

DIRECT AND MODERATING EFFECTS OF HUMAN CAPITAL ON STRATEGY AND PERFORMANCE IN PROFESSIONAL SERVICE FIRMS: A RESOURCE-BASED PERSPECTIVE

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The current study examines the direct and moderating effects of human capital on professional service firm performance. The results show that human capital exhibits a curvilinear (U-shaped) effect and the leveraging of human capital a positive effect on performance. Furthermore, the results show that human capital moderates the relationship between strategy and firm performance, thereby supporting a resource-strategy contingency fit. The results contribute to knowledge on the resource-based view of the firm and the strategic importance of human capital.

In his classic book, *Organizations in Action*, James Thompson (1967) described how the human variable affected organizational actions. Later, Hambrick and Mason (1984) suggested that organizations are reflections of their top managers. Building on this work, Finkelstein and Hambrick (1996) argued the importance of the human element in strategic choice and firm performance. In fact, managers, in particular, represent a unique organizational resource (Daily, Certo, & Dalton, 2000). The human element has grown in importance because knowledge has become a critical ingredient for gaining a competitive advantage, particularly in the new economy landscape (Grant, 1996). In a recent address to the graduates of the Massachusetts Institute of Technology, Carly Fiorina, CEO of Hewlett-Packard, emphasized this point, saying that "the most magical and tangible and ultimately the most important ingredient in the transformed landscape is people." Therefore, one answer to the critical question in strategic management regarding why firms vary in performance is that they differ in human capital.

According to the resource-based view of the

firm, performance differences across firms can be attributed to the variance in the firms' resources and capabilities. Resources that are valuable, unique, and difficult to imitate can provide the basis for firms' competitive advantages (Amit & Schoemaker, 1993; Barney, 1991). In turn, these competitive advantages produce positive returns (Peteraf, 1993). Most of the few empirical tests of the resource-based view that have been conducted have supported positive, direct effects of resources (cf. Miller & Shamsie, 1996; Pennings, Lee, & van Witteloostuijn, 1998). However, scholars argue that resources form the basis of firm strategies (e.g., Barney, 1991) and are critical in the implementation of those strategies as well (Schoenecker & Cooper, 1998). Therefore, firm resources and strategy interact to produce positive returns. Firms employ both tangible resources (such as buildings and financial resources) and intangible resources (like human capital and brand equity) in the development and implementation of strategies. However, outside of natural resource monopolies, intangible resources are more likely to produce a competitive advantage because they are often rare and socially complex, thereby making them difficult to imitate (cf. Barney, 1991; Black & Boal, 1994; Itami, 1987; Peteraf, 1993; Rao, 1994). Furthermore, firms' resource endowments, particularly intangible resources, are difficult to change except over the long

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term (Teece, Pisano, & Shuen, 1997). For example, although human resources may be mobile to some degree, capabilities may not be valuable for all firms or even for their competitors. Some capabilities are based on firm-specific knowledge, and others are valuable when integrated with additional individual capabilities and specific firm resources (for example, complementary assets) that may not be mobile.

Human capital has long been argued as a critical resource in most firms (Pfeffer, 1994). Recent research suggests that human capital attributes (including education, experience, and skills) and, in particular, the characteristics of top managers affect firm outcomes (Finkelstein & Hambrick, 1996; Huselid, 1995; Pennings et al., 1998; Wright, Smart, & McMahon, 1995). Our focus in this research is on the performance effects of human capital, the leveraging of that capital, and the interaction of human capital with firm strategy. As such, this research contributes to collective knowledge on the resource-based view of the firm. Specifically, it contributes to knowledge about the effects of human capital on firm performance and, importantly, illuminates how resources, such as human capital, moderate the relationship between service and geographic diversification strategies and firm performance.

CONCEPTUAL FRAMEWORK

Intangible resources are more likely than tangible resources to produce a competitive advantage. In particular, intangible firm-specific resources such as knowledge allow firms to add value to incoming factors of production. In fact, Spender (1996) argued that a firm's knowledge and its ability to generate specific knowledge are at the core of the theory of the firm. Grant (1996) suggested that knowledge is the most critical competitive asset that a firm possesses. Much of an organization's knowledge resides in its human capital. Thus, firms create value through their selection, development, and use of human capital (Lepak & Snell, 1999).

Knowledge can be classified as articulable or as tacit (Lane & Lubatkin, 1998; Polanyi, 1967). Articulable knowledge can be codified and thus can be written and easily transferred (Liebeskind, 1996). Tacit knowledge, however, is not articulable and therefore cannot be easily transferred (Teece et al., 1997). Tacit knowledge is often embedded in uncoded routines (Liebeskind, 1996) and in a firm's social context. More specifically, it is partially embedded in individual skills and partially embedded in collaborative working relationships

within the firm (Nelson & Winter, 1982; Szulanski, 1996). According to Maister (1993), tacit knowledge is integral to professional skills. As a result, tacit knowledge is often unique, difficult to imitate, and uncertain (Mowery, Oxley, & Silverman, 1996). It has a higher probability of creating strategic value than articulable knowledge (Lane & Lubatkin, 1998).

Professionals gain knowledge through formal education (articulable) and through learning on the job (tacit). Professionals who provide services are often required to have extensive education and training prior to entering their fields. This education and training usually provide a high level of articulable knowledge in the field of specialty. Often, there is some variance in the quality of this education and training. Students at the best universities are perceived as obtaining the highest level of codified (explicit) knowledge available. Knowledgeable external parties rank both universities and specialized programs within them. Individuals who receive their education from the best universities are assumed to have more and better knowledge and to have high intellectual potential to learn and accumulate tacit knowledge. The value of professionals' education often holds throughout their careers (D'Aveni, 1996). For example, individuals graduating from the top institutions often develop and maintain elite social networks that can be valuable—as a source of clients, for instance (D'Aveni & Kesner, 1993). D'Aveni (1989) argued that professionals' prestige (which is based partly on the institutions from which they obtained their education) is a valuable organizational resource because of the elite social networks that provide access to valuable external resources for a firm.

After completing their advanced educational requirements, most professionals enter their careers as apprentices (for example, as residents/interns in medicine, or as associates in law). In these roles, they continue to learn and thus, they gain significant tacit knowledge through "learning by doing" (Pisano, 1994). Therefore, they largely bring explicit knowledge derived from formal education into their firms and build tacit knowledge through experience. Most professional service firms use a partnership form of organization (Maister, 1993). In such a framework, those who learn the most and who are highly effective in using or applying that knowledge are eventually rewarded with partner status, and thus own stakes in a firm (Galanter & Palay, 1991). On their road to partnership, these professionals acquire considerable knowledge, much of which is tacit (Szulanski, 1996). Thus, by the time professionals achieve partnership, they have built human capital in the form of individual

skills (knowledge). The human capital embodied in the partners is a professional service firm's most important resource. Their experience, particularly as partners, builds valuable industry-specific and firm-specific knowledge, which is often tacit. Such knowledge is the least imitable form of knowledge. An important responsibility of partners is obtaining and maintaining clients. Partners build relationships with current and potential clients and, over time, develop social capital through their client networks (Nahapiet & Ghoshal, 1998). Therefore, the experience a professional gains as a partner contributes to competitive advantage (Harris & Helfat, 1997).

These arguments suggest that partners with education from the best institutions and with the most experience as partners in a particular professional service firm represent substantial human capital to the firm. Professionals graduating from the highest-ranked programs in their fields bring the most human capital to firms (through intellectual ability, articulable knowledge, social contacts, and prestige). As partners, they continue to acquire knowledge, largely tacit and firm-specific, and build social capital. This human capital, in turn, should produce the highest-quality services to clients and thereby contribute significantly to firm performance.

Although human capital has many positive benefits, it represents costs to firms as well. For example, the value of graduates from the top institutions in the external labor market is likely high, particularly shortly after their graduations (Bierman & Gely, 1995). Partners from top-ranked educational institutions command the highest compensation and should continue to be paid commensurately with their value to a firm. Often, firms pay more to employees than their marginal productivity early in their careers warrants with the expectation of recouping the investment through high productivity as the employee gains tacit knowledge and learns to apply both articulable and tacit knowledge through practice (Bierman & Gely, 1995). When there are few or no partners in a firm with degrees from top institutions, the firm may have to pay premiums to attract such professionals.

Furthermore, the job of partner differs from that of associate, and new skills must be developed. Partners must build the skills needed to develop and maintain effective relationships with clients. Importantly, partners in law firms serve as project and team leaders on specific cases and thus must develop managerial skills. These include skills involving leadership, decision making, allocation of resources, relationships with subordinates, peers, superiors, and clients, resolving conflicts, and pro-

cessing information (Harris & Helfat, 1997; Mintzberg, 1973). Although new partners are learning these skills, they may be less effective team leaders than those with more experience. Additionally, most firms have a high minimum pay rate for partners regardless of their output, and partners usually receive some share of the profits. More experienced partners likely contribute more returns to the firm than do new partners. The costs for new partners may exceed the returns from their capital.

These arguments suggested that we should expect a curvilinear relationship between human capital and firm performance. Early costs may exceed marginal productivity, but as human capital accumulates, synergy and productivity increase and average costs decrease.

Hypothesis 1. There is a curvilinear relationship between the human capital embodied in partners and firm performance. The relationship is negative early in the partners' tenure but becomes positive.

Partners own the most human capital in a firm and have the largest stakes in using the firm's resources to the greatest advantage. One of the responsibilities of partners is to help develop the knowledge of other employees of the firm, particularly its associates. For example, associates at law firms need to learn internal routines, the idiosyncrasies of important clients, nuances in the application of law, and more. Building associates' knowledge necessitates that partners leverage their own knowledge, particularly their tacit knowledge (Baron & Kreps, 1999). Tacit knowledge is revealed through its application and can only be acquired through its practice (Grant, 1996). Thus, transferring tacit knowledge is a slow and complex process (Tece et al., 1997) that entails using the knowledge (Lei, Hitt, & Bettis, 1996).

Learning complex forms of knowledge requires face-to-face interactions between partners and associates (Lane & Lubatkin, 1998). Thus, partners must work with associates to transfer tacit knowledge. Junior and senior employees (associates with one or more partners) are assigned to teams that work on major projects for clients (Maister, 1993). In this way, the partners' knowledge and capabilities are leveraged and associates also gain tacit and, often, firm-specific knowledge. This process also can produce a combination of individual skills and knowledge that leads to novel and valuable outcomes. Additionally, the associates build relationships with clients that are valuable to the firm. Thus, the leveraging of human capital helps complete the work of the firm (serving clients) and simultaneously creates greater human capital for it.

Effective leveraging creates dynamic capabilities whereby the firm is able to renew, augment, and adapt its current capabilities to serve continuously changing and new client needs (Teece et al., 1997; Tripsas, 1997). Of course, mentoring and helping associates learn tacit knowledge require an effective balance in the leveraging process. Too much leverage (too many associates working on projects with too few partners) may not provide the face-to-face interactions needed to transfer tacit knowledge. Additionally, clients may want to be sure that experienced knowledgeable partners are fully involved in their legal work (Maister, 1993). Thus, lower leverage could even serve as a marketing tool.

Leveraging may also involve the use of complementary specialized assets (Teece, 1986; Tripsas, 1997). Relationships with specific clients can represent a specialized complementary asset. Furthermore, leveraging involves bundling complementary resources to provide services (Helfat, 1997). Leveraging involves integrating the relationship with a client (a complementary resource) and the specialized knowledge existing in the human capital to service the client. This bundling of resources creates largely inimitable value because of the unique social capital (the client relationship) and the social complexity involved in applying the specialized knowledge bases embedded in the human capital to service the client.

The leveraging process also has an efficiency component. Providing services to clients, often customized ones, usually involves complex tasks. However, most services also embody simpler and relatively routine tasks. It is not efficient to use highly compensated partners to complete the less complex tasks that can be completed by less compensated apprentices, like associates, while they simultaneously participate in the completion of more complex tasks through which they are learning tacit knowledge. Thus, leveraging creates efficiencies in addition to the transfer of knowledge. Alternatively, the ability to use more associates may help firms provide greater services to their clients and, by leveraging more experienced partners' knowledge, they can do more while simultaneously maintaining quality. Likewise, large clients can be served well by large teams drawing on a bundle of complementary resources. As noted earlier, however, care must be taken not to overleverage the partners. The gestalt of our arguments suggests that leveraging the human capital of partners helps create value for firms, leading to the following hypothesis:

Hypothesis 2. There is a positive relationship between leveraging human capital and firm performance.

Leveraging the most valuable human capital should produce the highest positive return (Sherer, 1995). That is, partners with degrees from the top schools, the strongest intellectual capabilities, the most tacit knowledge, and the greatest social capital (D'Aveni, 1989, 1996) should produce the highest positive returns when leveraged. As stated earlier, the leveraging process involves the integration of cospecialized complementary resources (Mitchell, 1989; Tripsas, 1997). Thus, through their particular knowledge of a client, partners are able to apply the firm's specialized knowledge to perform services for the client.

Partners have ownership stakes in their firms and usually share in the profits the firms earn. As a result, they have incentives to leverage their knowledge and social capital effectively. Additionally, they have special incentives to use the firms' resources to satisfy their clients' needs. Thus, we should expect human capital and leverage to have a positive interactive effect on firm performance.

Hypothesis 3. The interaction of human capital and the process of leveraging has a positive effect on firm performance.

Resources are the basis for and facilitate the implementation of firm strategy. Lei and his colleagues (1996) argued that firms building strong competencies (that is, from their human capital) can take advantage of strategic opportunities. Furthermore, taking advantage of these strategic opportunities helps firms create value. More specifically, human capital is a vital resource for the implementation of a firm's strategy (Lee & Miller, 1999). Of particular interest is the service and geographic diversification of professional service firms and implementation of the strategy.

Often service firms achieve growth through diversification into new services and into new geographic areas (Howard, 1991; Nayyar, 1993; Nelson, 1988). In general, diversification into new services and diversification into new geographic regions both offer opportunities to achieve economies of scale and scope (Kogut, 1985; Nayyar, 1992; Panzar & Willig, 1981; Teece, 1980). Information asymmetries also exist between professional service firms and their clients as clients cannot easily determine the quality of a service until after it is performed. Asymmetries can be even greater when a firm adds a new service and when it enters a new geographic market in which the client has no prior experience (Nayyar, 1993). Diversified firms with

good reputations can gain a competitive advantage as the reputations are used by current and potential clients to select firms from which to purchase new services.

Diversification into new services presents opportunities to share knowledge across service areas. Other synergies between the new service and the existing services may provide even more business. For example, through expanding the total package of services offered, a firm may attract new clients or more fully serve existing clients by offering bundles of services. Law firms, for example, may offer "one-stop shopping" for clients' legal services. Thus, they are able to combine their resources in ways that create synergy.

In addition to increased efficiencies, diversification into new geographic markets also provides the opportunity to learn about new clients, new service markets, and potential new resources (Hitt, Hoskisson, & Kim, 1997). If existing clients have operations in a new geographic market, a firm can open a new office and serve current customers; if a client has a strong positive reputation in the new market, serving this client may help the firm gain new customers. Different geographic markets pose new challenges and opportunities. Although the services may be the same, the markets differ. Thus, firms learn from new market and competitive environments. Because separate geographic markets differ, they present the opportunity to offer new services. Likewise, as firms develop and offer new services, opportunities to expand into new geographic markets, where these services are desired, may arise. Furthermore, to the extent that there is similarity in the managerial skills required to manage the diversity produced by both types of diversification, the movement into new services and geographic markets can create economies of scope (referred to as "managerial relatedness" by Ilinitch and Zeithaml [1995]). Finally, operating in multiple service and geographic markets simultaneously provides the opportunity for multipoint competition, whereby a firm is able to take actions against competitors in multiple markets (Gimeno & Woo, 1999). Thus, we can expect a positive interaction between service and geographic diversification.

Firm performance can be enhanced by the way in which firms use resources in the development and implementation of their strategies (Wright et al., 1995). Firms can achieve economies of scope from service diversification by effectively using internal resources, particularly human capital (cf. Markides & Williamson, 1996; Robins & Wiersema, 1995). In particular, knowledge-based resources are used to transform other inputs. In professional service firms, knowledge-based resources are often applied

directly to serve clients. However, these resources must be integrated and managed to create value (Galunic & Rodan, 1998). Partners' knowledge of current markets and clients can be leveraged to offer new services. Likewise, the new bundle of services may allow the creative use of human capital; project teams may be configured in new ways to capture the potential synergy. Additionally, using existing human capital to move into new geographic markets may present special opportunities to gain a competitive advantage. For example, a firm may exploit existing client relationships with current partners (social capital) to move into a new geographic market. Thus, human capital can be used to facilitate the development and implementation of both service and geographic diversification.

Human capital may also help firms capture the benefits of information asymmetries for clients. For example, partners with prestigious credentials, such as graduates of top universities, contribute to a firm's positive reputation. Potential clients use this information to predict the quality of the services they are likely to receive from the firm. Additionally, clients that have strong positive relationships with a firm's partners may adopt new services on the basis of trust and satisfaction with prior services provided by that firm. To achieve economies of scope often requires effective coordination across service areas and an ability to configure the resources in ways that help meet clients' needs. Partners with significant experience may be needed to provide the critical managerial skills necessary to manage these resources and achieve the economies of scope. Managing substantial diversity requires significant managerial acumen (often gained through substantial experience), as has been discovered in industrial firms. If not managed effectively, such diversity may reduce rather than increase firm performance (Hitt et al., 1997). The gestalt of these arguments suggests a complex positive interaction of human capital and firm diversification, both service and geographic, in the creation of firm value. These arguments lead to the following hypothesis:

Hypothesis 4. The interaction of human capital, service diversification, and geographic diversification has a positive effect on firm performance.

METHODS

Sample

The challenge in testing the resource-based view of the firm is identifying and measuring the most

critical resources of firms. To do so, it is helpful to focus on a single industry (Dess, Ireland, & Hitt, 1990). Furthermore, an industry in which critical resources are evident and measurable must be identified. We chose to focus on professional services organizations, where the dominant resource of importance is human capital. Specifically, we selected law firms as the source of data for testing our hypotheses.

The sample for this study was drawn from the list of the 100 largest law firms in the United States. The *American Lawyer*, which annually publishes a list ranking law firms on the basis of total revenue, was the source of our target sample. Our data span the years 1987–91. However, the complete data required for our analysis were not available for all firms for all years. The final sample, consisting of 252 observations, included data on 93 firms. Sample statistics are shown in Table 1.

Independent Variables

There are four independent variables in this study: human capital, leverage, service diversification, and geographic diversification. Below we explain how each of these variables was measured.

Human capital. Our measure of human capital had two dimensions, quality of the law school attended by partners (a proxy for articulable knowledge and prestige) and total experience as partners in the focal firm (a proxy for firm-specific tacit knowledge). To obtain the necessary data, we identified all partners in each firm for every year in the study from the *Lawyers Almanac*. Data were then collected on the institutions from which the partners received their law degrees. Simultaneously, we collected data on rankings of law schools based on quality. Several rankings were obtained, but the most complete and consistent one was provided by the *Gourman Report*, in which law schools are ranked on the following criteria: (1) qualifications, experience, achievements, and professional pro-

ductivity of the faculty, (2) quality of the students' scholastic work and records of graduates in scholastic work and practice, (3) basis of and requirements for admission of students, and (4) age of the program and total educational programs of the institution. For each firm, we calculated an average ranking of the law schools from which all the partners had graduated (total ranking, reverse-scored, divided by the number of partners).

The *Gourman Report* was the most comprehensive ranking available for all years of our study. *U.S. News and World Report* also produces a ranking of the top 25 law schools. We calculated rank-order correlations between the two rankings to provide evidence of validity. The Spearman rank-order correlation was .85, providing strong support for the ranking used. Additionally, we obtained data on the mean starting salaries offered to graduates of the top 25 law schools from the *National Law Journal*. The salaries were positively related to the rankings of the law schools (Spearman $r = .64$, $p < .01$), thereby linking compensation offered to graduates to the presumed quality of their education. These results provide further support for the validity of the rankings.

The data on the second dimension, firm-specific experience as partner, required a different approach, as no secondary sources provide this information. Thus, we conducted an Internet-based survey whereby all current partners of the law firms in our study were contacted and asked the years they became partners in their current firms. We contacted 12,217 partners and received responses from over 3,000 of them. After deletions due to missing data, we had 2,701 usable responses, yielding for a response rate of 22.1 percent. Such a response rate can be expected for surveys of upper-echelon professionals, and the rate we achieved is similar to that achieved by Nayyar (1993), 20.1 percent. We then computed average firm-specific experience as a partner for each firm by dividing the total experience reported by all the responding partners by their number. This measure was found to be positively related to the number of years of partners' total experience with their firm ($r = .48$, $p < .01$). As most partners are promoted to partner from within the firm, the relationship provides support for the validity of this measure.

We also collected data on the date each partner graduated from law school and used this information to calculate the average total years of experience per partner per firm. Average firm-specific partner experience was calculated, as described above, for each firm for the last year in our study. We then adjusted it for each firm for each year back to 1987, the beginning year in the study, using the

TABLE 1
Sample Size and Diversification Demographics

Variable	Mean	s.d.	Minimum	Maximum
Number of partners	124	49.9	48	408
Total number of lawyers	339	139.7	173	1,155
Service diversification coverage ^a	88.6%	10.66%	35%	100%
Geographic diversification coverage ^a	92.4%	8.37%	59.4%	100%

^a Values indicate percentage of lawyers.

same degree of change in the total years of experience per partner for each firm in each year. The two dimensions of the human capital measure were then factor-analyzed and combined using standardized factor scores.

Leverage. The primary professional positions in law firms are partner and associate. Only some associates are chosen to be partners. Partners are residual claimants in a firm and are assumed to embody the most valuable human capital (explicit and tacit knowledge, relationships with clients). Associates are lawyers with less experience in the firm who are in training to become partners. Firms accomplish most work using partners as the primary contacts with clients along with several associates. We defined leverage as the total number of associates in a firm divided by the total number of partners. The variable thus indicates the average number of associates assigned to each partner (Sherer, 1995). In effect, it represents the structure of the primary human capital in these firms (Samuelson & Jaffe, 1990). Data for this measure were obtained from the *American Lawyer*. The measure was transformed using a logarithmic transformation.

Service diversification. Diversification measures that capture the number of businesses of a firm as well as the relative importance of each segment are superior to product count measures (Davis & Duhaime, 1992; Hoskisson, Hitt, Johnson, & Moesel, 1993). Although data on the revenues for each practice area in a law firm are not publicly available, the number of lawyers in a legal service area is a strong proxy for the importance of that legal service in each firm. Thus, we measured service diversification using a Herfindahl index (Sherer, 1995). Data were available on up to the five largest practice areas. We examined both the four and the five largest practice areas. The four largest practice areas covered 83.8 percent of all lawyers in the firms studied, and the five largest practice areas covered 88.6 percent of the lawyers. We used the five largest practice areas to calculate this measure. Thus, we determined the service diversification Herfindahl index by calculating the sum of squares of the proportion of total lawyers in the five largest practice areas of each law firm. As this value is inversely related to diversification (high values indicate lower diversification), the value of the variable was subtracted from 1. Data were obtained from the *Lawyer's Almanac*.

To provide some evidence of validity, we collected information on the number of different legal services offered by each law firm in our sample. The source for these data was the *Law Firms Yellow Book*, first published in 1992, one year after the end

of the period our data reflect. Thus, we correlated the 1991 Herfindahl measure of service diversification with a coarser-grained measure (not weighted by the number of lawyers in each area, as is the Herfindahl measure), the number of legal services present in 1992. The Spearman correlation was .26, statistically significant at the .05 level. Given the differences in these measures, finding a positive and statistically significant correlation provides support for the Herfindahl measure of service diversification.

Geographic market diversification. A similar Herfindahl index was used to measure geographic market diversification. This index was calculated for the proportion of lawyers in the four largest branch locations (in separate cities) that covered 92.4 percent of the partners in the firms studied. The overwhelming majority of the geographic diversification of U.S. law firms is domestic. Therefore, we included only domestic branches in this calculation. To ensure that high values represented greater diversification, the variable was subtracted from 1. Data were obtained from the *Lawyer's Almanac*.

To provide evidence of validity, we collected data on the number of branch offices in separate cities for each law firm. These data were collected from the *Law Firms Yellow Book*. As with service diversification, we correlated the 1991 Herfindahl measure of geographic diversification with the number of different domestic office locations in 1992. The Spearman correlation was .76, statistically significant at the .01 level. These results support the validity of our Herfindahl measure of geographic diversification.

Dependent and Control Variables

Firm performance. The dependent variable in this study, firm performance, was defined as the ratio of net income to total firm revenue. These data were derived from a profitability index reported annually by the *American Lawyer*, the API, which is the ratio of profits per partner to revenue per lawyer and is "an expression of how effectively a firm converts revenue into partner profits" (Brill, 1987: 16). We recalculated the index by removing the number of partners from the numerator and number of lawyers from the denominator. The resulting measure can be interpreted as return on sales.

The effect of firm size was controlled through the dependent variable (profits adjusted for total revenues). However, we included three other variables to control for their potential effects on firm performance, our dependent variable. These were large cor-

porate clients, clients in new markets, and mode of market entry.

Large corporate clients. Corporate law practice can be especially lucrative and often requires high leveraging of human capital (Sherer, 1995). Inclusion of the number of large corporate clients a firm had in each year of the study controlled for these effects. These data were obtained from the *National Law Journal's* list of the major law firms used by the 250 largest U.S. corporations. This measure was transformed using a log transformation.

Clients in new markets. As firms diversify into new geographic markets, their motives and outcomes may vary. One variable that may affect the outcomes of such diversification is the number of existing major clients with significant operations in the new geographic market at the time of the move into that market. Existing clients in the new geographic market increase the probability of revenue flow and profits from the new operations. Thus, we counted the number of large existing clients in each new geographic market at the time the firm diversified into the market and included this measure as a control variable in the analyses. These data were obtained from the *National Law Journal*, *Dun & Bradstreet's American Corporate Families*, and the *Directory of Corporate Affiliations*. This measure was transformed using a log transformation.

Mode of market entry. Law firms may add new services or enter new locations through internal development (hiring new lawyers, opening new offices) or by external acquisition (acquiring another law firm). Law firms can quickly expand by acquiring other law firms. Acquisitions provide much faster expansion than internal development (Hitt, Hoskisson, Johnson, & Moesel, 1996), and the two modes of market entry may have different effects on firm performance. Thus, we controlled for mode of entry in the analyses. We identified acquisitions completed by our sample law firms during the time

period of the study. In each year that a firm made an acquisition, a 1 was recorded (no firm completed more than one acquisition in a given year). A 0 was recorded for the firm in all years in which it made no acquisition. Data for this variable were obtained from the Lexis/Nexis database and the *Wall Street Journal Index*.

RESULTS

Because we had both cross-sectional (firms) and time series (years) data, we used a panel data methodology, using the least squares dummy variable (LSDV) model (Hsiao, 1986; Sayrs, 1989). Instead of using a common intercept for all observations, we introduced a dummy variable for each firm and each year and estimated the model using generalized least squares regression. The use of dummy variables helps control for unobserved firm-specific and year-specific heterogeneity (Bergh, 1993). The LSDV model also serves to minimize problems of heteroscedasticity and autocorrelation, both of which can be caused by unaccounted firm-specific heterogeneity (Sayrs, 1989). Table 2 presents the descriptive statistics and correlations among all of the variables in the study. The highest common variance among any two independent variables is .09. Thus, there are no multicollinearity problems.

Table 3 presents the results of the regression analyses. We present results in a hierarchical fashion to better depict the variance explained by the different sets of predictor variables. In model 1, which contains only the control variables, including the dummy variables for firm and year (coefficients not shown), the coefficient for market entry mode is statistically significant and negative. In model 2, the service and geographic diversification variables were added. As shown, their coefficients are not statistically significant, and they explain almost no additional variance in firm performance.

TABLE 2
Descriptive Statistics and Correlations

Variable	Mean	s.d.	1	2	3	4	5	6	7
1. Firm performance	0.41	0.09							
2. Corporate clients	1.38	0.78	.05						
3. Clients in new markets	0.14	0.37	.01	.15*					
4. Market entry mode	0.05	0.21	.06	.11 [†]	.05				
5. Service diversification	0.74	0.10	.15*	.08	-.12*	.08			
6. Geographic diversification	0.45	0.23	.04	.14*	.10	.09	.07		
7. Human capital	0.00	1.00	-.16**	-.04	.30**	-.19**	-.25**	-.27**	
8. Leverage	0.71	0.39	.07	-.05	.13*	.02	-.29**	-.19**	.18**

[†] $p < .10$

* $p < .05$

** $p < .01$

TABLE 3
Results of Generalized Least Squares Regression Analysis of Human Capital and Strategy Effects on Firm Performance

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Corporate clients	-.00	-.00	-.00	-.00	-.00	-.00
Clients in new markets	-.01	-.01	-.01	-.01	-.01	-.01
Market entry mode	-.06**	-.06**	-.05**	-.05**	-.05**	.05**
Service diversification		.00	.03	.03	-.18	-.16
Geographic diversification		.03	.04	.04	-.40	.33
Human capital			-.03 [†]	-.03 [†]	-.13 [†]	-.35*
Human capital squared			.02**	.02 [†]	.03**	.03**
Leverage			.15**	.15**	.15**	.15**
Human capital × leverage				.01		
Service diversification × geographic diversification					.56 [†]	.42
Human capital × service diversification					.14	.45*
Human capital × geographic diversification					-.01	.47 [†]
Human capital × service diversification × geographic diversification						-.65 [†]
<i>R</i> ²	.801	.801	.837	.837	.842	.846
<i>F</i>	6.28**	6.08**	7.34**	7.23**	7.22**	7.33**

[†] $p < .10$

* $p < .05$

** $p < .01$

In model 3, we added the human capital and leverage variables to test Hypotheses 1 and 2. As shown, all three variables have a statistically significant relationship with firm performance in the predicted direction (for human capital, $p < .10$; for human capital squared, $p < .01$; and for leverage, $p < .01$), and the change in the multiple squared correlation coefficient (R^2) for the model is statistically significant ($\Delta R^2 = .036$, $F = 11.01$, $p < .01$). Hypothesis 1 proposes a curvilinear relationship between human capital and firm performance. The results, shown in model 3, support this hypothesis. The effect of human capital on firm performance is initially negative but turns positive with higher levels of human capital; the addition (1) of human capital and human capital squared to the model and (2) of only human capital squared also produced a statistically significant change in R^2 ($p < .01$).

Hypothesis 2 suggests a positive relationship between leverage and firm performance. The results, shown in model 3 of Table 3, depict a statistically significant, positive effect of leverage on firm performance. Thus, Hypothesis 2 receives support.

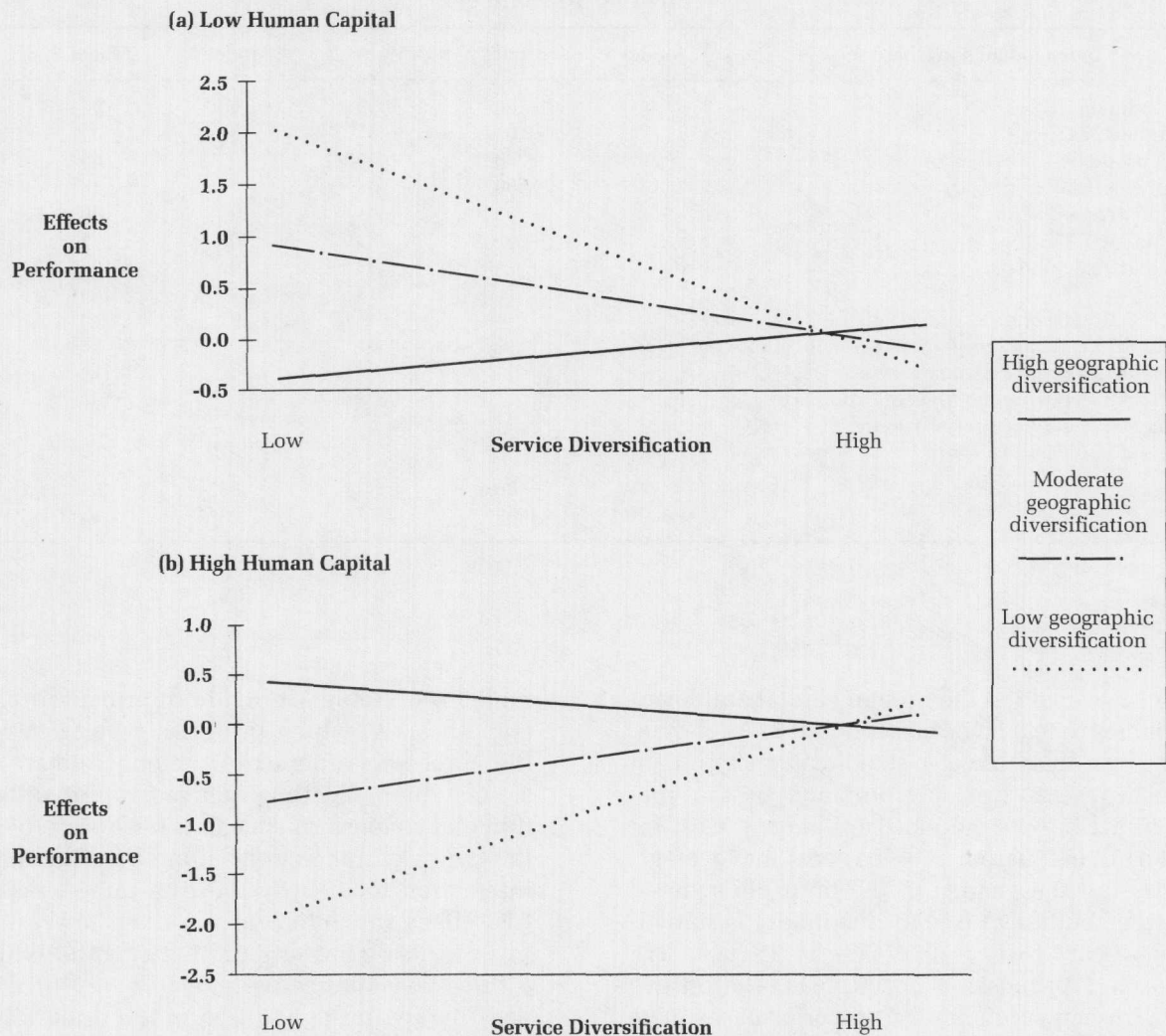
Hypothesis 3 suggests a positive interaction between human capital and leverage for firm performance. As shown in Table 3's model 4, the interactive effect of human capital and leverage on firm performance is not statistically significant (no change in R^2). Thus, these results do not support Hypothesis 3.

The results of the regression analyses depicted in

model 6 of Table 3 provide information related to Hypothesis 4, which proposes a positive effect of the three-way interaction among human capital, service diversification, and geographic diversification on firm performance. It is necessary to enter all the two-way interactions along with the three-way interaction to identify the true three-way interactive effect and interpret it (Aiken & West, 1991). The results do not support this hypothesis. There is a three-way interactive effect ($p < .10$), but it is negative (with the addition of the three-way interaction, $\Delta R^2 = .004$, $F = 4.05$, $p < .10$). Interestingly, both of the two-way interactions between human capital and service diversification ($p < .05$) and geographic diversification ($p < .10$) are positive. The two-way interaction between service and geographic diversification is not statistically significant, although it has a positive effect ($p < .10$) on performance with the two-way interactions only, as shown in model 5.

We used a typical process for interpreting such effects, following Stewart and Barrick (2000). We graphically show the effects on performance for two levels of human capital, low—minus one standard deviation from the mean—and high—plus one standard deviation from the mean. We developed plots for performance regressed on different levels of geographic and service diversification for each of the levels of human capital. The results are shown in Figure 1. As shown, the highest level of performance with low human capital is when service and geographic diversification are also low. The highest

FIGURE 1
Interaction of Human Capital, Service Diversification, and Geographic Diversification^a



^a High levels are plus one standard deviation from the mean; low levels are minus one standard deviation from the mean; moderate levels are at the mean.

level of performance with high human capital is when geographic diversification is high but service diversification is low. Likewise, a relatively equivalent level of performance is reached in firms with high human capital when service diversification is high and geographic diversification is low. These results have implications for the management and implementation of diversification strategies.

Like Westphal (1999), we performed a sensitivity analysis by separating the sample into two randomly assigned groups and tested differences to examine whether the sample distributions differed on any variable in the study, using the Kolmogorov-Smirnov test (Siegel & Castellan, 1988). No statistically significant differences were found. Thus, we can conclude that the two subgroups came from the same population. These results provided support for the robustness of the findings.

DISCUSSION

The results of this research are significant for several reasons. First, they support the recent arguments of some organizational and human resource management scholars regarding the importance of human capital to firm outcomes (Barney & Zajac, 1994; Lepak & Snell, 1999; Pfeffer, 1994; Sherer, 1995). Equally important, the results provide strong support for the resource-based view of the firm and arguments presented by several strategy scholars in recent years (e.g., Barney, 1991; Peteraf, 1993; Robins & Wiersema, 1995). Importantly, the results suggest that human capital may affect the implementation of firm strategies but that the relationship may be more complex than originally assumed. The results largely supported the theoretical arguments presented, suggesting that

the effects of human capital and resources on firm performance are both direct and indirect. Human resource management scholars have argued for some time that human resources have performance implications. These arguments have received recent impetus from the work of Pfeffer (1994). There have been a few tests, including that conducted by Huselid (1995), who found that human resource management practices affected firm outcomes. However, Huselid's research does not provide a direct test of the effects of human capital. Sherer's (1995) and Pennings and colleagues' (1998) studies provide more direct and stronger support for the importance of human capital to firm outcomes. Our research provides further support for their work and extends it as well. Using two separate measures—human capital and leverage—we found direct and moderating effects on firm performance. One important finding is the curvilinear relationship between human capital and performance. We suggest that some forms of human capital, such as those examined in our study, are costly. Thus, early investments in such human capital may not produce substantial enough benefits to offset the costs (Schwab, 1993). Time is required for new partners to develop relational and managerial skills and to build the social capital necessary to be highly effective partners and to manage the firm's other human capital. Continuing investments, however, begin to reap greater benefits. These investments become less costly, on the average and, at the same time, they produce both economies and synergies among human assets (such as intellectual capabilities, knowledge, and social capital). Valuable tacit knowledge is developed that, in turn, helps the firm provide valuable services to its clients. Such valuable services attract premium prices as well as more clients.

Our finding that leveraging human capital had a positive effect on firm performance supports the prior work of Sherer (1995). But we found that the interaction of leverage and human capital had no effect on performance. There are reasons to expect a positive interaction, but there are also explanations for the absence of an effect. In general, leveraging human capital creates efficiencies and helps build tacit knowledge in a firm, but it also imposes some costs. For example, monitoring is increased to ensure quality outcomes. Furthermore, general management costs, incurred owing to assigning tasks, coordinating activities, and evaluating employees, also increase with leveraging. Our discussions with lawyers in some large law firms suggested that not all partners have the social and managerial skills needed to manage associates and effectively leverage their own human capital. Ad-

ditionally, professional hubris sometimes prevents effective mentoring and leveraging of a partner's human capital. Also, it may be difficult to leverage certain forms of human capital, such as specific social relationships and the prestige of a degree-granting institution. This relationship suggests important implications for managers. Although applying human capital and leveraging it generally have positive returns, managers must recognize they have costs as well and either reduce those costs or ensure that the value gained from the use of a firm's human capital more than offsets the costs.

As human capital was the primary resource in the firms studied, this research provides a direct test of the resource-based view of the firm, suggesting that firms use resources to create competitive advantage. In other words, firms' resources, in particular those that are valuable, rare, and inimitable, can be used as a basis for and as an aid to implementing strategies that can create a competitive advantage (Barney & Wright, 1998).

The results support this view, as human capital was found to be important for the implementation of both service diversification and geographic diversification in professional service firms. The two-way interactions of human capital with each of the diversification strategies had positive effects on firm performance. These results support arguments for a positive moderating effect of human capital on strategy-performance relationships, suggesting that the prestige of partners, their tacit knowledge gained through experience, and their social capital can be helpful in the implementation of their firm's strategy. Having partners with education from top universities should add to a firm's reputation. A positive reputation can help professional service firms build a competitive advantage because of the information asymmetries experienced by clients. Clients use proxies to assess the potential quality of a firm's services because the actual quality cannot be known until the services are rendered and, even then, evaluation of service quality is difficult (Brush & Artz, 1999; Nayyar, 1993). Certainly, a partner's experience and social capital developed over time also contribute to client acceptance of new services. Thus, human capital can be useful in implementing service diversification. Partners' social capital and experiential knowledge can be helpful in implementing geographic diversification as well. The relationships with clients can be useful in entering new geographic markets. Existing clients with operations in the newly entered regional markets are likely to use the professional firm's services in these markets. Partners' relationships with existing clients can also help their firm obtain new clients in the new geographic market.

Existing clients can attest to the quality of the services offered, providing another way to build a competitive advantage from information asymmetries. Partners' experience should also help firms build synergy by configuring services to better satisfy their clients' needs, thus realizing economies of scope (Nayyar, 1993).

Importantly, the effect of the three-way interaction among human capital, service diversification, and geographic diversification was negative. Figure 1 suggests some important implications of this outcome. First, firms should not diversify unless they have adequate human capital, suggesting the importance of human capital for implementing diversification effectively. Accordingly, firms with some level of diversification performed better with high levels of human capital. However, the costs of implementing and managing diversification were also evident from the results. Firms did not perform well when both service and geographic diversification were high, regardless of the level of human capital. Thus, we can conclude that the achievement of the synergies available by using both strategies simultaneously is costly and difficult. To derive the benefits of the economies of scope and scale as well as to build an advantage from the information asymmetries and social capital possible from simultaneous service and geographic diversification requires significant coordination of specialized service teams and across geographic locations. The geographic dispersion of legal service units and differences among them significantly increase transaction costs and managerial information processing demands. As research on the diversification of industrial businesses has shown, too much diversity creates situations in which the governance scope needed exceeds the managerial capabilities available (Hill & Hoskisson, 1987), and firms lose the benefits of focused operations. Focus allows a firm to build the knowledge and expertise to provide excellent service. Similarly, geographic diversification diminishes a firm's ability to build local knowledge and social capital with which to provide regional clients the best service tailored to their needs. Nayyar (1992) explained that geographic focus allows firms to provide exclusive attention to regional needs and to provide services to local clients with substantial intensity. Without this focus, substantial managerial acumen is required to manage the diversity. Without such managerial skills in leveraging human capital to implement the diversification strategy, firm performance is likely to suffer.

Our discussions with representatives of law firms suggested that diversity, particularly geographic diversity, is a relatively new phenomenon

for law firms, chiefly occurring in the last 15 years. Many firms have not developed the requisite managerial skills or structures to adequately manage such diversity. Few partners in professional service firms have had formal training, education, or experience in management. Although partners with significant experience may have developed several skills for managing legal project teams and dealing with multiple clients, they have little prior experience with the challenges of managing the complex operations of a service and geographically diversified firm. Thus, they are less able to use their human capital to implement these strategies simultaneously. They need additional knowledge and skills to be effective.

These results support the findings of Hitt and his coauthors (1997) suggesting that firms with relatively simple structures and little experience in managing diversity may suffer performance declines with initial geographic diversification efforts, particularly if the firms do not have strong human capital or are already service-diversified. Our results also fit accounts in the more general literature on diversification describing how many firms have overdiversified and later refocused on core businesses (Hoskisson & Hitt, 1994). Clearly, there are opportunities to be gained from integrating service and geographic diversification, as we argued in the early sections of this article. For example, specific types of legal services may be more important in certain geographic regions (for instance, maritime law on the U.S. West and East Coasts; oil and gas law in the Southwest). When a firm enters a new geographic market, it may add the legal services most important in that region, if they are not already among its repertoire of services (increasing economies of scope). Similarly, adding new services may facilitate movement into new geographic regions where there is a demand for those services, thereby creating the opportunity for enhancing the firm's economies of scale.

It is also possible that the employment of the two strategies simultaneously could allow firms to serve their clients in valuable and unique ways that are difficult to imitate. In so doing, they can more effectively develop and sustain a competitive advantage. They may, for example, be able to develop and offer special services in particular geographic regions where those services are uniquely valuable. Thus, there are opportunities if the major partners can build the knowledge and skills (human capital) to effectively manage the diversity. In summary, the results do suggest a resource-strategy contingency fit, but the relationship may be more complex than originally hypothesized.

Only a few firms in the sample for this study

pursued diversification through mergers and acquisitions, but those that did performed more poorly. Perhaps these firms were unable to capture the resources necessary to effectively implement the desired diversification strategy. Or, more likely, these firms were unable to effectively integrate the acquired firms (Haspeslagh & Jemison, 1991) and so did not achieve the potential synergies, including those based on complementary resources, between the two firms. These results support past research on the performance outcomes of mergers and acquisitions (Hitt, Harrison, & Ireland, 2001).

This research has some potential limitations. The sample consisted of only large law firms. Thus, the results cannot be generalized beyond large professional service firms without further research. Also, we focused on one industry as it was necessary to compare resource effects across firms. Finally, the amount of variance explained by the main effects of the human capital variables was modest (3.6%). Firm performance is a function of many variables both from inside a firm (these include the internal cost of capital and the costs of operations, facilities and equipment, and other resources) and from outside the firm (such as competitiveness in the industry and the health of the economy). Thus, for any one set of variables to explain 3.6 percent of the variance in firm performance may be significant. Many managers perceive employees as a cost rather than an asset, and human resource costs are listed as an expense on income statements. Thus, our findings regarding the effects of human capital on performance are, indeed, important.

The effects of human capital in particular and the effects of important resources in general should be examined in other industries to test the generalizability of this study's results. Additionally, the curvilinear effect of human capital and the negative interaction effect of human capital, service diversification, and geographic diversification on performance should be explored further. In particular, further research should be conducted not only to replicate but also to better understand the reasons for these outcomes. Finally, more research on resource-strategy contingency fit is needed, especially studies including other resources and strategies.

In conclusion, this research has potentially significant implications for both strategic management and human resource management as well as for managerial practice. The results unequivocally suggest the importance of human capital for firm performance. Furthermore, this research suggests a complex resource-strategy contingency fit. Thus, it provides more empirical support for and theoretical understanding of the value of firm resources

and the use of human capital in the implementation of service and geographic diversification strategies.

REFERENCES

- Aiken, L. S., & West, S. G. 1991. *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Amit, R., & Schoemaker, P. J. H. 1993. Strategic assets and organizational rent. *Strategic Management Journal*, 14: 33-46.
- Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17: 99-129.
- Barney, J. B., & Wright, P. M. 1998. On becoming a strategic partner: The role of human resources in gaining competitive advantage. *Human Resource Management*, 37: 31-46.
- Barney, J. B., & Zajac, E. J. 1994. Competitive organizational behavior: Toward an organizationally-based theory of competitive advantage. *Strategic Management Journal*, 15: 5-9.
- Baron, J. N., & Kreps, D. M. 1999. *Strategic human resources: Frameworks for general managers*. New York: Wiley.
- Bergh, D. D. 1993. Don't "waste" your time. The effects of time series errors in management research: The case of ownership concentration and research and development spending. *Journal of Management*, 19: 897-914.
- Bierman, L., & Gely, R. 1995. Striker replacements: A law, economics, and negotiations approach. *Southern California Law Review*, 68: 363-396.
- Black, J. A., & Boal, K. B. 1994. Strategic resources: Traits, configurations and paths to sustainable competitive advantage. *Strategic Management Journal*, 15: 131-148.
- Brill, S. 1987. The gap widens. Supplement to the *American Lawyer*, 9 (July-August).
- Brush, T. H., & Artz, K. W. 1999. Toward a contingent resource-based theory: The impact of information asymmetry on the value of capabilities in veterinary medicine. *Strategic Management Journal*, 20: 223-250.
- Daily, C. M., Certo, S. T., & Dalton, D. R. 2000. A decade of corporate women: Some progress in the boardroom, none in the executive suite. *Strategic Management Journal*, 20: 93-99.
- D'Aveni, R. A. 1989. The aftermath of organizational decline: A longitudinal study of the strategic and managerial characteristics of declining firms. *Academy of Management Journal*, 32: 577-605.
- D'Aveni, R. A. 1996. A multiple-constituency, status-based approach to interorganizational mobility of

- faculty and input-output competition among top business schools. *Organization Science*, 7: 166-189.
- D'Aveni, R. A., & Kesner, I. F. 1993. Top managerial prestige, power and tender offer response: A study of elite social networks and target firm cooperation during takeovers. *Organization Science*, 4: 123-151.
- Davis, R., & Duhaime, I. M. 1992. Diversification, vertical integration, and industry analysis: New perspectives and measurement. *Strategic Management Journal*, 13: 511-524.
- Dess, G. G., Ireland, R. D., & Hitt, M. A. 1990. Industry effects and strategic management research. *Journal of Management*, 16: 7-27.
- Finkelstein, S., & Hambrick, D. 1996. *Strategic leadership*. St. Paul: West.
- Galanter, M., & Palay, T. 1991. *Tournament of lawyers: The transformation of the big law firm*. Chicago: University of Chicago Press.
- Galunic, D. C., & Rodan, S. 1998. Resource recombinations in the firm: Knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal*, 19: 1193-1201.
- Gimeno, J., & Woo, C. Y. 1999. Multimarket contact, economies of scope, and firm performance. *Academy of Management Journal*, 42: 239-259.
- Grant, R. M. 1996. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17(special issue): 109-122.
- Hambrick, D. C., & Mason, P. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Journal*, 14: 401-418.
- Harris, D., & Helfat, C. 1997. Specificity of CEO human capital and compensation. *Strategic Management Journal*, 18: 895-920.
- Haspeslagh, P. C., & Jemison, D. B. 1991. *Managing acquisitions: Creating value through corporate renewal*. New York: Free Press.
- Helfat, C. 1997. Know-how and asset complementarity and dynamic capability accumulation: The case of R&D. *Strategic Management Journal*, 18: 339-360.
- Hill, C. W. L., & Hoskisson, R. E. 1987. Strategy and structure in the multiproduct firm. *Academy of Management Review*, 12: 331-341.
- Hitt, M. A., Harrison, J. S., & Ireland, R. D. 2001. *Mergers and acquisitions: A guide to create value for stakeholders*. New York: Oxford University Press.
- Hitt, M. A., Hoskisson, R. E., & Kim, H. 1997. International diversification: Effects on innovation and firm performance in product-diversified firms. *Academy of Management Journal*, 40: 767-798.
- Hitt, M. A., Hoskisson, R. E., Johnson, R. A., & Moesel, D. D. 1996. The market for corporate control and firm innovation. *Academy of Management Journal*, 39: 1084-1119.
- Hoskisson, R. E., & Hitt, M. A. 1994. *Downscoping: How to tame the diversified firm*. New York: Oxford University Press.
- Hoskisson, R. E., Hitt, M. A., Johnson, R. A., & Moesel, D. D. 1993. Construct validity of an objective (entropy) categorical measure of diversification strategy. *Strategic Management Journal*, 14: 215-235.
- Howard, J. H. 1991. Leadership, management and change in the professional service firm. *Business Quarterly*, 55(4): 111-118.
- Hsiao, C. 1986. *Analysis of panel data*. New York: Cambridge University Press.
- Huselid, M. A. 1995. The impact of human resource management practices on turnover, productivity and corporate financial performance. *Academy of Management Journal*, 38: 635-672.
- Ilinitch, A. Y., & Zeithaml, C. P. 1995. Operationalizing and testing Galbraith's center of gravity theory. *Strategic Management Journal*, 16: 401-410.
- Itami, H. 1987. *Mobilizing invisible assets*. Cambridge, MA: Harvard University Press.
- Kogut, B. 1985. Designing global strategies: Profiting from operational flexibility. *Sloan Management Review*, 26(4): 27-38.
- Lane, P. J., & Lubatkin, M. 1998. Relative absorptive capacity and interorganizational learning. *Strategic Management Journal*, 19: 461-477.
- Lee, J., & Miller, D. 1999. People matter: Commitment to employees, strategy and performance in Korean firms. *Strategic Management Journal*, 20: 579-593.
- Lei, D., Hitt, M. A., & Bettis, R. 1996. Dynamic core competences through meta-learning and strategic context. *Journal of Management*, 22: 549-569.
- Lepak, D. P., & Snell, S. A. 1999. The human resource architecture: Toward a theory of human capital allocation and development. *Academy of Management Review*, 24: 31-48.
- Liesbeskind, J. P. 1996. Knowledge, strategy and the theory of the firm. *Strategic Management Journal*, 17(special issue): 93-107.
- Maister, D. H. 1993. *Managing the professional service firm*. New York: Free Press.
- Markides, C. C., & Williamson, P. J. 1996. Corporate diversification and organizational structure: A resource-based view. *Academy of Management Journal*, 39: 340-367.
- Miller, D., & Shamsie, J. 1996. The resource-based view of the firm in two environments: The Hollywood firm studios from 1936 to 1965. *Academy of Management Journal*, 39: 519-543.
- Mintzberg, H. 1973. *The nature of managerial work*. New York: Harper/Collins.
- Mitchell, W. 1989. Whether and when? Probability and timing of incumbent's entry into emerging industrial

- subfields. *Administrative Science Quarterly*, 34: 208–234.
- Mowery, D. C., Oxley, J. E., & Silverman, B. S. 1996. Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, 17(special issue): 77–91.
- Nahapiet, J., & Ghoshal, S. 1998. Social capital, intellectual capital and the organizational advantage. *Academy of Management Review*, 23: 242–266.
- Nayyar, P. R. 1992. Performance effects of three foci in service firms. *Academy of Management Journal*, 35: 985–1009.
- Nayyar, P. R. 1993. Performance effects of information asymmetry and economies of scope in diversified service firms. *Academy of Management Journal*, 36: 28–57.
- Nelson, R. L. 1988. *Partners with power: The social transformation of the large law firm*. Berkeley, CA: University of California Press.
- Nelson, R. R., & Winter, S. G. 1982. *The evolutionary theory of economic change*. Cambridge, MA: Belknap Press.
- Panzar, J. C., & Willig, R. D. 1981. Economies of scope. *American Economic Review*, 71: 268–272.
- Pennings, J. M., Lee, K., & van Witteloostuijn, A. 1998. Human capital, social capital and firm dissolution. *Academy of Management Journal*, 41: 425–440.
- Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14: 179–191.
- Pfeffer, J. 1994. *Competitive advantage through people*. Boston: Harvard Business School Press.
- Pisano, G. P. 1994. Knowledge, integration and the locus of learning: An empirical analysis of process development. *Strategic Management Journal*, 15: 85–100.
- Polanyi, M. 1967. *The tacit dimension*. Garden City, NY: Anchor Publishing.
- Rao, H. 1994. The social construction of reputation: Certification process, legitimation, and the survival of organizations in the American automobile industry: 1895–1912. *Strategic Management Journal*, 15: 29–44.
- Robins, J., & Wiersema, M. F. 1995. A resource-based approach to the multibusiness firm: Empirical analysis of portfolio interrelationships and corporate financial performance. *Strategic Management Journal*, 16: 277–299.
- Samuelson, S. S., & Jaffe, L. J. 1990. A statistical analysis of law firm profitability. *Boston University Law Review*, 70: 185–211.
- Sayrs, L. W. 1989. *Pooled time series analysis*. Newbury Park, CA: Sage.
- Schoenecker, T. S., & Cooper, A. C. 1998. The role of firm resources and organizational attributes in determining entry timing: A cross-industry study. *Strategic Management Journal*, 19: 1127–1143.
- Schwab, S. J. 1993. Life-cycle justice: Accommodating just cause and employment at will. *Michigan Law Review*, 92: 8–62.
- Sherer, P. D. 1995. Leveraging human assets in law firms: Human capital structures and organizational capabilities. *Industrial and Labor Relations Review*, 48: 671–691.
- Siegel, S., & Castellan, N. J. 1988. *Nonparametric statistics for the behavior of science*. New York: McGraw-Hill.
- Spender, J.-C. 1996. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*, 17(special issue): 45–62.
- Stewart, G. L., & Barrick, M. R. 2000. Team structure and performance: Assessing the mediating role of intrateam process and the moderating role of task type. *Academy of Management Journal*, 43: 135–148.
- Szulanski, G. 1996. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17(special issue): 27–43.
- Teece, D. J. 1980. Economies of scope and the scope of the enterprise. *Journal of Economic Behavior and Organization*, 1: 223–247.
- Teece, D. J. 1986. Profiting from technological guideposts and innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15: 285–305.
- Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities in strategic management. *Strategic Management Journal*, 18: 509–534.
- Thompson, J. D. 1967. *Organizations in action*. New York: McGraw-Hill.
- Tripsas, M. 1997. Unraveling the process of creative destruction: Complementary assets and incumbent survival in the typesetter industry. *Strategic Management Journal*, 18: 119–142.
- Westphal, J. D. 1999. Collaboration in the boardroom: Behavioral and performance consequences of CEO-board social ties. *Academy of Management Journal*, 42: 7–24.
- Wright, P. M., Smart, D. L., & McMahan, G. C. 1995. Matches between human resources and strategy among NCAA basketball teams. *Academy of Management Journal*, 38: 1052–1074.

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