly and partly owned subsidiaries, without making a particular distinction between these MOEs (e.g. Shaver & Flyer, 2000). Yet others study acquisitions alone (e.g. Markides & Ittner, 1994). However, the underlying theory largely emphasizes the comparative governance and strategic features of various MOEs. Wholly owned, joint venture and contractual modes can be arrayed along a continuum that trades off organizing and bureaucratic costs against market hazards (Dunning, 1995; Hennart, 1993; Williamson, 1991). As such, factors that encourage one MOE may encourage or discourage other MOEs, and a comprehensive comparison among these solutions is required to make sense of a given choice.

As with location decisions, MOE theory suggests a mix of firm- and country-level considerations. For instance, in internalization theory the ability to successfully operate and compete abroad is predicated on the possession of distinctive intangible assets – a firm-level feature. Whether
these assets are transferred to the firm’s own subsidiary or leased out via licensing will depend on the ability of the firm(s) involved to transfer the underlying knowledge (Kogut & Zander, 1993; Martin & Salomon, 2003b); but also on the efficiency and reliability of the intellectual property regime in the host country (Oxley, 1999). Thus, various MOE choices share explanatory variables.

A further complication arises from the distinction between acquisition and greenfield modes. Theoretically, these choices are substitutes in that both allow the firm to obtain control over assets in a foreign location. However, each offers distinct advantages. For instance, an acquisition may also be the means for a foreign investor to obtain local resources such as a brand or production expertise – but may be more costly.

Furthermore, while the means of obtaining control over a foreign operation (greenfield vs. acquisition) is theoretically separate from the level of ownership or control the firm seeks (wholly owned subsidiary vs. equity joint ventures), studies aggregate these MOE combinations differently. Some studies treat acquisitions as a separate choice than (greenfield) wholly owned subsidiary – thus ignoring whether the foreign investor acquires the whole or a portion of the target firm’s equity (e.g. Anand & Delios, 2002; Hennart & Park, 1993; Barkema & Vermeulen, 1998). Others aggregate acquisitions with wholly owned subsidiaries, comparing them with joint ventures – thus assuming that all acquisitions are of the whole of the target’s equity (Hennart & Reddy, 1997; Brouthers, Brouthers, & Werner, 2003). Relatively few studies separate greenfield from acquisition as well as wholly owned from joint venture choices (e.g. Kogut & Singh, 1988; Gatignon & Anderson, 1988).

It should be evident from our brief review that choices about international expansion are influenced both by firm- and country-level factors. Moreover these choices are made not individually, but from a choice set. Therefore their examination requires the use of statistical methods that take interdependence across choices into account.

MODELING INTERNATIONAL EXPANSION

We suggest appropriate models to simultaneously take into account firm- and country-level predictors of international expansion. We first introduce the conditional logit model and describe its uses and limitations. Second, we discuss the nested and mixed logit models that overcome many of the deficiencies of the conditional logit model. We also describe hazard rate
models that allow for multiple events in the same time period but do not allow for unobserved taste variations among firms. Third, we briefly address the choice of MOE. Finally, we discuss implementation of these models in three widely used statistical software packages, NLOGIT, SAS, and STATA.

The Conditional Logit Model

International expansion can be viewed as a firm-level choice process where both the characteristics of the chooser (the firm) and the choices (the countries in the choice set) influence the probability of a specific choice being made. The model suited to such choice problems is McFadden’s (1974) conditional logit model. In the case of international expansion, the probability that a firm $i$ will enter country $j$ can be depicted as:

$$P_{ij} = \frac{\exp(\beta'x_{ij})}{\sum_{k=1}^{m} \exp(\beta'x_{ik})}$$

(1)

where $m$ equals the number of possible countries in the choice set and $x_{ik}$ is a vector of observed variables relating to country $k$. Eq. (1) has several desirable properties. First, the value of $P_{ij}$ is always between 0 and 1. Second, the choice probabilities for entry into all countries sum to 1. The conditional logit model, however, suffers from at least three serious limitations. First, the model is incapable of representing random taste variation related to properties of the choosers, firms in this case. Thus, it is not optimal in analyzing or controlling for the effects of corporate heterogeneity, even though such heterogeneity is theoretically salient in (international) strategy research. Second, when comparing between any two alternatives say $a$ and $b$, in this case target countries for expansion, the model assumes that the ratio of the probabilities of choosing among $a$ and $b$ is not dependent on the attributes of any other alternative $c$. This property of the conditional logit model, called the independence from irrelevant alternatives (IIA), is a questionable assumption when applied to international expansion. Third, the model does not accommodate cases where unobserved factors are correlated over time. This is a particularly important concern in modeling international expansion, which is best represented as a process that unfolds within each firm over time and one that is subject to firm-level learning effects.
The Nested Logit Model

Nested logit models can be used to address modeling issues raised by the IIA property of conditional logit models. For instance, the world can be divided into regions (based on geography, state of economic development, and so on) within which we can reasonably assume that the IIA property holds. Nested logit models can then be used to estimate the probability of choosing a nest (a region) and the alternatives (countries) within a nest. However, the first and third limitations above remain. A more realistic representation of the international expansion process involves the use of mixed logit models (McFadden & Train, 2000; Train, 2003) which allow us to address all three limitations of the conditional logit model.

The Mixed Logit Model

Mixed logit models allow for random taste variation, allow any pattern of substitution among choices, and can handle panel data with temporally correlated errors. Mixed logit probabilities can be expressed as follows:

$$P_{ni} = \int L_{ni}(\beta) f(\beta) d\beta$$  \hspace{1cm} (2)

where $L_{ni}(\beta)$ is the logit probability evaluated at parameters $\beta$.

$$L_{ni}(\beta) = \frac{e^{V_{ni}(\beta)}}{\sum_{j} e^{V_{nj}(\beta)}}$$  \hspace{1cm} (3)

and $f(\beta)$ is a density function. $V_{ni}(\beta)$ is the observed portion of the utility which depends on the parameters $\beta$. If utility is linear in $\beta$, then $V_{ni}(\beta) = \beta'x_{ni}$. Then the mixed logit probability takes the form:

$$P_{ni} = \int \left( \frac{e^{\beta'x_{ni}}}{\sum_{j} e^{\beta'x_{nj}}} \right) f(\beta) d\beta$$  \hspace{1cm} (4)

Eq. (4) is equivalent to a weighted average of the logit formula evaluated at different values of $\beta$ with the weights given by the density $f(\beta)$ which can be specified as continuous or discrete. The mixed logit model can be derived from utility maximizing behavior in several ways. Below we describe the
random coefficient or random parameter logit model that has been used in recent applications to choice processes (Erdem, 1996; Revelt & Train, 1998; Chung & Alcácer, 2002).

**Random Coefficients Logit Model**

Using the random coefficients logit model the utility derived by a firm \( n \) from entering country \( j \) is given by:

\[
U_{nj} = \beta_n' x_{nj} + \varepsilon_{nj}
\]

(5)

where \( x_{nj} \) are observed variables that are associated with the country and the firm, \( \beta_n \) is a vector of coefficients of these variables for firm \( n \) representing that firm’s tastes, and \( \varepsilon_{nj} \) is a random term that is independent and identically distributed (i.i.d.) extreme value. The coefficients are assumed to vary over firms in the population with density \( f(\beta) \). The firm \( n \) knows the value of its own \( \beta_n \) and \( \varepsilon_{nj} \’s \) for all countries \( j \) and chooses alternative \( i \) if and only if \( U_{ni} > U_{nj} \forall j \neq i \). The researcher observes the \( x_{nj} \’s \) but not the \( \beta_n \’s \) or the \( \varepsilon_{nj} \’s \). The unconditional choice probability is therefore the integral of \( L_{ni}(\beta_n) \) over all possible variables of \( \beta_n \):

\[
P_{ni} = \int \left( \frac{e^{\beta' x_{ni}}}{\sum_i e^{\beta' x_{ui}}} \right) f(\beta) d\beta
\]

which is the mixed logit probability given by eq. (4).

The researcher has to specify a distribution \( f(\beta) \) for the coefficients and estimates the parameters of that distribution. In most cases (e.g. Revelt & Train, 1998), \( f(\beta) \) has been specified as normal or log-normal: \( \beta \sim N(b, W) \) or \( \ln \beta \sim N(b, W) \) with parameters \( b \) and \( W \) to be estimated. The log-normal distribution is useful if the mean effect \( b \) of any variable is known to have the same directional effect for all firms; by contrast, the normal distribution allows the mean effect to be either positive or negative depending on the firm. Exact maximum likelihood estimation is not possible since the integral in eq. (4) cannot be calculated analytically. Instead researchers have approximated the probability through simulation and maximized the simulated log-likelihood function (Erdem, 1996; Revelt & Train, 1998; Bhat, 2000).

The random coefficients logit model can easily be generalized to allow for the use of panel data and repeated choices regarding international expansion by each firm. The probability of international expansion by a firm is the
product of logit formulas, one for each time period. Lagged dependent variables can be added to the model without changing the estimation procedure. Thus one can estimate the extent of repetitive momentum in international expansion by a firm. If the choices of firms and other data are not observed from the beginning of the process, the researcher has to somehow represent the probability of the first observed choice, which depends on the previous unobserved choices. Heckman and Singer’s (1986) correction for sample selection bias can be used for this purpose.

**Hazard Rate Models**

Hazard rate models have been used to estimate the rate of expansion into a specific destination country (e.g. Martin et al., 1998). The instantaneous rate of expansion into a foreign country is given by:

\[
\hat{r}_{ijk}(t) = \lim_{t' \to t} \Pr(t \leq t'|T \geq t)
\]  
(6)

The hazard rate \( \hat{r}_{ijk}(t) \) can be interpreted as the propensity for a firm \( i \) to expand from home country \( j \) to a host country \( k \), at time \( t \), given that it has not expanded to country \( k \) before time \( t \). The rate can be specified as a function of duration \( t \) and a vector of firm-specific variables \( x_i(t) \), a vector of home country variables \( y_j(t) \), and a vector of host country variables, \( z_k(t) \). The relationship between the rate \( \hat{r}_{ijk}(t) \) and the vectors \( x_i(t), y_j(t), \) and \( z_k(t) \) is assumed to be loglinear to ensure non-negative rates.

\[
\hat{r}_{ijk}(t) = f(t, x_i(t), y_j(t), z_k(t))
\]  
(7)

The choice set in international expansion is made up of multiple countries or destination states. Usually multiple destination states are modeled as competing risks, but we typically do not have theories about how expansion into a particular country differs from expansion into another. Instead, we have theories about how the underlying characteristics of various locations (countries) influence the likelihood of expansion. One way to model international expansion within a hazard rate framework is to treat the firm-country pair as the unit of analysis in each time period. In this case, firms will have multiple records (as many as in their choice set) in each time period. Within each time period firm characteristics will be fixed but country characteristics will vary. Hazard rate models have an advantage over conditional, nested, and mixed logit models in that they allow for multiple expansion events for a firm in a given time period. They are also able to
incorporate observed variations in firm and country characteristics and unobserved heterogeneity among firms (Blossfeld & Rohwer, 2002). But they do not allow us to estimate unobserved variations in tastes among firms (the $W$ parameter in the random coefficients logit model described above).

Hazard rate models have been used extensively in the study of organizational change (Barnett & Carroll, 1995). International expansion is but a specific instance of corporate expansion, and more generally organizational change. We believe that much can be gained from recent developments in the study of organizational change (Barnett & Carroll, 1995). Organizations have been found to change in response to three different causal mechanisms: (1) organization-specific factors including their own previous history of change (Amburgey & Miner, 1992); (2) changes in the organizational environment (Romanelli & Tushman, 1994); and (3) the actions of other organizations, including competitors, in salient reference groups (Haveman, 1993; Martin et al., 1998). These influences can be combined in a heterogeneous diffusion model (Strang & Tuma, 1993) to study organizational change (e.g. Greve, 1995, 1996). The heterogeneous diffusion model is useful to depict organizational change in a population where behavior is contagious. The rate of change is modeled through four vectors, the intrinsic propensity to change, the susceptibility to contagion, the infectiousness of an organization that has already changed and proximity among organizations. International expansion offers unique benefits in studying organizational change because the state space (countries) is finite and clearly specified. This is not typically the case with other types of organizational change such as product–market diversification or technological change.

Data Quality and Statistical Software for Estimating Choice Models for Panel Data

International expansion is driven by firm-level factors including the firm’s history, its interactions with other firms in an industry, and location-specific factors. This is a process that unfolds over time and may involve repeated events for a particular firm in a particular country (e.g. Chang & Rosenzweig, 2001). The appropriate data to analyze this outcome is longitudinal data on the behavior of all firms within an industry and the characteristics of all potential host countries. Countries that do not experience any entry by foreign firms over the entire time period under consideration ought to be excluded from the choice set. The conditional,
nested and mixed logit models described above assume that a firm will make a single choice in any time period under consideration. Simultaneous expansion into multiple host countries is rare, but it does occur if we observe international expansion at sporadic time intervals. One solution to deal with such cases is to choose the time intervals such that in any single time interval, we observe that a firm experiences no more than a single expansion event. The other option is to employ hazard rate models that allow for multiple events by a firm in a particular time period. The statistical models described above have been implemented in at least three commonly used statistical software packages, NLOGIT, SAS, and Stata.

The NLOGIT package, an extended version of LIMDEP allows for the estimation of conditional logit, nested logit, and random coefficient logit models (Hensher, Rose, & Greene, 2005). There are limits to the number of choices that can be considered. The conditional logit model in NLOGIT considers a maximum of 50 alternatives. The nested logit tree allows for four levels, labeled trunks, limbs, branches, and alternatives, respectively. Nested logit models estimated by NLOGIT may have up to a maximum of 5 trunks, 10 limbs, 25 branches, and 100 alternatives. The random coefficients model allows one to consider up to 100 alternatives. \( f(\beta) \) can be specified as normal, log-normal, uniform, triangular, and non-stochastic (zero variance). The default number of draws for constructing the simulated maximum likelihood is 100 but this can be changed to a higher number. Train (1999) recommends several hundred random draws while Bhat (2001) recommends 1,000 random draws. Since such an exercise is computationally intensive, Greene (2002) recommends that the number of random draws be set below 20 for exploratory purposes and increased once a final model specification is selected. The program allows one to use Halton intelligent draws which reduces the number of draws required by as much as 90% (Bhat, 2001).

The MDC procedure within the SAS statistical software program also estimates conditional logit, nested logit, and random coefficient logit models. The nested logit specification allows for three levels. The random coefficient logit model allows the researcher to specify \( f(\beta) \) as a normal, log-normal, or uniform distribution. The default number of draws is 200 and Halton sequence generation is available. The number of choices is unrestricted in the MDC procedure.

Stata provides both conditional logit and nested logit models through the clogit and nlogit commands. The nested logit model allows for three levels within the choice tree. No restrictions are placed on the number of choices.

Hazard rate models that take into account panel data, time varying covariates, and repeatable events can be estimated using the SURV
procedure in \textit{NLOGIT (LIMDEP)} and the \textit{streg} procedure in \textit{Stata}. Both procedures allow for a variety of parametric distributions for duration dependence in the hazard rate. The \textit{LIFEREG} procedure in \textit{SAS} estimates accelerated failure time models where the dependent variable is the duration to the event and not the hazard rate. The implementation in \textit{SAS} does not allow for time varying covariates or repeatable events.

\textit{Modes of Expansion}

The choice of the MOE can be modeled using the same methods as the choice of the country that a firm expands into. Theory should determine the appropriate modeling strategy. If the choice of destination country and the choice of the MOE are considered to be sequential choices, the choices should be modeled conditional on the other choice having been made first. For instance, if one expects that firms first choose the country to expand into, then the models of MOE choice should be estimated using data comprising the subset of countries into which a firm has expanded. It is also possible that firms have a characteristic MOE that they have honed through experience. In this case the choice of MOE ought to be modeled before the choice of countries that a firm expands into.

If the choice of destination country and the choice of the MOE are simultaneous, the same statistical models can be used with an extended choice set made up of all country–MOE combinations for each firm.

\textbf{INTERNATIONAL EXPANSION AND CORPORATE CHANGE: THEORY AND RESEARCH DESIGN}

To illustrate the benefits of the above models, we consider Dunning’s eclectic paradigm (Dunning, 1980, 1981, 1988). This framework constitutes the most systematic attempt to arrive at a comprehensive theory of international expansion. Dunning explained the specific patterns of a firm’s international expansion in terms of its ownership-specific advantages (O), the location-specific advantages (L) of the countries that it expanded into, and its internalization advantages (I) which imply that is in the interest of a firm that possesses ownership-specific advantages to transfer them across countries within its own organization rather than through exporting or licensing their use by a host-country firm. The OLI framework for explaining patterns of firm-level international expansion thus implicitly
assumes that the process is driven by observed variation in firm- and location-specific characteristics (Dunning, 1979). In other words, firms with varying firm-specific characteristics (O) choose among locations with varying location-specific (L) characteristics.

The conditional logit model (McFadden, 1974) has been designed to model such choices. Internalization (I) considerations are related to the MOE and can be easily accommodated within the conditional logit model by characterizing the choice as one of the location combined with the MOE. For instance, if the three modes of entry being considered are wholly owned, joint venture, and licensing and the number of countries that the firm could expand into is \( N \), then the choice set is made up of \( 3N \) elements. Mixed logit models offer the added benefit of allowing for unobserved taste variations on the part of firms. The use of these choice models would allow the researcher to disentangle the effects of O, L, and I factors on firm-level international expansion and to determine their relative influence.

The use of hazard rate models that incorporate heterogeneous diffusion processes will allow us to develop and test additional predictions within the OLI framework. In the case of international expansion, O, L, and I variables will likely influence the intrinsic propensity to change. Proximity effects can be used to examine whether firms from the same home country exhibit similar patterns of international expansion. Oligopolistic reaction, mimetic and bandwagon theories would suggest that firms from the same industry would exhibit strong proximity effects. Firm-specific characteristics such as size, level of intangible assets, or performance may also influence the infectiousness of a firm’s international expansion decisions and its susceptibility to the actions of others (e.g. Haunschild & Miner, 1997). We believe that modeling international expansion as a diffusion process offers opportunities to develop and test new theoretical predictions about international expansion.

In summary, we have shown that the study of corporate expansion, and specifically international expansion, involves the modeling of choice sets that entail considerations at multiple levels (schematically, country and firm effects). Modeling approaches that ignore the interdependence among sets of choices (such as countries and modes of expansion) risk misspecifying these interdependencies. We described four methods – conditional logit, nested logit, mixed logit (random parameter model), and hazard rate – and discussed the extent to which they address three key assumptions required to suitably model interdependent choices. We also identified statistical software packages that have implemented these methods. Finally, we note that attention to the statistical modeling of international expansion
contributes not only to the testing of comprehensive theories of (international) corporate expansion, but also to the extension of the underlying theories themselves.

**ACKNOWLEDGMENT**

We thank Chih-Ling Tsai for his comments on an earlier draft of this paper.

**NOTES**

1. As in other (non-international) strategy research, studies also vary in the range of industries from which they sample firms. Single-industry or single-sector studies are quite common. Some specialized MOEs, including turnkey operations and management contracts, are only applicable to some industries.

2. The logic underlying this particular prediction is ambiguous, and as such it has been largely abandoned in recent literature. Nevertheless, this home-country measure is still occasionally used, mostly as a control variable.

**REFERENCES**


