Are Tradeoffs Inherent in Diversification Moves? A Simultaneous Model for Type of Diversification and Mode of Expansion Decisions

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Drawing on the premise that the diversification decisions are driven by antecedent factors such as a firm's existing resources (Teece 1982) and industry structural conditions, this paper develops formal hypotheses for reciprocity between the type of diversification and mode of expansion decisions. We consider the specificity of antecedent resources that affect these two decisions and conceptually demonstrate that there is a contradictory tension in trying to optimize the decisions jointly implying that one or both diversification decisions have to be sub-optimized (i.e., there has to be a trade-off). We make a conceptual argument that this sub-optimization is likely to be in the form of subordination of the mode decision subject to constraints imposed by resources that are highly specific to the mode decision. Following this, we empirically investigate this contradictory tension by using a simultaneous equation model (SEM) on a large sample of firms between 1981 and 1989. The results suggest that one antecedent factor—internal funds—act as the key mediating influence in the joint optimization and leads to a subordination of the mode decision in the joint optimization process. However, the existence of time compression economies and market power benefits are the exceptions to this subordination and trade off process.
(*Diversification; Relatedness; Mode of Entry; Resource Based View*)

Introduction

The link between the diversification profile of a firm and its performance has been extensively studied (Hoskisson and Hitt 1990). Recently, researchers have shifted their focus to the resource allocation decisions that lead to a change in diversification profile. We refer to these decisions as *type of diversification*, which we view as varying along a continuum ranging from related to unrelated (Chatterjee and Wernerfelt 1991). Research on type of diversification seeks to differentiate between antecedent resources that are allocated to businesses differing in terms of their relatedness to a firm's core businesses (Chatterjee and Wernerfelt 1991, Montgomery and Hariharan 1991).

A second stream of research examines decisions about the manner in which input resources needed for expansion are purchased. We refer to these as decisions about the mode of (market) expansion, which we view as varying along a continuum ranging from internal purchase of the inputs to acquiring a firm that possesses the inputs. Mode of expansion is a generalized construct that includes both entry into new market as well as expanding a firm's position in an existing market. Researchers are beginning to study factors that encourage expansion through modes that

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differ in their emphasis on acquisition or internal development (Wilson 1980, Yip 1982, Chatterjee 1990, Zezan 1990, Kogut and Singh 1991, Hennart and Park 1993).

One limitation of the studies conducted to date is that they examine the type and mode decisions in isolation, using single-equation models. However, in practice, the two decisions are interdependent—a manager can hardly consider the type of diversification without considering the mode of expansion, rather a joint simultaneous consideration is necessary. In theoretical terms, it is possible that joint optimization of both decisions may lead to sub optimization of one or both of the individual decisions. If this intuition can be theoretically established then the use of single equation models may yield biased results and contradict existing theoretical and managerial implications. Such possibilities have not been examined in previous research.

This paper fills the preceding gap in the literature. We start with the premise that the diversification decisions are driven by antecedent factors such as a firm's existing and structural resources (Teece 1982). We formally establish the rationale for reciprocity between the two decisions which implies a joint optimization. Next we consider the specificity of antecedent resources that affect these two decisions and conceptually demonstrate that there are inherent tradeoffs in trying to optimize the decisions jointly, implying that one or both diversification decisions have to be sub-optimized. We make a conceptual argument that this sub-optimization is likely to be in the form of subordination of the mode decision subject to constraints imposed by resources that are specific to the mode decision. We then empirically investigate this proposition by using a simultaneous equation model (SEM) on a large sample of firms between 1981 and 1989. The results suggest that one antecedent resource—internal funds—act as the key mediating influence in the joint optimization and leads to a subordination of the mode decision in the joint optimization process. However, the existence of time compression economies and market power benefits are the exceptions to this subordination process. We begin with a theoretical development of the simultaneity hypothesis.

A Simultaneous Model of Diversification Decisions

In the extant literature, many of the antecedent resources that are expected to influence the two diversification decisions are not specific to one or the other decision. These nonspecific antecedents can potentially lead to a contradictory tension if the following happens.

(a) Whenever one decision is made the other will also have to be made, and,

(b) It is impossible to simultaneously optimize both decisions.

Condition (a) in and by itself implies a joint optimization. Condition (b) given (a) implies a joint optimization in which one or both decisions are suboptimized.

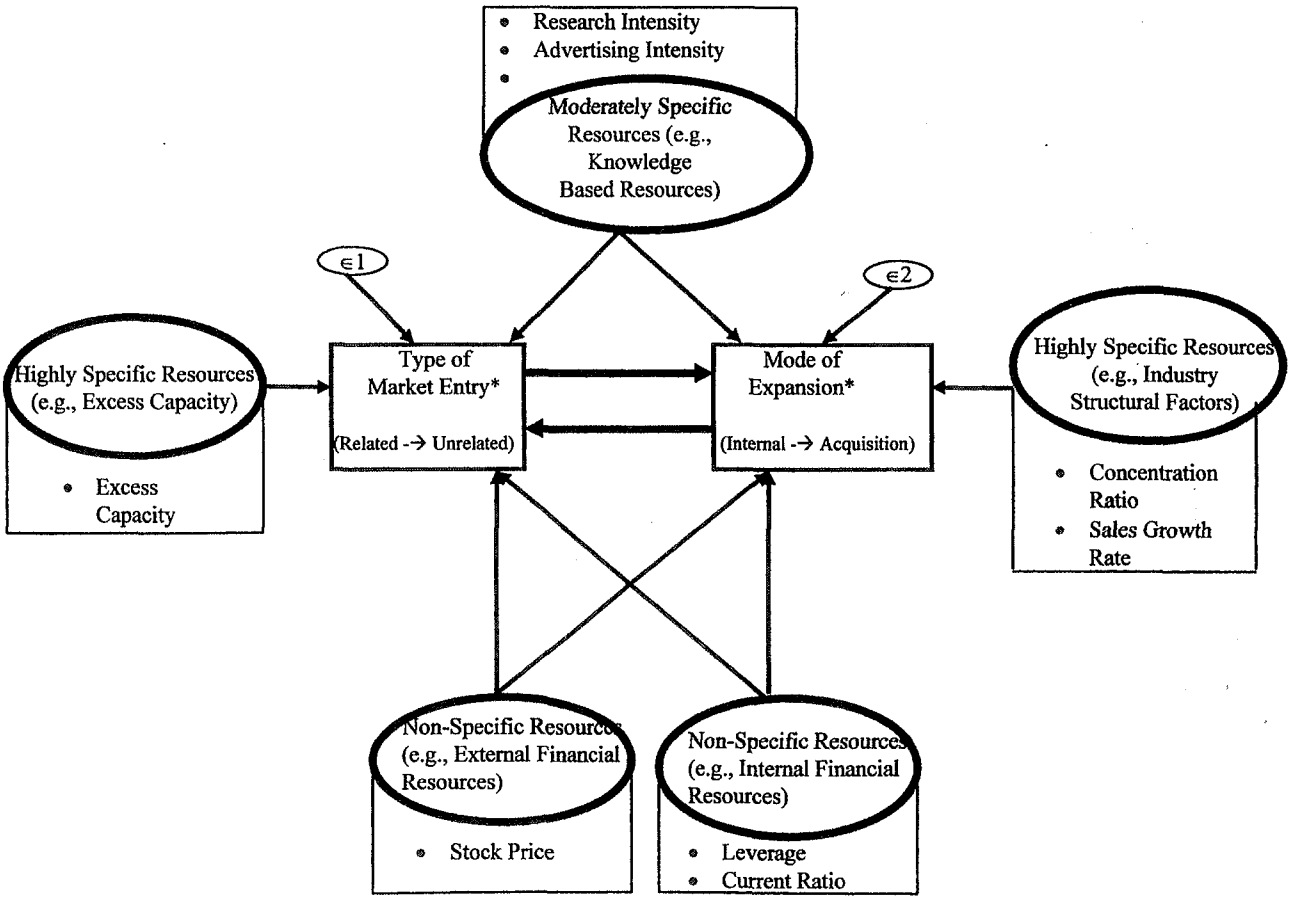
We will formally establish the rationale behind condition (a) by demonstrating that the two decisions have reciprocal influences on each other at an aggregate level. As regards condition (b), we develop arguments supporting suboptimization by focusing on the specificity of resources. If an antecedent resource is specific to a particular type of market or mode of expansion, such a resource is unlikely to be involved in the joint optimization or a trade-off. However, resources that are not specific to any of the two decisions are likely to influence the local optimization in a simultaneous model where one decision may be suboptimized.

It is fair to say that we have certain expectations about which of the two decisions is likely to be suboptimized. A firm would most likely try to optimize the decision that is strategically more important, with the other decision acting as a constraint. Under both strategic management concepts and resource-based theories, firms are expected to enter markets in which the existing resources can earn the most rent (Mahoney and Pandian 1992) indicating that most firms are likely to optimize the type-of-market decision which will dominate the mode decision. In other words, this logic suggests that firms would trade-off some of the optimal modes of expanding into a market (a local optimizing decision) in order to optimize the

joint decision (the global optimizing decision). We will revisit this expectation of the subordination of the mode decision when discussing our findings.

Figure 1 depicts the model utilized to examine the potential joint optimization of the type and mode decisions. Two aspects of this model are noteworthy. First, the model includes reciprocal relationships between the type and mode decisions. Past research has not examined these reciprocal possibilities either conceptually or empirically. Second, we include several antecedents that are rooted in resource based theories and play an important role in the joint optimization of the focal decisions. For purposes of discussion, these antecedents are categorized based on their specificity as "nonspecific," "moderately specific," and "highly specific" resources. As we will show later, the specificity of these resources is critical to the nature of joint optimization. We start with establishing the rationale for reciprocal influences.

Condition (a). Reciprocal Influences. Research suggests that related diversification is associated with internal expansion. Chatterjee (1990) formalized these concepts by considering the diversifying firm's resources and the resources needed in the market that the firm is entering. The diversifying firm is likely to know more about related markets than unrelated markets and can, therefore, use its existing assets more effectively in a related market. On the other hand, the diversifying firm is likely to acquire the resources needed to expand into an unrelated market (Yip, 1982; Amit, Livnat, and Zarowin 1989). Thus:



* *This variable is conceptualized and operationalized as a continuous variable*

Figure 1 The Empirical Model Utilized to Investigate the Resource Specificity and Simultaneity of Type and Mode Decisions

PROPOSITION 1A. *Firms that expand in related markets tend to use internal mode of expansion.*

While a case can be made that, in general, the type of market decision will dominate the mode of expansion decision, there could be instances where the mode of expansion decision takes primacy. The exceptions to Proposition 1a are likely due to lumpy assets, time compression economies, etc. For example, time itself may be a valuable lumpy resource. Examples of the benefits of time compression through acquisition abounds in reality whether it is quick entry into a market (Biggadike 1978, Hennart and Park 1993) or quickly acquiring a portfolio of SBUs as exemplified by the conglomerate movement (Steiner 1975). The benefits of time compression also comes into play when a firm is using its stock as currency to acquire other firms. Basically, it may sometimes be more expedient to acquire a firm rather than to grow internally into the same markets.

Apart from time compression benefits, there may be structural resources such as market power (see Proposition 6), the predispositions of senior management (Song 1982), commitment to expansion by acquisition (Schipper and Thompson 1983), macroeconomic conditions such as level of stock prices, and a propensity for opportunistic moves (Gaughan 1991) which may dictate the mode of expansion. Finally, Geneen (1984) suggested that, in some instances, acquisitions may be the only way to meaningfully enter a new market for all types of diversification moves. In managerial terms, if a firm feels that acquisitions are the optimal road to profitability then it may have to seek out a different market, rather than enter a market where an acquisitive expansion may be unsuccessful because of one or more of the above reasons.

Several researchers have suggested that the mode of expansion may affect its choices about type of market (Pitts 1980, Lamont and Anderson 1985, Simmonds 1990). In particular, research suggests that if a firm is seriously considering an acquisition then it is more likely to expand into an unrelated market (Gaughan 1991, Shleifer and Vishny 1991, Yip 1982). Kochar and Hitt (1998) have used transaction cost theories to argue that firms predisposed to an acquisitive strategy will prefer external capital. They also suggested that providers of external capital may constrain the type of market. Chatterjee (1990) suggested that a firm that wants to pursue an acquisition, is most likely to seek out unrelated markets to avoid buying unwanted resources that the acquirer will have to dispose of. These arguments and research findings are supported by the conglomerate acquisitions that we witnessed in the 1960s and the 1970s. To a lesser extent, this was also true in the early 1980s, when many opportunistic acquisitions were undertaken, fueled by high liquidity. The Federal Trade Commission (FTC) large merger series data also support this contention. The unrelated mergers far outnumber all other categories of mergers during the time the FTC series was compiled (1974–1979).

PROPOSITION 1B. *Firms that use internal mode of expansion tend to expand in related markets.*

Propositions 1a and 1b taken jointly imply a reciprocal influence of the type and mode decision on each other. We now make the case for suboptimization of one or both decisions by considering the specificity of the antecedent resources.

Condition (b): Resource Specificity and Suboptimization. The literature has usually categorized antecedent resources that affect diversification decisions into physical, knowledge based and financial resources (Teece 1982). This order of stating the resources also coincide with the degree of specificity that these resources have to one or both of the diversification decisions. Physical resources such as plants and equipments or market- and R&D-specific knowledge are fairly specific (Teece 1982) or inflexible (Chatterjee and Wernerfelt 1991) and can only be used to expand into related markets (Teece 1982, Chatterjee and Wernerfelt 1991, Lemelin 1982). So, unlike nonspecific financial resources, they are less likely to be involved in trade-offs. Market-specific knowledge or R&D-specific knowledge can, however, be used for internal (Lemelin 1982) or acquisitive expansion (Hennart and Part 1993, Stewart et al. 1984). We will also introduce a fourth category of resources that we call structural resources (market power and market growth) that are highly specific to the mode of expansion decision. We start with the least specific financial

resources since these are most likely to mediate the joint optimization process.

Nonspecific Resources

Internal Financial Resources and Suboptimization. When firms face difficulty in communicating the intrinsic value of their diversification moves, they will use internal funds (Myers and Majluf 1984, Kochar and Hitt 1998). For example, Intel kept a large cash hoard in the 1980s in case it was not able to raise money cheaply from the capital market if the market did not believe in Intel's strategies for its investments—investments that ultimately led to tremendous shareholder gains.

It is well-known that the capital market perceives unrelated diversification to be more risky than related diversification (Shleifer and Vishny 1991, Montgomery 1984, Chatterjee and Lubatkin 1990). Thus, firms tend to use internal funds if they are convinced of the long-term value of unrelated diversification moves (Chatterjee and Wernerfelt 1991, Kochar and Hitt 1996, Hoskisson and Johnson 1992). A reviewer pointed out a different reasoning for the proposition. Since unrelated diversification (which are typically acquisitions) is often a larger move, firms will need to have more internal funds to undertake unrelated diversification. This explanation previews the contradictory tension that is likely to arise as existing research suggests that internal funds should be used for internal expansion as explained below.

Financial resources are used to purchase the complementary physical and knowledge resources or for acquiring a company in a target market that has the required resources. The cost of the complementary resources will be driven up if the market (for resources or companies) realizes that these resources are worth more to the acquiring firm than to the market. Acquisition of a publicly traded firm implies scrutiny by the capital market. The market for companies will try to raise the acquisition premium so that the target shareholders reap the value that the acquiring firm sees in the complementary resources of the target firm. However, a firm that acquires resources incrementally (for example, leasing needed land or buying capital goods) will less likely be assessed on the value of an entire expansion move. These resources can simply be acquired at a cost dictated by the resource markets. A number of studies have used the preceding argument to suggest that if a firm has internal funds, it can acquire complementary resources more cheaply in the resource markets and would prefer internal expansion (Chatterjee 1990, Hennart and Park 1993, Kochar and Hitt 1996).

PROPOSITION 2A. *Firms with greater availability of internal funds tend to expand into unrelated markets.*

PROPOSITION 2B. *Firms with greater availability of internal funds tend to use the internal mode of expansion.*

The Inherent Tradeoffs. Taken together, the implication of Propositions 2a and 2b is that, when internal funds are to be used for diversification, firms are likely to expand into unrelated (related) markets by a internal (acquisitive) mode of expansion. However, recall that Proposition 1a, based on previous research, suggests that firms will prefer to diversify into relatively unrelated (related) markets through an acquisitive (internal) mode of expansion. Clearly, it is a logical impossibility that Propositions 1a, 1b, 2a, and 2b are simultaneously true, although it is possible to find separate support for each hypothesis through single-equation models. The tension that emerges when we consider these propositions simultaneously, is indicative of condition (b) and points toward inherent tradeoffs somewhere in the system. We now demonstrate the similar tension exists for external financial resources.

External Financial Resources and Suboptimization. Firms prefer to use external funds in related diversification since such funds can be obtained without the large risk premium that would result from high information asymmetry in unrelated diversification (Chatterjee and Wernerfelt 1991, Kochar and Hitt 1996). As regards the mode of expansion, if a firm seeks external capital, it will be forced to disclose its plans and drive up the price of the complementary resources. Under this scenario, there is no particular advantage to buying complementary resources in the resource market. On the other hand, acquisitions will allow the diversifying firm to buy the package of

resources at one time and at a price no worse than the resource markets would offer. The same conclusion follows if a firm acquires another firm by a stock swap using the acquiring firm's stock as a noncash currency. The higher the value of this noncash currency, the more it can buy for each unit of its stock (Chatterjee and Wernerfelt 1991, Kochar and Hitt 1996, Hennart and Park 1993).

PROPOSITION 3A. *Firms with greater availability of external funds tend to expand into related markets.*

PROPOSITION 3B. *Firms with greater availability of external funds tend to use the internal mode of expansion.*

The Inherent Tradeoffs. The reader can verify that it is a logical impossibility that Propositions 1a, 1b, 3a, and 3b be simultaneously supported. This apparent tension supports condition (b) and points toward tradeoffs inherent in the system and reinforces the need for a simultaneous model.

Moderately Specific Resources

Knowledge-Based Antecedent Resources. Research suggests that knowledge-based resources are quite specific to related markets (Montgomery and Hariharan 1991, Teece 1982, Chatterjee and Wernerfelt 1991). However, knowledge-based resources are not specific to either internal (Teece 1982, Lemelin 1982) or acquisitive mode of expansion (Hennart and Park 1993). For example, Phillip-Morris entered the beer industry by the acquisition of Miller Brewing Co., and then used its marketing skills to expand market share. Acquisitions also make it possible for foreign entrants to acquire local brand names and to combine them with their firm-specific skills (Hennart and Park 1993, p. 1057). On the other hand IBM in the early 1980s and recently Sony used its brand name to internally expand into the PC market. Some authors, however, have suggested that knowledge-based resources should be used mainly in acquisitions (Hennart and Park 1993). In the absence of a clear logic that can establish a causal link between knowledge based resources and mode of expansion we expect to see no association between knowledge based resources and mode of expansion. Thus:

PROPOSITION 4A. *Firms with greater availability of knowledge-based resources tend to expand into related markets.*

PROPOSITION 4B. *Firms with greater availability of knowledge-based resources tend to use these for both acquisition and internal expansion.*

Highly Specific Firm-Level Resources

Physical resources. In general, there is a consensus among researchers that physical resources lead to related diversification (Montgomery and Hariharan 1991, Chatterjee and Wernerfelt 1991, Lemelin 1982). The basic argument is that it is less costly for firms possessing excess physical resources (such as plants and equipments) to move into industries that can easily use such resources rather than modify these resources for unrelated markets. Empirical studies cited above support this premise. Since these resources are unique to the type decision, they are unlikely to change under joint optimization—there is little flexibility.

PROPOSITION 5. *Firms with greater availability of physical resources tend to expand into related markets.*

Highly Specific Industry-Level Resources

Two industry structural factors have featured prominently in the literature. Market power is a resource that can lead to increased profits. A firm may be able to take advantage of market power by being in a concentrated industry. Research suggests that concentrated markets are associated with acquisitive entry (Yip 1982, Chatterjee 1990, Hennart and Park 1993). This is because concentrated markets are characterized by few incumbents with strong stakes and high entry barriers which can take the form of competitive retaliation. Expansion into markets where market power is evolving can also indicate acquisitive expansion. Thus to overcome the entry barriers, the time compression of economies of lumpy resources and potential costs of retaliation, the likely mode of expansion in concentrated or potentially concentrated markets is acquisition.

PROPOSITION 6. *Firms tend to expand into highly concentrated markets by acquisition.*

When quick expansion into a market is required to

reap the benefits of the diversification move, acquisition is the preferred strategy. Some researchers have suggested that high growth target markets should be entered by acquisition because the long lead time of internal expansion (Biggadike 1978, Hennart and Park 1993) will lead to an opportunity cost in high growth markets. This opportunity cost can also be viewed as time being a key resource for success in some markets.

PROPOSITION 7. *Firms tend to expand into high growth markets by acquisition.*

Summary of the Propositions

Researchers have tried to explain the two diversification decisions by antecedent resources that can be owned or acquired by a firm as well as structural resources that a firm can take advantage of by acting strategically. In this paper we formally develop arguments that the two decisions have to be considered jointly. However, in the process of this formal development, we unearth a less obvious prediction—there is a contradictory tension between the two decisions and one or more of the two decisions have to be sub optimized.

Once we formally establish the inherent tradeoffs between the two decisions, we can make the case that the type decision is likely to subordinate the mode decision. However, we can also make the case that the subordination is not likely to be universal and there will be instances where the mode decision may dictate the type of market. In particular, resources that are highly specific to the type or the mode decision is not likely to mediate the joint optimization. However, resources that are not specific to either decision is likely to optimize the type decision and subordinate the mode decision. Table 1 summarizes the above Propositions.

Methods

Samples

We use two separate samples to test the hypothesized relationships. The first sample—hereafter the t_1 sample—includes firms that undertook some diversification moves between 1981 and 1985. Chatterjee and Wernerfelt (1991) used the same sample. The second is a new sample (hereafter the t_2 sample) includes firms

Table 1 The Predicted Signs of the Estimated Parameters for the Simultaneous Model of Mode and Type of Expansion

Dependent Variable	The Received Literature: *Single Equation Model Predictions*
Reciprocal Hypothesis	
Type → Mode	− Prop 1b (Related markets favor internal expansion)
Mode → Type	− Prop 1a (Internal expansions favor related markets)
Suboptimization Hypothesis	
Nonspecific Resources	
Leverage → Mode	− Prop 2b (Internal funds used for internal expansion)
Current Ratio → Mode	Prop 2b (Internal funds used for internal expansion)
Stock price → Mode	− Prop 3b (External funds used for acquisitive expansion)
Leverage → Type	− Prop 2a (Internal funds used in unrelated markets)
Current Ratio → Type	+ Prop 2a (Internal funds used in unrelated markets)
Stock price → Type	+ Prop 3a (External funds used in unrelated markets)
Moderately Specific Resources	
Research intensity → Mode	? Prop 4b (Innovations used in both modes of expansion)
Advertising intensity → Mode	? Prop 4b (Marketing skills used in both modes of expansion)
Research intensity → Type	− Prop 4a (Innovations used in related markets)
Advertising intensity → Type	− Prop 4a (Marketing skills used in related markets)
Highly Specific Resources	
Concentration ratio → Mode	− Prop UM1 (Concentrated markets entered by acquisitions)
Growth → Mode	− Prop UM2 (Growth markets entered by acquisition)
Excess capacity → Type	+ Prop UT1 (Physical assets used in related markets)

that undertook diversification moves between 1985 and 1989. Thus, its inclusion allows a test of the validity and stability of the hypothesized propositions. Readers will note, however, that the notions of validity and stability do *not* imply that the magnitudes of individual relationships should be equivalent in the t_1 and t_2 samples. Rather, our expectation was that, in comparing the two samples, we would likely find the directions of the estimated path coefficients to be consistent, demonstrating stability, and the key relationships to be consistently statistically significant, demonstrating validity. Clearly, the use of the t_2 sample extends previous research and affords possibilities for testing validity and stability issues.

We started with all the firms in the Compustat tapes. The R&D data were available only for 147 firms in the t_1 sample and 151 firms in the t_2 samples. This process may introduce a bias for manufacturing firms that engage in some degree of R&D in at least some of their divisions. All financial, regulated utilities and service firms were eliminated in the process. Financial sector firms and regulated utilities are subject to special accounting regulations that may distort cross-sectional analysis (Amit, Livnat and Zarowin 1989, p. 90). However, the absence of service sector firms may introduce a bias which we can not quantify. Finally, the firms also had to have business-unit sales data in the Trinet tapes, which became unavailable after 1989. These criteria resulted in an effective sample of 127 firms for t_1 and 124 firms for t_2.

Measurements

The various measures used to test the propositions are described below.

Type of Market. A firm does not need to enter a new business or exit an existing one for a change in diversification profile to occur; entry or exit is only a resource allocation decision up from a base of zero or down to zero, respectively. The conceptualization of diversification (Caves, Porter, Spence and Scott 1980; Chatterjee and Wernerfelt 1991) and the weighted continuous measures that we used, such as the entropy measure (Hoskisson, Hitt, Johnson and Mosel 1993; Chatterjee and Blocher 1992), are explicitly based on this generalized view of diversification. For example, a firm might allocate resources to its existing businesses in proportion to their current levels of sales. Such allocation would constitute expansion through horizontal diversification and would not change the diversification profile of the firm as measured by the entropy measure. More typically, firms allocate more resources either to relatively related businesses or to relatively unrelated businesses, which will alter their diversification profiles, a change the entropy measure will capture. The aggregate change in diversification profile between 1981 and 1985 (between 1985 and 1989 for t_2) was utilized to determine if the firm has become more or less diversified when compared to its initial (1981) diversification profile (1981 for t_1; 1985 for t_2). We computed the entropy index for each firm in the sample at the initial and final point for each sample:

$$\text{Entropy} = \sum_{I=1}^{N} p_i \ln \frac{1}{p_i},$$

where p_i equals the fraction of the firm's sales that are in industry i. The dependent variable, type, for t_i is then calculated as:

$$\text{TYPE} = \text{entropy}(1985) - \text{entropy}(1981).$$

Large values of type imply that a firm was more unrelated in 1985 than it was in 1981. Research has suggested that the entropy measure is best suited for measuring continuous changes in diversification and has good convergent and discriminant validity with categorical measures (Chatterjee and Blocher 1992; Hoskisson, Hitt, Johnson and Mosel 1993).

Mode of Expansion. Past studies have generally utilized a dichotomous measure of mode (internal expansion or acquisition). In addition to developing valid rules for categorization, this measure is problematic because of its "all or nothing" bias. That is, this measure assigns (arbitrarily) *all* diversification moves of a firm to either acquisition or internal expansion. In order to address these problems, we sought to define a continuous measure of mode that captures the degree of emphasis on internal expansion across a series of diversification moves. Assume that a firm f (where $f = 1$ to N) undertakes p expansions between two time periods t_1 and t_2 such that k of these

expansion (where $k \leq p$) are on account of acquisitive activity and the remaining $(p - k)$ expansions are due to internal expansion. Further, without any loss of generality, assume that the p expansions result in ($\$X + \$Y$) *increase* in sales (from $t1$ to $t2$) of which $\$Y$ is on account of k acquisitions and $\$X$ is due to $(p - k)$ internal expansions. Then,

$$\text{mode} = \$X/(\$X + \$Y) \text{ for all } f,$$

$$\text{except when } (\$X + \$Y) = 0.$$

As such mode is a continuous variable ranging from 0 to 1 with higher values indicating greater dominance of internal expansion in sales growth of a diversifying firm. The variable was constructed as follows. The Trinet data provide the sales of businesses in individual SIC codes at a given point in time. The part of the sales for a particular SIC code in 1985 that could be traced back to an acquisition made between 1981 and 1984 was marked as an increase due to an acquisitive expansion. Note that an existing business in 1981 with a given SIC code could have increased its sales in 1985 due to an acquisition of one of its competitors. All other businesses were marked as internal expansion. Note, intermediate values do not represent joint ventures. A joint venture will result in internal expansion of the business that the focus firm is in charge of producing. If the joint venture partner produces the intermediate products then the joint venture can be treated as outsourcing components with a resultant internal expansion of the final product.

Nonspecific Resources

Financial Resources. The standard measures for liquidity were used as a proxy for availability of internal capital (Palepu 1986, Hennart and Park 1993). These are the debt-to-market value and the current ratio. We used both of them:

Leverage = ratio of long-term debt to market value in 1980 (1984 for the t_2 sample);

Current ratio = ratio of current assets to current liabilities in 1980 (1984 for the t_2 sample).

Note that low values of leverage and high values of current ratio imply availability of internal funds, or low default risk debt, or both.

To measure a firm's ability to raise external capital during the study period, we compared the average stock price in the study period to the "normal" stock price for the firm. A firm will seek new equity capital when it can get a good price for its stock. Public offerings are most popular at the peak of a bull market or when they are offered by a sector highly regarded by the marketplace (Smith 1994). Thus, acquisitions using equity capital become more attractive when a firm's stock price is high compared to historical averages. Consistency with the other measures of resources implied using the stock price of the firm in 1980 (for the t_1 sample) and relating it to a normal stock price. However, stock prices are much more volatile than leverage, and even a relatively temporary rise in stock prices provides opportunities to quickly engage in a stock-swap merger (many stock-swap mergers have to be renegotiated because stock prices change; the failed TCI/Bell Atlantic merger is an example). To take this characteristic of stock prices into account, we divided the average stock price in 1980–1984 by that of the preceding period, 1975–1979. We used 1980–1984 instead of 1981–1985 on the premise that it takes roughly a year to translate expenditures into sales. If this ratio was high, the market was willing to supply capital to particular firms at a cost of capital that is lower than in the past. Keeping the time periods the same for all firms helped correct for market variation in stock prices. Thus:

Stock price = average 1980–84 stock price/average 1975–1979 stock price.

Moderately Specific Resources

Knowledge-Based Assets. Knowledge-based resources such as marketing and innovative skills are usually measured by the intensity of spending for research and advertising. Our measures follow:

Research intensity = the ratio of R&D expenses to sales in 1980 (1984 for the t_2 sample);

Advertising intensity = the ratio of advertising expenses to sales in 1980 (1984 for the t_2 sample).

Highly Specific Firm and Industry Level Resources

Physical Assets. We used the ratio of the backlog of orders in 1980 to the three-year moving average backlog going back to 1974 for the t_1 sample. (For the t_2 sample, the years are 1984 and 1980.) In dividing by the historical levels, we partially corrected for industry and persistent firm differences in average backlogs, and by taking a moving average we took some account of different growth rates. We used the label excess capacity for this variable. A firm with considerable excess plant and equipment was likely to have low backlogs. Physical assets are expected to lead to related diversification (Chatterjee and Wernerfelt 1991).

We realize that the link between backlog and excess plant and equipment that may not be justified under some circumstances. High backlog can be due to a number of things besides capacity limitations, e.g., shortage of raw materials, or shortage of labor. Conversely, low backlog does not necessarily mean excess plan and equipment; it might be due to processes such as Just-in-Time and judicious pricing policies. These biases may be the reason for lack of significance for this variable and may have contributed to the contrary sign in time t_1. Fortunately, this is not a key variable in the model. This remains a limitation of the study.

Concentration Ratio. We first computed a firm's average concentration ratio as

$$C4_{\text{average}} = \sum_{I=1}^{N} C4_i p_i$$

where C4 is the seller concentration ratio of the ith industry of the firm and p_i equals the fraction of the firm's sales that were in industry i. The change in concentration ratios between 1981 and 1985,

$$\text{concentration ratio} = C4_{\text{average}}(1985) - C4_{\text{average}}(1981),$$

captured the net concentration ratios of the markets the firm expanded into for t_1 sample. High-concentration markets are expected to be entered by acquisition (Yip 1982, Hennart and Park 1993).

Growth of Markets. We computed a firm's average sales growth rate as follows:

$$\text{Sales Growth}_{\text{average}} = \sum_{I=1}^{N} \text{Sales Growth}_i p_i$$

where growth_i is the sales growth rate of the ith industry of the firm and p_i equals the fraction of the firm's sales that were in industry i. The change in the sales growth rate of the firm, 1981–1985,

$$\text{Growth} = \text{Growth}_{\text{average}}(1985) - \text{Growth}_{\text{average}}(1981),$$

captured the net increase, or decrease, in growth rate of the businesses that a firm was involved in between 1985 (1989) and 1981 (1985). Firms are expected to expand into high growth markets by acquisition (Hennart and Park 1993).

Estimation and Evaluation

In order to test the various propositions (see Table 1), we specified a simultaneous equation model (SEM) for empirical investigations (see Figure 1). The SEM model hypothesizes that (1) the type of diversification influences the mode of expansion used, (2) the mode of expansion affects the type decision, and (3) several antecedents affect both type and mode of expansion. In particular, the hypothesized model includes the concentration ratio, leverage, the current ratio, stock prices, R&D expenses relative to sales (Research intensity), advertising expenses relative to sales (Advertising intensity), and growth as antecedents of the mode decision. Likewise, physical assets (Excess capacity), research intensity, advertising intensity, leverage, current ratio, and stock prices are posited as predictors of the type decision. Readers will note that, of these antecedents, leverage, current ratio, research intensity, advertising intensity, and stock price are common to both decisions. However, concentration ratio and growth are antecedents that are unique to the mode decision and do not enter into the type decision. Such antecedents are referred to as instrumental variables because they are critical for model identification. In this sense, excess capacity is an instrumental variable for the type equation.

Table 2 Means and Correlations of the Variables Used in the Study

	MEAN	Concentration Ratio	Excess Capacity	Research Intensity	Advertising Intensity	Leverage	Current Ratio	Stock Price	Growth	TYPE	MODE
Concentration Ratio	0.45	1.00	0.11	0.20	0.13	−0.40	0.05	−0.01	0.07	0.15	0.09
Excess Capacity	1.28	0.11	1.00	0.05	−0.12	−0.10	0.01	0.27	0.37	0.08	0.21
Research Intensity	0.02	0.20	0.05	1.00	0.10	−0.34	0.08	0.21	0.35	−0.07	−0.11
Advertising Intensity	0.02	0.13	−0.12	0.10	1.00	−0.14	0.07	−0.09	−0.16	−0.06	−0.07
Leverage	0.54	−0.40	−0.10	−0.34	−0.14	1.00	−0.14	−0.06	−0.23	−0.27	0.01
Current Ratio	2.35	0.05	0.01	0.08	0.07	−0.14	1.00	−0.05	0.09	0.13	−0.21
Stock Price	2.71	−0.01	0.27	0.21	−0.09	−0.06	−0.05	1.00	0.47	0.10	0.14
Growth	0.18	0.07	0.37	0.35	−0.16	−0.23	0.09	0.47	1.00	0.13	−0.06
TYPE	0.70	0.15	0.08	−0.07	−0.06	−0.27	0.13	0.10	0.13	1.00	−0.02
MODE	.47	0.09	0.21	−0.11	−0.07	0.01	−0.21	0.14	−0.06	−0.02	1.00

Mathematically, the empirical model is characterized by the following simultaneous equation:

$$\begin{bmatrix} \text{TYPE} \\ \text{MODE} \end{bmatrix} = \begin{bmatrix} 0 & \beta_2 \\ \beta_1 & 0 \end{bmatrix} \begin{bmatrix} \text{TYPE} \\ \text{MODE} \end{bmatrix} + \begin{bmatrix} \gamma_1 & \gamma_2 & \gamma_3 & \gamma_4 & \gamma_5 & \gamma_6 & 0 & 0 \\ 0 & \gamma_7 & \gamma_8 & \gamma_9 & \gamma_{10} & \gamma_{11} & \gamma_{12} & \gamma_{13} \end{bmatrix} \cdot \begin{bmatrix} \text{excess capacity} \\ \text{research intensity} \\ \text{advertising intensity} \\ \text{leverage} \\ \text{current ratio} \\ \text{stock price} \\ \text{concentration ratio} \\ \text{growth} \end{bmatrix} + \begin{bmatrix} \epsilon_1 \\ \epsilon_2 \end{bmatrix}$$

where the coefficients for the reciprocal path between type and mode are βs, between the antecedents of the type and mode decisions are γs, and the ϵs are the disturbance terms.

Estimation and Evaluation of the Statistical Tests

We used the software EQS to estimate the proposed model by maximum likelihood (ML) procedures for simultaneous equation models (Bentler 1989). To evaluate the estimated model, we used several statistical and systematic criteria. The statistical evaluation stems from the χ^2 statistic that tests if the covariance reproduced by the proposed model equals observed covariance. Non-significant values of the χ^2 statistic suggest that the hypothesized model is a reasonable portrayal of the relationships in the data. We also used other systematic criteria for assessing the goodness of fit such as the Normed-Fit-Index (NFI), Comparative-Fit-Index (CFI), Average-Off-Diagonal-Standardized-Residual (AOSR) and the Root Mean Square Error of Approximation (RMSEA). Following Bagozzi and Yi (1988) and Bentler (1990), we judged NFI and CFI values that exceeded 0.95, AOSR values lower than 0.05, and RMSEA estimates of less than 0.10 (90% confidence interval between 0–0.15) as indicating "good" models. Finally, the statistical significance of estimated path coefficients was tested by computing a t-statistic utilizing robust standard errors. We used conventional levels of significance to evaluate the substantive and statistical importance of a specific path coefficient.

Results

Summary Statistics

Table 2 presents the means and correlations for all the variables used in the study.

Overall Model Fit

In terms of overall fit, the simultaneous model of Figure 1 fits the t_1 sample data well and yields the following statistics: $\chi^2 = 3.21$, $df = 3$, $p = 0.36$,

NFI = 0.99, and CFI = 1.0. In addition, the residuals are small (99% < ±0.05), and the AOSR equals 0.004 and the RMSEA 90% interval is {0.0–0.15}, indicating that the hypothesized model is a reasonable fit to the t_1 sample data.

Consistent with these findings, the t_2 sample produced the following statistics: $\chi^2 = 3.56$, $df = 5$, $p = 0.61$, NFI = 0.98, and CFI = 1.0. As in the t_1 sample, the residuals are small (99% < ±0.05), with an AOSR of 0.005 and the RMSEA 90% interval of {0.0–0.1}. Because the various fit statistics for t_2 sample are compatible with those of the t_1 sample and appear acceptable, it is safe to conclude that the hypothesized model of Figure 1 provides a reasonable and consistent accounting of the processes underlying the mode and type decisions. Table 3 summarizes the estimated standardized path coefficients.

Reciprocal Influences. Strong support is obtained for the reciprocal relationships with consistent results across the two time periods. Specifically, the decision to diversify into less related markets is associated with an emphasis on internal mode of expansion with

Table 3 Structural Coefficient Estimates[a]

Dependent Variable	Predicted Single Equation Signs	Sample t_1[b]	Sample t_2[c]
Reciprocal Hypothesis			
Type → Mode	−	0.19 (0.05)***	0.33 (0.21)*
Mode → Type	−	−0.38 (0.08)***	−0.19 (0.20)[d]
Suboptimization Hypothesis			
Nonspecific Resources			
Leverage → Mode	−	0.14 (0.10)*	0.33 (0.09)***
Current Ratio → Mode	+	0.02 (0.08)	−0.05 (0.10)
Leverage → Type	−	−0.27 (0.07)***	−0.35 (0.09)***
Current Ratio → Type	+	0.10 (0.05)**	0.12 (0.10)
Stock price → Mode	−	0.19 (0.08)**	0.13 (0.07)**
Stock price → Type	−	0.04 (0.05)	0.15 (0.12)*
Moderately Specific Resources			
Research intensity → Mode	?	−0.02 (0.10)	0.03 (0.10)[c]
Advertising intensity → Mode	?	−0.08 (0.08)	0.03 (0.10)[c]
Research intensity → Type	−	−0.26 (0.07)***	−0.24 (0.07)***
Advertising intensity → Type	−	−0.12 (0.05)***	−0.18 (0.05)***
Highly Specific Resources			
Concentration ratio → Mode	−	−0.31 (0.08)***	−0.22 (0.09)***
Growth—Mode	−	−0.22 (0.13)**	−0.04 (0.05)
Excess capacity. → Type	+	−0.09 (0.04)***	−0.03 (0.07)
R^2 Mode of Expansion		0.12	0.11
R^2 Type of Expansion		0.14	0.22

[a] Standardized path coefficients with robust standard error in parentheses.

[b] ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$ (all p-values are based on one-tailed tests).

[c] These coefficients were constrained in order to facilitate convergence. However, none of the other estimated coefficients changed by more than 10% after these constraints were introduced. This model had two additional constraints that involved fixing the nonsignificant coefficients for the influence of R&D and Advertising intensity on Mode of expansion.

[d] The estimated standard error of this coefficient for t_2 is at least two times as large as other standard errors. Constraining this coefficient by imposing some boundary conditions (e.g., estimated value is not greater than the coefficient for type → mode) produces more reasonable standard errors resulting in significance for mode → type effect for t_2 ($p < 0.10$). The estimated value of *all* coefficients remains invariant—changing less than 10%.

coefficients that are significant for the period t_1 ($\beta = 0.19$, $p < 0.01$) and t_2 ($\beta = 0.33$, $p < 0.10$). In other words, firms for which sales become fragmented across multiple industries tend to achieve less sales growth from acquisitions. This finding directly contradicts Proposition 1a. Thus, our finding about the influence of the type of markets entered on the mode of expansion runs counter to most current theorizing drawn from single-equation models.

In terms of the reciprocal effect, the likelihood of internal mode of expansion was significantly associated with greater degree of related market diversification for t_1 ($\beta = -0.38$, $p < 0.01$) but had only borderline significance for t_2 ($\beta = -0.19$, $p > 0.10$). This supports our Proposition 1b that firms that achieve less sales growth through acquisitions become more concentrated in a fewer related markets. Note that, the manner in which the type decision affects the mode decision contradicts received theory, but the manner in which the mode decision leads to the type decision is in line with received single-equation propositions. This tension and potential source of tradeoffs, is appropriately understood in the context of antecedent resources.

Nonspecific Resources

Internal Financial Resources. The estimated coefficients for internal financial resources (i.e., leverage and current ratio in Table 3) show an interesting pattern of effects. Table 3 reveals that greater availability of internal funds as operationalized by leverage is significantly associated with diversification into unrelated markets ($\beta = -0.27$, $p < 0.01$ for t_1; and $\beta = -0.35$, $p < 0.01$ for t_2) and for current ratio, but only for t_1 ($\beta = 0.10$, $p < 0.05$). This, of course, is in accord with Proposition 2a and appears to support current theorizing about the role of internal funds; that is the more such funds are available, the more likely it is that the firm sales become fragmented across multiple industries. For the mode-of-expansion decision, internal funds indicated by leverage are more likely to be utilized when the emphasis is on an acquisitive mode of expansion as the significant coefficients both for t_1 ($\beta = 0.14$, $p < 0.10$) and t_2 ($\beta = 0.33$, $p < 0.01$) suggest. These findings contradict Proposition 2b since, on the basis of past findings from single-equation models, we had hypothesized that internal funds are more likely to be associated with diversification moves where sales growth occurs via internal expansion. Taken together, the preceding results suggest that internal financial resources appear to support conventional wisdom in regard to the type decision, but appear to contradict conventional thinking about its impact on the mode decision.

External Financial Resources. In Table 3, external funds, characterized by stock price (high values indicate high availability of external funds), produced no significant effect on the type decision for t_1 ($\beta = 0.04$, $p > 0.10$) and a mild contradiction for t_2 ($\beta = 0.15$, $p < 0.10$). However, stock price produced a consistently highly significant result in the mode decision in both time periods ($\beta = 0.19$ and 0.13, $p < 0.05$ respectively) but in a direction opposite to Proposition 3b (to be discussed).

Moderately Specific Resources

Knowledge-Based Antecedent Resources. The estimated coefficients for the knowledge-based resources, research intensity and advertising intensity, suggest that these resources are used to expand into more related markets and are strongly significant for both t_1 ($\beta = -0.26$ and -0.12, $p < 0.01$ respectively) and t_2 ($\beta = -0.24$ and -0.18, $p < 0.01$ respectively). This finding supports Proposition 4a. However, the coefficients of knowledge-based resources are not significant in explaining the mode of expansion decision in either time period. This finding is consistent with Proposition 4b.

Highly Specific Resources

The signs of the unique antecedents, concentration ratio, growth and excess capacity, suggest that the industry structure factors of concentration and growth are not involved in any trade-offs and support the single-equation predictions. Of the two structural variables, industry concentration is more consistently significant ($p < 0.01$), indicating that concentrated markets are more likely to be entered by acquisition. The sign of the growth variable is consistent with Proposition 7 but is significant for t_1 only ($\beta = -0.22$ and $p < 0.05$). The unique antecedent resource in the type

model is physical capacity (excess capacity), and this coefficient is highly significant for t_1 only in a manner that contradicts Proposition 5 ($\beta = -0.09$ and $p < 0.01$).

Evidence of Suboptimization. Overall, the results shed light on the inherent contradictions among hypotheses derived from single-equation models (Propositions 1–3) and support a suboptimization explanation. The significant effects of the type and mode coefficients support the possibility of reciprocal relationships between type-of-diversification and mode-of-expansion decisions. Further, the opposite signs of these coefficients suggest that the reciprocity is in the nature of a trade-off rather than a reinforcing relationship. Finally, our findings suggest that internal funds are most likely to be involved in the trade-off, as these resources appear to be used according to normative predictions in the type decision but against normative predictions in the mode decision.

Our results also provide evidence that only the mode decision is being suboptimized. This evidence is based on comparing the direction of estimated coefficients from the SEM with those expected under the normative consideration of single-equation models (see Table 3). Table 3 reveals that all but two of the empirical signs are consistent with normative expectations for the type of market decision; the signs for stock price for t_1 and excess capacity for t_2 are the exceptions.

For the mode-of-expansion decision, Table 3 reveals that for several antecedents, including type, leverage and stock price, the empirical signs are inconsistent with normative expectations. Moreover, the coefficients for type, leverage and stock price are large and significant, regardless of the time period. Thus, we find compelling evidence of suboptimization of the mode decision.

The R^2s for the mode-of-expansion model were 0.12 and 0.11, and the R^2s for the type model were 0.14 and 0.22 for t_1 and t_2, respectively. We would have preferred to have found more variables significant and higher values for R^2. However, there is obviously a lot of noise in the dependent variables, especially for measures such as the entropy measure. Nevertheless, the R^2 for the type model is higher than that reported by Chatterjee and Wernerfelt (1991). As such, it appears that the proposed model is quite robust given the limitations of the data.

Discussion

Our study aimed to examine inherent trade-offs between the type of diversification and mode of expansion decision in diversification moves by utilizing a simultaneous modeling framework. Our results contradict conventional wisdom about type-mode relationships and refine current thinking by providing evidence of inherent trade-offs in these decisions. We will structure the discussion using the notion that some resources and factors are specific to particular types of markets and modes of expansion while others are not. This notion allows us to provide an interpretation of where and how the mode decision is subordinated.

Nonspecific Resources

Internal and external financial resources are the least specific to any decision—these resources can be used to expand into either type of markets using either mode of expansion. This fungibility of internal funds makes them highly flexible when a trade-off must be made. Our interpretation is that firms use internal funds to optimize the type decision and subordinate the mode decision. Basically, firms have used their available internal funds to make unrelated expansion moves that are likely to be met with scepticism in the market and, since these were unrelated markets, the firms opted for acquisitions (for similar findings also see Kochar and Hitt 1998).

When it comes to external funds, firms lose a lot of their flexibility. Firms can use external funds either by raising the cash through secondary offerings or by using the currency implicit in the stock price to acquire the assets of another firm. Secondary offerings are involved and drawn-out processes, and if a firm does decide to raise money from the capital market, it will probably be constrained to expand into related markets that the capital market is likely to be most comfortable with (Proposition 3a). Further, such an expansion is likely to be internal because a firm can usually acquire another firm using a stock swap

without going to the trouble of raising fresh equity. A firm has a bit more flexibility to use the currency implied in its stock price to quickly acquire another firm; such acquisitions are increasingly the trend (*Business Week* 1996, pp. 81–82) in the 1990s (Proposition 3b). Although such acquisitions will require shareholder approval, obtaining it is much less onerous than in the case of secondary offerings. Adding up all the possibilities, it seems that if a firm raises money by secondary offerings, it may use such funds to optimize the type decision even if it involves subordinating the mode decision. However, if a firm uses the currency implicit in its high stock price, it is very likely to use this currency in line with the single-equation-based Proposition 3b. Our measure of external funds can not distinguish between the two ways in which external funds are used which probably contributed to the insignificant and contrary findings. The conclusion that one may draw is that there is much less of a compelling reason for a firm to use external funds to optimize the type decision and subordinate the mode decision. A more focused research design that only looks at secondary offerings is needed to shed more light on this matter.

Moderately Specific Resources

The results suggest that when a joint optimization is considered, the knowledge-based assets, R&D and advertising strongly influence the type decision but have marginal effects on the mode decision. It is interesting to note, however, that in prior single-equation-model studies, both R&D and advertising intensity have been found to be significantly associated with mode of expansion (see Hennart and Park 1993). However, as Chatterjee and Wernerfelt (1991) and others cited earlier have pointed out, R&D and marketing resources can rarely be used in unrelated markets and are best used to diversify into related markets to reduce the cost of complementary resources (Chatterjee 1990). Note, however, that this cost reduction can be generated both for internal expansion (Lemelin 1982, Yip 1982) and acquisition (Hennart and Park 1993)—that is, these resources are not specific to a mode of expansion. There is, therefore, no reason to favor R&D or advertising resources for acquisition or internal expansion, but there is a compelling reason to use them in related markets.

The implication for future research is that studies investigating mode of expansion should be careful in interpreting the influence of the knowledge-based resources unless there are strong *a priori* reasons to expect that the mode-of-expansion decision is the dominant decision in the sample under study. Such situations may occur for opportunistic expansion, or in some international expansions (Hennart and Park 1993) where the mode of expansion constrains the market a firm can enter.

Highly Specific Resources

As expected, resources that are specific to a particular decision should not and do not get affected in a simultaneous model. The sole exception is the contrary sign for physical resources in time t_1. The findings regarding the structural resources are consistent with the findings of single-equation studies (Hennart and Park 1993, Chatterjee 1990). These results are interesting because they provide the boundaries within which the subordination of the mode decision is likely to occur. If the type decision was completely dominant, we would expect it to drive the mode decision irrespective of the industry structure. Such a course of action would have led to insignificant coefficients for the industry structure variables. Although the results for physical capacity are not as compelling as the structural factors, this resource is also specific to the type decision and is less likely to be involved in the trade-off. In summary, it seems to us that in the case of non specific and moderately specific resources the type decision is dominant. The only exception is when the resource is an industry structural endowment such as high growth or concentrated markets.

Conclusion

Our study offer clear support for the trade-off hypothesis. In addition, it sheds light on the manner in which antecedent resources influence the trade-offs involved in the simultaneous decision. It seems that firms typically emphasize the optimal way resources can be deployed in a market (the type decision) and only secondarily decide on how to expand into such

markets (the mode decision). Further, the reciprocity is in the nature of a trade-off (optimizing the type decision and subordinating the mode decision) rather than a relationship of equal and mutual reinforcement. The study suggests that the trade-off occurs through the use of existing internal liquidity. It seems that in giving the type decision priority, firms use nonspecific internal funds in a manner that would normally suboptimize the mode decision. However, in support of previous research, we found that specific resources were not involved in the trade-off.

Although this is the first study in the literature that has employed a simultaneous modeling framework to probe reciprocal relationships in the type and mode decisions, we appear to have sufficient evidence to conclude that reciprocity between type and mode decisions is a tenable proposition and warrants the serious attention of other researchers. In this regard, continued reliance on single-equation models, which assume independent decisions, may be empirically misleading. As always, there are unanswered questions. Some of these questions include, Do all firms suboptimize the mode decision?, Are some types of firms able to optimize both decisions?, and How do managers approach the trade-offs between the type and mode decisions organizationally? Finally, our study does not explicitly address if other modes of expansion, such as licensing or joint ventures, may offer pragmatic avenues for reducing the suboptimization of the mode decision. We urge future researchers to address these important questions.[1]

[1] This paper has benefitted from feedback on earlier drafts from John Aram, Vasu Ramanujam, Michael Lubatkin, and the participants in the departmental seminars at the Weatherhead School of Management, the University of Michigan, Purdue University, University of Colorado, Arizona State University, and Temple University. Finally, the paper has been greatly improved by the comments from the referees of this journal.

References

Amit, Livnat, P. Zarowin. 1989. The mode of corporate diversification: internal ventures versus acquisitions. *Managerial and Decisions Econom.* **10** 89–100.

Bentler, P. M. 1989. *EQS: Structural Equation Program Manual.* BMDP, Los Angeles, CA.

Biggadike, R. 1979. The risky business of diversification. *Harvard Business Rev.* **57** (3) 103–111.

Chatterjee, S., J. Blocher. 1992. Measurement of firm diversification: is it robust? *Acad. Management J.* **35** (4) 874–888.

——, M. Lubatkin. 1990. Corporate mergers, stockholder diversification, and changes in systematic risk. *Strategic Management J.* **11** 255–268.

——, B. Wernerfelt. 1991. The link between resources and type of diversification: theory and evidence. *Strategic Management J.* **January** 33–48.

—— 1990. The link between excess resources, transfer costs and mode of entry. *Acad. Management J.* (December) 780–800.

Christensen, H. K., C. A. Montgomery. 1981. Corporate economic performance: diversification strategy versus market structure. *Strategic Management J.* **2** 327–343.

Gaughan, P. A. 1991. *Mergers and Acquisitions.* Harper Collins Publishers, New York.

Geneen, H. S. 1984. The strategy of diversification. R. Lamb, ed. *Competitive Strategic Management.* Prentice Hall, New York.

Hennart, J-F, Y-R. Park. 1993. Greenfield vs. acquisition: the strategy of Japanese investors in the United States. *Management Sci.* **39**(9) 1054–1070.

Hoskisson, R. E., M. E. Hitt. 1990. Antecedents and performance outcomes of diversification: a review and critique of theoretical perspectives. *J. Management* **16**(2) 461–509.

——, ——. 1990, R. A. Johnson, D. Mosel. 1993. Construct validity of an objective (entropy) categorical measure of diversification strategy. *Strategic Management J.* **14**(3) 215–235.

——, R. A. Johnson. 1992. Corporate restructuring and strategic change: The effect on diversification and R&D intensity. *Strategic Management J.* **13** 625–634.

Kochar, R., M. A. Hitt. 1998. Linking corporate strategy to capital structure: diversification strategy, type and source of financing. *Strategic Management J.* **13** 625–634.

Lamont, B. T., C. Anderson. 1985. Mode of corporate diversification, structure, and economic performance. *Acad. Management J.* **28** 926–934.

Lubatkin, M., S. Chatterjee, 1991. The strategy-shareholder value relationship: testing temporal stability across market cycles. *Strategic Management J.* **12**(4) 251–270.

Mahoney, J. T., J. R. Pandian. 1992. The resource-based view within the conversation of strategic management. *Strategic Management J.* **13** (June) 363–380.

Montgomery, C. A. 1984. Diversification strategy and systematic risk. *Strategic Management J.* **5**(2) 181–191.

——, S. Hariharan. 1991. Diversified entry by established firms. *J. Econom. Behavior and Organization* **15** 71–89.

Myers, S., N. S. Majluf. 1984. Stock issues and investment policy when firms have information that investors do not have. *J. Financial Econom.* **13** 187–222.

Palepu, K. 1986. Diversification strategy, profit performance and the entropy measure. *Strategic Management J.* **6** 239–255.

Pitts, R. A. 1980. Toward a contingency theory of multibusiness organization design. *Acad. Management J.* **5** 203–210.

Roberts, E. B., C. A. Berry. 1985. Entering new businesses: selecting strategies for success. *Sloan Management Rev.* (Spring) 3–17.

Simmonds, P. G. 1990. The combined diversification breadth and mode dimensions and the performance of large diversified firms. *Strategic Management J.* **11** 399–410.

Song, J. 1982. Diversification strategies and the experience of top executives of large firms. *Strategic Management J.* **3** 377–380.

Steiner, P. 1975. *Mergers*. University of Michigan Press, Ann Arbor, MI.

Teece, D. J. 1982. Towards an economic theory of the multi product firm. *J. Econom. Behavior and Organization* **3** 39–63.

Wilson, B. 1980. The propensity of multinational companies to expand through acquisitions. *J. Internat. Business Stud.* **11** 59–65.

Yip, G. S. 1982. Diversification entry: internal development versus acquisition. *Strategic Management J.* **3** 331–345.

Zezan, M. 1990. New ventures or acquisitions: the choice of Swedish multinational enterprises. *J. Industrial Econom.* **38** 349–355.

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