

Acquisition vs. Internal Development
as Entry Modes for New Business Development

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Abstract

This paper addresses a long-standing empirical puzzle in the relationship between entry mode and firm-market relatedness. By making the distinction between entries inside versus outside a firm's primary business domain, we resolve ambiguity in prior work on choices of entry mode (acquisition versus internal development). Taking advantage of a longitudinal fine-grained data set, we also develop measures of business relevance that capture the dynamics of the firm-market relationship. As a projection of a firm's resources and capabilities onto new markets, the degree of relevance, the change in relevance, and the duration of relevance are shown to have important effects on the choice of entry mode. For entries inside a firm's primary business domain, acquisitions are used to fill persistent gaps in the firm's product portfolio. For entries outside a firm's primary business domain, acquisitions are used to redeploy excess resources in exploring new trajectories.

Acquisition vs. Internal Development as Entry Modes for New Business Development

The choice of entry mode is an important part of a firm's new business development strategy. A diversifying entrant is not only concerned about what markets to enter, but also how to enter. Addressing both questions, our paper adds to the literature on firm scope and diversification by conceptualizing entry mode as different mechanisms -- one to fill resource gaps inside a firm's primary business domain and the other to redeploy excess resources in exploring new markets outside. Because a firm always retains the option of entering a market via internal development as the default mode, our objective is to analyze the conditions under which a firm would choose to enter a market via acquisition rather than through organic growth.

Empirical Puzzle in the Relationship between Entry Mode and Relatedness

Concerned about how the redeployment of excess resources can reduce the costs of entering and operating in a new market, researchers make a distinction between related and unrelated diversifications. Yip (1982) argues that the relatedness between a firm and the new market entered significantly reduces the costs of entry when a firm enters via internal development. In contrast, the relatedness does not reduce the costs of entry when a firm enters via acquisition since the price of the acquiree is set by the market for corporate control. As such, a firm is expected to enter related markets via internal development while entering unrelated markets via acquisition. Extending Yip's model, Chatterjee (1990) argues that the relatedness leads to more reduction in operating costs because the firm's resources are more applicable. Since the prospect of reducing operating costs provides a strong incentive for a firm to use its

own underutilized resources, as opposed to acquiring resources from external sources, a firm is expected to enter related markets via internal development.

This hypothesis of a simple link between entry mode and relatedness has failed, however, to receive empirical support. There are several strands of evidence that appear to contradict the hypothesis. First, neither Yip (1982: 340) nor Chatterjee (1990: 794, 796) found any significant relationship between measures of relatedness and entry mode. Silverman (2002) did not find any significant relationship between entry mode and firm-industry relatedness, either. Busija, O'Neill, and Zeithaml (1997: 324) even hypothesized that the mode of entry and the type of diversification proposed by Rumelt (1974) (related-constrained, related-linked, and unrelated) should not be correlated, and found no significant correlation between the two.

Second, the pair-wise correlation between entry mode and business relatedness is not statistically significant in studies that have reported such correlations. Sharma (1998) reported that the difference in the mean level of product relatedness between the firms that entered via acquisition and those that entered via internal development cannot be distinguished from zero. Neither were there significant correlations between entry mode and measures of relatedness, unrelatedness, and vertical relatedness in Pennings, Barkema, and Douma (1994), although the use of start-up venture positively correlates with horizontal relatedness (correlation = .09, $p < .05$) when the expansion projects take place within a Standard Industry Classification (SIC) three-digit category.¹

Third, some studies found significant but contradicting relationships between the use of acquisition and the entry into unrelated business. Contrary to their expectation, Chang and Singh (1999: 1029) found that firms tend to use acquisition when entering markets of similar research

¹ The measures of relatedness, unrelatedness, and vertical relatedness each have a pair-wise correlation with entry mode where the p-value is larger than 0.05 (pp. 625, Table 4).

and development (R&D) intensity. This suggests that the use of acquisition as entry mode is associated with related business. However, they also found that the use of acquisition is associated with unrelated business when the similarities between the entered market and the firms are measured in terms of advertising intensity, human resource profile, and the product/industry classification. In contrast, in the international business literature, the use of acquisition is associated with related expansion into foreign markets when relatedness is measured with cultural similarity. According to a seminal study that examines the mode of entry into foreign markets for geographic diversification, the use of acquisition is found to be associated with a shorter cultural distance between the country of the investing firm and the country entered (Kogut and Singh, 1988: 425, Table 4). Therefore, the asserted negative relationship between acquisition and relatedness remains puzzling; most empirical verifications turn out to support the contradicting association where the use of acquisition increases with relatedness.

Resource Exploitation vs. Resource Attainment as Competing Explanations

In our view, the empirical puzzle stems from two competing explanations for a firm's motivation in entering a new business. Resource exploitation (utilizing existing resources) and resource attainment (obtaining new resources) are two motivations that drive firms to enter a new business. Both are important to the optimal growth of the firm in that a firm's entry into new markets results from excess capacity in valuable resources that may be applicable outside a firm's existing business, and from the potential for economies of scope offered by combinations of existing resources with new resources (Penrose, 1959; Teece, 1980, 1982). The resource-based view of the firm posits that a firm has sustainable competitive advantage when its resources are difficult to imitate and scarce relative to their economic value (Barney, 1991;

Wernerfelt, 1984). The productive opportunities under this view reside in the redeployment of excess resources by finding useful, complementary, and valuable combinations of a firm's existing resources. Hence, utilizing excess resources serves as an important motivation for entering a new business. The other motivation is to obtain resources that complement a firm's existing business or fill in the firm's resource gaps. Indeed, the firm may need to acquire new resources in order to leverage the excess resources that currently reside within the firm.

These two motivations serve as different drivers of the appropriate entry mode for new business development. Specifically, if a firm is trying to redeploy excess resources into a new business area, and the requisite resources are contained within the firm (or can easily be generated), the entry mode is more likely to be internal development. In contrast, if a firm is trying to fill gaps in its resource base, the entry mode is more likely to be the acquisition of an incumbent. While resource exploitation and resource attainment are both resource-based drivers of entry, prior research has almost exclusively focused on redeploying *excess* in resources (the amount above the level required for existing production). The filling of resource gaps (the amount below the level required for market entry) as an alternative stimulus for market entry has largely been ignored. In this paper, we incorporate both motivations and develop a more complete framework.

In solving the empirical puzzle, we make distinction between entries that are inside a firm's primary business domain and entries that are outside. As discussed later in the paper, we take advantage of a hierarchical product classification system that uses a tiered structure in differentiating between fine-grained product categories. We consider an entry to be inside a firm's primary business domain if the product classification of the market in which the firm enters shares the same root of the hierarchy as the firm's primary business domain.

Our classification system helps to resolve ambiguity in the existing conceptualization of relatedness, which has led to two types of studies. The first type compares the resource similarity between the new business into which a firm expands and the primary business in which a firm already engages.² Studies of this type typically compare the percentage of a firm's sales by industry classification. A firm and a target industry are considered to be more related if the firm's primary SIC code has more matching digits with the target industry's SIC code. Relatedness is then measured by the sales-weighted concentric diversification index (Chang and Singh, 1999; Sharma, 1998), the change in diversification after entry (Chatterjee, 1990), or the type of diversification (Busija et al., 1997). Studies of the second type, by contrast, emphasize the resource similarity between a firm and the target industry average. A firm and a class of industry are considered to be more related if the intensity of resource utilization is more similar. Studies of this type typically measure the resource fit between a firm and the new industry in which it enters (Chang and Singh, 1999), or the degree of resource similarity between the diversifying firm and the new venture it launches (Yip, 1982). Measures of relatedness in these two types of studies have often been data-driven: the first type draws from the structure of the SIC classification system (based mostly on the nature of firm outputs), whereas the second type draws from data on firm inputs (such as R&D and advertising expenditures, and employee job classification). Both types of studies, unfortunately, have failed to uncover strong empirical support for hypotheses relating to entry mode.

Moreover, prior conceptualization of relatedness has been static, and the operationalization does not differentiate how the firm-market resource similarity varies with time. We use the term *relevance* in a specific way to capture how relatedness changes over time.

² See Rumelt (1982) for a commonly adopted approach in classifying diversification strategy according to whether the percentage of total sales accounted by a group of related businesses exceeds an arbitrary cutoff point.

Relevance is defined as the projection of a firm's overall resources and capabilities in the direction of those that are relevant with respect to a specific market. As discussed below, we measure relevance by identifying the set of firms that operate in a target market, and tracking in each time period the degree of overlap between the product portfolios of these firms and that of a given firm. The overlap represents the given firm's proximity to the target market.

We refer to the dynamics of resource similarity as the change in relevance, which reflects the time-varying match in resources and capabilities between a firm and the market-specific entry requirements. We agree that more valuable resources tend to be specific to certain applications, thus constraining a firm's ability to transfer these resources to new applications (Montgomery and Wernerfelt, 1988). However, firms may adapt their resources and capabilities over time with respect to the requirements to enter a new market. Therefore, we reconceptualize the firm-market resource similarity as the evolution of a firm's relevance in resources and capabilities with respect to a market new to the firm. To capture these dynamics in our study, we use three measures of firm-market relevance: the degree, the trajectory (the change in degree), and the duration of relevance.

Our study also improves upon prior ones by identifying entry events and their mode of entry with higher precision. Specifically, we identify entry via acquisition under a strict condition that an acquirer's new product code in the year of entry can be traced to an acquiree's product listing in the year prior to the acquirer's entry event. The detailed tracing is possible because the product classification system we use is much more fine-grained than the SIC system. In comparison, some studies suffer from an "all or nothing" bias where all diversification moves under one SIC code are assigned to either acquisition or internal expansion arbitrarily (Chatterjee, 1990). Others suffer from another type of aggregation bias where the entry mode is

measured as a continuous variable indicating the dominance of one mode in sales contribution over an arbitrary time period, as opposed to the mode of entry specific at the firm-market level (Chatterjee and Singh, 1999).

Our findings show that the dynamics of firm-market relevance affect the choice of entry mode in subtle ways that prior studies have not considered. By separating entries inside the firm's primary business domain from those outside, we not only turn the degree of relevance into a significant predictor for the use of acquisition as entry mode, but also reveal two contradicting relationships. For the entries inside, the use of acquisition increases with the degree of relevance. We find the opposite for the entries outside: the use of acquisition decreases with the degree of relevance. Therefore, in addition to finding empirical support for the acquisition-unrelatedness link for which prior studies show mixed results, we uncover conditions under which the commonly-asserted relationship tends to hold.

Moreover, we find the trajectory and the duration of relevance to be significant predictors for the use of acquisition as entry mode. For the entries outside, the greater the improvement in relevance, the more likely a firm will use acquisition as entry mode. That is, firms that have been moving closer toward the new market are more likely to choose acquisition over internal development. This pattern is consistent with the idea that firms use acquisitions to move into new markets along a trajectory of exploration outside the primary business domain. In contrast, for the entries inside, the longer the duration of relevance, the more likely a firm will use acquisition as entry mode. That is, firms, which have been close to the new market for a longer period of time but have not entered yet, are more likely to choose acquisition over internal development. This pattern is consistent with the idea that firms use acquisitions to fill gaps in their product

portfolios that have been persistent over time, perhaps because the firm has lacked the resources and capabilities needed to fill the gap organically.

In sum, this paper makes three contributions to the literature. First, we clarify two conceptually distinct aspects of relatedness. Second, we capture the dynamics of firm-market relationship with three novel conceptualization and measures of relevance. Third, we validate the conditions under which acquisition is more likely to be used as entry mode for new business development. By making these advancements, we demonstrate the use of entry mode as different mechanisms for reconfiguring a firm's resources and capabilities, and help to resolve the ambiguity in prior work on choices of entry mode.

THEORY & HYPOTHESES

Background: Acquisition vs. Internal Development as Entry Modes

Acquisition as entry mode is strictly defined as the purchase of an incumbent (or one of its business units) from the pool of producers operating in a target market of interest. In contrast, internal development as entry mode involves obtaining the needed resources and capabilities from multiple sources except the incumbent pool. While the needed resources and capabilities may be sourced from inside the firm's boundary, firms commonly seek resources from outside, despite a tendency toward local search (March and Simon, 1958; Nelson and Winter, 1982) and the costs and challenges associated with transfer (Arrow, 1969; Rogers, 1983; Szulanski, 1996; Teece, 1977). Inside a firm's boundary, a firm may source from different divisions and across functional departments. Outside a firm's boundary, a firm may source from a wide variety of external agents including suppliers, partners, contractors, inventors, and universities, to name a few. The characteristic difference between internal development and acquisition as entry mode is

unlike the difference between make versus buy in sourcing a single component, such as auto parts (Monteverde and Teece, 1982). While buying a single component is often associated with arms-length contracting, both internal development and acquisition require integrative governance structures and ownership control.

Managers may perceive acquisitions to entail higher risks than internal development. A risky choice is one that contains the threat of a very poor outcome (March and Shapira, 1987). Acquisitions often do not create the value expected and can even harm the acquiring firm's innovative capabilities (Hitt, Hoskisson, Ireland, and Harrison, 1991). In addition to the potential harm of acquisition, the losses associated with a failed acquisition are higher than those associated with a failed internal development project. Because internal development involves incremental investments that are spread across multiple transactions, it is a less risky choice compared to acquisition, which typically involves a lump-sum commitment through a single transaction. As such, the loss per transaction is more significant from a failed acquisition than a failed internal development project.

The higher risks associated with acquisition become further exacerbated by information asymmetries between an acquiring firm and the candidates from the incumbent pool. Asymmetric information affects an acquiring firm's risks of overpaying or buying a "lemon" (Akerlof, 1970). The use of acquisition as entry mode is subject to the bounded rationality of the decision makers on both sides of the acquisition negotiations. Leonard-Barton (1995) points out that little attention is paid to the due diligence for examining the technical capabilities being acquired, while hordes of lawyers scrutinize the legal and financial status of the proposed acquisition with enormous care. Cognitive constraints limit a decision maker's ability in conducting technical due diligence because it requires a detailed understanding of operations,

including equipment and processes, and sometimes the really important knowledge may not be physically embodied at all.

In addition to risk, a financial premium often must be paid for business acquisitions. Typically there are further transaction costs and costs of integrating the acquired company with the acquiring firm. The sum of the acquisition premium, transactions costs, and integration costs can represent a considerable fraction of the business value. In situations where the firm is capable of entering through internal development, these costs are likely to make acquisition a relatively expensive mode of entry.

While often cheaper and less risky than acquisition, internal development has drawbacks as entry mode. Many innovations fail to achieve adequate returns on their investment (Mansfield, 1969). Moreover, new products and services often take a long time to develop, and the amount of market share captured through internal development may be smaller than what can be realized through acquiring an incumbent. Therefore, internal development may not be a superior choice to acquisition, even though for most firms it is the default entry mode.

Resource Exploitation: Entry Mode as an Excess-redeployment Mechanism

Entry mode can be used as a mechanism to redeploy a firm's excess resources. Prior research on how relatedness affects the choice of entry mode suggests that a firm uses internal development as entry mode when its excess resources and capabilities are more related to the target market. The link between internal development and relatedness is based on the argument that when the target market is more related to the firm's existing business activities, the relatedness can reduce entry costs (Yip, 1982) and the redeployment of excess resources can reduce operating costs (Chatterjee, 1990). Put differently, the probability of using internal development as entry mode is higher when a firm is closer toward the target market. In contrast,

the probability of using acquisition as entry mode is higher when a firm is farther away from the target market. We thus hypothesize the commonly-asserted relationship between acquisition and unrelatedness as the following in H1a, where we define the degree of relevance as a firm's match in resources and capabilities with respect to the market-specific entry requirements. The better the match, the closer a firm's proximity is toward the target market.

H1a: The higher a firm's degree of relevance with respect to a market, the lower the probability that acquisition is used as the mode to enter the market.

In addition, how much a firm has changed its degree of relevance over time with respect to a target market should also affect the choice of entry mode. When the amount of change in the degree of relevance is positive, a firm is moving along a trajectory closer to the target market. An improvement in the degree of relevance suggests that a firm has increased either the amount of resources and capabilities that are related to the target market, or the applicability of the resources and capabilities. On the contrary, when the amount of change is negative, a firm is moving away from the target market. When the amount of change is zero, a firm keeps the same proximity toward the target market. Consistent with the arguments that prior work has advanced in supporting H1a, we hypothesize that an increase in the degree of relevance decreases the probability of using acquisition as entry mode.

H1b: The more a firm has increased its relevance with respect to a market, the lower the probability that acquisition is used as the mode to enter the market.

Moreover, the amount of time during which a firm has resources and capabilities that have some relevance with respect to a target market should also matter. Because internal development can be tailored as an incremental approach to diversification, it is an effective entry mode if the excess resources and capabilities appear gradually over a long period of time (Teece, 1982). However, if excess resources and capabilities emerge suddenly (i.e., have not occurred gradually over the years), then acquisition is likely to be the more effective entry mode.³ Our interpretation of Teece's argument is that the process of gradual accumulation increases a firm's experience with the excess resources and capabilities. The experience leads to a reduction in operating costs when the excess resources and capabilities are redeployed in the new market. We formalize this argument with the following hypothesis.

H1c: The longer the period during which a firm is relevant with respect to a market, the lower the probability that acquisition is used as the mode to enter the market.

Resource Attainment: Entry Mode as a Gap-filling Mechanism

In comparison, entry mode can be used as a mechanism to fill a firm's resource gaps. Firms are confronted by gaps of two types: (1) gaps in product line, and (2) gaps in resources and capabilities. A gap in product coverage identifies where a firm has either no or inefficient offering for a specific market niche. It implies that the firm has not yet redeployed its excess resources and capabilities to fulfill the needs of a new market. The two types of gaps are often highly correlated: a firm may fail to offer certain products or services because it lacks the resources and capabilities needed to produce them. In our study we do not observe the second type of gap directly; rather, we attempt to infer gaps in resources and capabilities from the

³ No empirical test was provided by Teece, or authors who cited his article.

structure and dynamics of the firm's product mix. If the product gap persists over time, we infer that the firm may lack some of the resources and capabilities required to enter the new market.

Under this view, the demarcation between acquisition and internal development is whether to fill the gaps by creating and assembling the needed resources and capabilities, or by acquiring an existing bundle from the incumbent pool as a shortcut to overcome barriers to entry. We argue that the proximity toward a market enables a firm to evaluate and utilize the resources and capabilities of the candidates from the market's incumbent pool. Coff (1999) suggests that the acquiring firms that are steeped in the knowledge base are probably better able to assess the acquisition candidates. The similarity in knowledge base allows a firm to derive from its absorptive capacity a competence in evaluating and utilizing resources and capabilities in ways that 'prior related knowledge confers an ability to recognize the value of new information, assimilate it, and apply it to commercial ends' (Cohen and Levinthal, 1990: 128). For instance, a firm that is directly involved in manufacturing is better able to recognize and exploit new information relevant to a particular product market (Abernathy, 1978; Rosenberg, 1982). Additionally, a firm that conducts its own R&D is better able to use externally available information (e.g., Allen, 1977; Mowery, 1983; Tilton, 1971).

We further argue that the competence in evaluating acquisition candidates and utilizing the resources and capabilities obtained through acquisition affects a firm's choice of entry mode. Prospect theory suggests that the propensity of individuals to assume risks is context dependent (Kahneman and Tversky, 1979). Specifically, the competence hypothesis predicts that decision makers prefer to bet in a context, where they consider themselves knowledgeable or competent, than in a context, where they feel ignorant or uninformed (Heath and Tversky, 1991). According to Heath and Tversky, there are both cognitive and motivational explanations for the competence

hypothesis. People have 'learned from lifelong experience that they generally do better in situations they understand than in situations where they have less knowledge. [...] Competence [...] helps people take credit when they succeed and sometimes provides protection against blame when they fail. Ignorance or incompetence, on the other hand, prevents people from taking credit or success and exposes them to blame in case of failure' (1991: 7-8). As such, competence increases the likelihood that decision makers will take risks. This argument is consistent with the observation that many decision makers do not regard a calculated risk in their area of competence as a gamble (March and Shapira, 1987). In evaluating the choice of entry mode, a firm's competence increases the probability that it will assume the higher risks associated with acquiring a candidate from the market's incumbent pool. Therefore, we hypothesize the opposite of H1a:

H2a: The higher a firm's degree of relevance with respect to a market, the higher the probability that acquisition is used as the mode to enter the market.

A change in the degree of relevance, under this view, indicates the evolution of a firm's competence in evaluating and utilizing resources and capabilities. Consistent with the arguments made in supporting H2a, we expect the higher the degree of relevance, the more the competence a firm has in evaluating acquisition candidates and utilizing the resources and capabilities obtained through acquisition. An improvement in the degree of relevance thus suggests that a firm has gained more competence over time, perhaps by entering businesses that are "closer" to the target market under consideration. Indeed, in seeking growth opportunities, firms often

establish a trajectory for potential future expansion, and along which, they enter new markets outside their primary business domain.

In the case where there is no improvement in the degree of relevance over time, the firm becomes ‘locked-out’ from new information that emerges in a quickly moving field. Even worse, a drop in the degree of relevance suggests a decline in a firm’s competence, when the stock of prior knowledge deteriorates as a result of obsolescence, turnover of key personnel, divestment, reorganization, downsizing, or outsourcing. When a firm’s knowledge base depreciates, it suffers from ‘organizational forgetting’ where knowledge spills over incompletely from one time period/project to the next. As shown in a study of aircraft production, the consequence of organizational forgetting is a setback in learning and higher production costs for the whole aircraft program (Benkard, 2000).

Taking into account the movements in the trajectory of relevance, we argue that a positive change in the degree of relevance should increase the probability that a firm will use acquisition as entry mode, in contrast to H1b.

H2b: The more a firm has increased its relevance with respect to a market, the higher the probability that acquisition is used as the mode to enter the market.

Furthermore, a long duration of relevance indicates that the gap between a firm and the entry requirements has been persistent. A persistent gap suggests that a firm has been close to a target market for a long period of time, but has not been able to assemble the required resources and capabilities to fill in the gap. The longer the duration, the smaller the probability is in that the firm has the required resources and capabilities. Our view is that a firm is more likely to enter by

acquisition when it lacks critical resources and capabilities needed to enter via internal development (Helfat and Lieberman, 2002). Thus, we argue that firms are more likely to choose acquisition when gaps have been persistent over time, in contrast to H1c.

H2c: The longer the period during which a firm is relevant with respect to a market, the higher the probability that acquisition is used as the mode to enter the market.

In summary, to incorporate the alternative predictions of entry mode based on the “excess redeployment” and “gap-filling” perspectives, we propose two contrasting sets of hypotheses. We now turn to the conditions under which we expect each perspective to be dominant.

A Contingency Approach

New Business Development Inside vs. Outside a Firm’s Primary Business Domain

We adopt a contingency approach in analyzing the “excess redeployment” vs. “gap-filling” perspective when the new business to be developed is inside vs. outside a firm’s primary domain. Developing new businesses inside a firm’s primary domain is characteristically different from that outside. New markets inside a firm’s primary business domain typically involve technological knowledge and activities that strengthen a firm’s core capabilities and are essential to achieving the strategic intent of the firm (Leonard-Barton, 1995). Managers typically apply the same dominant logic to a new market when they conceptualize the market as a part of a firm’s core business and allocate resources in similar ways (Prahalad and Bettis, 1986). Research shows that firms use acquisitions to source capabilities that are important to their primary business domain. An acquisition gives the purchasing firm direct access to, and control over, the

technology and those individuals possessing the desired knowledge (Leonard-Barton, 1995). In particular, external sourcing of technology through acquisitions offers a great potential for the development of the acquiring firm's core technological capabilities (Hagedoorn and Duysters, 2002). Hence, the reason to use a certain entry mode is different when the entries are inside a firm's primary business domain vs. when the entries are outside.

The uncertainty of new business development presents another reason why entry mode decisions may differ inside versus outside the firm's primary business domain. Uncertainty is high when there is a large difference between the amount of information required to develop a new business and the amount of information already possessed (Galbraith, 1977). When a firm enters a new market that is outside its primary business domain, additional information-processing demands are placed on corporate managers (Hitt, Hoskisson, Johnson, and Moesel, 1996). The costs of communication increase with uncertainty (Teece, 1980), because information at or beyond the technological frontier is especially likely to be uncodified and difficult to transfer between individuals or groups (Hansen, 1999; Nelson and Winter, 1982). The costs of governance also increase with uncertainty, because information transmission constraints are antecedents to an executive's perceived threat of opportunism (Schilling and Steensma, 2002). Research shows that an in-house expansion is less likely when uncertainties arising from exogenous sources (e.g., technical, demand, and regulatory uncertainties) are high. A lack of knowledge about states of nature is found to be negatively associated with decisions to vertically integrate (Sutcliffe and Zaheer, 1998). Instead, outsourcing is used. No study has compared the choice between acquisition and internal development under uncertainty, however.

These arguments suggest that the determinants of entry mode may be moderated by whether the entries are inside a firm's primary business domain or outside. As a firm diversifies

further away from its primary business domain, managers are less likely to have an intimate understanding of the firm's disparate businesses. On the one hand, the applicability of excess resources may drop sharply. On the other hand, new information may become too distant from the firm's existing knowledge base to be either appreciated or accessed. Thus, we expect the entries inside to have different determinants of entry mode from those outside.

H3: The determinants of entry mode are different when entries are inside versus outside a firm's primary business domain.

RESEARCH METHODS

Data Sources

We take advantage of a unique dataset that contains longitudinal information on a firm's products. The data source is the CorpTech directory on 'Who Makes What' in the telecommunications industries. The entities listed in the directory are located in the United States, and they cover domestic- and foreign-owned, public and private, parent companies, subsidiaries, and divisions. This directory, published annually starting in 1987, provides detailed product listing by entity, by product code, and by year. Compared to the data sources used in other technometric studies, the CorpTech directory provides much more fine-grained classifications of products and services depicting a richer and more complete picture of each industry segment. As a point of comparison, the CorpTech directory has 2,991 unique product codes, mapping to 218 four-digit SIC codes. Research on diversification typically relies on the SIC system in examining the relationship between corporate activities (e.g., Bryce and Winter, 2004; Teece, Rumelt, Dosi, and Winter, 1994). However, the distinction between corporate

activities even at the four-digit level is too coarse. For instance, 324 CorpTech product codes would not be distinguishable because they are all classified under the same four-digit SIC code 7372: Prepackaged Software.

The CorpTech data are frequently updated (63% of the records are verified within one year of the publication date) via telephone interview (66% of the records) and written communication (34%). In addition to product listing, the data also cover information on a firm's primary business domain, employee head count and founding year. To gather information on a firm's annual sales figure, profitability, the ratio of market-to-book value, R&D expenditure, we match the publicly-traded firms listed in the CorpTech directory with the firms listed in the Standard & Poor's Compustat database.

CorpTech classifies a firm's primary business domain according to its activities under the following categories: "telecommunications", "computing hardware", "software" and others. These are the root categories of the CorpTech's hierarchical product classification structure. We distinguish entries inside a firm's primary business domain from those outside by comparing the root category of a product market and the category of a firm's primary business domain. For example, the primary business domain of the firm shown in Table A in the Appendix is TEL (telecommunications). The root category of the products (1) through (4) is TEL; that of the products (5) and (6) is SOF (software). We consider entries into (1) through (4) to be inside the firm's primary business domain, which is also TEL, while those into (5) and (6) to be outside. Using this classification scheme, we identify a total of 540 entries inside and 1,179 outside made by the 163 firms in our sample. These firms enter a total of 287 markets inside their primary business domains and 549 outside over the period between 1989 and 2003.

Methodology

In order to estimate the effect of the dynamics of firm-market relevance on the choice of entry mode, we develop the following methodology: First, we draw a sample of firms where each firm has consecutive years of observation for at least nine years and up to fifteen years. For each firm and each year of observation, we compile the product portfolio of the firm and its acquirees. The continuous observations enable the construction of a firm's event history in market entry by comparing its portfolio from year to year. In contrast to product-line extensions within previously served markets, new business development results in new products that are distinct enough to warrant new classifications within a relatively fine-grained classification scheme. In addition, the continuous observations permit us to trace the mode with which each product is added to the portfolio. We identify a firm to enter market x in year t when product code x appears in the firm's portfolio for the first time in year t , and remains listed in year $t+1$. We consider the entry to be via acquisition when the product code x can be traced through corporate ownership change to a producer of x in year $t-1$. Our sample of 163 publicly-traded firms made 1,719 market entries across 657 markets over the fifteen-year period of the sample.

Next, we analyze inter-market relationships by constructing a pair-wise similarity index with 1,489 product markets in which an aggregate of 11,479 firms participate in year 2003. We infer from the joint occurrence between products A and B in a firm's portfolio the extent to which the two products share similar supply- and demand-characteristics. A supply-based view suggests that the direction of growth largely reflects technological trajectories at the macro level (Dosi, 1982; Sahal, 1985) or the path dependent nature of individual firm capabilities (Helfat, 1997). In comparison, a demand-based view posits that the resources and capabilities necessary to serve more and more customers with different needs and requirements drive the development of products (Adner and Levinthal, 2001). If the firms that produce product A almost always

produce product B , we assume that supply- and/or demand-side complementarities exist between the two products. By examining the frequencies with which products co-occur in a firm's product portfolio, we rank a list of products according to their similarity with respect to each focal product. Then, as described below, we use the inter-market similarity index and a firm's annual product portfolio to measure a firm's proximity toward each market as a function of time. Finally, we use the time-varying proximity to construct three measures of the firm-market relationship – the degree of relevance, the trajectory of relevance, and the duration of relevance – in estimating a firm's choice of entry mode (see Figure 1).

INSERT FIGURE 1 HERE

Measures

Entry Mode

We code firm n 's entry mode to market x in year t as 1 if the new product code x can be traced through corporate ownership change, namely that the product is acquired from an incumbent; 0 otherwise. In the case where one of the firm's existing divisions or subsidiaries also adds product code x in the same year as the acquisition, we cannot rule out the possibility that the firm may use both internal development and acquisition to enter market x . Therefore, we make a conservative assumption to favor false negatives and code the case as entry via internal development.

Pair-wise Similarity Index

To characterize the inter-market relationships, we create a pair-wise similarity index for each product x . The construction starts with a Q by M matrix, where Q is the number of products produced by a population of M firms in the year 2003. Let P_i , a row vector in the Q by M matrix, indicate the presence or absence of product i across M firms. Also, let P_x , a row vector in the Q

by M matrix, indicate the presence or absence of the focal product x across a population of M firms. The similarity index, S_{ix} , is a measure of product i and product x 's frequency of joint occurrence within a firm. S_{ix} is calculated as the angular separation between the two vectors:

$$S_{ix} = \frac{P_i \bullet P_x}{|P_i| |P_x|} = \frac{\sum_{m=1}^M P_{im} P_{xm}}{\sqrt{\sum_{m=1}^M P_{im}^2} \sqrt{\sum_{m=1}^M P_{xm}^2}} \quad (\text{Eqn.1})$$

S_{ix} is equal to 1 when i and x have identical patterns of joint occurrence across M firms. S_{ix} is 0 when i and x do not co-occur at all. The higher the S_{ix} is, the more similar the two products are.

In essence, the cosine index of similarity is the normalized count of firms that produce both product i and product x . If a firm in M is also among the 163 in our sample used in estimating the choice of entry mode, the firm's products are removed when constructing the similarity index for the given firm.

In contrast to measures of between-industry relatedness based on resource profiles (e.g., Farjoun, 1994; Silverman, 1999), our measure of inter-market similarity is based on the evolution of a firm's product mix in fine-grained detail, as opposed to broad categories classified at the industry level. In addition, we use the pattern of a firm's tangible output such as the creation of a product, as opposed to using resource profiles limited to only input considerations.⁴ By examining what firms actually produce, this approach eliminates the need to specify the precise basis of similarity between any two products, since it is inferred directly from the extent to which actual economic activity combines pairs of products. These two improvements make

⁴ Any logic for diversification employed systematically by managers – such as relatedness of resource profile, market conceptualization, and differentiation, in addition to demand heterogeneity - is incorporated by this approach, even in situations where a manager or researcher is unable to articulate the logic or to identify a scope economy that triggers a combination. However, the downside of the generalizable approach is that the interpretation of the results cannot be as parsimonious.

our approach more generalizable, compared to the existing approaches in calculating between-industry relatedness.

Degree of Relevance

We define the degree of relevance as the distance between the market entered and the market in which the firm currently operates that is closest to the market entered. We measure a firm's degree of relevance by taking the maximum value of the pair-wise similarity index among a firm's products each year with respect to the market entered. We denote the degree of relevance as $R_{nx}(t)$, capturing firm n 's proximity toward market x in year t . The higher the value of $R_{nx}(t)$, the better the match is in resources and capabilities and/or product line economies of scope between a firm's state in year t and the entry requirements. In estimating entry mode, we use the degree of relevance one year prior to market entry.

Trajectory of Relevance

The value of $R_{nx}(t)$ changes as firm n adds (drops) products to (from) its portfolio. To measure the change in $R_{nx}(t)$, we subtract the initial non-zero value of R_{nx} from the value of R_{nx} one year prior to entry. When the difference in $R_{nx}(t)$ is positive, the change shows firm n 's movement toward market x . In contrast, when the difference is negative, the change shows the firm's movement away from market x . When the difference is zero, there is no change with respect to market x .

Duration of Relevance

We measure the duration of $R_{nx}(t)$ as the amount of time, in years, that elapsed since the initial observation of a greater-than-zero value of $R_{nx}(t)$ until one year before firm n enters market x . The longer the duration is, the more time firm n is relevant with respect to market x , although the degree of relevance may vary over time. We also create a dummy variable to

indicate cases of left censoring where firm n 's duration of relevance is one year but that is the first year of observing firm n in the sample. Our findings remain robust when the dummy variable is added to correct for censoring in the early years of the sample.

Control variables

The control variables that address the characteristics of the firm include its age, size, profitability, market value, and the intensity of its R&D expenditure. Prior studies argued that firms with more internal financial resources are more likely to use internal development as entry mode (Chatterjee, 1990; Chatterjee and Singh, 1999; Hennart and Park, 1993). However, the measure of internal financial resources used in these studies, namely the ratio of long-term debt to market value, is shown to either have no significant correlation with entry mode (Hennart and Park, 1993: 1063), or predict internal development in some cases (Chatterjee, 1990: 794) but acquisition in others (Chatterjee and Singh, 1999: 37). Therefore, we use a set of variables that are likely to correlate with the availability of internal financial resources, including firm age (the number years since founding), size (net sales), and profitability (return on sales, ROS). Prior studies have also offered contradicting arguments regarding the effect of external financial resources on entry mode. Some argued and found support for the association between stock price and the use of acquisition as entry mode (Chatterjee, 1990), while some argued for the association between stock price and internal development but found contradicting results (Chatterjee and Singh, 1999: 30, 37). As such, we use the ratio of market-to-book value to measure the availability of external funding. Lastly, prior studies made conflicting arguments regarding the association between research intensity and entry mode. Hennart and Park (1993) argued for and found that firms with high R&D intensity are more likely to expand via internal

development than acquisition. However, Chatterjee and Singh (1999) argued for and found no association between knowledge-based resources and mode of expansion.

The control variables regarding the characteristics of the focal market include its newness and density. We control for market newness because when the target market is growing rapidly, the opportunity cost of internal development is higher than acquisition. Firms may choose acquisitions over internal development in order to speed up their entry timing. Market newness is a categorical variable taking the value of 1 if the market emerged in the 1990s; 0 otherwise. We control for market density because when the incumbent pool is small, the number of potential acquisition candidates is restricted, thus making it difficult for firms to acquire. Market density is the number of incumbent firms operating in the market in the year prior to entry.

Table 1 shows the summary statistics of the variables and the pair-wise correlations. Among the 1,719 entry events observed, 394 have acquisition as the entry mode. Since only 23% of the entry events have acquisition as the entry mode, internal development is the more popular one between the two. When we analyze where the new market resides, we find that 31% of the entry events occur inside a firm's primary business domain. We also find that, of the 540 entries inside a firm's primary business domain, internal development is the entry mode for 430 (80%). In comparison, of the 1,179 entries outside, internal development is the entry mode for 895 (76%). Thus, acquisition was used at about the same rate for entries inside and outside the primary business domain, and the correlation between entry mode and the inside vs. outside distinction is not statistically significant.

With respect to the control variables, the firms in the sample have an average market-to-book ratio of 2.42, 11,700 million USD in net sales, and 47 years of history since founding. The markets entered have an average of 71 incumbents prior to entry, and the vast majority of these

markets emerged prior to 1990. We found research intensity and profitability to be highly skewed because of outliers. Two firms reported R&D expenditure that is greater than their net sales. After restricting the maximum R&D intensity to be 100%, the firms in the sample have a mean R&D expenditure that is 7.95% of net sales. Eighty-three firms reported ROS that is smaller than zero in one or more observation years. After restricting the minimum ROS to be zero, the firms in the sample have a mean return that is 5% of net sales.

INSERT TABLE 1 HERE

Regression Model

The estimation of a firm's choice of entry mode for new business development is based on a logistic regression model. The dependent variable is defined as 1 in cases of entry via acquisition, and 0 when the entry mode is internal development. The probability, P , is modeled as a logistic distribution function where the independent variables, X , include the characteristics of the firm, the characteristics of the focal market, and the dynamic measures of the firm-market relationship. The estimated coefficients are β . The control variables are lagged by one year to ensure proper inference of causality.

$$P = \frac{1}{1 + e^{-\beta X}} \quad (\text{Eqn. 2})$$

RESULTS

The primary business domain of most firms in our sample is TEL-telecommunications (43%). Other primary business domains include SUB-subassemblies and components (13%), COM-computer hardware (12%), SOF-computer software (5%), DEF-defense (5%), and others. As an example, the entries made by the firms whose primary business domain is TEL-telecommunications span many industries across SOF-computer software (33%), SUB-

subassemblies and components (18%), COM-computer hardware (16%), PHO-photonics (8%), TRN-transportation (6%), TAM-test and measurement (6%), and others.

In Table 2, we report the regression results based on all entry events. Then in Table 3, we report the regression results when the entry events are split into those inside a firm's primary business domain, and those outside. The tables show substantial differences in the determinants of acquisition mode depending upon whether entry occurs inside versus outside the firm's primary business domain.

INSERT TABLE 2 HERE

As shown in Table 2, most control variables that address characteristics of the firm - size, profitability, market value, and the intensity of R&D expenditure - are found to be significant determinants of entry mode. However, the two control variables that address characteristics of the focal market are not significant.

With regard to firm characteristics, we find that larger firms are more likely to use acquisition as the mode of entry, as might be expected. We also find a consistent pattern regarding the effects of research intensity, internal financial resources, and external financial resources on entry mode, in contrast to various arguments and conflicting findings made in prior studies. First, the higher a firm's research intensity, the more likely that internal development is used as entry mode for new business development. Firms that invest less in internal R&D rely more on acquisition as entry mode. Second, firms with higher profitability are less likely to enter markets via acquisition. This suggests that higher cash flow within the firm supports a greater reliance on internal development. At the same time, a lower cost of external funds (higher market-to-book ratio) increases the likelihood that acquisition is used as the entry mode. In contrast with the results of prior studies, all of these findings for the firm-level control variables

are highly significant statistically. However, as mentioned earlier, truncation was applied to R&D intensity (removing two extreme outliers) and profitability (restating all negative values to zero). Without these adjustments, size was the only firm-level control variable that was significant. Nevertheless, truncation of the two control measures has virtually no effect on the main results presented below.

For the sample as a whole, as shown in Model 2-1, the degree of relevance is not a significant predictor of entry mode. This finding is consistent with prior studies showing no evidence for the commonly asserted relationship between acquisition and unrelated diversification. In contrast, however, the trajectory (Model 2-2) and the duration of relevance (Model 2-3) each have a significant effect on the choice of using acquisition as entry mode for new business development. The estimated coefficient for the trajectory of relevance is positive: The more a firm has increased its degree of relevance with respect to a market, the more likely that the choice of entry mode is acquisition. The estimated coefficient for the duration of relevance is also positive: The more persistent the resource and capability gaps are with respect to the market that the firm has entered, the more likely that the choice of entry mode is acquisition. When the three measures of firm-market relevance are jointly specified, as shown in Model 2-4, the most important determinant is the duration of relevance in estimating the choice of entry mode. The degree of relevance remains insignificant and the trajectory of relevance becomes only moderately significant ($p < .10$). Therefore, acquisition is more likely to be the entry mode for firms that have persistent resource and capability gaps.

In Model 2-5, we test for the moderating effect of whether an entry event is inside or outside a firm's primary business domain. Each of the three measures for the dynamic firm-market relevance shows a significant interaction effect with whether an entry is inside or outside.

Adopting the best practice for interpreting the coefficient of interaction terms in logit models (Hoetker, 2007), we present the interaction effects graphically in Figure 2. The degree of relevance has different effects on the choice of entry mode depending on whether an entry is inside or outside. Specifically, when the entry is inside the firm's primary business domain, the firm is more likely to use acquisition as entry mode when the target market has a higher degree of relevance. However, when the entry is outside the firm's primary business domain, the firm is more likely to use acquisition as entry mode when the target market has a lower degree of relevance (see Figure 2-1). In contrast, the trajectory of relevance has a stronger effect on the use of acquisition as entry mode when the entries are outside (see Figure 2-2). The duration of relevance has a stronger effect on the use of acquisition as entry mode when the entries are inside (see Figure 2-3). These findings suggest that a firm's choice of entry mode has different determinants depending on whether the entries occur inside or outside a firm's primary business domain.

INSERT FIGURE 2 HERE

Our findings shed even more light onto the empirical puzzle when the observations are split, as shown in Table 3. First, splitting the observations into entries inside vs. outside a firm's primary business domain improves the overall significance of the model, according to the likelihood ratio tests (Model 2-4 vs. Models 3-2 and 3-4, $p < .05$). Second, consistent with the patterns found in Model 2-5, the determinants of entry mode are different when the entries are inside vs. when they are outside. For entries inside, the significant determinants are the degree of relevance and the duration of relevance (Model 3-2). For entries outside, the significant determinants are the degree of relevance and the trajectory of relevance (Model 3-4). However,

the estimated coefficient for the degree of relevance changes its sign, consistent with what we show earlier in Figure 2-1.

INSERT TABLE 3 HERE

To summarize, the results in Tables 2 and 3 help to resolve the empirical puzzle by showing the conditions under which a firm chooses acquisition as entry mode. Hypotheses 1a and 2a are supported, but under different conditions. Hypotheses 1b and 1c, based on excess resources, are rejected, but Hypothesis 2b and 2c, associated with resource gaps, are supported. In filling gaps inside a firm's primary business domain, acquisition is more likely to be used as an entry mode under the following conditions: High degree of relevance and long duration of relevance. Thus, firms tend to use acquisition to fill persistent product line gaps located near the firm's existing businesses. In contrast, in redeploying excess resources outside a firm's primary business domain, acquisition is more likely to be used as an entry mode under the following conditions: Low degree of relevance and long trajectory of relevance. In other words, firms rely on acquisitions to enter businesses that are relatively distant but lie on a trajectory of recent market entries by the firm. Overall, the determinants of entry mode are found to be substantially different when entries are inside vs. outside a firm's primary business domain. Hence, Hypothesis 3 is supported.

CONCLUSION AND DISCUSSION

We address a long-standing empirical puzzle in the relationship between entry mode and firm-market relatedness. Taking advantage of a longitudinal, fine-grained dataset, we show that once we distinguish whether the new market is inside or outside a firm's primary business domain, the firm's choice of entry mode has different determinants. Our results show that the

commonly-asserted relationship between acquisition and unrelated diversification is supported only under the condition that the entries are outside a firm's primary business domain. Our results also support the opposite relationship where the use of acquisition increases with the degree of relevance under the condition that the entries are inside a firm's primary business domain.

Moreover, our gap-based explanations contribute toward a more complete understanding of the choice of entry mode for new business development. First, the empirical findings provide stronger support for our hypotheses based on *gaps* in resources and capabilities, than for the hypotheses based on *excess* resources and capabilities. Second, adding to the concerns about the costs of entry and operation argued in prior work and how sudden resources emerge, we show that the persistence of resources and capability gaps and the competence in evaluating and utilizing resources and capabilities are important determinants of entry mode. For the entries inside, acquisitions are used to fill persistent gaps in the firm's product portfolio. For entries outside, acquisitions are used to redeploy excess resources in exploring new trajectories.

In Figure 3, we provide graphical illustrations that contrast the gap-based explanations and those based on excess resources. Figure 3-1 shows a firm entering via acquisition to fill the gaps inside its primary business domain. The persistence of resource and capability gaps propels the firm, which has been close to a market but hasn't yet entered, to use acquisition as entry mode. In contrast, Figure 3-2 illustrates the nature of firm expansion along a trajectory, showing a firm entering via acquisition to redeploy its excess resources outside the primary business domain. The improvement in competence leads the firm, which remains far from the market, to use acquisition as entry mode. The more a firm's competence improves, the higher the

probability that it will assume the risks associated with acquiring a candidate from the market's incumbent pool.

INSERT FIGURE 3 HERE

Future research may consider investigating how technology-intensive firms systematically use acquisition as entry mode. In our study, the lower a firm's research intensity, the more likely the firm uses acquisition as entry mode for new business development. In another study, Silverman (2002: 87) failed to find a significant relationship between entry mode and the applicability of a firm's patent portfolio to the new industry until he isolated the technology-intensive firms from the rest of the sample. Only for firms with more than 50 patents was the relatedness of the firm's technological resources a significant predictor of diversification mode. Thus, Silverman's study suggests that the choice of entry mode could be a decision that involves different considerations for technology-intensive firms. Future studies would contribute to this line of research by examining why technology-intensive firms choose acquisition over internal development when their competence in evaluating and utilizing resources and capabilities has significantly improved.

One limitation of our study is the focus on entry into product markets. Despite its longitudinal and fine-grained advantages, our dataset restricts our examination of entry in two ways. First, excluding entry events that lead toward vertical integration along the value chain or geographic expansion, we limit our study to business development in new markets that increase the horizontal scope of the firm. Second, our unit of analysis is the mode that a firm uses to diversify into new product markets, rather than the mode to source capabilities or technologies if the sourcing does not lead to market entry. If data permit, our analytical approach can be applied at the firm-capability level to study the mode of sourcing capabilities.

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Figure 1: The Degree of Relevance, Duration of Relevance, and Trajectory of Relevance.

Dynamic Firm-Market Relationships

$R_{nx}(t) \equiv$ Firm n 's proximity toward market X in year t

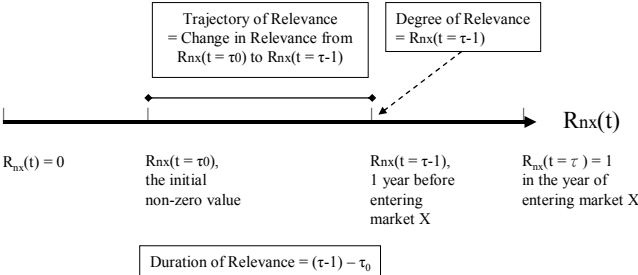
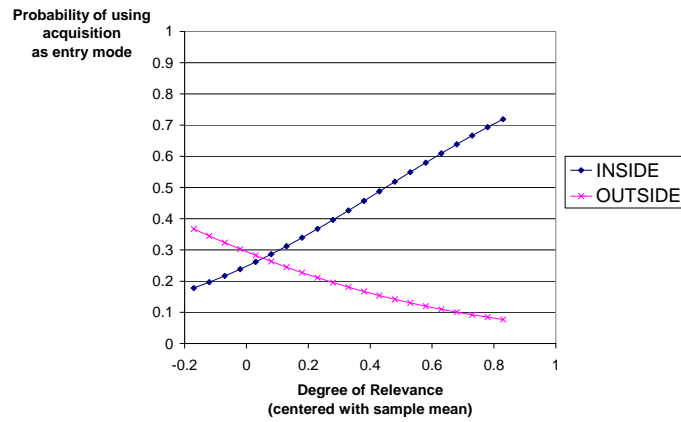


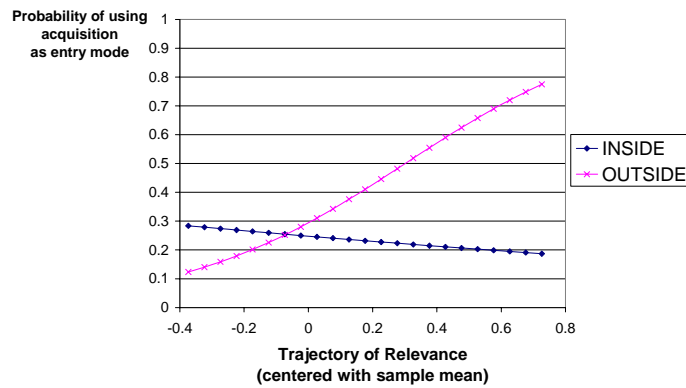
Figure 2: Interaction Effects - Filling Gaps Inside vs. Redeploying Resources Outside.

Degree of Relevance on the Use of Acquisition as Entry Mode



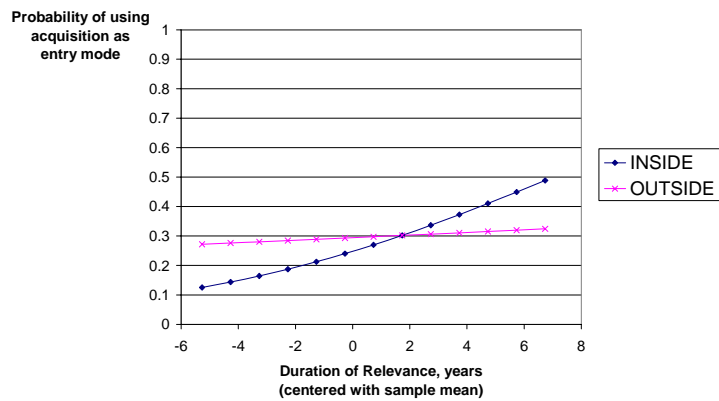
2-1: Degree of Relevance

Trajectory of Relevance (Change in Degree of Relevance) on the Use of Acquisition as Entry Mode



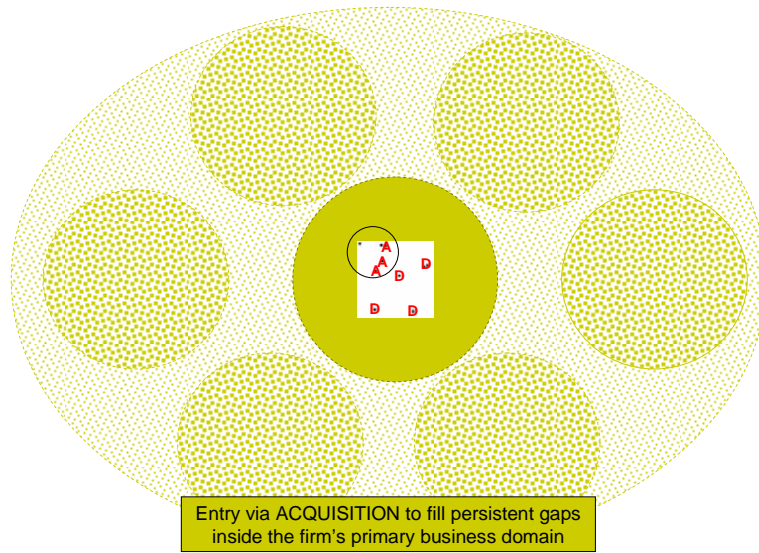
2-2: Trajectory of Relevance

Duration of Relevance on the Use of Acquisition as Entry Mode



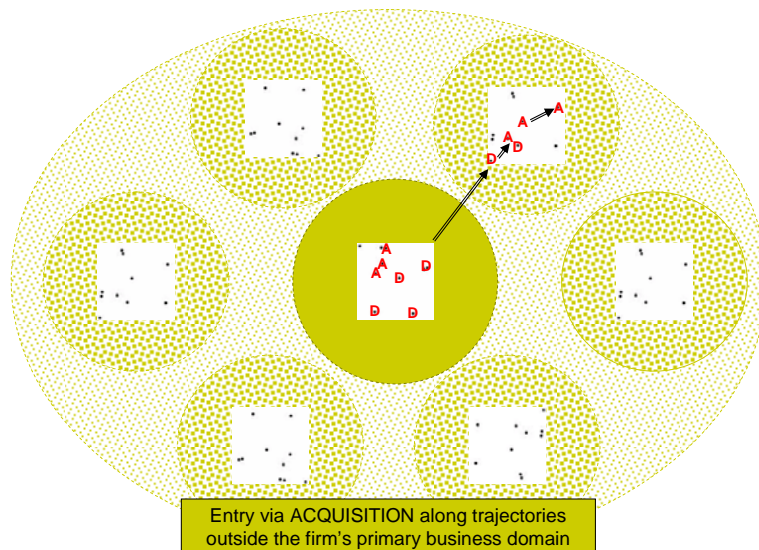
2-3: Duration of Relevance

Figure 3: Entry via Acquisition -
 Inside versus Outside a Firm's Primary Business Domain



3-1: Inside the Firm's Primary Business Domain
 (A persistent gap is circled with a solid line)

A: acquisition
D: internal development



3-2: Outside the Firm's Primary Business Domain
 (A trajectory along a path toward a new market outside the primary business domain is illustrated with consecutive arrows)

Table 1: Summary statistics and pair-wise correlations (1719 observations)

Variable	Mean	Std. Dev.	Min.	Max.
(1) Entry mode: 1 = acquisition; 0 otherwise	0.23	0.42	0	1
(2) Where the new market resides: 1 = inside; 0=outside a firm's primary business domain	0.31	0.46	0	1
(3) Degree of relevance, 1 year prior to entry	0.17	0.13	0	1
(4) Trajectory of relevance: Amount of change in degree of relevance	0.04	0.09	-0.33	0.77
(5) Duration of relevance, years	6.26	3.44	1	13
(6) Research intensity: R&D expenditure divided by net sales	0.08	0.08	0	1
(7) Internal financial resources: A firm's profitability measured as return on net sales	0.05	0.05	0	0.32
(8) External financial resources: A firm's ratio of its market-to-book value	2.42	3.19	0.24	39.08
(9) Size: Net sales (million USD), divided by 1,000	11.70	24.70	6.00e-06	168.92
(10) Age: Number of years since a firm's founding, divided by 100	0.47	0.31	0.03	1.37
(11) Market Newness: 1 if target market emerged after 1990; 0 otherwise	0.15	0.35	0	1
(12) Market density: Count of incumbents in the target market prior to entry, divided by 100	0.71	2.97	0.01	47.72

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	1											
(2)	-0.04	1										
(3)	0.03	0.07*	1									
(4)	0.08*	-0.01	0.59*	1								
(5)	0.11*	-0.02	0.19*	0.30*	1							
(6)	-0.10*	0.18*	-0.08*	-0.04	0.004	1						
(7)	-0.09*	0.02*	-0.01	0.03	0.10*	-0.07*	1					
(8)	-0.003	0.16*	-0.08*	-0.01	0.09*	0.40*	0.34*	1				
(9)	0.10*	-0.15*	0.01	0.13*	0.27*	-0.17*	-0.01	-0.07*	1			
(10)	0.06*	-0.24*	0.11*	0.06*	0.23*	-0.30*	0.02	-0.20*	0.52*	1		
(11)	0.03	-0.001	0.01	0.11*	0.17*	0.07*	0.01	0.15*	0.08*	-0.02	1	
(12)	-0.002	0.05*	0.01	0.16*	0.16*	0.16*	-0.06*	0.06*	0.01	-0.04	0.31*	1

* significant at 5%

Table 2: Estimating the Use of Acquisition as Entry Mode
for New Business Development
(Robust standard errors in parentheses)

	(2-1)	(2-2)	(2-3)	(2-4)	(2-5)
Measures of Firm-Market Relatedness					
Degree of Relevance, 1 year prior to market entry	0.530 (0.432)			-0.186 (0.590)	-1.934* (0.802)
Change in Degree of Relevance (Trajectory)		1.338** (0.573)		1.220 (0.757)	2.904** (0.993)
Duration of Relevance			0.064** (0.017)	0.056** (0.018)	0.021 (0.022)
Inside vs. Outside a Firm's Primary Business Domain					
Where the new market resides: 1 = inside; 0=outside a firm's primary business domain	-0.055 (0.131)	-0.039 (0.132)	-0.126 (0.131)	-0.117 (0.130)	-0.236+ (0.142)
Degree of Relevance x Inside					4.404** (1.190)
Change in Relevance (Trajectory) x Inside					-3.398* (1.595)
Duration of Relevance x Inside					0.137** (0.041)
Research Intensity:					
R&D expenditure divided by net sales	-0.052** (0.013)	-0.051** (0.013)	-0.053** (0.013)	-0.052** (0.013)	-0.052** (0.013)
Internal Financial Resources:					
A firm's profitability measured as return on net sales	-7.808** (1.647)	-7.782** (1.654)	-7.642** (1.643)	-7.638** (1.646)	-7.895** (1.679)
External Financial Resources:					
A firm's ratio of its market-to-book value	0.085** (0.020)	0.083** (0.020)	0.074** (0.021)	0.073** (0.021)	0.076** (0.021)
Size:					
Net sales (million USD), divided by 1,000	0.007** (0.002)	0.006** (0.002)	0.005* (0.002)	0.005+ (0.002)	0.004 (0.002)
Age:					
Number of years since a firm's founding, divided by 100	-0.034 (0.215)	0.006 (0.212)	-0.139 (0.215)	-0.104 (0.218)	-0.060 (0.222)
Market Newness:					
1 if target market emerged after 1990; 0 otherwise	0.098 (0.169)	0.081 (0.170)	0.046 (0.171)	0.037 (0.171)	-0.003 (0.172)
Market Density:					
Count of incumbents in the target market, divided by 100	-0.004 (0.022)	-0.009 (0.023)	-0.014 (0.023)	-0.017 (0.023)	-0.017 (0.024)
Constant	-0.736** (0.170)	-0.751** (0.169)	-0.633** (0.173)	-0.655** (0.173)	-0.666** (0.174)
Log pseudo-likelihood	-892	-890	-887	-885	-872
Wald statistic	52.67**	57.49**	67.58**	70.19**	88.53**

+ significant at 10%; * significant at 5%; ** significant at 1%

Number of firms: 163; number of markets: 657; number of entry events: 1719; number of entries via acquisition: 394 (23%); number of entries via internal development: 1325 (77%).

Table 3: Estimating the Use of Acquisition as Entry Mode
 Inside vs. Outside a Firm's Primary Business Domain
 (Robust standard errors in parentheses)

	(3-1)	(3-2)	(3-3)	(3-4)
	Filling Resource Gaps Inside a Firm's Primary Business Domain		Redeploying Excess Resources Outside a Firm's Primary Business Domain	
Degree of Relevance, 1 year prior to market entry		2.819** (0.937)		-2.240** (0.820)
Change in Degree of Relevance (Trajectory)		-0.492 (1.452)		2.820** (0.997)
Duration of Relevance		0.137** (0.040)		0.038+ (0.022)
<u>Research Intensity:</u> R&D expenditure divided by net sales	-0.063** (0.020)	-0.058** (0.018)	-0.054** (0.019)	-0.054** (0.019)
<u>Internal Financial Resources:</u> A firm's profitability measured as return on net sales	-13.890** (4.266)	-14.491** (4.145)	-3.271+ (1.824)	-3.178+ (1.836)
<u>External Financial Resources:</u> A firm's ratio of its market-to-book value	0.151** (0.039)	0.148** (0.036)	0.008 (0.035)	-0.009 (0.035)
<u>Size:</u> Net sales (million USD), divided by 1,000	0.030** (0.009)	0.021* (0.010)	0.005* (0.002)	0.002 (0.002)
<u>Age:</u> Number of years since a firm's founding, divided by 100	-0.057 (0.518)	-0.373 (0.589)	-0.292 (0.237)	-0.244 (0.244)
<u>Market Newness:</u> 1 if target market emerged after 1990; 0 otherwise	0.045 (0.336)	-0.275 (0.328)	0.137 (0.199)	0.115 (0.202)
<u>Market Density:</u> Count of incumbents in the target market, divided by 100	-0.020 (0.052)	-0.026 (0.049)	-0.001 (0.027)	-0.018 (0.030)
Constant	-0.793** (0.297)	-0.672* (0.310)	-0.615** (0.214)	-0.586** (0.219)
Log pseudo-likelihood	-240	-229	-639	-632
Wald statistic	37.04**	60.13**	17.84*	31.08**

+ significant at 10%; * significant at 5%; ** significant at 1%

INSIDE: Number of firms: 129; number of markets: 287; number of entry events: 540; number of entries via acquisition: 110 (20%); number of entries via internal development: 430 (80%).

OUTSIDE: Number of firms: 128; number of markets: 549; number of entry events: 1179; number of entries via acquisition: 284 (24%); number of entries via internal development: 895 (76%).

Appendix: Matched Examples from Cisco Systems, Inc.

Table A - Entries Inside versus Outside a Firm's Primary Business Domain:

Entry	SIC Code	Product Code	Description of the New Market	Inside vs. Outside:	Entry Mode:	Acquiree	Most Relevant Product, 1 Year Prior to Entry
(1)	3669	TEL-NW-CP	Network adapters	1	1	Aironet Wireless (News@Cisco, 1999)	Ethernet switching hubs
(2)	3661	TEL-TE-NP	Fast-packet ATM switching systems	1	0		Networking switches
(3)	3663	TEL-TR-X	Virtual private network (VPN) concentrator devices	1	1	Altiga Networks (News@Cisco, 2000a)	Networking switches
(4)	3669	TEL-TD-S	Communication servers	1	0		Network interconnect devices
(5)	7372	SOF-CS-I	Internet tools	0	1	InfoGear Technology (News@Cisco, 2000b)	Router management software
(6)	7372	SOF-CS-L	Intelligent call routing software	0	0		Routers

Inside vs. Outside: 1 = the new market is inside the firm's primary business domain; 0 = outside

Entry mode: 1 = acquisition; 0 = internal development

- Both entries (1) and (2) shown in Table A are inside the firm's primary business domain (TEL).
- In the second set of matched examples, both entries (3) and (4) are inside the firm's primary business domain (TEL).
- In the third set of matched examples, both entries (5) and (6) are outside the firm's primary business domain (TEL).