

HOW DO INTERDEPENDENCIES AMONG HUMAN-CAPITAL DEPLOYMENT, DEVELOPMENT, AND DIVERSIFICATION STRATEGIES AFFECT FIRMS' FINANCIAL PERFORMANCE?

YASEMIN Y. KOR^{1*} and HUSEYIN LEBLEBICI²

¹ Alfred Lerner College of Business and Economics, University of Delaware, Newark, Delaware, U.S.A.

² Department of Business Administration, University of Illinois at Urbana–Champaign, Champaign, Illinois, U.S.A.

Using key insights from the resource-based view of the firm, we develop and test a theory of how firms can successfully deploy and develop their strategic human assets while managing the trade-offs in their service and geographical diversification strategies. In a sample of large law firms we find that, even though firms profit from expert human-capital leveraging strategy and service and geographical diversification strategies individually, pursuing these strategies simultaneously at high levels produces negative interaction effects on firm profitability. In addition, the internally developed, firm-specific associate human capital strategically fits better with high levels of expert human-capital leveraging. While lateral hiring helps firms build new knowledge bases and take advantage of growth opportunities, pursuing high levels of both expert human-capital leveraging and lateral hiring of associates results in lower profitability. To fully capture the economic benefits from strategies of diversification, human-capital leveraging and lateral hiring, firms should understand and manage the complex interdependencies among multiple levels of strategy.

Copyright © 2005 John Wiley & Sons, Ltd.

Knowledge, skills, and experience of human resources have been considered among the key contributors to a firm's bundle of resources and capabilities (Coff, 2002). Systems, processes, and routines for organizing, allocating, developing, and rewarding human resources directly influence the processes in which firm competencies are developed and renewed (Huselid, 1995; Kamoche, 1996;

Koch and McGrath, 1996; Lado and Wilson, 1994; Prescott and Visscher, 1980). Firm-level capabilities that are built on specific human resource systems can be difficult to imitate because these systems involve routines that are firm specific, socially complex, and path dependent (Reed and DeFillippi, 1990).

The resource-based view offers a rich theoretical foundation for research about effective deployment and development of firms' resources for generating and sustaining superior returns (Mahoney, 1995; Mahoney and Pandian, 1992; Penrose, 1959). This theoretical perspective suggests that performance differences across industries and within the same

Keywords: resource-based view; diversification strategy; human resources; firm performance; professional service firms

*Correspondence to: Yasemin Y. Kor, Alfred Lerner College of Business and Economics, University of Delaware, 214 Lerner Hall, Newark, DE 19716-2710, U.S.A. E-mail: kory@udel.edu

industry are closely linked to the differences in the bundle of resources (Barney, 1986; Makadok, 2001; Peteraf, 1993) and in effective management of resources (Mahoney and Pandian, 1992; Penrose, 1959). Resources as the basic unit of analysis can be classified as financial, human, intangible, organizational, physical, and technological (Bogner, Mahoney, and Thomas, 1998), and further 'subdivision of resources may proceed as far as is useful . . . for the problems at hand' (Penrose, 1959: 75). Often what makes a resource valuable is not its rarity or inherent characteristics but the way in which the firm manages its resources to achieve efficiency and innovation (Mahoney, 1995; Penrose, 1959).

The resource-based view also suggests that firms diversify into new areas of business to make more efficient use of their underutilized resources and capabilities (Penrose, 1959). When firms grow in directions and rates that are consistent with their resources and capabilities, they capture synergy-based efficiencies and enhance their knowledge bases. Success in growth and diversification strategies requires paying attention to the availability, experience, and knowledge of firms' managerial and expert human resources.

Even though the resource-based view provides us with these key insights about the importance of firms' resources for successful diversification, the literature fails to address how strategies related to management and development of human assets at the business level affect the success of diversification strategies at the corporate level. In the literature, strategies about diversification and management of firms' strategic human assets remain unconnected. However, ignoring the interdependencies between these different levels of strategies may result in ineffective strategy implementation and poor firm performance. Therefore, we develop and test a theory of how firms can successfully deploy and develop their strategic human assets while recognizing and managing the trade-offs in their diversification strategies.

This paper focuses on human-capital deployment and development strategies because of the resource-based view insight that what makes a resource productive and valuable is closely linked to how this resource is managed and developed.¹ Human-capital deployment strategy involves

choices related to the deployment of firms' strategic human resources such as professionals with specialized knowledge and expertise. The availability of these strategic resources can be limited in firms because professionals develop their expert knowledge after many years of experience. Their expertise embeds firm-specific and client-specific knowledge that can be hard or impossible to transfer from one firm to another. For efficient deployment of these strategic resources, firms dedicate expert professionals to complex projects and support them with 'junior' professionals who perform easier tasks and projects (Sherer, 1995). In professional service firms such as law or accounting firms, this strategy is known as *leveraging* expert human resources, where partners with a high level of expert knowledge work with a team of associate professionals. Building on previous research about leveraging expert human resources (Hitt *et al.*, 2001; Sherer, 1995), we develop an integrated framework that explains how specific contingencies between expert human-capital leveraging strategy and service and geographical diversification strategies account for the differences in intra-industry firm profitability.

In addition, firms differ not only in how they deploy human capital but also in how they develop it. Human-capital development strategy reflects the extent to which a firm relies on internal development of human capital vs. acquiring human capital through lateral hiring of professionals from other firms. Only a few studies provide insight about the interdependencies among human-capital development, deployment and diversification strategies especially in service and knowledge-based firms (e.g., Farjoun, 1998; Hitt *et al.*, 2001), even though these interdependencies may have important implications for financial performance. By exploring effective management of the strategic human assets in alignment with corporate strategy, we intend to direct the attention of researchers to more complex, firm-specific relationships between diversification and firm profitability. Because the appropriate combinations of corporate and business-level strategies are not always obvious, firms can make wrong trade-offs and become captive in the core rigidities created by past commitments (Leonard-Barton, 1992). An empirical examination of the interconnectedness between diversification

¹ Human capital in the form of knowledge, skills, health, or values is produced by investments in education, training, and

medical care, and, unlike physical and financial capital, it cannot be separated from the person who owns it (Becker, 1993).

and human capital strategies is important because a competitive advantage built on coherence among multiple strategies is typically harder to imitate and may provide superior returns for many years (Dierickx and Cool, 1989).

THEORY AND HYPOTHESES

Human-capital deployment strategy

Human resources represent the most significant form of capital in professional service firms such as law, accounting, and consulting firms, since expert advice or consultation as the primary output is created and delivered by human resources (Gilson and Mnookin, 1990; Malos and Campion, 1995; Spar, 1997). Professionals, as the crown jewel of these knowledge-producing entities, provide the know-how and expertise to produce specialized services (Pinnington and Morris, 1996; Starbuck, 1993). To deploy expert human capital efficiently, these firms engage in division of labor. For instance, the professional staff in law firms consists of partners, managing partners, and associates. Partners locate new clients, nurture existing client relations, oversee preparation and presentation of complicated cases, and coach and coordinate the activities of junior professionals. Partners are the most difficult to replace in a firm because they possess firm-specific and client-specific knowledge that accumulates over a professional lifetime. Managing partners coordinate administrative tasks, and associates do expert work at low to moderate levels of complexity (Maister, 1993). Proper deployment of professional human resources involves delegating less complex work by expert human resources (e.g., partners) to less experienced employees (e.g., associates). Among professional service firms, this human-capital deployment strategy is known as human-capital leveraging (Maister, 1993; Sherer, 1995). During the process of delegating tasks to associates, partners leverage their tacit expert knowledge of the profession by concentrating on highly complex cases. At the same time, partners frequently interact with their associates and monitor their performance, and this interactive process helps develop the skills and knowledge of associates (Hitt *et al.*, 2001). The degree to which a firm leverages its partners is often measured as the leverage ratio (the number of associates a firm employs per partner at a point in time). Some firms

choose to highly leverage their partner capital by employing, for example, three associates per partner. Other firms keep this ratio as small as one associate per partner. In essence, leverage ratio serves as a picture of firm's *bundle* of professional skills (Sherer, 1995; Sherer and Lee, 2002).

The degree of leveraging, as a source of intra-industry firm heterogeneity, can also be a source of superior profitability among professional service firms. Leveraging limited and valuable partner resources provides several benefits. For instance, leveraging human capital buffers the experienced and expert professionals (i.e., partners) from time-consuming and less value-creating activities so that they can concentrate on complex assignments. Leveraging also allows a firm to expand its service capacity. A partner assisted by two associates instead of one associate can handle a higher number of cases and generate more revenue (Sherer and Lee, 2002). Partners, as the residual claimants in professional service firms, also appropriate more profits (per partner) because the increased sum of profits is distributed among the same number of partners.

Under-leveraged firms bear higher input costs and opportunity costs of forgone revenues due to inefficiently used expert time. In such firms, employing a lower ratio of associates to partners increases the overall costs of a project and limits the number of complex, yet more profitable, projects a firm can take on. Thus, leveraging expert human capital has significant cost and revenue implications in knowledge-intensive organizations. Finally, proper deployment of expert resources via leveraging not only ensures efficient resource utilization but also fosters further learning among associates because, with increased delegation, they handle a wider variety of tasks at an increasing difficulty level. In sum, leveraging positively affects the profitability of the firm because: (1) partner human capital is efficiently utilized for projects that require high-level expert knowledge and typically generate higher profit margins; (2) by employing a higher number of associates per partner, firms can expand service capacity while profits are appropriated by the same number of partners; and (3) delegation of professional work to associates facilitates development of their human capital.

Leveraging partner human capital excessively, however, may produce certain drawbacks. For

example, as the number of associates per partner increases, coordination of associates becomes difficult. When partners have less time to train and coach each associate, associates' professional development and work quality may suffer. Excessive leveraging may lead to compromises in the quality of work as associates complete most projects with limited partner supervision and little direct partner involvement. Also, competition for partner attention may undermine the effectiveness of associates working as a team. Finally, in highly leveraged firms, associates may become demoralized because of smaller chance of becoming a partner. These firms may experience difficulty in attracting new associates (Sherer and Lee, 2002).

Because of these important drawbacks, firms often refrain from excessive leveraging of partners. Most firms realize that it is important to achieve a balance in the human-capital leveraging process (Hitt *et al.*, 2001). In the absence of firms that pursue excessive leveraging, we would expect to see a positive relationship between leveraging and firm financial performance. Consistent with this conjecture, Hitt *et al.* (2001) finds a positive linear link between leveraging and financial performance among large law firms. To help establish the external validity of these findings (Sommer and Sommer, 1991), we test the relationship between leveraging and firm performance in a more recent time frame (i.e., 1995–2000 vs. 1987–91 in Hitt *et al.*, 2001). This theoretical link between human-capital leveraging and profitability is integral to our new theory development about the performance consequences of the interactions between corporate strategy and human-capital deployment and development strategies.

Hypothesis 1: The degree of partner human-capital leveraging, i.e., the number of associates per partner, is positively related to the profitability of professional service firms.

Diversification strategy and human-capital leveraging

Firms often diversify, both geographically and in terms of services, to utilize the excess capacity of their resources and capabilities and to benefit from economies of scope when the demand for the services from these input factors is limited and an efficient market for these input factors does not exist (Penrose, 1959; Rumelt, 1982; Teece,

1980). Resource-based theory stresses that firms' underutilized resources often include intangible and knowledge-based resources such as the knowledge embedded in expert human resources. For example, professional service firms may develop an underutilized capacity of knowledge-based resources over time, as the professionals and managers specialize and learn new knowledge and skills. Diversification into related new areas of professional practice enables firms to efficiently utilize their increased expert capacity. Professional service firms may also diversify through mergers and acquisitions to acquire new competencies to serve large corporate clients in multiple practice areas and thus benefit from the efficient use of client-specific knowledge.

Empirical research on diversification indicates resource and knowledge-based similarities between the original and target industries (e.g., Farjoun, 1994; Montgomery and Hariharan, 1991). The literature also provides accumulating evidence supporting a positive relationship between relatedness or refocusing and profitability, and a negative relationship between unrelated diversification and profitability (Chang, 1996; Christensen and Montgomery, 1981; Farjoun, 1998; Markides, 1992; Markides and Williamson, 1994; Montgomery and Wernerfelt, 1988; Palepu, 1985).

Few empirical studies have explored the performance consequences of diversification strategy in connection with firms' bundles of human resources. Farjoun (1994, 1998) shows that firms achieve superior returns when they diversify in directions that match their human-capital profile and physical capital skills. Hitt *et al.* (2001) finds that the education and tenure-based quality of the professionals' human capital moderates the performance outcomes of service and geographical diversification. Despite these valuable findings, empirical and theoretical research on diversification strategy has been quiet about how strategies related to *management* and *development* of human assets at the business level affect the success of diversification strategies at the corporate level. Success in diversification strategies may significantly depend on the availability, experience, and knowledge of firms' managerial and expert human resources. Also, because the complexity of coordination and management is compounded by the diversified firm's engagement in diverse areas of business (Stimpert and Duhaime, 1997), ignoring the interdependencies between strategies of

diversification and management of strategic human assets may result in poor implementation of the diversification strategy.

In professional service firms, diversification creates additional demands on partners who possess both professional and managerial (i.e., coordination) duties. With diversification into newer service areas, partners have to develop a reasonable understanding of multiple practice areas so that they can coordinate complex legal cases that involve multiple areas of professional expertise (e.g., a case that simultaneously incorporates the expert knowledge of labor law, mergers and acquisitions, regulations, and international law). Because at high levels of diversification new practice areas tend to be less related to the original areas, the current base of employee knowledge is less transferable. As a result, increased time commitments become essential for partners' learning new skills in order to compete in diversified areas of business (Penrose, 1959; Teece *et al.*, 1994). With diversification, the job of communicating to clients becomes more complex as well because offering one-stop shopping to large corporate clients requires the partners to be articulate in multiple areas of expertise. Essentially, as the firm tries to realize the benefits of economies of scope from client-specific knowledge and other common inputs, partners absorb the internal transaction and adjustment costs of coordinating and performing in multiple legal practice areas (Helfat and Eisenhardt, 2004; Nayyar, 1993).

Decentralizing and assigning the control of specific practice areas (e.g., labor law) to partners with the appropriate expertise may alleviate some of the coordination difficulties of diversification. However, a diversified law firm still needs to manage complex, multi-area cases that require the expert knowledge of multiple legal areas. To benefit from the synergies of diversification (e.g., the client-specific knowledge), partners would have to coordinate the participation of multiple departments that provide specialized services for the same project. After all, large corporate clients are attracted to diversified law firms precisely because they do not want to engage multiple law firms for different legal needs. Therefore, specialized departments of a diversified law firm cannot act independently from one another. Both for efficiency purposes (i.e., to capitalize on the synergies) and to reduce the transaction costs for the client, diversified law firms have to do a good job in

orchestrating their specialized departments' efforts and contributions.

Even though effective coordination of diversification requires intense partner involvement, partners' ability to cope with the demands of diversification may depend on the degree of partner human-capital leveraging in the firm. In highly leveraged firms, partners may not be as effective in responding to the complex needs of diversification because they are also engaged with overseeing a high number of associates. In specialized or less diversified firms, high levels of partner human-capital leveraging can be achieved successfully because firms can easily develop standardized forms, procedures, and performance goals for associates (Sherer, 1995). As specialization makes it easier to train and control associates, partners can work with a higher number of associates. However, when firms diversify into new practice areas, the complex and multidisciplinary nature of the legal cases makes it harder to use these standard procedures and controls. As the professional work becomes more complex, closer monitoring and coaching of associates by partners becomes essential. For these reasons, diversified law firms often pursue lower levels of partner human-capital leveraging (Sherer, 1995).

Despite the higher demand for partner involvement in coordination of diversified operations, if a firm highly leverages its partner resources and pursues a high level of service diversification simultaneously, the quality of the professional service may suffer, and profitability may decline. Financial performance may suffer when partners are caught in the middle of competing activities that urgently demand their time. These activities include: (1) acquiring new knowledge to be reasonably articulate and knowledgeable in multiple legal areas; (2) orchestrating the efforts and contributions from specialty departments; and (3) coaching and monitoring associates in existing and new practice areas and complex cases. However, learning and coaching under intense time constraints may prevent partners and their associates from integrating the complementary knowledge streams (Bierly and Chakrabarti, 1996). Ultimately, the limited time and attention resources of expert professionals constitute the bottleneck to successful implementation of the service diversification strategy. Thus, when firms stretch their partner resources excessively and ignore the interdependency between service diversification and

human-capital leveraging, its profitability will be adversely affected.

Hypothesis 2: The interaction of partner human-capital leveraging and service diversification will have a negative effect on the profitability of the firm. Specifically, at higher levels of both leveraging and service diversification, profitability will be lower.

In addition to service diversification, geographical diversification can be a value-creating strategy for professional service firms because their typical clients such as *Fortune* 500 firms are geographically diversified and need service in multiple locations. Being present at locations where clients are most active enables a firm to serve clients more effectively and earn customer loyalty (Tolbert and Stern, 1991). Similar to service diversification, geographical diversification may create additional internal coordination and controlling difficulties (Nayyar, 1993). More partner involvement becomes necessary to manage relations with national clients and to coordinate the transactions among different law offices. For example, in order to serve a large corporate client with multiple offices throughout the country, this client's law firm engages in extensive coordination among its offices. Because partners are involved in coordination of geographical diversification, they have less time to dedicate to the training and overseeing of associates; thus, the firm experiences a downward pressure on partner human-capital leveraging.

In geographically diversified firms, partners also allocate time for building local reputation that may not be present initially. Reputation as a valuable invisible asset and an isolating mechanism contributes to superior financial returns (Hall, 1992, 1993; Itami and Roehl, 1987; Rumelt, 1984). Even nationally known professional service firms make efforts to build a portfolio of clients when they expand. As the firm builds a portfolio of clients in a new location, partners in charge of this expansion incur significant start-up costs such as investing time to learn about the client and its business and developing trust and confidence between the law firm and its clients (Gilson and Mnookin, 1985).

Overall, high demand for the partners' time to coordinate the geographical expansion makes it difficult to leverage partner resources at a high rate. Working simultaneously on the coordination of expansion, finding new corporate clients, and

overseeing a large number of associates can easily overstretch partners' limited time and attention resources, resulting in unproductive outcomes. Therefore, even though leveraging and diversification strategies are individually valuable, a firm's profitability may decrease when it spreads partner resources too thin by pursuing both leveraging and geographical diversification at high levels.

Hypothesis 3: The interaction of partner human-capital leveraging and geographical diversification will have a negative effect on the profitability of the firm. Specifically, at higher levels of both leveraging and geographical diversification, profitability will be lower.

Interdependencies between human-capital deployment and development strategies

Besides partner human-capital leveraging, the way in which firms develop their associate human capital may affect a firm's financial performance. Associate human capital can be developed either internally (i.e., hiring law school graduates and developing their human capital) or acquired from other firms (i.e., hiring experienced associates laterally). Each strategy offers advantages and disadvantages. For instance, the acquisition (i.e., lateral hiring) strategy helps a firm develop new knowledge bases. Because accumulating expert knowledge of a specialty area of law requires both specialized education and experience, at times firms may prefer lateral hiring to long-term internal development. Lateral hiring can save a growing firm considerable time because the firm can recruit an experienced professional (e.g., a lawyer with considerable experience in corporate law) in less time than it can develop this expertise internally. In fact, at times of high industry growth and diversification, strict reliance on long-term internal development of a firm's all human capital would create opportunity costs and cause them to stay behind the rival firms that take advantage of lateral hiring. Additionally, hiring seasoned associates may increase the heterogeneity of views in the organization because the new hires add to the diversity of ideas and experiences. Essentially, firms can benefit from lateral hiring depending on the market conditions, firm's growth strategy and culture, and the similarities between the knowledge of its current employees and the new areas of expansion.

The resource-based view, on the other hand, suggests that internally developed firm-specific human capital may be more productive than externally acquired human capital (Kor and Mahoney, 2000, 2004; Penrose, 1959). Specifically, productive services of the resources (professionals) become fully available when they are deployed in the original firm interacting with other resources (Klein, Crawford, and Alchian, 1978; Peteraf, 1993). This happens because the firm specificity of the knowledge possessed by employees makes it difficult to transfer human skills, expertise, and experience developed in one firm to another firm (Bailey and Helfat, 2003; Rubin, 1973). Even though profession-based knowledge can be generic and transferable to a new firm, the new employer incurs considerable adjustment costs to make the acquired human capital productively deployable with the firm's other resources (Penrose, 1959; Prescott and Visscher, 1980; Slater, 1980). Adjustment costs involve the effort and time spent to accumulate: (1) the firm-specific knowledge about a firm's business practices, values, and relationships with specific clients; and (2) the knowledge of the skills and idiosyncratic habits of people so that the existing and new employees can effectively work and function together (Kor, 2003; Penrose, 1959; Prescott and Visscher, 1980; Slater, 1980; Williamson, 1975). Adjustment costs can be higher for laterally hired associates because they have to unlearn the idiosyncratic knowledge and routines of their previous firms before they can internalize the firm-specific knowledge of a new firm. Until they develop sufficient firm-specific and client-specific knowledge, laterally hired professionals may not be fully productive (Gilson and Mnookin, 1985).

Difficulties of unlearning previous knowledge create inflexibilities for the firm (Kogut and Zander, 1996). Specifically, when a firm develops its associate human capital mostly through lateral hiring, its capability to effectively leverage its partner human capital becomes limited. Lateral hiring requires partners to invest time in getting to know the skills and habits of the new people and helping them to unlearn some of their previous knowledge so they can internalize the current firm's values and common language (Arrow, 1974; Grant, 1996a, 1996b; Huber, 1991; Kor and Mahoney, 2000). Knowing and assigning human resources to appropriate jobs is essential for efficient utilization of their existing skills and new

skill development (Mahoney, 1995; Prescott and Visscher, 1980; Teece, Pisano, and Shuen, 1997). If the seasoned associates act independently because they did not receive sufficient guidance from partners, the firm will have difficulty in sustaining the consistency of the values and standards of its professional services.

Given the scarcity of time and attention resources (Simon, 1991), partners may not be able to both concentrate on high expertise-high margin projects and do a good job of getting to know laterally hired associates and facilitating their adjustment to the firm. However, partners' human capital generates high returns when deployed in complex and high-margin projects (Maister, 1993; Sherer, 1995). The times when their human capital is not used for such projects create opportunity costs for the firm. When partners are caught in the middle of these competing demands, compromises may be made in dedicating time to high-margin cases, in coaching associates, or both. Such compromises may reduce the firm's profitability.

Despite the advantages of lateral hiring, leveraging strategic partner resources requires a controlled lateral hiring strategy. Owing to interdependencies between human-capital development and deployment strategies, firms that pursue high levels of both associate lateral hiring and partner human-capital leveraging will attain lower financial performance.

Hypothesis 4: The interaction of partner human-capital leveraging and the ratio of lateral hiring for associates will have a negative effect on the profitability of the firm. Specifically, at higher levels of both leveraging and lateral hiring, profitability will be lower.

Interdependencies between diversification and human-capital development strategy

The associate human-capital development strategy of the firm could influence the implementation success of both service and geographical diversification. Internal human-capital development allows for exploitation of the firm's existing knowledge, whereas lateral hiring serves as a knowledge exploration strategy (March, 1991). At lower levels of diversification, where the areas of professional service are closely related, the internal development of associate human capital allows the firm to exploit its existing knowledge bases. In particular,

by exploiting the expert knowledge of the partners who coordinate and coach associates, new graduates can be quickly indoctrinated into a firm's way of doing business and develop expertise in closely related legal services. As the level of service diversification increases, however, the firm's need for new knowledge bases and specialized professional skills also increases. In the legal profession, expert knowledge and skills develop after specialized legal education and years of experience. In-house development of new knowledge bases and skills can be time-consuming and expensive when they differ notably from what firm currently possesses (Simon, 1991). By hiring experienced, seasoned associates, firms pursue a knowledge exploration strategy because these hires bring specialized knowledge and expertise. Therefore, as a firm's level of diversification increases, hiring seasoned associates would be an appropriate strategy of human capital development. We hypothesize that firms achieve better financial results when they opt for high ratios of lateral hiring to implement extensive service diversification.

Hypothesis 5: The interaction of the ratio of lateral hiring for associates and service diversification will have a positive effect on the profitability of the firm. Specifically, at higher levels of both lateral hiring and service diversification, profitability will be higher.

This logic applies to geographical diversification as well. Geographically less diversified or concentrated firms may have lesser need to expand their knowledge bases rapidly through lateral hiring. Geographical expansion into new locations, however, can be implemented faster with a knowledge exploration strategy (i.e., lateral hiring) as firms make use of lateral hires' expertise to serve their clients in new office locations without waiting a few years for new graduates to develop professional experience. When firms achieve a fit between their human-capital development and diversification strategies, they attain superior returns.

Hypothesis 6: The interaction of the ratio of lateral hiring for associates and geographical diversification will have a positive effect on the profitability of the firm. Specifically, at higher levels of both lateral hiring and geographical diversification, profitability will be higher.

SAMPLE AND METHODS

Sample

The sample in this study consists of 105 large U.S. law firms, all private partnerships. Annual financial performance data for these private partnerships are publicly available in *American Lawyer*, which collects the data through surveys and follow-up phone calls to partners. Our sample includes the largest 100 law firms published in *American Lawyer* in 1995, 1997, and 1999. This time frame allows us to cover a different and more recent period than Hitt *et al.* (2001), where the time span was 1987–91. We had access to diversification data for these years from the *National Directory of Legal Employers*. Prepared by the National Association for Law Placement, this directory is the most comprehensive publicly available data source for office-level information about the practice areas of large law firms and the composition of employees of different levels of expertise in each practice area. Although our data come from three specific years, they enable us to study the relationships among the variables over a 5-year span. Since each law firm was not listed in the largest 100 law firm list of *American Lawyer* for every year (hence the performance data were not available), we do not have an equal number of observations for each firm. Therefore, our final, usable sample consists of 105 law firms and a total of 271 observations. Sources of our data are credible and have been used in previous empirical studies (e.g., Gilson and Mnookin, 1989; Hitt *et al.*, 2001; Sherer, 1995; Spar, 1997; Tolbert and Stern, 1991).

Variables

Firm profitability as the dependent variable is measured by annual profit dollars per partner. Because partners are residual claimants in the law firm, this measure of performance is similar to the return on equity ratio. Profit per partner is a commonly used measure of profitability in law firm studies (e.g., Gilson and Mnookin, 1989; Samuelson and Jaffe, 1990; Spar, 1997).

Partner human-capital leveraging is measured as the leverage ratio that indicates the number of associates a firm employs per partner at a certain point in time. Previous research has consistently measured partner human-capital leveraging with this ratio (Gilson and Mnookin, 1989; Hitt *et al.*,

2001; Maister, 1993; Sherer, 1995). We gathered data for this variable from *American Lawyer*.

Service diversification measure takes into account the numbers of employees in various legal practice areas (e.g., Farjoun, 1994, 1998). Given the highly specialized nature of legal practice areas, which is reflected by lifetime specialization in one or a few legal practice area(s) and departmentalization in law firms, a firm's participation in more than one area of legal practice area is regarded as service diversification. Twenty-three legal practice areas are identified in the *National Directory of Legal Employers*, and these match the ad hoc specialization list prepared for certification purposes by the American Bar Association. To capture the similarities among some specialty areas, the classification scheme used by Sherer (1995) is adopted to group legal practice areas in eight areas as shown in Table 1. The Herfindahl measure of diversification [$H = 1 - \sum p^2$] is then calculated (Hitt *et al.*, 2001; Sherer, 1995), where p is the percentage of professionals in each group of legal practice area. Geographical diversification is measured by the Herfindahl index as well, where p is the percentage of professionals in each local office (Hitt *et al.*, 2001). Higher values of the Herfindahl index indicate higher levels of diversification.

Lateral hiring ratio for associates indicates the degree to which a firm hired associates laterally instead of directly from law schools. This construct is calculated as the ratio of associates hired laterally to the number of total associates hired during a particular year. We collected data for this measure from the *National Directory of Legal Employers*.

Further, in the light of a resource-based view perspective, it is important to control for human-capital stocks, flows, and expertise endowment.

First, the stocks of professional human capital in the firm may determine the capacity and rate at which a firm can successfully grow and diversify (Dierickx and Cool, 1989; Mahoney and Pandian, 1992; Penrose, 1959). Thus, we controlled for the total number of attorneys as an indicator of the level of current stock (i.e., availability) of professional human resources in law firms (Sherer, 1995). Second, resource-based theory emphasizes the importance of flows of resources for competitive advantage because flows can amount to important changes in strategic asset stocks (Dierickx and Cool, 1989). To capture the dynamics in the existing stock of professional human resources, we used the number of new hires including new law school graduates and attorneys with previous professional experience. Third, resource-based view suggests that the skill and knowledge endowment of the firm in specific business areas influences both the direction and the rate at which firms can diversify successfully (Farjoun, 1998; Penrose, 1959). Thus, we controlled for firms' degree of involvement in eight specialized law practice areas listed in Table 1. These controls allow us to measure firms' level of specialized human-capital endowment in different practice areas. Each control variable takes the value of 1 if the firm's participation in an area, measured by the percentage of firm's employees working in that area, is greater than the mean participation percentage in the sample. Furthermore, the education and firm tenure of human resources may influence the human capital of professional human resources (Hitt *et al.*, 2001); however, we did not have data on these dimensions of human capital. We acknowledge this as a weakness of our study. Because human capital is a multidimensional construct, it is empirically challenging to capture all of the dimensions. Different indicators

Table 1. Legal practice areas

Practice area	Subspecialties
Corporate and Banking	Antitrust, Banking, Bankruptcy–restructuring–creditors' rights, Business finance, Commercial–commerce–trade, Corporate, Securities, Public finance
Tax and trust	Tax, Trust, Estates, Probate
Property	Land use, Land resources, Zoning, Property (intellectual, patents), Real estate
Employment	Employment, Labor
Litigation	Litigation (all)
Government	Administrative law, Government contracts, Regulation
International	International (all)
Other	Admiralty, Communications, Media, Entertainment, Energy, Health law, Liability, Environmental, Aviation and aerospace, and Other

of human capital used in Hitt *et al.* (2001) and our paper complement each another theoretically and enrich the empirical knowledge about how different dimensions of human capital can be measured in the light of resource-based theory.

Finally, we controlled for the mode of diversification because it may affect firm performance (Hitt *et al.*, 2001). This variable takes the value of one if the firm was involved in any *merger and acquisition* activity. We gathered data for this variable from the Lexis/Nexis database.

Analysis

We test our hypotheses with panel data that involve repeated observations on the same set of cross-sectional units (Finkel, 1995; Hsiao, 1996; Johnston and Dinardo, 1997). The results of the Hausman test for orthogonality suggested that the individual effects were correlated with other regressors; thus, we used fixed-effects regression to produce unbiased regression coefficients (Greene, 2000). Fixed-effects regression (also referred to as the least squares dummy variable model) controls for both the unobserved firm (group) effects and the year effects. Fixed-effects regression assumes that the unit-specific (i.e., firm-specific) residuals do not have a distribution and treats them as fixed and estimable. Fixed effects also help minimize the problems of heteroscedasticity and autocorrelation (Finkel, 1995). Table 2 presents the descriptive statistics and correlations for all variables. Table 3 presents the results of the regression analysis. We illustrate empirically supported interaction effects in Figure 1.

EMPRICAL RESULTS

In Hypothesis 1, we argued that partner human-capital leveraging is positively related to the profitability of the firm. As shown in Model 1 of Table 3, this hypothesis is supported ($\beta = 0.18$, $p < 0.001$). In our sample range of 0.78–4.64 associates per partner, leveraging is positively related to profitability consistently in all models. In Hypothesis 2, we posited that the interaction of partner human-capital leveraging and service diversification will have a negative effect on firm profitability. The results support this hypothesis (Model 2, β interaction = -0.58 , $p < 0.01$). As Figure 1(a) illustrates, the positive relationship between service diversification and firm performance becomes negative at a high level of partner

leveraging. However, owing to the large positive main effect of leverage on firm performance, firms achieve highest levels of profitability when they combine high levels of leverage with low levels of service diversification.

Further, we argued in Hypothesis 3 that the interaction of partner human-capital leveraging and geographical diversification will have a negative effect on profitability. Findings support this hypothesis (Model 3, β interaction = -0.21 , $p < 0.01$). As Figure 1(b) indicates, owing to a strong negative interaction effect, the relationship between geographical diversification and performance is negative when leverage is high. Pursuing higher levels of both leveraging and geographical diversification is associated with lower profitability. Firms achieve highest returns by combining high leveraging and low geographical diversification.

In Hypothesis 4, we posited that the interaction of partner human-capital leveraging and associate lateral hiring will have a negative effect on profitability. The results corroborate with Hypothesis 4 (Model 4, β interaction = -0.16 , $p < 0.10$). Figure 1(c) illustrates that, at higher levels of partner leveraging, intense lateral hiring of associates results in lower financial performance. Even though the relationship between lateral hiring and firm profitability is positive in the case of low leveraging, this relationship is significantly weakened under a high level of partner leveraging.

In Hypotheses 5 and 6, we argued that the interaction of the ratio of lateral hiring and service or geographical diversification will have a positive effect on profitability. Neither hypothesis was supported. In Model 7, we include all interaction variables in regression analysis. Although high correlations among interaction terms make it difficult to precisely estimate multiple interaction coefficients simultaneously (Kennedy, 1998), we are able to show that interaction effects of leveraging and diversification strategies are still statistically significant. Also, we calculated a partial F -statistic to test the significance of the first three interaction variables collectively. This test indicates that including the first three interaction variables improves the base model significantly (F -partial = 11.57, $p < 0.001$).

Furthermore, our analysis indicates that the leverage ratios of top 100 law firms steadily increased between 1995 and 1999. In our sample,

Table 2. Descriptive statistics and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Human capital leverage	2.24	0.78														
2. Service diversification	0.70	0.13	-0.20													
3. Geographical diversification	0.46	0.27	-0.15	0.39												
4. Lateral hiring ratio	0.47	0.18	-0.11	0.28	0.32											
5. Number of attorneys	450.68	255.65	0.21	0.13	0.36	-0.05										
6. Number of new hires	90.83	65.45	0.16	0.07	0.40	0.10	0.33									
7. Merger-acquisition	0.08	0.28	-0.09	-0.02	0.16	0.12	0.04	0.06								
8. Corporate and banking	0.46	0.50	0.40	-0.29	-0.34	-0.25	-0.06	0.04	-0.07							
9. Tax and trust	0.47	0.50	0.02	0.08	-0.13	-0.15	0.09	-0.15	0.01	0.10						
10. Property	0.45	0.50	-0.15	0.38	0.23	0.31	0.09	0.09	0.07	-0.34	-0.06					
11. Employment	0.32	0.47	-0.18	0.26	0.32	0.25	0.07	0.09	0.07	-0.30	-0.15	0.16				
12. Litigation	0.51	0.50	-0.05	0.11	0.11	-0.06	-0.06	-0.07	0.01	-0.14	0.01	-0.04	-0.09			
13. Government	0.29	0.46	-0.21	0.25	0.28	0.22	0.06	-0.01	0.07	-0.20	-0.07	0.04	0.06	-0.01		
14. International	0.27	0.45	-0.03	0.28	0.06	0.04	0.12	-0.05	0.08	-0.13	-0.03	0.06	0.08	-0.10	0.04	
15. Profit per partner	0.57	0.30	0.56	-0.28	-0.32	-0.49	0.15	0.18	-0.15	0.45	0.14	-0.21	-0.30	-0.05	-0.25	-0.12

$p < 0.05$ for all $r > 0.12$ and $p < 0.01$ for all $r > 0.16$. Profit per partner is in millions of U.S. dollars.

Table 3. Fixed-effects regression analysis of profit per partner

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Partner human capital leveraging	0.18*** (5.82)	0.58*** (4.10)	0.30*** (5.56)	0.26*** (4.58)	0.18*** (5.82)	0.18*** (5.82)	0.65*** (4.36)
Service diversification	-0.08 (-0.46)	1.45** (2.64)	0.01 (0.06)	-0.03 (-0.19)	-0.19 (-0.58)	-0.07 (-0.40)	1.00+ (1.71)
Geographical diversification	-0.08 (-0.85)	-0.12 (-1.28)	0.32+ (1.81)	-0.07 (-0.77)	-0.08 (-0.87)	-0.16 (-0.81)	0.12 (0.49)
Ratio of lateral hiring of associates	0.05 (0.54)	0.06 (0.69)	0.05 (0.61)	0.41+ (1.78)	-0.11 (-0.28)	-0.01 (-0.07)	-0.28 (-0.55)
Leverage * Service diversification		-0.58** (-2.91)					-0.50* (-2.13)
Leverage * Geographical diversification			-0.21** (-2.72)				-0.15+ (-1.94)
Leverage * Lateral hiring ratio				-0.16+ (-1.71)			-0.06 (-0.63)
Lateral hiring * Service diversification					0.23 (0.41)		0.64 (1.07)
Lateral hiring * Geographical diversif.						0.14 (0.46)	0.09 (0.28)
Number of attorneys	0.00*** (4.19)	0.00*** (4.26)	0.00*** (4.37)	0.00*** (4.31)	0.00*** (4.16)	0.00*** (4.19)	0.00*** (4.34)
Number of new hires	0.00 (1.09)	0.00 (1.22)	0.00 (0.91)	0.00 (1.03)	0.00 (1.08)	0.00 (1.02)	0.00 (0.99)
Merger-acquisition	-0.00 (-0.01)	-0.02 (-0.53)	-0.01 (-0.32)	0.00 (0.02)	0.00 (0.09)	-0.00 (-0.03)	-0.02 (-0.40)
Corporate and banking	0.03 (0.68)	0.04 (1.07)	0.03 (0.67)	0.02 (0.60)	0.03 (0.66)	0.03 (0.65)	0.04 (0.89)
Tax and trust	0.01 (0.47)	0.01 (0.38)	0.01 (0.38)	0.02 (0.63)	0.01 (0.48)	0.01 (0.47)	0.01 (0.43)
Property	-0.03 (-0.81)	-0.01 (-0.21)	-0.02 (-0.63)	-0.03 (-0.86)	-0.03 (-0.83)	-0.03 (-0.80)	-0.01 (-0.22)
Employment	0.01 (0.32)	-0.01 (-0.17)	0.00 (0.11)	0.01 (0.33)	0.01 (0.28)	0.01 (0.25)	-0.01 (-0.38)
Litigation	-0.01 (-0.26)	-0.01 (-0.19)	0.00 (-0.11)	-0.01 (-0.26)	-0.01 (-0.23)	-0.01 (-0.20)	0.00 (0.03)
Government	-0.02 (-0.57)	-0.03 (-0.82)	-0.03 (-0.81)	-0.02 (-0.42)	-0.02 (-0.61)	-0.02 (-0.60)	-0.04 (-1.00)
International	-0.02 (-0.67)	-0.02 (-0.66)	-0.03 (-0.88)	-0.02 (-0.77)	-0.02 (-0.67)	-0.02 (-0.64)	-0.03 (-0.85)
Intercept	-0.04 (-0.29)	-1.11** (-2.85)	-0.35* (-2.07)	-0.26 (-1.44)	0.04 (0.18)	-0.01 (-0.11)	-1.04** (-2.64)
R ²	0.48	0.51	0.51	0.49	0.48	0.48	0.53
F	10.05***	10.41***	10.27***	9.7***	9.34***	9.35***	8.66***

+ $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; $N = 271$. t -Values are given under coefficient estimates.

leverage ratios were 1.97, 2.17, and 2.54 for the years 1995, 1997, and 1999. When we checked for presence of curvilinearity in the leveraging-profitability relationship, we found evidence of diminishing returns to leverage in 1999 when average leverage ratio reached 2.54 associates per partner. During this year, leverage values above 3.25 resulted in lower profitability in the base model (no interaction effects). However, when we added the interaction variables one at a time and/or as

a group, the diminishing effect of leverage disappeared. This suggests that within the range of our leverage data pursuing high leverage does not necessarily result in lower profitability. Instead, the interdependencies between leverage and hiring and diversification strategies determine the ultimate effect of leverage on firm performance. Yet, outside the range of our leverage data (i.e., at higher values of leverage), leverage may have adverse effects on firm performance.

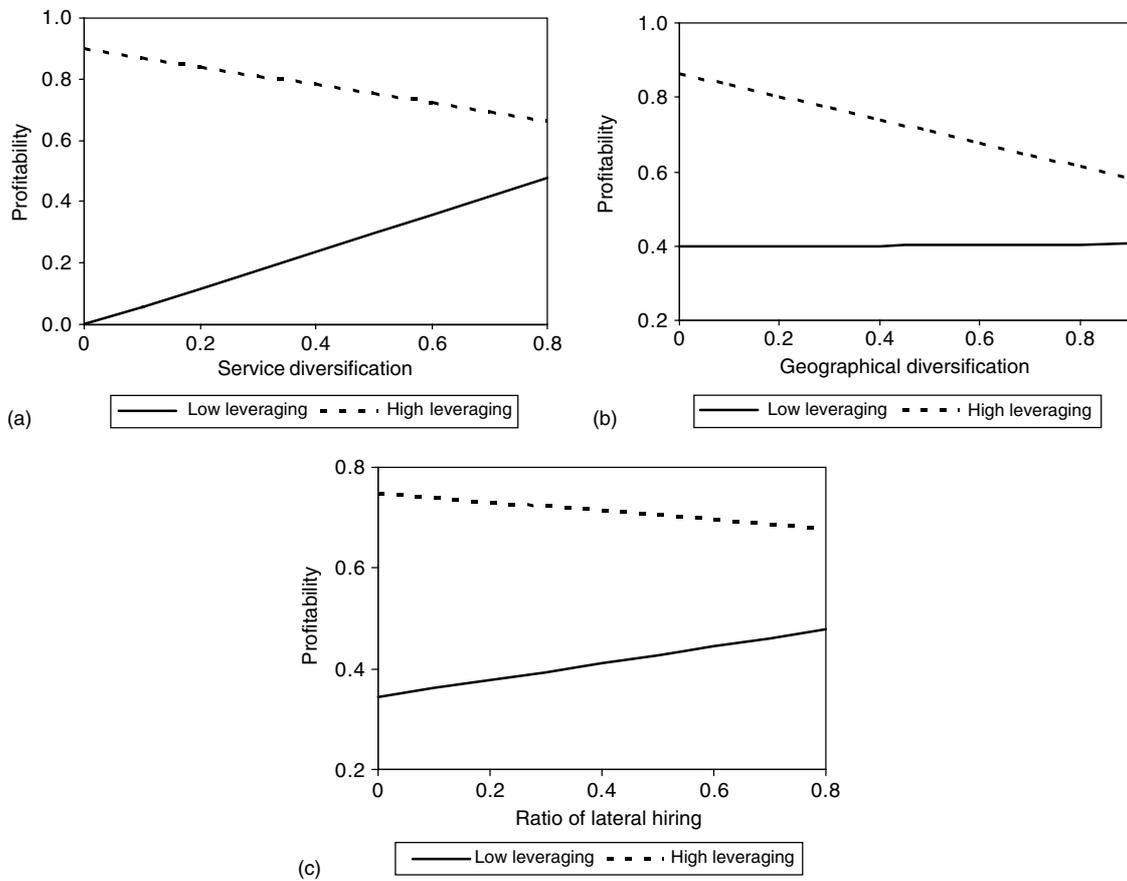


Figure 1. (a) Partner leveraging and service diversification interaction. (b) Partner leveraging and geographical diversification interaction. (c) Partner leveraging and lateral hiring interaction

DISCUSSION AND CONCLUSIONS

Using the key insights from resource-based view, this paper has developed and empirically tested a comprehensive model of the profitability effects of interdependencies among human-capital deployment, development, and diversification strategies in professional service firms. First, we found that, even though human-capital leveraging and service and geographical diversification strategies individually improve profitability, pursuing these strategies simultaneously at high levels produces negative interaction effects on financial performance. Diversification enables professional service firms to benefit from economies of scope and offer clients one-stop shopping for multiple services and in multiple locations. However, implementation of diversification requires intense involvement of partners and limits the firm’s capability to leverage partners by employing a higher ratio of associates to partners. If the firm stretches its

partner resources excessively by pursuing both a high degree of diversification and high leveraging, effective implementation of diversification and/or effective coaching of associates are compromised, resulting in lower profitability.

Second, even though lateral hiring can help firms build new knowledge bases and take timely advantage of growth opportunities, pursuing high levels of both partner leveraging and lateral hiring of associates creates unreasonable demands on the time and attention resources of partners and results in lower profitability. In support of the theoretical framework presented here, the results suggest that managing the interdependencies among different levels of strategies about the scope of the firm and management of strategic human resources is central to creating and sustaining competitive advantage. Our paper also contributes to empirical knowledge about the performance outcomes of diversification strategies in the context of service industries, where the literature offers little insight.

Efficient deployment of human capital via leveraging

The results of this paper support the view that human resources are the crown jewel of knowledge-producing entities, and firms that effectively deploy human capital and expert know-how develop a competitive advantage. In particular, we find that leveraging firms' strategic human resources is a profit-generating strategy. Human-capital leveraging strategy involves deployment of expert human resources in complex and high-margin projects, which expands the service capacity of the firm without diluting profits and develops the human capital of less experienced professionals. Our empirical analysis indicates a positive and linear relationship between firm profitability and partner human-capital leveraging; however, we note that extreme levels of leveraging partner human capital may have negative consequences. For instance, as the ratio of associates to partners goes up, partners spend less time with associates, which may undermine associates' learning and performance. A high leveraging policy may also have negative effects on the associates' morale because high leverage implies reduced chance of becoming a partner. Law firms' leverage ratios are annually published in the *National Directory of Legal Employers* and, thus, available for review by law school students and seasoned lawyers. Therefore, firms with high leverage ratios may have difficulties in attracting associate candidates. Understanding the negative implications of excessive leveraging for company culture and profitability, most firms refrain from it.

Interactions of human-capital leveraging and diversification strategies

Consistent with the resource-based view (e.g., Farjoun, 1994, 1998), the results indicate that firms achieve superior returns when there is a strategic fit between diversification strategies and human-capital deployment strategy. When law firms diversify into new expertise areas, the internal demand for partner human-capital input increases, and a downward pressure emerges on a firm's capability to leverage its partners. Similar to the famous Penrose effect (1959), the scarcity of firm-specific expert and managerial talent seems to be the main bottleneck to successful diversification into new service areas.

Specifically, when firms over diversify in relation to their capacity of expert resources, partners face pressure to expand their knowledge and expertise base in a short time frame, even though significant time commitments are essential for developing skills to compete in the new areas of professional service (Penrose, 1959; Teece *et al.*, 1994). Successful implementation of service diversification requires that partners have enough knowledge about the new practice areas to coordinate complex cases and be articulate ambassadors during interactions with clients. Given the increased complexities and learning demands of service diversification from partner resources, partners' ability to coach and monitor a high number of associates diminishes (Sherer, 1995). Despite the high demand for partners' involvement in implementation of diversification, if firms pursue high levels of diversification and human-capital leveraging simultaneously, economic benefits from diversification strategy are not fully achieved.

Our results should not be interpreted to mean service diversification does not contribute to generation of profits. We find that service diversification increases firms' profitability by promoting efficient utilization of knowledge-based resources. Diversification enables law firms to offer one-stop shopping to large corporate clients and to achieve economies of scope from the use of common knowledge bases such as client-specific knowledge. Our results do indicate, however, that high levels of service diversification strategy may not be as profitable when firms simultaneously pursue high partner leveraging strategy.

Similarly, we find that geographical diversification is a value-creating strategy for professional service firms because it allows them to serve clients in multiple locations and help build client satisfaction and loyalty. However, we have also demonstrated that achieving a balance between the degree of geographical expansion and human resource profile of the firm improves profitability. Operating multiple offices in different cities may involve coordination difficulties and new marketing efforts to build local reputation and demand higher-level partner involvement in administration and marketing. However, when high geographical diversification strategy is combined with high partner leveraging, partners may not be able to respond effectively to these demands and fall behind their duties of coordinating and coaching the associates. When the abilities of partners are stretched too

much, firms capture the economic benefits of geographical diversification only partially.

These results can be reconciled with those of Sherer's (1995), which indicate that highly specialized (i.e., less diversified) and low leveraged firms have the highest billing rates. Firms can charge high rates when they offer a combination of specialized expertise and high-level partner involvement in their legal practice. However, our results suggest that firms cannot always convert highest (hourly) billing rates into highest levels of total profits. Total profits are a function of both hourly billing rates and a firm's total number of billable hours. Although a low-leveraged, specialized firm may get the highest billing rates per hour, it most likely produces a smaller number of billable hours because it is not leveraging partner resources. For superior profitability per partner, a firm is better off combining high leveraging with lower levels of diversification.

Our results suggest that firms attain superior financial returns when they develop a strategic fit between their diversification strategy and their bundle of expert human resources. Integration of human resource systems with upper level strategies helps firms develop and exploit organizational competencies more effectively (Lado and Wilson, 1994). Also, from a resource-based perspective, the interconnectedness between diversification and human-capital deployment strategies is important because a competitive advantage built on coherence among multiple strategies is typically more causally ambiguous and harder to imitate (Barney, 1991; Dierickx and Cool, 1989). In fact, interconnectedness between leveraging and diversification strategies can be the reason for sustained firm-level heterogeneity among law firms with respect to partner human-capital leveraging.

Interaction of human-capital deployment and development

We also examined how the interaction of associate human-capital development and partner leveraging strategies affects firm performance. Results suggest that, at high levels of leveraging, law firms are better off with internal development of associate human capital. We have discussed important benefits of lateral hiring of experienced associates such as faster development of new knowledge bases and higher diversity of ideas. However, firm-specificity of the knowledge possessed by professionals can

make it difficult to transfer human skills, expertise, and experience developed in one firm to another firm (Rubin, 1973). Before becoming fully effective in team settings, laterally hired professionals have to build firm-specific knowledge about firm's idiosyncratic business practices, relationships with clients, and their team members (Kor and Mahoney, 2000; Penrose, 1959; Prescott and Visscher, 1980; Slater, 1980). Internalizing firm-specific knowledge also requires experienced associates to unlearn some of their previous knowledge. Partners help them make a successful transition into the new work place. Before getting to know the laterally hired associates, partners cannot match skills with projects effectively in team settings. Regarding the essence of knowledge-building interactions among managers and their associates, Slater (1980: 522) notes:

The experience of working together is not just a requirement for the new managers; the existing management must also find out how to work with the newcomers, how far they can rely on them, how much they can delegate to their subordinates, etc. Unless they do this, their own efficiency will suffer. Again, the only way in which this experience can be gained is by observing the newcomers in action.

Consistent with this view, our results indicate that when firms pursue high levels of leveraging and lateral hiring simultaneously, partners may not be as effective in dedicating time to high-margin cases, in coaching associates, or both. In fact, these firms receive only partial benefits from both leveraging and lateral hiring strategies. Firms achieve superior returns only when they understand the interdependencies between associate human-capital development and partner human-capital deployment strategies.

Insight from interviews with associates and partners

We also conducted phone interviews with a number of senior associates and partners as a reality check for interpretation of our findings. We first interviewed two experienced associates with significant experience in large law firms. Both associates emphasized the idiosyncratic nature of law firms and the importance of getting to know team members for effectiveness. Partners in each firm can have different rules and preferences. One of the associates stressed that, as an experienced lawyer, she had to adjust significantly when

she switched firms. Because of the idiosyncrasies in law firms, moving from one firm to another involves unlearning of some of the previous experience and habits especially when the new partner has different demands and preferences. The other associate emphasized the importance of client-specific idiosyncrasies and how she had to adjust to differences in billing and reporting for specific clients. Our interviews suggest that associates usually experience significant adjustments when they switch firms even though partners may not always be aware of it.

We also interviewed three partners from three different large law firms. These partners expected laterally hired associates to become productive soon after they arrive in the company although they acknowledged that the speed of associates' adjustment to the new firm depends on where associates worked before (e.g., large versus mid-size/small firms, companies with different culture). They pointed out that sometimes laterally hired associates have 'loose standards' and may have to forget their 'bad habits.' One partner suggested that, compared to the recent law school graduates, laterally hired associates go through bigger adjustments to company culture, work principles, and width of expertise; therefore, his firm prefers internal development to lateral hiring of associates. Another partner discussed a law firm where they brought in many people laterally but later they had to dissolve the partnership because people did not get along.

Regarding diversification, partners said that in-depth expertise in multiple areas may not be essential although partners have to know enough of the related areas to be able to bring in the right expert within the firm to service the clients. Our interviews confirmed that communication with clients is an important part of partners' job. For each client, there is a specific partner, usually the billing partner, who communicates to the client although it is often the junior partner who communicates about the professional service. This partner monitors and integrates the contributions from different legal specialty departments. When there are questions from a client, the junior partner gathers information from relevant departments and communicates back to the client. In addition, partners acknowledged that when a firm serves a client with geographically diverse needs (in multiple cities), the need for coordination among different offices of the law firm significantly increases.

During these interviews, we also noticed that most partners think with their lawyer hats on rather than with business hats on. They understand the importance of the leverage ratio and its links to firm performance; however, they do not always have full insight into how diversification and hiring strategies may influence profitability or the leverage ratio. Indeed, these interviews suggested that partners may not be aware of the performance consequences of the interdependencies among human-capital deployment, development and diversification strategies. This suggests that our empirical findings may offer useful insights for managers of professional service firms, particularly for law firm managers.

Future research and conclusions

We note that the implications of our findings are most relevant for professional service firms such law, accounting, consulting, and engineering firms. Yet, we stress that different types of professional service firms may have idiosyncratic human capital and diversification policies; thus, future empirical research is needed to examine whether our findings generalize to other types of professional service firms. Future research may also explore interdependencies among human-capital deployment, development, and corporate-level strategies in other knowledge-intensive industries such as the pharmaceutical, medical services, software, and semiconductor industries. Research on some of these industries indicates that management of strategic human assets is closely linked to innovation and efficiency capabilities of high technology firms. For example, Henderson and Cockburn (1994) found that firm-specific expertise and incentive mechanisms for researchers were integral to drug discovery productivity. Human resource practices vary with the contingencies in competitive, corporate, business and functional level strategies (Delery and Doty, 1996; Snell and Dean, 1992), and further research about the performance implications of these contingencies will be relevant in this era of knowledge-based economies around the world.

This study highlights the importance of interdependencies among human-capital deployment, development, and diversification strategies. The results indicate that firms differ in their capability to leverage expert human capital based on their choice of human-capital development strategy

and their commitments in service and geographical diversification. The implication of these findings is that firms that wish to increase their human-capital leverage effectively may have to rely more on internal development of human capital instead of lateral hiring and also pursue lower levels of service diversification and geographical expansion. Alternatively, firms that wish to pursue high levels of diversification because of demands from clients may have to accept lower levels of leveraging despite the loss of efficiency in deployment of partner resources. It is also important to note that changes in a firm's human-capital profile and areas of professional expertise cannot be achieved in a short time because of stickiness of resource combinations, processes, and routines (Nelson and Winter, 1982; Penrose, 1959).

In support of the resource-based view, we have found that when a firm diversifies at a faster rate than its bundle of human resources can handle, its financial performance suffers. In our study, some of the law firms also did not foresee the adjustment costs they would incur after acquisition of experienced human capital from other firms. A high reliance on external sources of experienced human capital was then followed by inefficiencies in partner human-capital deployment and reduced firm performance. This occurrence is consistent with the so-called Penrose effect that 'if a firm deliberately or inadvertently expands its organization more rapidly than individuals in the expanding organization can obtain the experience with each other and with the firm that is necessary for effective operation of the group, the efficiency of the firm will suffer . . . and a period of "stagnation" may follow' (Penrose, 1959: 47). Thus, we conclude that achieving a strategic fit among human-capital deployment, development, and diversification strategies is essential for superior financial returns.

ACKNOWLEDGEMENTS

We thank Karl Aquino, Tom Becker, Joe Mahoney, Ron Sebeczek, and Huseyin Tanriverdi for comments on an earlier draft of the paper. We also thank the editor and the two anonymous reviewers for their valuable comments. Finally, we thank William Andrews, Bob Kent, Sheldon Pollack, and Sharon Watson for helping us set up interviews with law firms. The remaining errors are ours.

REFERENCES

- Arrow KJ. 1974. *The Limits of Organization*. W. W. Norton: New York.
- Bailey EE, Helfat CE. 2003. External management succession, human capital, and firm performance: an integrative analysis. *Managerial and Decision Economics* **24**: 347–369.
- Barney JB. 1986. The strategic factor markets: expectations, luck and business strategy. *Management Science* **32**(10): 1231–1241.
- Barney JB. 1991. Firm resources and sustained competitive advantage. *Journal of Management* **17**(1): 99–120.
- Becker GS. 1993. *Human Capital*. University of Chicago Press: Chicago, IL.
- Bierly P, Chakrabarti A. 1996. Generic knowledge strategies in the U.S. pharmaceutical industry. *Strategic Management Journal*, Winter Special Issue **17**: 123–135.
- Bogner WC, Mahoney JT, Thomas H. 1998. Paradigm shift: the parallel origin, evolution and function of strategic group analysis with the resource-based theory of the firm. In *Advances in Strategic Management*, Vol. 15, Baum J (ed). JAI Press: Stamford, CT; 63–102.
- Chang SJ. 1996. An evolutionary perspective on diversification and corporate restructuring: entry, exit, and economic performance during 1981–1989. *Strategic Management Journal* **17**(8): 587–611.
- Christensen HK, Montgomery CA. 1981. Corporate economic performance: diversification strategy versus market structure. *Strategic Management Journal* **2**(4): 327–343.
- Coff RW. 2002. Human capital, shared expertise, and the likelihood of impasse in corporate acquisitions. *Journal of Management* **28**(1): 107–128.
- Delery JE, Doty DH. 1996. Modes of theorizing in strategic human resource management: tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal* **39**: 802–835.
- Dierickx I, Cool K. 1989. Asset stock accumulation and competitive advantage. *Management Science* **35**(12): 1504–1511.
- Farjoun M. 1994. Beyond industry boundaries: human expertise, diversification and resource-related industry groups. *Organization Science* **5**(2): 185–199.
- Farjoun M. 1998. The independent and joint effects of the skill and physical bases of relatedness in diversification. *Strategic Management Journal* **19**(7): 611–630.
- Finkel SE. 1995. *Causal Analysis With Panel Data*. Sage: Thousand Oaks, CA.
- Gilson RJ, Mnookin RH. 1985. Sharing among the human capitalists: an economic inquiry into the corporate law firm and how partners split profits. *Stanford Law Review* **37**: 313–397.
- Gilson RJ, Mnookin RH. 1989. Coming of age in a corporate law firm: the economics of associate career patterns. *Stanford Law Review* **41**(460): 567–595.
- Gilson RJ, Mnookin RH. 1990. The implicit contract for corporate law firm associates: ex post opportunism

- and ex ante bonding. In *Firm as a Nexus of Treaties*, Aoki M, Gustafsson B, Williamson O (eds). Sage: Newbury Park, CA; 209–236.
- Grant RM. 1996a. Toward a knowledge-based theory of the firm. *Strategic Management Journal*, Winter Special Issue **17**: 109–122.
- Grant RM. 1996b. Prospering in dynamically-competitive environments: organizational capability as knowledge integration. *Organization Science* **7**(4): 375–387.
- Greene WH. 2000. *Econometric Analysis*. Prentice-Hall: Upper Saddle River, NJ.
- Hall R. 1992. The strategic analysis of intangible resources. *Strategic Management Journal* **13**(2): 135–144.
- Hall R. 1993. A framework linking intangible resources and capabilities to sustainable competitive advantage. *Strategic Management Journal* **14**(8): 607–618.
- Helfat CE, Eisenhardt KM. 2004. Inter-temporal economics of scope, organizational modularity, and the dynamics of diversification. *Strategic Management Journal* **25**(13): 1217–1232.
- Henderson R, Cockburn I. 1994. Measuring competence? Exploring firm effects in pharmaceutical research. *Strategic Management Journal*, Winter Special Issue **15**: 63–84.
- Hitt MA, Bierman L, Shimizu K, Kochhar R. 2001. Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective. *Academy of Management Journal* **44**(1): 13–28.
- Hsiao C. 1996. *Analysis of Panel Data*. Cambridge University Press: New York.
- Huber GP. 1991. Organizational learning: the contributing processes and the literatures. *Organizational Science* **2**(1): 88–115.
- Huselid MA. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal* **38**(3): 635–672.
- Itami H, Roehl TW. 1987. *Mobilizing Invisible Assets*. Harvard University Press: Cambridge, MA.
- Johnston J, DiNardo J. 1997. *Econometric Methods*. McGraw-Hill: New York.
- Kamoche K. 1996. Strategic human resource management within a resource-capability view of the firm. *Journal of Management Studies* **33**(2): 213–233.
- Kennedy P. 1998. *A Guide to Econometrics*. MIT Press: Cambridge, MA.
- Klein B, Crawford RG, Alchian AA. 1978. Vertical integration, appropriable rents, and the competitive contracting process. *Journal of Law and Economics* **21**(October): 297–326.
- Koch MJ, McGrath RG. 1996. Improving labor productivity: human resource management policies do matter. *Strategic Management Journal* **17**(5): 335–354.
- Kogut B, Zander U. 1996. What firms do? Coordination, identity and learning. *Organization Science* **7**(5): 577–590.
- Kor YY. 2003. Experience-based top management team competence and sustained growth. *Organization Science* **14**(6): 707–719.
- Kor YY, Mahoney JT. 2000. Penrose's resource-based approach: the process and product of research creativity. *Journal of Management Studies* **37**(1): 109–139.
- Kor YY, Mahoney JT. 2004. Edith Penrose's (1959) contributions to the resource-based view of strategic management. *Journal of Management Studies* **41**(1): 183–191.
- Lado AA, Wilson MC. 1994. Human resource systems and sustained competitive advantage: a competency-based perspective. *Academy of Management Review* **19**(4): 699–727.
- Leonard-Barton D. 1992. Core capabilities and core rigidities: a paradox in managing new product development. *Strategic Management Journal*, Summer Special Issue **13**: 111–125.
- Mahoney JT. 1995. The management of resources and the resource of management. *Journal of Business Research* **33**: 91–101.
- Mahoney JT, Pandian JR. 1992. The resource-based view within the conversation of strategic management. *Strategic Management Journal* **13**(5): 363–380.
- Maister DH. 1993. *Managing the Professional Service Firm*. Free Press: New York.
- Makadok R. 2001. Toward a synthesis of the resource-based and dynamic-capability views of rent creation. *Strategic Management Journal* **22**(5): 387–401.
- Malos SB, Champion MA. 1995. An options-based model of career mobility in professional service firms. *Academy of Management Review* **20**(3): 611–644.
- March JG. 1991. Exploration and exploitation in organizational learning. *Organization Science* **2**(1): 71–87.
- Markides CC. 1992. Consequences of corporate refocusing: ex-ante evidence. *Academy of Management Journal* **35**(2): 398–412.
- Markides CC, Williamson PJ. 1994. Related diversification, core competencies and corporate performance. *Strategic Management Journal*, Summer Special Issue **15**: 149–165.
- Montgomery CA, Hariharan S. 1991. Diversified entry by established firms. *Journal of Economic Behavior and Organization* **15**(1): 71–89.
- Montgomery CA, Wernerfelt B. 1988. Diversification, Ricardian rents, and Tobin's q. *Rand Journal of Economics* **19**(4): 623–632.
- Nayyar PR. 1993. Performance effects of information asymmetry and economies of scope in diversified service firms. *Academy of Management Journal* **36**(1): 28–57.
- Nelson R, Winter S. 1982. *An Evolutionary Theory of Economic Change*. Harvard University Press: Cambridge, MA.
- Palepu K. 1985. Diversification strategy, profit performance and entropy measure. *Strategic Management Journal* **6**(3): 239–255.
- Penrose ET. 1959. *The Theory of the Growth of the Firm*. Oxford University Press: New York.
- Peteraf MA. 1993. The cornerstones of competitive advantage: a resource-based view. *Strategic Management Journal* **14**(3): 179–191.

- Pinnington A, Morris T. 1996. Power and control in professional partnerships. *Long Range Planning* **29**(6): 842–849.
- Prescott EC, Visscher M. 1980. Organizational capital. *Journal of Political Economy* **88**: 446–461.
- Reed R, DeFillippi RJ. 1990. Causal ambiguity, barriers to imitation, and sustainable competitive advantage. *Academy of Management Review* **15**(1): 88–102.
- Rubin PH. 1973. The expansion of firms. *Journal of Political Economy* **81**(4): 936–949.
- Rumelt RP. 1982. Diversification strategy and profitability. *Strategic Management Journal* **3**(4): 359–369.
- Rumelt RP. 1984. Towards a strategic theory of the firm. In *Competitive Strategic Management*, Lamb R (ed). Prentice-Hall: Englewood Cliffs, NJ; 556–570.
- Samuelson SS, Jaffe LJ. 1990. A statistical analysis of law firm profitability. *Boston University Law Review* **70**(2): 185–211.
- Sherer PD. 1995. Leveraging human assets in law firms: human capital structures and organizational capabilities. *Industrial and Labor Relations Review* **48**(4): 671–691.
- Sherer PD, Lee K. 2002. Institutional change in large law firms: a resource dependency and institutional perspective. *Academy of Management Journal* **45**(1): 102–119.
- Simon HA. 1991. Bounded rationality and organizational learning. *Organization Science* **2**(1): 125–133.
- Slater M. 1980. The managerial limitation to the growth of firms. *Economic Journal* **90**(359): 520–528.
- Snell SA, Dean JW. 1992. Integrated manufacturing and human resource management: a human capital perspective. *Academy of Management Journal* **35**: 467–504.
- Sommer B, Sommer R. 1991. *A Practical Guide to Behavioral Research: Tools and Techniques*. Oxford University Press: New York.
- Spar DL. 1997. Lawyers abroad: the internationalization of legal practice. *California Management Review* **39**(3): 8–27.
- Starbuck WH. 1993. Keeping a butterfly and an elephant in a house of cards: the elements of exceptional success. *Journal of Management Studies* **30**(6): 885–921.
- Stimpert JL, Duhaime IM. 1997. In the eyes of the beholder: conceptualization of relatedness held by the managers of large diversified firm. *Strategic Management Journal* **18**(2): 111–125.
- Teece DJ. 1980. Economics of scope and the scope of the enterprise. *Journal of Economic Behavior and Organization* **1**: 223–247.
- Teece DJ, Pisano G, Shuen A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal* **18**(7): 509–533.
- Teece DJ, Rumelt R, Dosi G, Winter S. 1994. Understanding corporate coherency: theory and evidence. *Journal of Economic Behavior and Organization* **23**: 1–30.
- Tolbert PS, Stern RN. 1991. Organizations of professionals: governance structures in large law firms. In *Research in the Sociology of Organizations*, Vol. 8, Tolbert PS, Barley SR (eds). JAI Press: Greenwich, CT; 97–117.
- Williamson EO. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. Free Press: New York.