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Reputation, Diversification, and Organizational Explanations of Performance in Professional Service Firms

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Growing interest in knowledge as a competitive asset suggests the benefit of studying professional service firms (PSFs). These firms are highly successful examples of organizations whose ability to manage knowledge is critical to their success. Furthermore, they are worthy of study because they constitute a significant sector of the economy, whether measured by their size, numbers, or influence. Despite their significance, little is known of the determinants of their performance. This paper proposes that the core tasks of PSFs raise unusual strategic and organizational challenges, the resolution of which affects organizational performance. We elaborate the effects of reputation and diversification and contrast them to theory for goods-producing industries. We also hypothesize that PSF managers face a choice in designing structures between the retention and motivation of the professional workforce and transferring knowledge from partners to other professionals. These predictions are tested and supported by data from the largest 100 U.S. accounting firms for the period 1991–2000. The paper thus contributes to a theory of professional service firm management.

Key words: professional service firms; reputation; diversification; leverage

Introduction

Organization theorists are recognizing that firms of the future will emphasize the processing of information as a critical task and the ability to do so as a critical competitive requirement. Some researchers are showing renewed interest in organizational learning, whereby information is "managed" and encoded into products (for a review, see Argote et al. 2003). Others point to the growing importance of understanding professional service firms, such as accounting, law and consulting firms, whose outputs are knowledge encoded in services (e.g., Morris and Empson 1998, Lowendahl 2000). These organizations constitute the "intellect industry" (Scott 1998). This paper falls within the latter research stream and examines the determinants of performance of large U.S. accounting firms. Our purpose is to construct a theory of professional service firms.

We define professional service firms (PSFs) as those whose primary assets are a highly educated (professional) workforce and whose outputs are intangible services encoded with complex knowledge. From this definition arise two critical dependencies that influence strategic and organizational choices: First, an asymmetry of information between the firm and its clients makes the latter dependent on the former; and second, the high mobility of the firm's human assets makes it dependent on its professional workforce. These dependencies differentiate PSFs from goods-producing organizations, resulting, we will argue, in distinctive organizational practices. Our intention is to clarify these dependencies and practices as they affect performance.

We show that client dependence elevates organizational reputation into an important influence on performance. To succeed, PSFs must generate a superior reputation. The importance of reputation, moreover, permeates core strategic decisions, bounding the appropriate form of diversification. We also show that the firm's dependence on its workforce results in unusual organizational arrangements. Overall, our findings confirm that PSFs are an identifiable set of organizations and, more broadly, provide the basis for a suggestive theory of professional service firms.

The rest of the paper is organized into three sections. The next section elaborates our theoretical starting points and presents formal hypotheses. The subsequent sections describe the procedures used to examine the largest

U.S. accounting firms over a 10-year period, followed by our results. The final section discusses the theoretical import of the findings and suggests directions for further research.

Theory Development

Professional service firms are "becoming ever more pronounced in economies the world over" (Delong and Nanda 2003, p. ix). Aharoni (1993, p. 11) shows that employment in these firms grew by 53.8% in the United States from 1978–1986 compared to 13.1% in the rest of the economy. The largest firms are among the world's biggest and geographically complex business enterprises. In 2002 for example, PricewaterhouseCoopers had almost 125,000 employees, revenues of over $13.7 billion[1] and operated in 124 countries. Scott (1998, p. ix) estimates that the professional services industry had revenues of about $700 billion worldwide in 1997. By 2000, according to Lorsch and Tierney (2002), the figure had grown to $911 billion.

In addition to their size, PSFs have significant roles. Collectively, they are "knowledge engines for business" (Lorsch and Tierney 2002, p. 14). Accounting firms define international accounting standards and affect the integrity of financial markets (Levitt 2000). According to *The Economist*: "Investors depend upon the integrity of the auditing profession. In its absence, capital markets would lack a vital base of trust." (November 20, 2004, p. 16). Law firms enable complex corporate commercial exchanges. Such is the importance of professional service firms that, without them, "business as we know it, would come to a grinding halt" (Sharma 1997, p. 758). The fallout from the Enron affair, including the demise of Arthur Andersen and the precipitous fall in stock markets, testifies to Sharma's conclusion.

The significance of PSFs in the United States is likely to grow not diminish. The United States-China Bilateral WTO Agreement (White House Office of Public Liaison 1999) included explicit provision for "expanded market access" into China for professional service sectors. In return, China gained further entry into U.S. markets for its manufactured goods. This trade-off reflects the importance given by the United States to future trade in professional services.

Given their significance, it is not surprising that professional services are attracting the attention of organization theorists. Research is moving in two related directions. One direction focuses on the processing of information, seeking to understand how knowledge is "managed" and "leveraged." An example of this approach is a study by Hitt et al. (2001) of law firms. Typically, this research stream draws on PSFs to advance higher order theories. Hitt et al. (2001), for example, expand on the resource-based view of the firm.

A second research stream, the one followed here, has a narrower theoretical focus in that it seeks to construct a theory *of* professional service firms. To date, most research within this stream has focused on elaborating and explaining the unusual managerial arrangements of PSFs. As such, this research stream is returning to the once central but now rather neglected study of professionals within organizational contexts (Hinings 2004). For example, Greenwood et al. (1990) compared the strategic management practices of the largest accounting firms with those of their corporate counterparts and identified significant differences in the time-scale of planning, the practice of accountability, and the monitoring of performance. Several researchers have examined the structures (e.g., Morris and Pinnington 1998, Pettigrew and Fenton 2000), human resource practices (Hagan and Kay 1995, Wallace 1995), and formal knowledge-management systems (e.g., Morris and Empson 1998, Ruggles 1998, Hansen et al. 1999, Sarvary 1999) of accounting, law, and management consulting firms.

There are two significant gaps in this literature. Missing from almost all of these studies is explicit attention to performance. Where performance is discussed it is either inferred from case studies (e.g., Alvesson 1995, Lowendahl 2000) or summarized analytically without formal presentation of data (e.g., Hansen et al. 1999, Lorsch and Tierney 2002, Delong and Nanda 2003). Important exceptions include Hitt et al. (2000) and Cliff et al. (2006), who look at the financial performance of law firms, and Hansen et al. (1999) who look at the performance of consulting firms. A second gap in the literature is the lack of attention to strategy (as opposed to the strategy process). Only occasional attention is given to issues such as diversification or competitive positioning (e.g., Cliff et al. 2006). Given these gaps, it is not surprising that Malos and Campion (2000) consider professional service firms "under researched" (p. 749) and that Lorsch and Tierney (2002) refer to them as "largely invisible...unseen and unexplored" (p. 13). Therefore, the motivation of this paper is to address these gaps in the literature by examining the effects of strategy and organization on the performance of professional service firms. In doing so, we contribute to a theory of professional service firms by explaining the processes by which the unusual and distinctive practices of PSFs influence performance in ways not found in other settings.

Professional Service Firms and Their Characteristics

It is widely assumed that professional service firms constitute a distinct category. For Lowendahl (2000, p. 31) they are "substantially different from...traditional manufacturing firms." For Maister (1993, p. xvi) professional service firms are so different that to apply theories from other forms of organizations is "not only inapplicable...but may be dangerously wrong." The assumption that professional service firms constitute a grouping of organizations is not unreasonable. Studies confirm that they use very similar organizational and governance arrangements that differ from other organizations (e.g., Greenwood and Empson 2003, Cliff et al. 2006, Malhotra et al. 2006). Maister (1993, p. xvi) regards the similarities across professional service firms as "confirmed facts." Nevertheless, to construct a theory of professional service firms we need to more carefully define their distinctive characteristics and trace the implications of these characteristics for strategy, organization, and performance.

Characteristics. Starbuck (1992, p. 716) defined knowledge-intensive organizations in terms of their *inputs*, i.e., as organizations for whom "knowledge has more importance than other inputs." Further, he states their knowledge is "exceptional and valuable." His examples are law and consulting firms. Alvesson (2000, p. 1101), similarly, defines knowledge-intensive firms as those for which "most work can be said to be of an intellectual nature and where well-educated, qualified employees form the major part of the work force." These definitions, though useful starting points, are overly broad because they could be applied not only to professional service firms but other knowledge-intensive firms such as software and biotechnology firms. Hence, Maister (1993) points to the unusual *outputs* of PSFs, which are intangible and customized for each client. Virtually all definitions now emphasize both the distinctive inputs and outputs of PSFs. That is, it is commonly accepted that professional services have two defining characteristics (for recent examples see Delong and Nanda 2003, Broschak 2004). We emphasize that these characteristics are associated with particular dependencies that raise managerial challenges.

The first characteristic is that outputs are *intangible* applications of *complex* knowledge, making it difficult for consumers to weigh the relative competence of suppliers. Clients are thus dependent on the professionals delivering these services. The challenge for a firm is to convince clients of its superior competence. The challenge for the client is to make sense of competing claims.

The second defining characteristic arises from the need for PSFs to employ a highly educated (professional) workforce to *customize* complex knowledge to client situations. PSFs "are forced to attract and retain qualified people who can adapt their repertoires to meet the demands of the task" (Kärreman et al. 2002, p. 73). Even where services are replicated from one client to another, the marketing of services requires the development of close (i.e., customized) relationships with each client (Morris and Empson 1998). The professional workforce thus constitutes the critical asset of the PSF because it embodies, operates, and translates the knowledge inherent in the firm's output, and, it is the basis of the firm's relationships with clients who often follow professionals if they change firms. PSFs are thus critically dependent on their ability to recruit, retain, and motivate professionals *who are highly mobile*. The managerial challenge is to design an organizational form that will achieve these goals.

These two tasks and their associated dependencies, taken together, demarcate professional service firms as a distinct category of organizations. Underdeveloped in the literature is how these characteristics and their associated dependencies can be effectively managed to improve performance.

Client Dependency and Strategy

Professional service firms have esoteric expertise that clients believe is beyond their own competence. Consequently, the client "cannot judge the expert's advice or reports on substance" (Starbuck 1992, p. 731). Nor can the client evaluate a firm's claim that it has a better competence than other suppliers. Instead, consumers are obliged to use "social proofs" of competence, such as reputation or status (Rao et al. 2001), or symbolic outputs, such as appearance and behaviour (Starbuck 1992, Anderson-Gough et al. 1998).

The importance of reputation has been argued and demonstrated in settings other than professional services (e.g., Merton 1968, Hall 1992, Fombrun 1996, Deephouse 2000). However, it is especially significant in PSFs because of the intangibility of the service and the importance of the professional. Reputation offers the PSF three benefits: the ability to hire the very best students; lower marketing costs because clients actively seek higher status firms (Podolny 1993, 1994); and the ability to charge premiums because of their "brand name" (Beatty 1989, Krishnan and Schauer 2000). These benefits constitute a virtuous cycle. As a firm's reputation grows, it gains more clients and, as a consequence, attracts yet more clients without a proportionate investment in marketing. Further, clients are often reluctant to migrate from large professional service firms because of uncertainty over whether competitors are superior or even comparable. Consequently, firms with good reputations achieve higher profits because of their reduced learning costs, their ability to charge premiums for services and the tendency for clients to commission more services from current advisors. This virtuous cycle corresponds to Merton's "Matthew Effect," whereby "the coin of reputation" enables those with established reputations to secure greater benefits than those with the "same order of talent" yet lesser reputations (Merton 1968, p. 56). Thus our starting hypothesis is as follows.

Hypothesis 1. *For PSFs, reputation positively affects performance.*

In itself, the above hypothesis is not especially novel. However, it is an important starting point because of its links to strategy, specifically the question of diversification.

A key strategic choice facing all organizations is the appropriate scope of diversification (Rumelt 1974). Prior research on diversification conducted into other types of organizations generally predicts improvements in performance associated with the move from a single line of business to a strategy of related diversification (for reviews, see Hoskisson and Hitt 1990, Montgomery 1994, Palich et al. 2000). The rationale is to obtain synergy across divisions from activities such as marketing and use of common technologies. The rationale for professional service firms, however, may be different because of the role of reputation. We argue that reputation constrains decisions on diversification.

Two commonly identified strategies within the professional services literature are the narrowly focused firm, commonly referred to as the specialized "boutique," and the more diversified practice (Sherer 1995, Lowendahl 2000). The former strategy seeks competitive advantage by providing a narrow range of services. A firm pursuing such a strategy aims to succeed by capturing the advantages of specialization because specialization per se is commonly assumed to be a signal of competence (Ruef and Scott 1998). Previous research hints at this link between specialization and performance. Becker et al. (2001), for example, note that the most profitable international law firms are narrowly specialized. David (2001) found specialization reduces the failure rates of consulting firms. To our knowledge, there is no evidence that accounting firms can improve performance by a strategy of narrow specialization. Moreover, the accounting industry is very mature with firms experiencing tightening competition since the mid-1980s. Previous research has reported how declining margins in this particular service pushed firms to provide additional services (Covaleski et al. 2002, Greenwood et al. 2002).

The strategy of diversification has received considerable attention because of its adoption by very large accounting firms (e.g., Greenwood et al. 2002). This strategy is referred to in the accounting sector as the "multidisciplinary practice" (MDP) and is based on the presumption of four competitive benefits. First, it offers clients the convenience of dealing with a single supplier, which the (then) Big Five accounting firms claimed as an important justification for their provision of consulting services (Trebilcock and Csorgo 1999, Berardino 2000). Second, economies of scope arise from delivering several services through the same distribution channels (Melancon 1998). Third, firms "cross sell" services, taking advantage of relationships with clients to offer additional services. Clients, confronted with uncertainty over the capabilities of alternative suppliers, transfer their assessment of a firm's capabilities from one service to another (Nayyar 1990, p. 516). For example, an audit client may "transfer" its assessment of a firm's competence from the audit service to other available services such as consulting. Fourth, diversification helps retain highly skilled personnel because the firm can offer complex assignments. For example, Stephen Butler, CEO of KPMG, pointed to the problem of retaining the brightest minds:

> I spent more time than I like to admit in the Silicon Valley and other places like that trying to convince my brightest professionals to stay with KPMG rather than jump to a new economy company rich with stock options. If this rule (restricting MDPs) were in place, I may as well not even begin those discussions. The best and brightest minds... would view auditing firms as a stagnant professional environment. And, candidly, I don't know how I'd argue with them, because I know I won't work in that environment (2000).

The diversification strategy has received considerable attention but only indirect empirical support. Morris and Empson (1998) describe how large accounting firms use audit services to uncover consulting opportunities. In 2000, over 40% of management consultancy work performed by the Big Five was for their own audit clients (*Public Accounting Report* 2001). Instances of the diversification strategy are also reported in law firms (Becker et al. 2001, Phillips 2001) and consulting firms (David 2001).

A strategy of diversification will be successful only if two conditions are met, each recognizing the importance of reputation. First, the diversified portfolio must embrace *related* services to avoid "image contamination costs" (Nayyar 1993, p. 569):

> ...For example, it is reasonable to expect an accounting firm also to provide some management consulting services, since it has a proven expertise in evaluating accounting and management control systems.... In contrast, it is highly unlikely that potential clients will believe that an accounting firm can also operate an airline (Nayyar 1990, pp. 516–517).

Reputation transfer, in other words, is constrained to related services.

A second and hitherto unexamined condition for successful diversification is that it should be balanced, involving serious resource investments in all services offered. Otherwise, clients may not be convinced that the firm is equally qualified across its portfolio. A firm with a dominant service and only minor resource commitments to other services, even related services, will be seen as unfocused and at risk of losing the credibility associated with specialization. In other words, diversification runs the risk of damaging a firm's reputation if commitment to additional services is incidental rather than fundamental.

A related process, reputation stickiness, is particularly pronounced in professional service firms. Reputation stickiness refers to the difficulty of transferring reputation from one product or service to another. PSFs experience greater reputation stickiness than consumer product firms because of the critical nature of their services. For example, a consulting firm's advice can have a serious impact on a client's financial performance and even survival. The correctness of the financial statements endorsed by an accounting firm carry implications not only for the client but also for the investment community. What we are suggesting, therefore, is that the high value of the services rendered make clients reluctant to uncritically transfer a firm's reputation from one service line to another. Reputation stickiness will be assuaged to the extent that a firm has already established a significant position within that service line.

Firms with a dominant service may also find their reputation damaged in the eyes of its professional workforce. Those employed within less developed service lines will fear subordination to more established services. The difficulties experienced by the accounting firm Arthur Andersen, as they sought to develop a legal practice in the UK, are a telling illustration. Andersen failed several times to merge with elite law firms despite lengthy overtures (Black and Chambers 1999). Similarly, the acrimonious separation of Arthur Andersen from Andersen Consulting was partly a function of the latter's frustration with its secondary status (Walmsley 2000).

In other words, a multidisciplinary strategy of diversification can negatively affect a firm if diversification is not *perceived* by clients and professional employees as appropriate. Our argument, therefore, is that clients will be attracted to a diversified firm to the extent that the firm achieves balanced diversification across related service areas.

HYPOTHESIS 2. *For PSFs, there will be a positive relationship between balanced diversification and performance.*

It is important to recognize that the rationale underpinning a strategy of diversification by a professional service firm is different from arguments underpinning the same strategy for goods-producing firms. For goods-producing firms, a strategy of related diversification seeks benefits from technological complementarities or the ability to use common distribution channels. Critical to the strategy's success, therefore, is the ability of managers to construct and manage the appropriate organizational and technological infrastructure. The benefits of a diversification strategy are conditional on the skills and competences of senior managers internal to the organization. It is the limits on these skills that cause the decline in performance arising from excessive diversification, hence the commonly found inverted U-shape between performance and diversification. A rather different argument applies to professional service firms. For these firms, what matters is whether clients and employees *perceive* a firm's diversification as legitimate, irrespective of whether there are real or only rhetorical synergies between the services within the diversified portfolio. Our argument, therefore, is that balanced diversification rather than related diversification per se will be perceived as appropriate and underpin the relationship with performance.

Professional Motivation, Knowledge Transfer, and Organization

Human capital is a professional service firm's "most important resource" (Hitt et al. 2001, p. 15). The professional carries and generates the knowledge encoded in the services being offered and he/she develops relationships with clients critical for a sustained flow of work. Professionals within the firm, in other words, are the human capital of the firm and generate its social capital. Yet, these resources are mobile to an extent not found in settings where capital assets are extensively used. Retention is thus a prime challenge. For example, Andersen Worldwide purchased the French law firm of S. G. Archibald in 1992 and lost almost 80% of the acquired firm's lawyers in the next six years. Loss of senior professionals is especially costly to a professional service firm, not only because it depletes the ability to deliver customized services, but because it severs relationships with clients and is often followed by client defections (Levinthal and Fichman 1988, Baker et al. 1998). Although turnover of personnel helps refresh organizational learning (Starbuck 1992), on balance the ability to retain senior professionals is critical for performance.

However, how is retention to be achieved? An important influence on retention in any organization is organizational form, i.e., the structures and procedures used to control work activities. Several researchers have pointed to the importance of normative rather than bureaucratic controls as the basis of control of professionals (for a review, see Scott 1998). One variant of this form, used by many professional service firms, is the partnership, where ownership is vested in a relatively large group of professionals ("partners") who assume responsibility for governance and share all profits (Greenwood and Empson 2003). This distinctive organizational form has been found to provide both significant financial advantages to those with partner status and extensive opportunities to participate in the management of the firm (for evidence from accounting firms, see Greenwood et al. 1990, Abernethy and Stoelwinder 1995, Anderson-Gough et al. 1998, Covaleski et al. 1998). The attraction of the partnership format has been credited with high commitment and productivity (*The Economist* 2000).

The chances of achieving the status of partner vary by firm, depending in part on its "leverage structure." In professional service firms, leverage refers to the ratio of total number of professionals to partners and is the "mechanism that drives promotion rates" (Phillips 2001, p. 1071). Leverage rates thus signal to professionals their chances of becoming partners. The more leveraged a firm (a high number of nonpartners to partners) the lower the chances of promotion, other things being equal. The motivational influence of the partnership format, therefore, should be lower in firms with high leverage. Greenhaus and Collins (1997) report that professionals leave accounting firms if they perceive their chances of making partnership as being low. Similarly, Malos and Campion (2000) found leverage in law firms to be correlated with turnover. Moreover, large professional service firms, often use the "up-or-out" career formula, whereby professionals not promoted to the rank of partner are required to leave the firm. Firms with high leverage thus continually lose professionals, depleting the firm's repository of knowledge and client relationships. Therefore, high leverage adversely affects retention of both professionals and clients, depresses the effort of professionals, and weakens performance.

Leverage may also positively affect performance by facilitating the transfer of knowledge from experienced partners to less experienced colleagues. Hitt et al. (2001) found support for this hypothesis in a study of the largest 100 U.S. law firms. However, analysis of the largest 200 firms by the same research team (Zardkoohi et al. 2004) showed a negative linear relationship between leverage and performance, consistent with our argument above. Zardkoohi et al. (2004) further report that the relationship between these variables is not linear but U-shaped. We suggest that this finding shows the influence of two processes. The downward slope of the U-shape is the result of decreased opportunities for partnership. But motivation will not decline indefinitely. Instead, there will be a point at which the demotivating effect of leverage will dissipate or, at least, not worsen, allowing the influence of other processes. The upward slope of the U-shape indicates the successful transfer of knowledge from experienced partners to nonpartners, meaning that partners are "leveraging" their knowledge and reputation (Hitt et al. 2001).

HYPOTHESIS 3. *For PSFs, there will be a U-shaped relationship between leverage ratios and performance.*

The theoretical point is that the unusual dependence of professional service firms on their highly educated workforce makes it necessary to use unusual organizational forms. The "partnership" is one such form and leverage structures are a critical choice within that form.

Methods

Setting and Data

The hypotheses were tested using data from accounting firms in the United States. This industry was chosen because it is a salient, well-established, professional service. Furthermore, the services provided by an accounting firm embody the characteristics with which we are concerned, namely, intangible outputs encoded with complex knowledge delivered in customized form by a highly professionalized workforce. Information for the largest 100 accounting firms in the United States was compiled for 1991–2000 from annual issues of the *Public Accounting Report*, a trade journal that began publishing statistical data in 1991. Firms range in size from fewer than 50 professionals to more than 35,000. In 2000, revenues ranged from \$13.7 million to \$8.3 billion. These top 100 firms are the basis of the U.S. accounting services industry: The top 100 firms employ 75% of accountants in public practice (i.e., in accounting firms). Some firms remained in the top 100 list all 10 years and some firms dropped out or entered the top 100 list for some years. Because we used lagged independent variables, a firm must be in the top 100 list for at least two consecutive years. In total, we have 160 firms in our sample.

Given that the results reported in this paper are derived from larger accounting firms, they may not fully apply to smaller firms. We anticipate that the same concepts would be applicable, especially the role of reputation, because the same kinds of issues are likely to be found in large and small firms. Thus, there will be an asymmetry of information between professionals and clients, and, professionals will be the key assets of the firm. However, how far small firms could successfully diversify is open to question. Moreover, the complexity of the information involved and thus the scale of the information asymmetry between clients and firm may be much less in smaller firms.

All but one of these accounting firms were governed as limited liability "partnerships" or private corporations, meaning that ownership is vested in a group of individuals who share limited liability for the firm and who are active within the firm (i.e., there are no external owners). Internally, accounting firms have three categories of professionals: partners, managers (i.e., nonpartners), and students (i.e., those working toward the CPA designation).

The *Public Accounting Report* defines four service lines provided by accounting firms. The traditional, core services are audit and basic accounting services. A second service is the provision of taxation advice. A more contentious service line (see Greenwood et al. 2002) is the provision of management advisory services (or consulting), including the provision of advice and the design of information control systems. All firms in our sample provided each of these service lines. A fourth line of service embraces such services as advice on executive compensation and outsourcing. Three of every four firms in our sample provided these services.

Familiarity with this industry helped our interpretation of the data. In related studies since 1986, interviews were conducted with senior personnel in large accounting firms both in the United States and elsewhere (references withheld for anonymity). A considerable volume of archival materials was also amassed during these projects. Although not formally reported here, these earlier studies provided useful contextual material, informing the framing of our hypotheses and providing a setting-specific sensitivity when interpreting the results.

Dependent Variable: Firm Performance

Accounting firms are neither publicly traded nor under any requirement to report profits, and rarely do so. Therefore, we measured performance by *revenues per professional* (R/P), a commonly computed index of relative performance in studies of professional services generally (e.g., Lorsch and Tierney 2002) and specifically in the accounting industry (see, for example, the statistics published in professional outlets such as the *Public Accounting Report*). Previous researchers, moreover, have reported high correlations between this measure and accounting measures of profitability. Malos and Campion's (2000) study of U.S. law firms reports a correlation of 0.71 between revenues per professional and "profits per partner" and of 0.89 between revenues per professional and "relative profitability" (the latter calculated by *The American Lawyer*). These figures help validate our use of revenues per professional as a measure of performance.

Independent Variables

Most research measuring accounting firm reputation uses a dichotomous indicator for the Big 8/6/5 (e.g., Ferguson and Stokes 2002). This measure is highly correlated with size. Such an approach also obfuscates the possible effects of reputation within each category. We follow recent research and use two continuous measures of reputation. First, following Copley et al. (1995), we used the number of Securities and Exchange Commission (SEC) listed audit clients. An SEC listed client is registered to sell stock to the general public with the SEC, the primary U.S. regulator of securities markets. Having SEC clients confers reputation by associating an accounting firm with high-profile clients (Heinz and Laumann 1982, Stuart et al. 1999). This variable was denoted as *Number of SEC Clients*.

Second, following Deephouse (2000), we measured reputation using media data. We entered the name of a firm as key word into the Factiva database and retrieved all articles mentioning the firm. This procedure generated 373,587 articles. We restricted our analysis to seven business publications (*The Wall Street Journal, Financial Times, Business Week, Economist, Forbes, Fortune,* and *Barron's*). If a report was repeated, we counted the original but not subsequent repetitions so as to exclude duplications. The seven business publications yielded 16,391 articles. Two of the authors developed a coding scheme for counting positive media stories by reading 50 randomly generated articles from the 16,391. They agreed on all of the decisions about these 50 articles. After the development of the coding scheme, they independently coded 200 randomly generated articles. The interrater reliability of these 200 articles reached 0.93. An example of a positive story is:

> ...the client used a groupware database, which cross-indexed the background and skills of more than 900 auditors; he searched for someone with prior law-enforcement experience, a C.P.A., and familiarity with food-service inventories. "We found him in Dallas, and put him on a plane the next day." Coopers...got the contract, and the client got the right man for the job (*Financial Times* May 17, 1999).

One author coded all the remaining articles to identify the total number of positive stories for each firm in each focal year. The logged value of this variable was denoted as the *Number of Positive Media Reports* (*logged*). The zero-order correlation between *Number of SEC Clients* (*logged*) and *Number of Positive Media Reports* (*logged*) was 0.67. Our estimates were consistent using either measure. We used *Number of Positive Media Reports* (*logged*) in our analysis because it is less correlated with measures of size.

Diversification. The degree of balance in the diversification of an accounting firm's portfolio is the extent to which the firm generates income from each of the four lines of service: audit and accounting, tax advice, management advisory services, and outsourcing and other services. Our measure is similar to those used for law firms by Sherer (1995) and Hitt et al. (2001). In our operationalization of diversification, the entropy measure was chosen. This measure is a valid and widely used indicator of diversification (Jacquemin and Berry 1979, Hoskisson et al. 1993). For our sample, the entropy measure was calculated as

$$Diversification = \sum_{l=1}^{4}[R_l \times \ln(1/R_l)],$$

where R_l is the proportion of revenues collected by the given firm in the lth line of service ($l = 1$, 2, 3, and 4). Hypothesis 2 proposes that there will be a positive relationship between balanced diversification and performance. The entropy measure reaches its maximum value when there are equal sales in all service lines; therefore a positive and significant coefficient of this measure will provide support for this hypothesis.

Leverage. The leverage ratio is the number of professionals (including partners and nonpartners) divided by the number of partners. Hypothesis 3 proposes a U-shaped relationship between leverage and performance; therefore, the testing of this hypothesis involves *Leverage* and its squared term. *Leverage* and its squared term are correlated at the level of 0.99; such a high level of correlation is common in empirical studies. To lessen the problem of multicollinearity, we followed Aiken and

West (1991) and centered the *Leverage* measure on its mean, labelled *Centered Leverage*. We squared *Centered Leverage* and called it *Centered Leverage Squared*.[2] Hypothesis 3 would be supported if the coefficient of *Centered Leverage Squared* is significantly positive, and, if the trough point[3] of *Centered Leverage* is within the range of *Centered Leverage* (i.e., the trough point of *Centered Leverage* is larger than the minimum value and smaller than the maximum value of *Centered Leverage*).

Control Variables

We created two control variables to indicate firm size. The first is the logarithm of the number of professional staff, denoted as *Number of Professionals (logged)*. The second is the logarithm of the number of local offices of each firm, denoted as *Number of Offices (logged)*. The first control variable indicates the size of the professional members in a given firm, while the second control variable captures the extent of groupings of business activities and staff members by the focal firm.

Because organizational performance may be affected by a firm's merger and acquisition activities, we created a dummy variable, *Merger and Acquisition*, to indicate whether a firm experienced at least one merger or acquisition in the focal year. This dummy variable was coded as 1 when the focal firm experienced at least one merger or acquisition in the focal year, and coded 0 otherwise. We further controlled for yearly idiosyncratic effects by entering nine yearly dummies (1991–1999). The yearly dummy of 2000 was dropped because of perfect collinearity.

Analysis

Our data have a cross-sectional time series structure with each accounting firm as a panel that spans a 10-year period. Therefore, we used the following model to perform our panel data analyses:

$$y_{it} = \alpha + \mathbf{x}_{i,t-1}\beta + \mu_i + \varepsilon_{it}, \qquad (1)$$

where $\mathbf{x}_{i,t-1}$ is a row vector of explanatory variables, μ_i is the firm-specific residual, and ε_{it} is a standard residual (mean 0, homoskedastic, uncorrelated with itself, μ_i and the $\mathbf{x}$ matrix). All our independent and control variables were lagged one year behind the dependent variable.

Equation 1 could be analyzed by the fixed-effects model or the random effects model. One of the assumptions in the random effects model—μ_i is uncorrelated with the other regressors—is not supported by the Hausman test[4] (Kennedy 1992). Consistent with previous studies (e.g., Hitt et al. 2001), we adopted the fixed-effects model in our analysis.

Results

Table 1 displays the means, standard deviations, and correlations for all variables. All bivariate correlations are lower than 0.6 with two exceptions. The correlation between *Number of Professionals (logged)* and *Number of Offices (logged)* is 0.77. Second, the correlation of *Centered Leverage* and *Centered Leverage Squared* reached 0.70. Such a level of correlation between a variable and its squared term is common in empirical studies (Aiken and West 1991).

Although such a level of correlation will not produce biased estimators for the coefficients of independent variables, the coefficient estimators may have high standard errors. As a result, it is more difficult to obtain significant coefficients of the correlated variables. Accordingly, we investigated collinearity using variance inflation factors (VIF), and our decision rule was that the maximum VIF should be less than the critical value of 10 (Neter et al. 1990). The highest VIF is 5.45 for the control variable, *Number of Professionals (logged)*. Moreover, for *Centered Leverage* and *Centered Leverage Squared* the VIFs are each below 2.2. This analysis indicates no evidence of a collinearity problem.

Table 2 presents the results of our analysis. Five models are shown. Model 1 examines the base model containing only the control variables. *Merger and Acquisition* was not significant. *Number of Professionals (logged)* is negative and significant ($p < 0.001$), indicating that larger firms have lower performance.[5] In comparison, *Number of Offices (logged)* is positive and marginally significant ($p < 0.10$), suggesting that firms with more offices perform better. In other words, our two measures of size appear to have different effects: The

Table 1 Descriptive Statistics and Correlations

	Mean	Std. dev.	1	2	3	4	5	6	7
1. Performance (revenue per professional)	1.32 E05	3.34 E04							
2. Merger and acquisition	0.06	0.23	0.07						
3. Number of professionals (logged)	5.07	1.33	0.23	0.14					
4. Number of offices (logged)	1.56	1.27	0.12	0.12	0.77				
5. Number of media reports (logged)	0.18	0.74	0.36	0.10	0.73	0.53			
6. Diversification (entropy)	1.04	0.16	0.06	0.05	0.11	0.17	0.07		
7. Centered leverage	0.00	2.88	−0.10	0.01	0.44	0.11	0.29	−0.01	
8. Centered leverage squared	8.28	22.87	−0.03	0.02	0.23	0.09	0.18	−0.08	0.70

Notes. $N = 954$. Correlations greater than 0.06 are significant at $p < 0.05$.

Table 2 Fixed-Effect Panel Data Estimates of Revenue per Professional

	Model 1 Coefficient	Model 2 Coefficient	Model 3 Coefficient	Model 4 Coefficient	Model 5 Coefficient
Intercept	4.54E+05*** (1.29E+04)	4.55E+05*** (1.28E+04)	4.46E+05*** (1.37E+04)	4.42E+05*** (1.79E+04)	4.20E+05*** (1.87E+04)
Firm/Year dummies	Entered	Entered	Entered	Entered	Entered
Merger and acquisition	2.62E+03 (2.09E+03)	2.16E+03 (2.08E+03)	2.24E+03 (2.08E+03)	2.21E+03 (2.08E+03)	1.73E+03 (2.07E+03)
Number of professionals (logged)	−5.56E+04*** (2.47E+03)	−5.59E+04*** (2.45E+03)	−5.62E+04*** (2.45E+03)	−5.55E+04*** (3.34E+03)	−5.11E+04*** (3.51E+03)
Number of offices (logged)	4.48E+03† (2.35E+03)	5.01E+03* (2.34E+03)	5.06E+03* (2.34E+03)	5.02E+03* (2.34E+03)	3.90E+03† (2.34E+03)
Number of positive media reports (logged)		6.16E+03*** (1.75E+03)	5.99E+03*** (1.75E+03)	5.98E+03*** (1.75E+03)	5.96E+03*** (1.74E+03)
Diversification (entropy)			9.18E+03† (5.10E+03)	9.16E+03† (5.11E+03)	9.13E+03† (5.06E+03)
Centered leverage				−1.31E+02 (4.48E+02)	−1.73E+03** (6.08E+02)
Centered leverage squared					1.56E+02*** (4.05E+01)
σ_u (standard deviation of the common residuals)	7.60E+04	7.31E+04	7.33E+04	7.27E+04	6.93E+04
σ_e (standard deviation of the unique residuals)	1.29E+04	1.28E+04	1.28E+04	1.28E+04	1.27E+04
ρ	0.972	0.970	0.971	0.970	0.968
Number of observations	954	954	954	954	954
Number of firms	160	160	160	160	160

Notes. All independent variables are lagged one year. Standard errors are in parentheses. $^{\dagger}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$.

sheer *Number of Professionals* adversely affects performance, whereas *Number of Offices* has a positive influence. The adverse effect of the former is consistent with the idea that size increases coordination costs. The effect of *Number of Offices*, in contrast, may be reflecting the need for firms to both tap into multiple geographical markets *and* be able to service clients located in multiple jurisdictions. Table 1 reports three parameters for all models: σ_u, σ_e, and ρ. The first parameter, which is the standard deviation of u_i (see Equation 1), indicates the degree of estimation errors attributed to the variability among accounting firms. The second parameter, which is the standard deviation of ε_{it} (see Equation 1), shows the degree of errors that have independent and identical distribution. The third parameter, which is the ratio between σ_u^2 and the sum of σ_e^2 and σ_u^2, indicates the proportion of total variance due to the differences among firms.

In Model 2, we include the reputation indicator, *Number of Positive Media Reports*. As predicted by Hypothesis 1, which proposes a positive relationship between reputation and performance, the coefficient of this variable is positive and significant ($p < 0.001$). A supplementary analysis was conducted to test whether the number of total media reports for each firm also has an impact on firm performance. We replaced *Number of Positive Media Reports* with the number of total media reports, and found that the coefficient of the number of total media reports is not significant. To identify the potential effects of negative and neutral reports, we added two variables in Model 2, the number of neutral reports for a focal firm and the number of negative reports (as indicator of notoriety) for the focal firm, and reran Model 2. The coefficient of *Number of Positive Media Report* remained significant ($p < 0.05$), while the two added variables were not significant. These results are consistent with previous work using media coverage that has separated "favourableness" [indicated by our *Number of Positive Media Reports* (*logged*)] from prominence or visibility, which would be indicated by the *total* number of media reports. These two dimensions of reputation have been found to yield different results (Fombrun and Shanley 1990, Rindova et al. in press). In other words, our results consistently show that it is a favourable reputation that matters.

Model 3 adds the entropy measure of *Diversification*. As predicted by Hypothesis 2, this variable has a positive and marginally significant ($p = 0.072$) coefficient. In Model 4, we include the variable of *Centered Leverage*. The coefficient of this variable is not significant. In Model 5, the variable of *Centered Leverage Squared* has a positive and significant coefficient ($p < 0.001$). The trough point of *Centered Leverage* is 0.42, which is within the range of *Centered Leverage* (from −4.49 to 17.55). These results provide support for the U-shaped relationship between leverage and performance, as predicted by Hypothesis 3. Results for Hypotheses 1 and 2 remain as reported earlier.

Discussion

Toward a Theory of Professional Service Firms

The motivation for this paper has been to build a theory of professional service firms. Our starting point was to argue that these firms share task characteristics that demarcate them from both goods-producing organizations, including high technology firms, and other service organizations. These characteristics are that their outputs are intangible, encoded with complex knowledge, and are customized to client circumstances by a highly professionalized workforce. A theory of professional service firms begins from recognition of these task characteristics. We then proposed that consequent on these characteristics are two dependencies that affect the appropriateness of organizational and strategic decisions. First, clients are highly dependent on the PSF because of an asymmetry of information; second, PSFs are dependent on their professional workforce because this critical asset is mobile.

So what have we learned about the determinants of performance that follow from the dependency of clients on their PSFs? We have found a clear relationship between reputation and performance. Reputation is vitally important to PSFs because it serves as a social signal to clients experiencing uncertainty arising from information asymmetry. This relationship is robust across two continuous measures of reputation, one based on media coverage (Deephouse 2000), the other on SEC listed clients (Copley et al. 1995).

We have also found a positive, albeit marginal, relationship between balanced diversification and performance. As PSFs diversify they must do so in a significant rather than incremental manner because of the risks of image contamination and reputation stickiness. Thus, we have inferred how reputation works through diversification to affect performance. We also pointed out that the rationale underlying the decision to diversify a PSF is different from that applicable to other organizations. In goods-producing industries, what matters is the ability of managers to capture managerial, financial, and technological opportunities for synergies. These synergies are substantive, not symbolic. In professional service firms, in contrast, what matters is how people *perceive* the legitimacy of a diversified portfolio. As such, the benefits of diversification for professional service firms are socially constructed.

It follows that the degree of socially acceptable diversification is not fixed but could expand (or contract) as new services become socially (de-)legitimated. For example, in the immediate aftermath of the Enron collapse, accounting firms were heavily criticized for providing management consulting services. The multidisciplinary strategy became less socially acceptable (Levitt 2000). Here, our thesis connects with the growing interest in the social construction of markets (e.g., Zajac and Westphal 2004). Emphasis in this work is on how organizations can define and legitimate "markets." Our study implies that the notion of socially constructed markets is especially pertinent for professional service firms because of the pervasive importance of reputation. For these firms, marketing involves the ability to convince clients that an array of services, whether narrow or extensive, is a legitimate portfolio.

Our paper has also looked at organizational issues arising from the dependency of PSFs on their professional workforce. The need to design incentives for professionals to stay and commit to an organization is not a modern problem—retention is a recurrent theme in the literature on professionals—but it is becoming more apposite as psychological contracts between knowledge workers and organizations in the modern economy are reconfigured (see Powell 2001). The firms examined in our study, of course, are unusual because they are legally constituted as partnerships, but this is an intriguing organizational form and we have focused on one of its central features, namely, the leverage ratio that specifies the promise of partnership. The "prize" of partnership offers a compelling incentive for professionals to work long and intense hours and to remain with the firm. Our results show a U-shaped relationship between leverage and performance. We interpreted this result to mean that the motivation of nonpartners will increase with the likelihood of achieving partnership status, to the benefit of the firm. At some point, however, the importance of the partnership issue fades, to be superseded by the benefits of optimizing knowledge transfer between partners and nonpartners. Our conclusion from these results is that the partnership form of ownership and governance may be highly appropriate for this type of worker but that the structure of the partnership is a complex issue. It is, moreover, ironic that the partnership format, which predates the public corporation and yet has been superseded by it, may be of growing contemporary relevance as the economy shifts emphasis from capital-intensive to knowledge-intensive enterprises.

These findings confirm the importance of viewing PSFs as a discrete category of organizations, but much remains to be done. One future line of research could explore the role of reputation. We have shown that favorable media coverage influences performance and is intertwined with the effects of diversification. What we have not explored is how professional service firms develop their reputations. One factor may be the impact of the personal reputation of founders, given that some PSFs begin when professionals leave an existing firm and in doing so take their clientele with them. Nor have we examined the processes resulting in the collapse of reputation. To what extent are individual firms insulated from inappropriate actions by firms in the same sector and what can firms do to protect their reputations? These are important questions and require attention.

Further, future work could expand the definition of performance. Our focus has been on how profitability requires PSFs to manage their critical dependencies through particular strategies and organizations. Yet, there are other goals that PSFs might pursue, including technical excellence and professional integrity, which may or may not fully complement the pursuit of profitability. All organizations face the need to reconcile multiple goals but the tension may be more acute in PSFs because of the professional and commercial pressures on them. A fuller theory of professional service firms would include a broader range of performance outcomes, exploring how the dynamics identified here affect multiple dimensions of performance and result in trade-offs between them.

Conclusion

The sheer importance of professional service firms in the modern economy justifies efforts to understand them. Given the distinctive tasks performed by PSFs it is not surprising that they confront unusual managerial challenges. These characteristics and challenges, moreover, undermine the relevance of theory generated from other types of organizations. By explicating the particular effects on performance of reputation, diversification, and organizational structure, we have provided a theory *of* professional service firms.

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Endnotes

[1]These figures exclude PwC Consulting (source: PwC *Annual Report*).
[2]We did not center the variable of *Centered Leverage Squared*.
[3]The trough point in a U-shaped relationship between *Centered Leverage* and *Firm Performance* is the minimum in this quadratic relationship.
[4]We thank two anonymous reviewers for this suggestion.
[5]Because *Number of Professionals* is used to calculate the variable of *Leverage*, it is possible that the inclusion of *Number of Professionals* has an impact on our testing of the U-shaped effect between leverage and performance. To test this possibility, we ran a sensitivity analysis. In this analysis, we only removed *Number of Professionals* (*logged*) and retained all other variables in Model 5 of Table 2. Our sensitivity analysis provided results consistent with the results that we report in Table 2.

References

Abernethy, M. A., J. H. Stoelwinder. 1995. The role of professional control in the management of complex organizations. *Accounting, Organ. Soc.* **20**(1) 1–17.

Aharoni, Y. 1993. In search for the unique: Can firm-specific advantages be evaluated? *J. Management Stud.* **30**(1) 21–49.

Aiken, L. S., S. G. West. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications, Newbury Park, CA.

Alvesson, M. 1995. *Management of Knowledge-Intensive Companies*. de Gruyter, Berlin/New York.

Alvesson, M. 2000. Social identity and the problem of loyalty in knowledge intensive companies. *J. Management Stud.* **37**(8) 1101–1123.

Anderson-Gough, F., C. Grey, K. Robson. 1998. *Making Up Accountants: The Organizational and Professional Socialization of Trainee Chartered Accountants*. Ashgate, Aldershot, UK.

Argote, L., B. McEvily, R. Reagans. 2003. Introduction to the special issue in managing knowledge in organizations: Creating, retaining and transferring knowledge. *Management Sci.* **49**(4) v–viii.

Baker, W. E., R. R. Faulkner, G. A. Fisher. 1998. Hazards of the market: The continuity and dissolution of interorganizational market relationships. *Amer. Sociological Rev.* **63** 147–177.

Beatty, R. P. 1989. Auditor reputation and the pricing of initial public offerings. *Accounting Rev.* **64**(4) 693–709.

Becker, W. M., M. F. Herman, P. A. Samuelson, A. P. Webb. 2001. Lawyers get down to business. *McKinsey Quart.* (2) 44–55.

Berardino, J. 2000. Managing Partner, Arthur Anderson LLP. Testimony before the SEC Public Hearings on Auditor Independence, Washington, D.C.

Black, J. A., M. Chambers. 1999. Going global: The accountants and their law firms. *LEXPERT* (November) 80–90.

Broschak, J. P. 2004. Managers' ability and market interface: The effect of managers' career mobility on the dissolution of market ties. *Admin. Sci. Quart.* **49**(4) 608–641.

Butler, S. 2000. Managing Partner, KPMG. Testimony before the SEC Public Hearings on Auditor Independence, Washington, D.C.

Cliff, J. E., P. D. Jennings, R. Greenwood. 2006. The strategic positioning of professional service firm start-ups: Balance beguiles but purism pays. R. Greenwood, R. Suddaby, eds. *Research in the Sociology of Organizations*, Vol. 26.

Copley, P. A., J. J. Gaver, K. M. Gaver. 1995. Simultaneous estimation of the supply and demand of differentiated audits: Evidence from the municipal audit market. *J. Accounting Res.* **33** 137–155.

Covaleski, M. A., M. W. Dirsmith, L. Rittenberg. 2002. Jurisdictional disputes over professional work: The institutionalization of the global knowledge expert. Working paper, School of Business, University of Wisconsin, WI.

Covaleski, M. A., M. W. Dirsmith, J. B. Heian, S. Samuel. 1998. The calculated and the avowed: Techniques of discipline and struggles over identity in Big Six public accounting firms. *Admin. Sci. Quart.* **43**(2) 293–327.

David, R. I. 2001. A narrow target or a wide net? Specialist and generalist strategies in the management consulting industry. *Proc. Admin. Sci. Association Canada, Organ. Theory Division* **22** 13–23.

Deephouse, D. L. 2000. Media reputation as a strategic resource: An integration of mass communications and resource based theories. *J. Management* **26**(6) 1091–1112.

Delong, T. J., A. Nanda. 2003. *Professional Services: Text and Cases*. McGraw-Hill/Irwin, New York.

Economist, The. 2000. Lawyers go global: The battle of the Atlantic. (February 26) 79–81.

Economist, The. 2004. Special Report: Called to account—The future of auditing. London, Nov. 20, 373(8402) 87.

Ferguson, A., D. Stokes. 2002. Brand name audit pricing, industry specialization, and leadership premiums post-Big 8 and Big 6 mergers. *Contemporary Accounting Res*. **19**(1) 77–110.

Financial Times. 1999. Companies and markets: Auditors compete with databases. Robert Corzine and Thorold Barker, May 17.

Fombrun, C. J. 1996. *Reputation: Realizing Value from the Corporate Image*. Harvard Business School Press, Boston, MA.

Fombrun, C., M. Shanley. 1990. What's in a name? Reputation building and corporate strategy. *Acad. Management J*. **33** 233–258.

Greenhaus, J. H., K. M. Collins. 1997. Work and family influences on departure from public accounting. *J. Vocational Behavior* **50** 249–270.

Greenwood, R., L. Empson. 2003. The professional partnership: Relic or exemplary form of governance? *Organ. Stud*. **24**(6) 909–933.

Greenwood, R., C. R. Hinings, J. Brown. 1990. "P^2–Form" strategic management: Corporate practices in professional partnerships. *Acad. Management J*. **33**(4) 725–755.

Greenwood, R., C. R. Hinings, R. Suddaby. 2002. Theorizing change: The role of professional associations in the transformation of institutionalised fields. *Acad. Management J*. **45**(1) 58–80.

Hall, R. 1992. The strategic analysis of intangible resources. *Strategic Management J*. **13**(2) 135–144.

Hagan, J., F. Kay. 1995. *Gender in Practice: A Study of Lawyers' Lives*. Oxford University Press, New York.

Hansen, M. T., N. Nohria, T. Tierney. 1999. What's your strategy for managing knowledge? *Harvard Bus. Rev*. **77**(March–April) 106–116.

Heinz, J. P., E. O. Laumann. 1982. *Chicago Lawyers: The Social Structure of the Bar*. Russell Sage Foundation and American Bar Foundation, New York and Chicago, IL.

Hinings, C. R. 2004. Professions in organizations. N. J. Smelser, P. B. Baltes, eds. *International Encyclopedia of the Social & Behavioural Sciences*. Pergamon, Oxford, UK, 12160–12166.

Hitt, M. A., L. Bierman, K. Shimizu, R. Kochhar. 2001. Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Acad. Management J*. **44**(1) 13–28.

Hitt, M. A., T. M. Dacin, E. Levitas, J.-L. A. Edhec, A. Borza. 2000. Partner selection in emerging and developed market context: Resource based and organizational learning perspectives. *Acad. Management J*. **43**(3) 449–467.

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

Hoskisson, R. E., M. A. Hitt, R. A. Johnson, D. D. Moesel. 1993. Construct validity of an objective (entropy) categorical measure of diversification strategy. *Strategic Management J*. **14**(3) 215–235.

Jacquemin, A. P., C. H. Berry. 1979. Entropy measure of diversification and corporate growth. *J. Indust. Econom*. **27** 359–369.

Kärreman, D., S. Sveningsson, M. Alvesson. 2002. The return of the machine bureaucracy? Management control in the work settings of professionals. *Internat. Stud. Management Organ*. **32**(2) 70–92.

Kennedy, P. 1992. *A Guide to Econometrics*, 3rd ed. MIT Press, Cambridge, MA.

Krishnan, J., P. C. Schauer. 2000. The differentiation of quality among auditors: Evidence from the not-for-profit sector. *Auditing* **19**(2) 9–25.

Levinthal, D. A., M. Fichman. 1988. Dynamics of interorganizational attachments: Auditor-client relationship. *Admin. Sci. Quart*. **33**(3) 345–369.

Levitt, A. 2000. Remarks by Chairman Arthur Levitt at Open Meeting to Modernize Auditor Independence Rules. *SEC News* (Supplement, July 27).

Lorsch, J. W., T. J. Tierney. 2002. *Aligning the Stars*. Harvard Business School Press, Boston, MA.

Lowendahl, B. 2000. *Strategic Management of Professional Firms*, 2nd ed. Handelshojskolens Forlag, Copenhagen, Denmark.

Maister, D. H. 1993. *Managing the Professional Service Firm*. The Free Press, New York.

Malhotra, N., T. Morris, C. R. Hinings. 2006. Variations in organizational form among professional service organizations. R. Greenwood, R. Suddaby, eds. *Research in the Sociology of Organizations: Professional Service Firms*, Vol. 26. Elsevier, Amsterdam, The Netherlands.

Malos, S. B., M. A. Campion. 2000. Human resource strategy and career mobility in professional service firms: A test of an options-based model. *Acad. Management J*. **43**(4) 749–760.

Melancon, B. C. 1998. The changing strategy for the profession, the CPA and the AICPA: What this means for the education community. *Accounting Horizons* **12**(4) 397–406.

Merton, R. K. 1968. The Matthew effect in science. *Science* **159** 56–63.

Montgomery, C. A. 1994. Corporate diversification. *J. Econom. Perspectives* **8**(3) 163–178.

Morris, T., L. Empson. 1998. Organizations and expertise: An exploration of knowledge bases and the management of accounting and consulting firms. *Accounting, Organ. Soc*. **23** 609–624.

Morris, T., A. Pinnington. 1998. Promotion to partner in professional service firms. *Human Relations* **51**(1) 3–24.

Nayyar, P. R. 1990. Information asymmetries: A source of competitive advantage for diversified service firms. *Strategic Management J*. **11** 513–519.

Nayyar, P. R. 1993. Stock market reactions to related diversification moves by service firms seeking benefits from information asymmetry and economies of scope. *Strategic Management J*. **14**(8) 569–591.

Neter, J., W. Wasserman, M. H. Kutner. 1990. *Applied Linear Statistical Models*, 3rd ed. Irwin, Homewood, IL.

Palich, L. E., L. B. Cardinal, C. C. Miller. 2000. Curvilinearity in the diversification-performance linkage: An examination of over three decades of research. *Strategic Management J*. **21**(2) 155–174.

Pettigrew, A. M., E. Fenton. 2000. *The Handbook of Strategy and Management*. Sage, London, UK.

Phillips, D. J. 2001. The promotion paradox: Organizational mortality and employee promotion chances in Silicon Valley law firms, 1946–1996. *Amer. J. Sociology* **106**(6) 1058–1098.

Podolny, J. M. 1993. A status-based model of market competition. *Amer. J. Sociology* **98**(4) 829–872.

Podolny, J. M. 1994. Market uncertainty and the social character of economic exchange. *Admin. Sci. Quart*. **39**(3) 458–483.

Powell, W. W. 2001. The capitalist firm in the twenty-first century: Emerging patterns in western enterprise. P. J. DiMaggio, ed. *The Twenty-First Century Firm: Changing Economic Organization in International Perspective*. Princeton University Press, Princeton, NJ.

Public Accounting Report. Various Issues. Strafford Publications, Atlanta, GA.

Rao, H., H. R. Greve, G. F. Davis. 2001. Fool's gold: Social profit in the initiation and abandonment of coverage by Wall Street analysts. *Admin. Sci. Quart.* **46** 502–526.

Rindova, V. P., I. O. Williamson, A. P. Petkova, J. M. Sever. 2005. Being good or being known: An empirical examination of the dimensions, antecedents, and consequences of organizational reputation. *Acad. Management J.* **48**(6).

Ruef, M., W. R. Scott. 1998. A multidimensional model of organizational legitimacy: Hospital survival in changing institutional environments. *Admin. Sci. Quart.* **43**(4) 877–904.

Ruggles, R. 1998. The state of the notion: Knowledge management in practice. *California Management Rev.* **40**(3) 80–89.

Rumelt, R. P. 1974. *Strategy, Structure, and Economic Performance*. Division of Research, Harvard Graduate School of Business Administration, Boston, MA.

Sarvary, M. 1999. Knowledge management and competition in the consulting industry. *California Management Rev.* **41**(2) 95–107.

Scott, M. C. 1998. *The Intellect Industry: Profiting and Learning from Professional Service Firms*. John Wiley & Sons, New York.

Sharma, A. 1997. Professional as agent: Knowledge asymmetry in agency exchange. *Acad. Management Rev.* **22**(3) 758–798.

Sherer, P. D. 1995. Leveraging human assets in law firms: Human capital structures and organizational capabilities. *Indust. Labour Relations Rev.* **48**(4) 671–691.

Starbuck, W. H. 1992. Learning by knowledge intensive firms. *J. Management Stud.* **29**(4) 713–40.

Stuart, T. E., H. Hoang, R. C. Hybels. 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. *Admin. Sci. Quart.* **44**(2) 315–349.

Trebilcock, M. J., L. Csorgo. 1999. *Multidisciplinary Professional Practices: A Consumer Welfare Perspective*. Charles River Associates, Toronto, Ontario, Canada.

Wallace, J. E. 1995. Organizational and professional commitment in professional and non-professional organizations. *Admin. Sci. Quart.* **40** 228–255.

Walmsley, A. 2000. The great divide. *R.O.B. Magazine* (November) 54–60.

White House Office of Public Liaison. 1999. *Summary of US-China Bilateral WTO Agreement*. (November) 17.

Zajac, E. J., J. D. Westphal. 2004. The social construction of market value: Institutionalization and learning perspectives on stock market reactions. *Amer. Sociological Rev.* **69** 433–458.

Zardkoohi, A., M. A. Hitt, L. Bierman. 2004. The human factor in law firms. *Clifford Chance Conf.*, Boston College, Boston, MA.

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