PERFORMANCE EFFECTS OF INFORMATION ASYMMETRY AND ECONOMIES OF SCOPE IN DIVERSIFIED SERVICE FIRMS

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This study examined the performance effects of information asymmetry and economies of scope in diversified service firms. Tests using both accounting- and stock-market-based measures of performance revealed that information asymmetry improved performance more than economies of scope. As hypothesized, the benefits of information asymmetry were greater for firms offering services whose quality cannot be determined until after their purchase (experience services), and the benefits of economies of scope were greater for firms offering services whose quality can be determined prior to purchase (search services). However, without considering the interactive effects of service characteristics, economies of scope were negatively associated with performance for diversified service firms overall.

Some authors have suggested that service firms should not diversify into related businesses (Carman & Langeard, 1980; Normann, 1984). Others, however, have noted that service firms can benefit from information asymmetry between buyers and sellers by serving multiple needs of buyers (Nayyar, 1990) and can benefit from economies of scope by sharing resources among businesses (Channon, 1978; Heskett, 1986). Supporting the latter view, Channon found that limited diversification was associated with superior performance in a sample of British service firms.

Although the difference of opinion on service diversification reflects disagreements in the vast literature on diversification strategies (Ramanujam and Varadarajan, 1989) offer an extensive review), many influences that might explain performance variations in diversified service firms have not been investigated. In particular, previous research suggests two issues—service characteristics and implementation difficulties—that might be usefully explored.

Service characteristics determine the difficulty that buyers face in evaluating the quality of services and therefore influence the extent of information asymmetry between buyers and sellers (Nayyar, 1990). Earlier studies of

I thank Robert K. Kazanjian for supervising my dissertation, on which this article is based. I also thank two anonymous reviewers for this journal for their thoughtful and constructive comments and suggestions, which greatly improved this article. Any remaining errors and omissions are mine.
service diversification (Carman & Langeard, 1980; Channon, 1978; Normann, 1984) have considered neither information asymmetry nor service characteristics. Consequently, their authors have concluded that all service firms, regardless of differences among the services they offer, face high diversification costs resulting from conflicts between the images of various services.

Implementation difficulties also accompany diversification strategies (Buono & Bowditch, 1989; Carman & Langeard, 1980; Heskett, 1986; Hill & Hoskisson, 1987; Hoskisson & Hitt, 1990; Jones & Hill, 1988; Kanter, 1989; Normann, 1984; Porter, 1985; Ramanujam & Varadarajan, 1989; Reed & Luffman, 1986). However, previous studies of diversified service firms have not addressed variations in implementation difficulties. For instance, Carman and Langeard (1980) concluded that coordination difficulties among businesses far outweighed any potential gains from economies of scope. But gaining information asymmetry benefits may not make heavy internal coordination demands. Hence, for a given level of business diversity, the pursuit of information asymmetry may result in fewer implementation difficulties than the pursuit of economies of scope.

THEORETICAL BACKGROUND AND HYPOTHESES

Information Asymmetry

An earlier article (Nayyar, 1990) suggested that diversified service firms with good reputations may benefit from exploiting the information asymmetry between themselves and the buyers of their services. Specifically, I proposed that "service firms can develop a competitive advantage by exploiting the potential buyer's incentives to lower information acquisition costs when buying new services" (Nayyar, 1990: 513). Buyers make purchase decisions on the basis of the price and quality of the various alternatives they are considering. The quality of a service is, however, difficult to evaluate because of its intangibility and the simultaneity with which it is produced and consumed (Holmstrom, 1985; Mills, 1986). This difficulty complicates the choice decision for buyers. Hence, buyers seek information that will allow them to make better choices (Stigler, 1961). Generally, the sellers of services have more information than buyers do about the true quality of their services. This information asymmetry leads to "moral hazard" for sellers, giving them an incentive to exert less than complete effort in delivering services. For buyers, the asymmetry leads to "adverse selection," or the likelihood of picking a poor-quality service (Holmstrom, 1985; Mills, 1986).

Information asymmetry may be reduced by firms' specifying contingencies and liabilities in contracts, submitting to certification or monitoring by outside agents, and signaling (Barzel, 1982; Holmstrom, 1985; Nelson, 1970, 1974). Such activities, which seek to assure buyers that a firm is committed to supplying high quality, can reduce information asymmetry but cannot eliminate it. The inability to fully anticipate all contingencies that may arise in its execution prevents the writing of complete contingent claims con-
tracts. Since services are consumed as they are delivered, they are neither reversible nor returnable. Therefore, warranties covering services are often difficult to administer. Certification is no performance guarantee. Furthermore, when certification is widespread, it provides no distinct performance signal. Monitoring is often inadequate because there is information asymmetry between the monitor and the person or facility being monitored. Thus, information asymmetry between the buyers and sellers of services remains even after firms take action to reduce it (Holmstrom, 1985).

Buyers of services may economize on information acquisition costs by favoring current service providers with whom they are satisfied when evaluating alternative providers of other needed services. Therefore, service providers who have made a favorable impression on existing buyers find it easier to influence them than entirely new buyers to try new goods or services. From the perspective of buyers, reputation reduces some adverse consequences of information asymmetry. Diversified service firms can, therefore, gain a competitive advantage by meeting multiple needs of existing satisfied buyers (Nayyar, 1990). However, failure to meet buyer and employee expectations about new services can also adversely affect existing services. Conversely, unfavorable reputations for existing services can adversely affect new services (Heskett, 1986; Nayyar, 1990).

Service Characteristics

The extent of information asymmetry varies with the characteristics of a service. This effect can be examined by differentiating services in terms of the mix of three attributes: search, experience, and credence qualities (Darby & Karni, 1973; Holmstrom, 1985; Shostack, 1977; Wilde, 1981; Zeithaml, 1981).

Search qualities are attributes that potential buyers can determine prior to purchase (Darby & Karni, 1973; Holmstrom, 1985; Nelson, 1970, 1974). Search qualities include attributes such as color, style, price, fit, feel, hardness, and smell. These attributes are generally associated with tangible components of services (Normann, 1984), such as the physical features and layout of facilities for providing services, the quality of the equipment, service providers’ attire, and facilitating goods (Sasser, Olsen, & Wyckoff, 1978), such as consulting reports, structural plans, and presentation material. Other search qualities, not necessarily associated with tangible components of services, include attributes like the term, interest rate, rate cap, assumability, approval time, and monthly payments associated with a mortgage loan.

Experience qualities are determinable only after the purchase of a service or during its consumption (Darby & Karni, 1973; Holmstrom, 1985; Nelson, 1970, 1974). Experience qualities include attributes such as taste, purchase satisfaction, convenience, safety, security, speed, reliability, level of comfort, and a seller’s attention to the needs and feelings of buyers.

Credence qualities are intangible attributes that a buyer may be unable to evaluate even after the purchase and consumption of a service (Darby &
Karni, 1973; Holmstrom, 1985; Zeithaml, 1981). Credence qualities include attributes such as the degree of service providers’ professionalism and knowledge and the advantages of certain repair or medical care procedures over other procedures.

Although each service is composed of a mix of search, experience, and credence qualities, for most services one type of attribute dominates. The distinction between experience and credence qualities is, however, not as clear as that between search and experience qualities (Darby & Karni, 1973). Fortunately, it is sufficient here to only distinguish search services—those dominated by qualities that buyers can determine before consumption—from experience and credence services (whose dominant qualities are only ascertainable after consumption or are not ascertainable) to determine the effect of service characteristics on information asymmetry. Therefore, henceforth I refer to only search and experience services.

Differences in services’ mix of search and experience qualities lead to different levels of information asymmetry between buyers and sellers. Buyers can ascertain the quality of search services prior to their purchase, but not the quality of experience services (Darby & Karni, 1973). Attributes of the latter do not lend themselves to full disclosure by sellers and evaluation by buyers. Consequently, information asymmetry is greater for experience services than for search services.

High information asymmetry increases difficulties for buyers. Therefore, incentives to favor current service providers are stronger for the buyers of experience services than for those of search services. Hence, the potential information asymmetry benefits for diversified service firms are greater for experience services than for search services (Nayyar, 1990).

Service firms with favorable reputations can benefit from information asymmetry in many situations. For example, public accounting firms often provide management consulting services to buyers of their auditing services. Buyers readily transfer their impressions of the quality of the service that their accounting firms deliver to the latter’s consulting services since the quality of such services is difficult to evaluate ex ante. Examples of specific companies benefiting from good reputations are American Express, which provides financial services to buyers of its travel-related services, and Sears, Roebuck and Company, which provides financial services to its retail customers.

Economies of Scope

Economies of scope arise when the joint cost of producing two or more outputs is less than the sum of the costs of producing each output by itself. Such cost benefits may arise when businesses share some unique factor of production, whether a management or distribution system, a product or process technology, or a plant and equipment (Ansoff, 1965; Rumelt, 1974; Teece, 1980). If transaction costs prevent an efficient market in the shared factor, economies of scope provide a motive for diversification (Panzar & Willig, 1981; Teece, 1980).
Sharing implies that a portion of a resource must be allocated to a business. Thus, the amount available for other businesses is reduced. However, economies of scope may also arise when a diversified firm independently uses the same significant resources in multiple businesses. Such multiple use does not imply any allocation of resources among businesses because the use of a resource in one business does not reduce its availability for other businesses. For example, technology is often not shared among businesses. Common technologies are, however, independently used in multiple businesses. Similarly, managerial capabilities, which are distinctive or core competences in some diversified firms (Ginsberg, 1990; Grant, 1988; Prahalad & Bettis, 1986; Prahalad & Hamel, 1990), are often used to manage multiple businesses.

Diversified service firms can benefit from economies of scope in many situations. For example, firms that are primarily in the hotel business may apply their expertise in efficiently meeting travelers’ boarding and lodging needs to providing similar services to hospital and nursing home patients. ARA Services, a large, diversified U.S. firm, maintains municipal vehicles using its vast fleet maintenance facilities, and Delta Airlines services the aircraft of other airlines using its maintenance facilities at many airports.

Implementation Difficulties


Image contamination costs. An image is a mental representation of reality (Aaker, 1991; Boulding, 1956). Image serves “as an information tool whereby management can influence staff, clients, and other resource holders whose actions and perceptions of the company . . . are important for market positioning and cost efficiency” (Normann, 1984: 21). Image guides and controls employee behavior that determines service quality, and it helps buyers to evaluate service quality (Carman & Langeard, 1980; Davidow & Uttal, 1989; Heskett, 1986; Mills, 1986; Normann, 1984). Schneider and Bowen (1985) found that service employees’ and buyers’ perceptions of the quality of a service and its determinants were highly correlated: Employees delivered the quality of service buyers expected of them and determined buyer expectations on the basis of the image their employing firm projected. Buyers, in turn, expected a level of service quality consistent with the firm’s image. For employees, this expectation reinforced a firm’s image. Thus, image affects both service employees and buyers. For example, Avis Rental Car, Inc. projects an image of excellence in customer service through its “we try harder” slogan, which not only exhorts its employees to try harder, but also
informs buyers that they can expect caring service. American Express promotes acquiring its credit card as joining an exclusive group. To employees, this image suggests that they are among the select few who work at American Express, where customers are very important. To customers, it suggests that membership bestows a status deserving of exceptional service.

All components of a firm’s service management system influence image: the service concept, the market segment served, the service delivery system, and the culture and philosophy of the firm (Normann, 1984). Variations in those components lead to image differences between businesses. Thus, a service management system that is consistent with the desired image is necessary for a successful service business. Therefore, mixing service management systems creates a risk of image conflicts (Carman & Langeard, 1980; Davidow & Uttal, 1989; Heskett, 1986; Normann, 1984). For example, there is a risk of image conflict when a consulting firm offers executive placement services. Although such a service meets client needs, it can create a conflict of interest that can contaminate the “helpful” image of consulting. Consulting clients may fear that their executives will be tempted to use the placement service or that consultants will meet executives to evaluate them for placement with other clients. Concerns about conflict of interest have also been raised over law firms’ offering nonlegal services.

Conflicting images not only cannot guide and control employee behavior but also can cause variations in the quality of service as employees struggle to deal with conflicting cues (Schneider & Bowen, 1985; Zeithaml, Parasuraman, & Berry, 1990). Service quality variations may, in turn, cause costly employee turnover as buyers voice their dissatisfaction (Normann, 1984; Zeithaml, Parasuraman, & Berry, 1985). For example, employee confusion resulted from service firm diversification when a no-frills airline, People Express, offered a “luxury” service. The new business class the airline introduced to fill unused capacity during weekdays created a severe image conflict with its main business of serving budget-conscious leisure-time travelers (Davidow & Uttal, 1989). When each type of traveler created different demands on the airline’s employees, and each had different expectations of what constituted good service, the employees could not satisfactorily meet the needs of either. Similarly, as Porter noted, Laker Airways “blurred its image and suboptimized its service and delivery system” (1985: 17), with disastrous results.

Since image is a source of information, image conflicts between different services also confuse buyers, further hindering their ability to evaluate service quality (Heskett, 1986; Normann, 1984). Confused buyers might choose to take their business elsewhere. Therefore, new services that cause image conflicts may not achieve adequate market penetration. Worse, a service firm may lose existing buyers because of image conflict created by a new service. These effects would result in lost revenues. Both People Express and Laker Airways suffered this fate. Attempts by McDonald’s, the fast-food chain, to widen its menu to include pizzas and to change its dining envi-
ronment to attract evening patrons might similarly confuse both its existing customers and the new buyers it is trying to attract.

Costs that arise from image conflicts are termed image contamination costs. These costs vary with service characteristics. For search services, information asymmetry is low because buyers can ascertain service quality before purchasing a service. Buyers do not need any additional information that image can provide and therefore place little weight on image in their buying decisions. Hence, image contamination costs are low for search services. For experience services, however, information asymmetry is high; buyers need additional information, and image is a valuable source of information about service quality. Hence, image contamination costs can be high for experience services because image conflicts may occur.

Image contamination costs also vary with the source of the benefits being pursued. Attaining the benefits of information asymmetry by serving multiple needs of buyers requires that a firm project similar images for the services it offers. Otherwise, information asymmetry benefits cannot exist. Conversely, the existence of information asymmetry benefits implies the absence of image contamination. In contrast, the pursuit of economies of scope requires mixing service management systems and, in its pure form, targets new customers. Such targeting could cause image contamination costs because image conflicts between the different services offered arise. Service characteristics affect the level of these costs for firms pursuing economies of scope. In this case, image contamination costs are likely to be high for experience services and low for search services because the information provided by images is more valuable for the former than for the latter.

**Internal transaction costs.** Transaction costs are the costs of negotiating, monitoring, and enforcing agreements between the parties to an exchange (Jones & Hill, 1988; Riordan & Williamson, 1985; Williamson, 1985). Internal transaction costs are a function of the extent of coordination required among businesses (Galbraith & Kazanjian, 1986; Gupta & Govindarajan, 1986; Thompson, 1967) and of any coordination difficulties that may be encountered (Williamson, 1975, 1985). For example, internal transaction costs may arise when there are disagreements over organizational ends and means (Kanter, 1989), concerns over the perceived or real loss of independence and autonomy because of greater coordination (Bastien, 1967; Buono & Bowditch, 1989; Gupta & Govindarajan, 1986; Mizriv, 1985; Napier, 1999; Porter, 1985), and top management information-processing problems in managing interdependent businesses (Hill & Hoskisson, 1987; Hoskisson, Hitt, & Hill, 1991; Jones & Hill, 1988).

Firms incur internal transaction costs when they attempt to realize relatedness benefits by integrating new businesses. Firms may accomplish integration by forging new organizational relationships, changing existing ones, and creating mechanisms to ensure coordination among related businesses. Thus, internal transaction costs vary with the source of the benefits being pursued. Since attaining the benefits of information asymmetry re-
quires little coordination between businesses, it carries low internal transaction costs. In contrast, since attaining economies of scope requires a high degree of coordination between businesses, it carries high internal transaction costs.

Realized Benefits

Potential benefits and implementation difficulties determine realized benefits. Table 1 presents four diversification options for service firms that result from combining the two sources of benefits and the two types of services. The letters A–D designate the four options and the realized benefits from each. Since there were no a priori reasons to expect otherwise, I assumed that each of the two sources offered high potential benefits before considering service characteristics. Comparing options A and B shows that both offer high potential benefits from economies of scope and both carry high internal transaction costs. However, option B, which involves experience services, also involves high image contamination costs. Hence, option A should deliver higher realized benefits from economies of scope than option B. This relationship can be represented as $A > B$.

*Hypothesis 1: The interactive effects of economies of scope and search services, whose quality can be determined before they are purchased, are positively related to performance.*

Option C involves search services that pose few quality evaluation problems for buyers because information asymmetry between buyers and sellers is low. Hence, only low potential information asymmetry benefits are possible. Option D, however, involves experience services that are difficult for buyers to evaluate. Hence, it offers high potential information asymmetry benefits. Both options C and D are based on information asymmetry benefits that can arise only when buyers purchase multiple services from a firm, which can occur only if there are no image conflicts. Thus, image contamination costs are likely to be low for both options C and D. Also, both options

| TABLE 1 | Strategic Options and Realized Benefits in Diversified Service Firms |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| Variables       | Strategic Option | Potential Benefits | Image Contamination Costs | Internal Transaction Costs | Realized Benefits |
| Economics of scope | A | High | Low | High | \{ $A > B$ |
| Search services | B | High | High | High | \{ $A > B$ |
| Experience services | C | Low | Low | Low | \{ $D > C$ |
| Information asymmetry | D | High | Low | Low | \{ $D > C$ |
require little coordination among businesses and, therefore, are likely to carry low internal transaction costs. Options C and D have the same level of implementation difficulty, so option D should deliver higher realized information asymmetry benefits than option C, a relationship that can be represented as D > C.

Hypothesis 2: The interactive effects of information asymmetry between buyers and sellers and experience services, whose quality can only be determined after they are purchased, are positively related to performance.

Option A offers high potential benefits from economies of scope, and option C offers low potential information asymmetry benefits. Both options A and C involve search services and, therefore, both are associated with relatively low image contamination costs. However, internal transaction costs are high with option A, significantly lowering the realized benefits expected from this option. In contrast, option C offers low potential information asymmetry benefits and it carries low internal transaction costs. Therefore, although option A offers high potential benefits, after implementation difficulties are considered it is difficult to determine how it compares with option C on realized benefits.

Given that D > C and A > B, the inconclusive comparison between option A and option C implies that a clear hypothesis on the relative realized benefits of information asymmetry and economies of scope cannot be developed. Therefore, in addition to the two hypotheses presented above, I attempted to obtain an empirical answer to the following research question: What are the relative performance effects of information asymmetry and economies of scope in diversified service firms?

METHODS

Sample

The sample was drawn from the Service 500 list compiled by Fortune (Fortune, 1987) and the service firms listed in The Corporate 1000 (Monitor Publishing Company, 1987). Firms deriving more than 10 percent of their revenues from nonservice businesses were excluded. Constraints on access, time, and funding limited the number of firms I could contact. Therefore, I selected a random sample of 513 service firms. Their activities spanned the full range of Standard Industrial Classification (SIC) codes assigned to nonmanufacturing industries, excluding utilities, government, and noncommercial educational, scientific, and research organizations. The sample firms ranged in size from $250 million to over $15 billion in annual revenues in 1987, with an average of $1.98 billion. The sample therefore comprised large U.S. service firms.

A pretested, self-administered, structured questionnaire was sent to the chief executive officers (CEOs) of the sample firms in late 1987. After follow-
up efforts, I received 319 responses. Of the responders, 216 declined to participate, mostly because of concern over data confidentiality, although the cover letter accompanying the questionnaire contained assurances that only aggregate data would be reported. The large number of declines was not unexpected because I requested extensive and possibly confidential information about corporate strategy. I discarded 23 questionnaires either because data were missing and could not be obtained even after follow-up efforts or because a responding CEO had been with a firm for less than two years. I used the latter criterion to ensure that the CEOs were sufficiently well informed about their firms' strategies. These procedures resulted in 80 usable responses, representing an effective response rate of about 16 percent. Table 2 lists the primary industries in which the sample firms participated.

Table 3 gives results of tests of nonresponse bias. These tests did not reveal any statistically significant differences between the responders and nonresponders in terms of assets, revenues, net income, return on equity, the market-to-book value of equity, and Jensen's alpha, a stock-market-based measure of firm performance that accounts for industry participation and risk.

Data Collection

Methods used to measure diversification strategies have been based on the premise that external observers can correctly discern the pattern of relationships among the businesses of diversified firms. Relationships can be established either by using SIC codes or by examining the product markets

### TABLE 2

**Primary Industries of Sample Firms**

<table>
<thead>
<tr>
<th>Industries</th>
<th>Number of Firms</th>
</tr>
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<tbody>
<tr>
<td>Air transport</td>
<td>4</td>
</tr>
<tr>
<td>Amusement and recreation services</td>
<td>3</td>
</tr>
<tr>
<td>Banks</td>
<td>6</td>
</tr>
<tr>
<td>Business services</td>
<td>3</td>
</tr>
<tr>
<td>Communication</td>
<td>4</td>
</tr>
<tr>
<td>Consulting services</td>
<td>3</td>
</tr>
<tr>
<td>Eating places</td>
<td>5</td>
</tr>
<tr>
<td>Financial services</td>
<td>5</td>
</tr>
<tr>
<td>Health services</td>
<td>7</td>
</tr>
<tr>
<td>Hotels</td>
<td>7</td>
</tr>
<tr>
<td>Insurance</td>
<td>5</td>
</tr>
<tr>
<td>Personal services</td>
<td>3</td>
</tr>
<tr>
<td>Real estate</td>
<td>2</td>
</tr>
<tr>
<td>Repair and maintenance services</td>
<td>1</td>
</tr>
<tr>
<td>Retailers</td>
<td>9</td>
</tr>
<tr>
<td>Transport (except air) and transportation services</td>
<td>6</td>
</tr>
<tr>
<td>Wholesalers</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>
TABLE 3
Results of Tests of Nonresponse Bias

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Responders</th>
<th>Nonresponders</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Means</td>
<td>s.d.</td>
</tr>
<tr>
<td>Assets in billions of dollars</td>
<td>7.144</td>
<td>20.166</td>
</tr>
<tr>
<td>Revenues in billions of dollars</td>
<td>1.976</td>
<td>6.075</td>
</tr>
<tr>
<td>Net income in millions of dollars</td>
<td>141.674</td>
<td>246.977</td>
</tr>
<tr>
<td>Return on equity</td>
<td>12.765%</td>
<td>121.446%</td>
</tr>
<tr>
<td>Market-to-book value of equity</td>
<td>1.203</td>
<td>0.812</td>
</tr>
<tr>
<td>Jensen’s alpha</td>
<td>-0.022</td>
<td>0.025</td>
</tr>
</tbody>
</table>

in which businesses participate and applying knowledge of the key elements of input, throughput, and output that compose each business (Amit & Livnat, 1988a, b, 1989; Montgomery, 1979, 1982; Palepu, 1985; Rumelt, 1974, 1982). However, those methods do not allow consideration of implementation difficulties in realizing potential benefits.

I collected data on relationships among businesses using CEOs as key informants (Campbell, 1955; Siedler, 1974) on the premise that relationships providing significant benefits will be actively managed because they increase the effectiveness of a firm’s distinctive competence (Hitt & Ireland, 1985; Selznick, 1957). The use of CEOs as informants is consistent with the practices of previous researchers who have examined organizational strategies (Shortell & Zajac, 1990; Snow & Hrebiniak, 1980; Zajac & Shortell, 1989). CEOs were asked to consult with appropriate persons in their firms when collecting data to complete the questionnaire.

A pilot test of the questionnaire was conducted in ten large, diversified U.S. service firms, which were subsequently excluded from the study. During this pilot test, I studied each firm closely and observed the processes the CEOs adopted as they collected information. These observations indicated that CEOs interpreted questions and instructions as intended and usually collected data to complete the questionnaires. Follow-up contacts, letters that accompanied returned questionnaires, and comments indicated that the CEOs often consulted members of their staffs and other highly placed, potentially well-informed members of their top management teams before completing the questionnaires.

Measures

Assessing economies of scope. To gather data on economies of scope, I asked CEOs to answer four questions and to fill in a matrix (Figure 1). First, I asked them to list up to ten of the most significant resources of their firms: “Please identify the 10 most significant resource bases used in the businesses of your firm and list them in the spaces provided below.” The questionnaire described significant resources as strengths or assets: “physical plant or equipment,” personnel’s “specialized knowledge or skills,” or “spe-
FIGURE 1
Matrix Used to Collect Data on Economies of Scope

<table>
<thead>
<tr>
<th>Resource bases used in the firm</th>
<th>1</th>
<th>2</th>
<th>...</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<td>2</td>
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<td>...</td>
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<tr>
<td>10</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Proportion of total firm sales from business</td>
<td></td>
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Examples of resource bases are plant and equipment, general management expertise, professional expertise, functional expertise, information systems, data bases, computer systems, distribution networks, supplier networks, skilled work force, prime locations, proprietary technology, patents and copyrights, organizational procedures, and trade contacts.

cial routines or repertoires." The questionnaire included an illustrative list of resources.

Second, I requested a list of a firm's ten "most significant businesses (in terms of revenues)." I asked for information on ten businesses since that is the maximum number that firms are required to report in their 10K filings. It is also the maximum number of segments on which data are available for each firm in the COMPSTAT business segment data base. Hence, these two sources of secondary data served to check the data from the questionnaires. I obtained over 90 percent correspondence between the primary and secondary data on the numbers and sizes of the businesses of each firm and resolved discrepancies by conducting telephone interviews with the CEOs of the concerned firms.

Third, each CEO entered the proportion of total firm revenues obtained from each of the firm's businesses (last row, Figure 1). These proportions summed to 100 percent for all firms in the sample, indicating that collecting data on at most ten businesses was adequate.

Fourth, each CEO indicated in which businesses each resource was used in the appropriate boxes of the matrix. Since I requested identification of significant resources, I assumed that such resources reflected the distinctive competences of the firms and, as such, were the ones most likely to meet the requirements for economies of scope in firms that used them in multiple businesses. Hence, use in multiple businesses was a surrogate for economies of scope.
From these data, I identified groups of resource-related businesses and computed an entropy measure of diversification (Jacquemin & Berry, 1979) that also controlled for differences in total diversification. This process yielded a summary measure of economies of scope (Appendix A).

**Assessing information asymmetry.** To gather data on information asymmetry benefits, I asked CEOs to fill in a second matrix (Figure 2). The first question was "Please identify the 10 most significant client bases of your firm and list them in the spaces provided below." The questionnaire described a client base as "a set of unique customers who essentially buy the same set of goods and services from your firm." The questionnaire included an illustrative list of client bases.

Second, CEOs listed up to ten of the most significant businesses of their firms as they had done in the first matrix. Third, CEOs indicated which businesses of their firms sold goods or services to each client base in the appropriate boxes of the matrix.

From these data, I identified groups of client-related businesses and computed another entropy measure of diversification that also controlled for differences in total diversification. This process yielded a summary measure of information asymmetry (Appendix A).

**Construct validity of diversification measures.** Construct validity includes theoretical and observational meaningfulness, internal consistency of operational definitions, and convergent, discriminant, and nomological validity (Bagozzi, 1980). To determine the construct validity of the economies of scope and information asymmetry measures, I selected a random subsample of 24 firms that permitted me to collect data firsthand from internal firm

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**FIGURE 2**
Matrix Used to Collect Data on Information Asymmetry

<table>
<thead>
<tr>
<th>Businesses</th>
<th>1</th>
<th>2</th>
<th>...</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Client bases of the firm</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1</td>
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</tbody>
</table>

Examples of client bases are any set of customers buying the same set of services, institutional buyers, individual customers, U.S. government, multinational corporations, physicians, lawyers, travelers, students, veterans, religious groups, hospitals, hotels, chain stores, corporate offices, fleet operators, educators, homemakers, automobile owners, money lending institutions, first-time renters, and first-time home buyers.
documents and from interviews with both corporate- and business-level executives. The documents examined contained sales and other market data for each business of a firm. I interviewed executives to identify the significant resources and client bases of each business of a firm. On the average, interviews and data collection took five hours per firm.

The data collected firsthand from this subsample of firms were compared with the data their CEOs had provided earlier on the questionnaires. The mean correlation across the two data sets for the proportion of sales obtained from the businesses of each firm was .97, which was significant at the .001 level. The average agreement between the data sets on the significant resources of the subsample firms was 81 percent, and on client bases it was 79 percent; there was 86 percent agreement on the use of significant resources in particular businesses, and 77 percent agreement on the identities of client bases each business served. In addition to comparing disaggregate data, I also computed the two entropy measures for the subsample firms using the firsthand data. The correlation coefficients for those two measures across the two data sets were economies of scope, .86, and information asymmetry, .94, both significant at the .001 level. Thus, these data provided some support for the reliability and validity of the economies of scope and information asymmetry measures used here.

Service characteristics. Two independent raters familiar with the literature on information economics, where search and experience qualities are discussed (Darby & Karni, 1973; Holmstrom, 1985; Wilde, 1981), categorized all services listed in the four-digit SIC classification into either the search or the experience category. There was over 95 percent agreement between the two raters. Cases of disagreement were resolved by reference to the services marketing and management literature (Bowen & Jones, 1986; Shostack, 1977; Zeithaml, 1981) and by discussion between the author and the raters. Table 4 gives examples of search and experience qualities, criteria suggested to classify services, and some services classified using these criteria. I computed a summary measure of service characteristics for each firm as the proportion of revenues obtained from search services. By the measure’s construction, its complement measured the proportion of revenues obtained from experience services.

Control variables. Firm size and geographic diversity were used as control variables. Largeness offers the potential for economies of scale but can also lead to costs arising from managerial diseconomies. Further, Nathanson and Cassagno (1982) found that the relationship of product and market diversity to firm performance in their sample was different for small and large firms. To account for any such relationships, I used the natural logarithm of firm revenues as a measure of firm size.

Geographic diversity raises coordination costs and poses problems for maintaining service quality. Geographic diversity may be, however, a strategic requirement for effective competition. Hence, it was necessary to control for it. Drawing on the global diversification literature with a view toward
TABLE 4
Classifying Services

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Search Services</th>
<th>Experience Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>in evaluation</td>
<td>Low</td>
<td>Intangible dominant</td>
</tr>
<tr>
<td>Mix of tangible and intangible elements</td>
<td>Tangible dominant</td>
<td>High</td>
</tr>
<tr>
<td>Need for joint provision of diagnosis and service</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Examples</td>
<td>Janitorial services</td>
<td>Security services</td>
</tr>
<tr>
<td></td>
<td>Building maintenance services</td>
<td>Pest control services</td>
</tr>
<tr>
<td></td>
<td>Data processing</td>
<td>Software development</td>
</tr>
<tr>
<td></td>
<td>Tax return processing</td>
<td>Systems integration</td>
</tr>
<tr>
<td></td>
<td>Communication services</td>
<td>Consulting</td>
</tr>
<tr>
<td></td>
<td>Retail</td>
<td>Risk management</td>
</tr>
<tr>
<td></td>
<td>Airline sales/airport services</td>
<td>Aircraft maintenance</td>
</tr>
<tr>
<td></td>
<td>Consumer finance</td>
<td>Hotels</td>
</tr>
<tr>
<td></td>
<td>Motion picture theaters</td>
<td>Insurance</td>
</tr>
<tr>
<td></td>
<td>Fast-food restaurants</td>
<td>Motion pictures</td>
</tr>
<tr>
<td></td>
<td>Mortgage lending</td>
<td>Hospitals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asset management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Child care services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advertising services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legal services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Automobile repair</td>
</tr>
</tbody>
</table>

minimizing data collection complexity (Kim, Hwang, & Burgers, 1989), I requested the CEOs to provide the proportion of total firm revenues obtained from each of three regions in the United States (eastern, western, and midwestern) and six regions on the other continents (Western Europe, Pacific Rim, other parts of Asia, South America, Africa, and Australia). From those proportions, I computed an entropy measure of geographic diversity (Appendix A).

Firm performance. Industry- and systematic risk-adjusted return on equity (ROE), the industry-adjusted market-to-book value of equity, and Jensen’s alpha were the performance measures (Appendix B). The need for a common measure of performance appropriate to a cross-sectional sample dictated the choice of ROE as an accounting-based measure of firm performance. I used average ROE over the five years 1985–89 to reduce the chance that performance data from an unusually good or bad year might confound the analysis (Amit & Livnat, 1989; Dubofsky & Varadarajan, 1987). I divided the average ROE by an accounting-based measure of systematic risk suggested by Hill and Stone (1980). This measure of systematic risk is defined as the ratio of the covariance of a firm’s return on equity with the return on equity obtained on a broad market portfolio of stocks to the variance of the
return on equity of the market portfolio. This measure is an accounting
equivalent of the stock-market-based measure of systematic risk derived
from the capital asset pricing model.\footnote{Rueffel (1990) cautioned against the use of the mean-variance approach to risk-return
relationships and showed that such an approach is inherently flawed. The accounting-based
measure of systematic risk used in this study, however, is not based on a mean-variance ap-
proach. Further, unlike Rueffel’s analysis, which considers total risk only, this study used sys-
tematic risk.}

The ratio of the market value of equity to its book value was used as a
measure of firm performance (Amit & Livnat, 1988b, 1989; Varaiya, Kerin, &
Weeks, 1987). This ratio is theoretically and empirically equivalent to To-in’s q (Varaiya et al., 1987). Tobin’s q (Lindenberg & Ross, 1981) incorpo-
rates a systematic risk adjustment, estimates long-term returns, and mitigates
distortions due to tax laws and accounting conventions (Wernerfelt & Mont-
gomery, 1988).

The performance of the industries in which a firm participates affects
both these measures of firm performance (Porter, 1980), although some re-
cent studies have suggested that industry effects are small compared with
other effects (Conner, 1991; Hitt & Tyler, 1991; Rumelt, 1991; Schmalensee,
1985). I adjusted the average ROE and market-to-book value of equity by
subtracting a weighted sum of the respective industry averages for each
industry in which a firm participated. Because there are difficulties in iden-
tifying the investments associated with each business of a diversified firm,
following previous usage (Montgomery, 1979; Rumelt, 1982) I used the per-
centage of total revenues in each business as weights, although capital in-
vestment is the correct weight to use (Carter, 1977).

Jensen’s alpha, a stock-market-based performance measure based on the
market model (Fama, 1968), was obtained as the estimate of the intercept in
a regression equation of firm returns on market returns, both computed in
excess of the risk-free rate (Jensen, 1969). Jensen’s alpha compares the per-
formance of a firm or a managed portfolio of stocks to that of firms in an
unmanaged portfolio with similar market risk. This use of Jensen’s alpha is
consistent with many recent studies of corporate diversification (Bühner,
1987; Dubofsky & Varadarajan, 1987; Lubatkin & Rogers, 1989; Michel &
Shaked, 1984).

Accounting data were collected from COMPUSTAT tapes. Data on stock
market performance were obtained from tapes maintained by the Center for
Research in Security Prices (CRSP). Firm and industry financial perform-
dance data were collected for a period of 20 years (1965–84) to allow com-
putation of systematic risk based on ROE. Stationarity of the risk measures
over such a long period was a concern, but no satisfactory approach to
estimating risk measures after allowing for such instability is available (Mc-
Donald, 1985). I computed the average market-to-book value of equity during
1987 from COMPUSTAT data and computed Jensen’s alpha using daily firm
and stock market returns from the CRSP tapes for 1987 and the 12-month treasury bond rate for each month of 1987 to obtain the risk-free rate.

RESULTS

Table 5 presents sample means, standard deviations, and the full correlation matrix.

Regression analysis with two interaction terms was used to test Hypotheses 1 and 2. I specified one interaction term as the product of the level of information asymmetry and the proportion of experience services a firm offered and the second interaction term as the product of economies of scope and a firm’s proportion of search services. I used one-tailed t-tests since the two hypotheses were directional. As Table 6 shows, results strongly supported both hypotheses when the adjusted market-to-book value of equity and Jensen’s alpha were used to measure performance.

The two hypotheses were not supported when adjusted ROE was used. Although the coefficients of the two interaction terms are also positive with that performance measure, as Hypotheses 1 and 2 predict, they are not statistically significant. Differences in the relationships between diversification strategy and firm performance based on the performance measures used are not uncommon in research in this area. Dubofsky and Varadarajan (1987) found that return on assets divided by its standard deviation, which is a measure of total risk, was negatively correlated with stock-market-based performance measures and therefore led to conflicting inferences when used to evaluate diversification strategies. They speculated that this discrepancy may occur because of time lags in reflecting the impact of a firm’s diversification strategy on accounting-based performance measures. Similarly, Keats and Hitt (1988) found no relationship between diversification and accounting-based performance measures although diversification and stock-market-based measures were related. They found that this difference could be attributed to the greater role that environmental instability played in the former relationship.

TABLE 5
Means, Standard Deviations, and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information asymmetry</td>
<td>0.32</td>
<td>0.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Economies of scope</td>
<td>0.55</td>
<td>0.13</td>
<td>0.30*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Service characteristics</td>
<td>0.65</td>
<td>0.39</td>
<td>−0.26*</td>
<td>−0.44*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Geographic diversity</td>
<td>1.05</td>
<td>0.53</td>
<td>−0.66</td>
<td>0.55</td>
<td>−0.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Firm size</td>
<td>7.44</td>
<td>0.93</td>
<td>−0.26*</td>
<td>−0.10</td>
<td>0.16</td>
<td>0.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Adjusted ROE</td>
<td>31.15</td>
<td>99.09</td>
<td>0.18</td>
<td>−0.19</td>
<td>0.15</td>
<td>0.16</td>
<td>0.31*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Adjusted market-to-book value of equity</td>
<td>0.97</td>
<td>0.81</td>
<td>0.14</td>
<td>−0.23</td>
<td>0.00</td>
<td>0.10</td>
<td>0.029*</td>
<td>0.24</td>
<td>0.37*</td>
</tr>
<tr>
<td>8. Jensen’s alpha</td>
<td>−0.02</td>
<td>0.03</td>
<td>0.38*</td>
<td>−0.28*</td>
<td>0.33</td>
<td>−0.11</td>
<td>0.24</td>
<td>0.20</td>
<td>0.37*</td>
</tr>
</tbody>
</table>

*N = 80.
*p < .01
### TABLE 6
Results of Regression Analyses for Hypotheses 1 and 2

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Industry- and Risk-adjusted ROE</th>
<th>Industry-adjusted Market-to-Book Value of Equity</th>
<th>Jensen’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm size</td>
<td>0.352*</td>
<td>0.324*</td>
<td>0.387*</td>
</tr>
<tr>
<td>Geographic diversity</td>
<td>0.153</td>
<td>0.081</td>
<td>-0.111</td>
</tr>
<tr>
<td>Information asymmetry</td>
<td>0.347*</td>
<td>0.217</td>
<td>0.532*</td>
</tr>
<tr>
<td>Economies of scope</td>
<td>-0.303*</td>
<td>-0.507*</td>
<td>-0.557*</td>
</tr>
<tr>
<td>Information asymmetry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>× search services</td>
<td>0.038</td>
<td>0.397*</td>
<td>0.264*</td>
</tr>
<tr>
<td>Economies of scope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>× experience services</td>
<td>0.101</td>
<td>0.358*</td>
<td>0.205*</td>
</tr>
<tr>
<td>R²</td>
<td>0.266</td>
<td>0.365</td>
<td>0.503</td>
</tr>
<tr>
<td>F</td>
<td>4.408*</td>
<td>7.008*</td>
<td>12.325*</td>
</tr>
</tbody>
</table>

* p < .05

Although those studies offer some insights as to why I found no support for Hypotheses 1 and 2 using adjusted ROE, it is important to note some differences. My accounting-based measure of firm performance differs substantially from those used in the cited studies. To control for risk, I used accounting-based systematic risk, not the standard deviation of accounting performance, which is a measure of total risk. Since this approach results in accounting measures closer to stock-market-based measures, at least with respect to risk, I did not find the negative relationship between accounting-based and stock-market-based measures of firm performance the other studies did (Dubofsky & Varadarajan, 1987; Keats, 1988; Keats & Hitt, 1988). Although I used adjusted ROE to attempt to correct for any biases due to year-to-year fluctuations, industry performance differences, and systematic risk, it is possible that some effects remained unaccounted for. For example, controlling simply for industry performance differences may not be adequate if industry environments are heterogeneous (Kim & Lim, 1988). Also, time lags in reflecting the impact of diversification moves on ROE might be greater than the 30 months implicitly assumed here by using five-year average ROE centered around 1987, the year when I conducted the survey to gather diversification data.

To address the research question on the relative performance effects of information asymmetry and economies of scope, I used regression analysis with restricted and unrestricted coefficients (Kmenta, 1986).2 Since this

---

2 This test is similar to the Chow test that is used to test for differences between two alternative equations derived, for example, from two different theories (Kmenta, 1986: 421). Examining the research question requires a test for differences between two regression coefficients described by Kmenta (1986: 248, 418–420).
analysis required comparing two regression coefficients, the appropriate test was an F-test with the following test statistic (Kmenta, 1966):

\[
\frac{[SSE(r) - SSE(u)]/\text{number of restrictions}}{SSE(u)/(n - p)} \sim F_{1,n-p},
\]

where

- \( SSE(r) \) = the error sum of squares in a regression equation where the coefficients for information asymmetry and economies of scope are restricted to be equal,
- \( SSE(u) \) = the error sum of squares in a regression equation with unrestricted coefficients,
- \( n \) = sample size,

and

- \( p \) = number of parameters estimated in the unrestricted regression equation.

Table 7 presents the regression estimates obtained. As can be seen from the test-statistic values, the coefficient for information asymmetry benefits was significantly greater than that for benefits from economies of scope for all performance measures.

**DISCUSSION AND CONCLUSIONS**

This study examined the performance effects of four diversification options for service firms. Service firms may seek potential benefits from information asymmetry and economies of scope when they diversify. Those benefits are not always realized fully because implementation difficulties are present. Both potential benefits and implementation difficulties depend upon whether search or experience services are involved. In brief, in this sample of service firms: (1) information asymmetry was overall positively

**TABLE 7**

Results of Regression Analysis for Overall Performance Effects

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Industry- and Risk-adjusted ROE</th>
<th>Industry-adjusted Market-to-Book Value of Equity</th>
<th>Jensen's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm size</td>
<td>0.360*</td>
<td>0.329*</td>
<td>0.357*</td>
</tr>
<tr>
<td>Geographic diversity</td>
<td>0.135</td>
<td>0.097</td>
<td>-0.101</td>
</tr>
<tr>
<td>Information asymmetry</td>
<td>0.366*</td>
<td>0.316*</td>
<td>0.392*</td>
</tr>
<tr>
<td>Economies of scope</td>
<td>-0.273*</td>
<td>-0.290*</td>
<td>-0.417*</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.258</td>
<td>0.215</td>
<td>0.445</td>
</tr>
<tr>
<td>( F )</td>
<td>6.505*</td>
<td>5.123*</td>
<td>15.028*</td>
</tr>
<tr>
<td>Test statistic*</td>
<td>14.951*</td>
<td>13.204*</td>
<td>27.151*</td>
</tr>
</tbody>
</table>

*The test statistic tests the hypothesis that the coefficient for information asymmetry is significantly greater than that for economies of scope.

* \( p < .05 \)
associated with firm performance, (2) economies of scope were overall negatively associated with firm performance, (3) information asymmetry was positively associated with firm performance for experience services, and (4) economies of scope were positively associated with firm performance for search services.

First, results suggest that related diversification by service businesses is a feasible and profitable strategy. This finding is consistent with earlier conclusions (Nayyar, 1990) and with observations by Channon (1978) and Heskett (1986), but it is contrary to the conclusions of previous conceptual examinations of service diversification (Carman & Langeard, 1980; Normann, 1984). This finding suggests that researchers should consider differences in sources of benefits and service characteristics when evaluating the performance effects of different related-diversification strategies.

Second, the finding that information asymmetry results in better performance than economies of scope highlights the importance of implementation difficulties. This pattern is consistent with the findings of Panzar and Willig (1981), who noted that the concept of economies of scope, which only includes production costs, may need to be widened to include organizational costs. Considering production costs alone results in an incomplete analysis of the determinants of the scope of a firm (Teese, 1980). Earlier analyses arrived at conflicting conclusions on service diversification precisely because each was incomplete.

Diversified firms might participate in potentially related businesses but not gain any benefit from doing so. A large difference between realized and potential synergy presents a difficult research problem because connecting diversification to firm performance requires the measurement of realized synergy. Furthermore, diversified firms could differ in implementation abilities, thereby attaining different levels of realized synergy for the same level of potential synergy. Also, realized synergy may increase as implementation abilities evolve (Kazanjian & Drazin, 1987). Hence, as Hoskisson and Hitt (1990) suggested, it might be beneficial for researchers to reexamine previous studies of the relationship between diversification strategy and performance, which have cumulatively resulted in ambiguous findings (e.g., Ramunjam & Varadarajan, 1989; Reed & Luffman, 1986).

In particular, greater consideration of administrative coordination costs distinct from internal transaction costs might be warranted. Following Williamson (1975, 1985) and Jones and Hill (1988), I considered internal transaction costs as a function of the extent of coordination required among businesses. Although this view reflects the prevailing consensus, it is but one interpretation because the extant literature also reflects some disagreement over what costs are included under transaction costs (Chandler, 1977; Perrow, 1981).

In part this issue arises because transaction costs have been defined very broadly as “the costs of running the economic system” (Williamson & Ouchi, 1981: 388). Perrow (1981) noted that this definition leads to the conclusion that transaction costs can explain anything. Williamson (1985) acknowl-
edged this criticism of his definition of transaction costs. Chandler (1977) viewed transaction costs as only the costs of conducting a transaction between units. Administrative coordination, however, does not involve transactions because nothing is exchanged between units; only a way to work together for some common purpose is determined. Chandler noted that "the savings resulting from (administrative) coordination were much greater than those resulting from lower . . . transactions costs" (1977: 7). Thus, he suggested that efficiencies in administrative coordination, not in transaction costs, are a reason for the existence of large firms.

Perrow also noted that "opportunism and bounded rationality . . . do not apply well to coordination but only to transactions" (1981: 376). Williamson and Ouchi, however, disagreed and wrote that "coordination is an important transaction cost issue" (1981: 388) because time is not a free good. Williamson suggested that transaction costs are "the economic counterpart of friction" (1985: 2) that arises because of frequent misunderstandings and conflicts that lead to delays, breakdowns, and other malfunctions. His statement implies that without misunderstandings and conflicts, transaction costs would be absent, or that there would be no problems in achieving organizational coordination. But coordination of ongoing activities is necessary even when there are no misunderstandings and conflicts. Further, cooperation may not happen because the managers of two business units may agree that it is in their best interests to operate autonomously. Thus, it is not clear that transaction costs encompass all costs of internal organization.

Hoskisson and Hitt questioned a fundamental behavioral assumption that underlies the transaction costs approach when they stated "It is overly pessimistic to assume that managers will usually act in their own self-interest as opposed to firm-interest" (1990: 490). They also noted that "there is little empirical research to support such a notion" (1990: 496), referring to managerial self-interest seeking. Porter (1985) and Kanter (1989) also listed several organizational impediments to cooperation between business units that do not necessarily arise from managers seeking their own self-interests with guile, which is a cornerstone of the concept of transaction costs (Williamson, 1975).

In summary, both the transaction and the administrative coordination views thrive because both exchanges and coordination take place between related businesses. Thus, it might be useful for researchers to consider both internal transaction costs and administrative coordination costs to ascertain the benefits realized from relationships between businesses. Such an examination might shed some further light on why synergy is so hard to achieve.

Third, at least for service firms, the results of this study suggest that it is useful to consider the impact of different benefit-generating mechanisms because systematic performance variations exist within the related-diversified category defined by Rumelt (1974). Several other studies have also found within-category performance variations (Barton, 1988; Bettis & Mahajan, 1985; Biggadike, 1976; Dubofsky & Varadarajan, 1987; Kitching, 1987; Lubatkin & Rogers, 1989; Nathanson & Cassano, 1982). It should be
noted that Rumelt recognized the need to examine such within-category differences:

Before the work of classifying the firms was begun, it seemed useful to sub-divide the Related Business category into three subclasses. These subclasses would serve to differentiate among those firms that have diversified by relying chiefly on (1) relationships among markets served and distribution systems; (2) relationships based on similar production technologies; or (3) the exploitation of science-based research. It was found, however, that while individual moves to diversify were easily placed in one of these subclasses, few firms had used one type of relationship with enough consistency to warrant its use as characterizing the firm's strategic posture as a whole. Consequently, the attempt was abandoned (1974: 17).

In retrospect, that abandonment was unfortunate. Differences in patterns of relatedness among businesses are more complex than the related-linked and related-constrained categories indicate. Since firms can choose to exploit different sources of benefits, it would be useful to consider and measure such differences.

Recognizing different sources of benefits has implications for testing the diversification strategy—performance relationship because those differences imply sample heterogeneity. Montgomery, Wernerfelt, and Balakrishnan (1989) suggested that researchers should explicitly pay attention to sample heterogeneity because pooling observations under such conditions has led to empirical results that were later overturned. For example, accounting for sample heterogeneity has led to several important findings, such as those on strategic groups (Hatten & Schendel, 1977) and on market structure (Bass, Cattin, & Wittink, 1978; Bass & Wittink, 1975).

Fourth, the results of this study are consistent with the resource-based view of firms (Barney, 1988, 1991; Conner, 1991; Wernerfelt, 1984). For a resource to provide a competitive advantage it must be valuable, relatively rare, inimitable, and without strategic substitutes (Barney, 1991). Clearly, resources that underlie information asymmetry benefits, such as reputation, are more likely to possess such characteristics than resources that underlie economies of scope, such as physical assets. Thus, the resource-based perspective would suggest that information asymmetry provides a greater sustainable competitive advantage than economies of scope. However, when economies of scope arise from intangible resources, such as managerial abilities, dominant logics, routines and repertoires, and technologies, they too can result in a sustainable competitive advantage. Barney suggested that such instances are characterized by synergies that are either “private and unique, inimitable and unique, or unexpected” (1988: 77).

The results of this study also have some implications for practitioners. Devising strategies based only on potential benefits or assuming that potential benefits will always or automatically be realized is risky. To evaluate a
related-diversification strategy, it is necessary to identify the sources of the benefits envisaged, to isolate implementation difficulties, and to identify any other factors, such as service characteristics, that could affect potential benefits and implementation difficulties.

Managers would be well advised to understand and investigate ways to meet the diverse service needs of existing buyers. Serving the multiple needs of existing buyers offers benefits via a relatively soft process, the consumer franchise. In contrast, using resources more intensively offers benefits via a relatively hard process, cost saving. One indication that firms' managers may believe that the second type of benefits can always and automatically be realized is that economies of scope were consistently negatively associated with firm performance (Table 7). This association suggests that potential economies of scope lured firms into adopting that strategy without an adequate consideration of implementation difficulties, an action that, in the end, nullified the potential benefits of the strategy.

Firms that currently seek potential economies of scope should examine whether they obtain positive realized benefits. If not, managers should consider ways to reduce implementation difficulties or to reduce resource sharing by acquiring additional resources or eliminating businesses. Similarly, managers should examine the portfolio of services offered to determine whether opportunities for information asymmetry benefits have been exploited.

REFERENCES


1993


**APPENDIX A**

**Definitions of Entropy Measures**

**Economies of Scope**

Entropy owing to multiple businesses using a common resource base \([CRB_i]\) is given by

\[
CRB_i = \sum_{j} P_i \ln(1/P_j),
\]

where \(P_i\) is the share of business \(i\) of group \(j\) in the total sales of a group of businesses that use a common resource base.

Economies of scope are then

\[
ES = \left( \frac{\sum_{i=1}^{N} CRB_i \times P_j}{FTD} \right).
\]

where \(P_j\) is the share of the \(j\)th group of resource-related businesses in the total sales of a firm, \(N\) is the total number of groups of such related businesses, and \(FTD\) is defined below.

**Information Asymmetry**

Entropy owing to multiple businesses serving a common client base \([CCB_i]\) is given by

\[
CCB_i = \sum_{j} P_i \ln(1/P_j),
\]

where \(P_i\) is the share of business \(i\) of group \(j\) in the total sales of the group of businesses that serve a common client base.

The level of information asymmetry is then

\[
IA = \left( \frac{\sum_{j=1}^{M} CCB_j \times P_j}{FTD} \right).
\]

where \(P_j\) is the share of the \(j\)th group of client-related businesses in the total sales of a firm, \(M\) is the total number of groups of such related businesses, and \(FTD\) is defined below.
Firm Total Diversification

The variable was computed as:

\[ FTD = \sum_{i=1}^{T} p_i \ln(1/p_i) \]

where \( p_i \) is the share of the ith business in the total sales of a firm and \( T \) is the total number of businesses of a firm.

Geographic Diversity

The variable was computed as:

\[ GD = \sum_{j=1}^{G} s_j \ln(1/s_j) \]

where \( s_j \) is the proportion of firm revenues obtained from geographic region \( j \) and \( G \) is the total number of geographic regions from which a firm obtains revenues.

APPENDIX B

Definitions of Performance Measures

Industry-adjusted and Risk-adjusted Return on Equity

The variable was computed as:

\[ B_i^{ROE} = \frac{\text{Covariance}(\text{ROE}_i, \text{ROE}_m)^{1965-84}}{\text{Variance}(\text{ROE}_m)^{1965-84}} \]

\[ B_j^{ROE} = \frac{\text{Covariance}(\text{ROE}_j, \text{ROE}_m)^{1965-84}}{\text{Variance}(\text{ROE}_m)^{1965-84}} \]

and

\[ \text{ADJROE}_f = \frac{\text{ROE}_i^{1985-89}}{B_i^{ROE}} - \sum P_j \times \frac{\text{ROE}_j^{1985-89}}{B_j^{ROE}} \]

where

- \( \text{ROE}_f \) = the average ROE for firm \( f \) over the period indicated,
- \( \text{ROE}_j \) = the average ROE for industry \( j \) over the period indicated, with an industry defined as including all firms in the COMPUSTAT data base with primary SIC codes in that industry,
- \( \text{ROE}_m \) = the return on equity for a market portfolio comprising all firms in the COMPUSTAT data base,

and

\( P_j \) = the proportion of revenues from industry \( j \) in the total revenues of a firm.

Industry-adjusted Market-to-Book Value of Equity

The variable was computed as:

\[ \text{ADJMBVE}_f = \frac{\text{AMV}_f^{1987}}{\text{ABV}_f^{1987}} - \sum P_j \times \frac{\text{AMV}_j^{1987}}{\text{ABV}_j^{1987}} \]
where
\[ AMV_{1987} = \text{the average market value of equity for firm } f \text{ in 1987, computed as the mean of the opening and closing values for the year}, \]
\[ ABV_{1987} = \text{the average book value of equity for firm } f \text{ in 1987, computed as the mean of the opening and closing values for the year}, \]
\[ AMV_{j1987} = \text{the average market value of equity for industry } j \text{ in 1987, computed as the mean of the opening and closing values for all firms in industry } j \text{ for the year}, \]
\[ ABV_{j1987} = \text{the average book value of equity for industry } j \text{ in 1987, computed as the mean of the opening and closing values for all firms in industry } j \text{ for the year}. \]

Jensen's Alpha

Jensen's alpha was computed as the intercept term in the following regression equation estimated using daily stock returns for 1987:

\[ (R_t - R_{mt}) = \alpha_t + \beta_t (R_{mt} - R_{ft}), \]

where
\[ R_t = \text{the stock return on day } t \text{ for firm } f, \]
\[ R_{mt} = \text{the stock return on day } t \text{ for a market portfolio}, \]
\[ R_{ft} = \text{the risk-free rate of return, computed as the daily return on a 12-month treasury bond for each month}, \]
\[ \beta_t = \text{the systematic risk for firm } f, \]
and
\[ \alpha_t = \text{Jensen's alpha for firm } f. \]

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