

Florian Willert/Dodo zu Knyphausen-Aufsess*

WHAT DETERMINES THE SIZE OF PRIVATE EQUITY FIRMS?

ABSTRACT

Although private equity is considered a maturing industry, its players have remained tiny boutiques. We investigate the nature of the drivers and inhibitors of firm growth in the private equity industry. We present the results of a survey on size patterns of European private equity firms. Based on case studies on buyout and venture capital (VC) firms from our sample and a business model concept, we derive three propositions that highlight the importance of the characteristics of the services provided, the decision process, and the metrics of economic return as determinants of firm size.

JEL-Classification: G24, L25.

Keywords: Buyout; Economies of Scale; Firm Size; Private Equity; Venture Capital.

1 INTRODUCTION

With the growing prominence of private equity both in practice and academic research, our knowledge of the impact of private equity on the growth of firms has been steadily increasing (Gompers and Lerner (2001); Bertoni et al. (2005); Degenhard et al. (2006); Busenitz (2007)). Yet little is known about the growth of private equity firms themselves, particularly from an organizational perspective. Although private equity is considered to be a maturing industry, its players have remained tiny boutiques. This fact is somewhat puzzling, considering other professional services in which companies with several thousand professionals emerged, such as in legal services, management consulting, the accounting sector, or the mutual fund industry. Moreover, there are, despite the work by E. Penrose (1959), only limited indications from current studies on constraints to the growth of the firm in general. Instead, studies that explicitly focus on professional service firms emphasize their exponential growth (Galanter and Palay (1990); Thomas et al. (2001)). We argue

* Florian Willert, St. Benedictstr. 3, 20149 Hamburg, Germany, Phone: +49 (0) 40/320 87 80, e-mail: florian.willert@gmx.de; Dodo zu Knyphausen-Aufsess, Chair of Human Resource Management and Organization, University of Bamberg, Feldkirchenstrasse 21, 96045 Bamberg, Germany, Phone: +49 (0) 951/863 2570, Fax: +49 (0) 951/863 5571, e-mail: dodo.knyphausen@uni-bamberg.de. The alphabetical ordering of authorship reflects the fully collaborative nature of this work.

that the size patterns we observe in the private equity industry can be attributed to the characteristics of the underlying business model, and that there are indeed also growth inhibitors. Therefore, Gompers and Lerner's prediction that "[t]en years from now, ..., a handful industry leaders will likely dominate the field – leaders who will command far greater financial and human resources than their competitors" (2001, 248), must not necessarily become true.

Our paper is structured as follows. First, we present the results of a census of European private equity firms. We conducted this census to identify size patterns of European private equity firms and to guide our subsequent research. Second, based on a business model framework by zu Knyphausen-Aufsess and Meinhardt (2002), we present the findings of a case study research, which enables us to discuss our research question on what determines the size of private equity firms. We use several streams of the relevant literature to support the findings that we summarize through a set of propositions of the determinants of firm size. Finally, we derive conclusions and implications.

2 PATTERNS OF FIRM SIZE

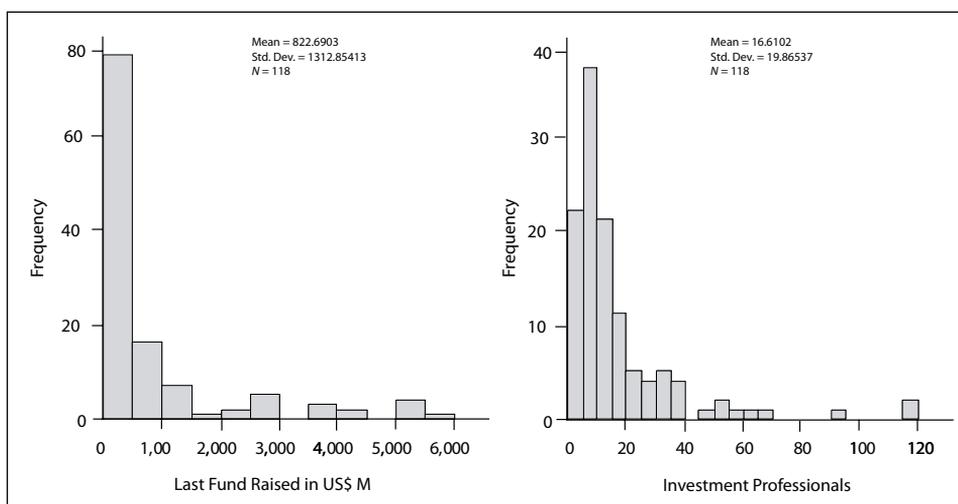
To analyze size patterns, we must first define our understanding of the size of private equity firms. One commonly used parameter in the context of private equity is the capital under management, as used in studies by BenDaniel, Reyes, and D'Angelo (2000) or Anson (2004). To limit the impact of the age of the companies, we focus on the size of the last fund raised rather than the total capital managed, as one measure of firm size. (Older funds usually do not require as much attention from investment managers as the most recent funds do.) A second and even more important measure in the context of our research question is the size of the organization. We follow the proposition of Thomas, Schwab, and Hansen (2001) and when analyzing professional service firms, we use only the number of investment professionals.

To obtain a better understanding of the actual size patterns in the private equity sector, we compiled a database based on data from the 2003 edition of Galante's Venture Capital Directory from Asset Alternatives, as well as from the 2003 membership directory of the European Private Equity & Venture Capital Association (EVCA). Our database comprises all independent, private partnerships with funds of limited lifetime with a subsidiary either in the UK, France, or Germany, the three most important European countries in terms of fundraising and portfolio investments in 2003. Hence, our research includes both partnerships active in venture capital financing (e.g., investing in start-ups; 58 percent) as well as partnerships active in buyout financing (i.e., investments in mature companies; 35 percent). We label private equity firms simultaneously active in both segments "generalist partnerships" (7 percent). We validate the data of those two directories by our own research based on information from the companies' web sites as well as from press articles. Our database comprises 118 firms, 16 of which we exclude from the final analysis due to incomplete or inconsistent data. Six of the remaining 102 private equity firms are fund families that manage two or more funds in parallel, each fund separately run by a dedicated management team. For the purpose of our analysis, we counted each of these

funds as an individual record. In the end, our final database comprises 118 managed funds employing a total of 1926 investment professionals managing a cumulated fund volume of the last funds raised of US\$225B.

On average, the last fund raised was US\$823M, ranging from US\$10M for the smallest to US\$5.5B for the largest fund. *Figure 1* shows that we can attribute the relatively high average to a small number of mega funds with fund sizes well above US\$1B. Therefore, 50% of the companies managed funds smaller than US\$260M.

Figure 1: Frequency distribution regarding fund size and number of investment professionals

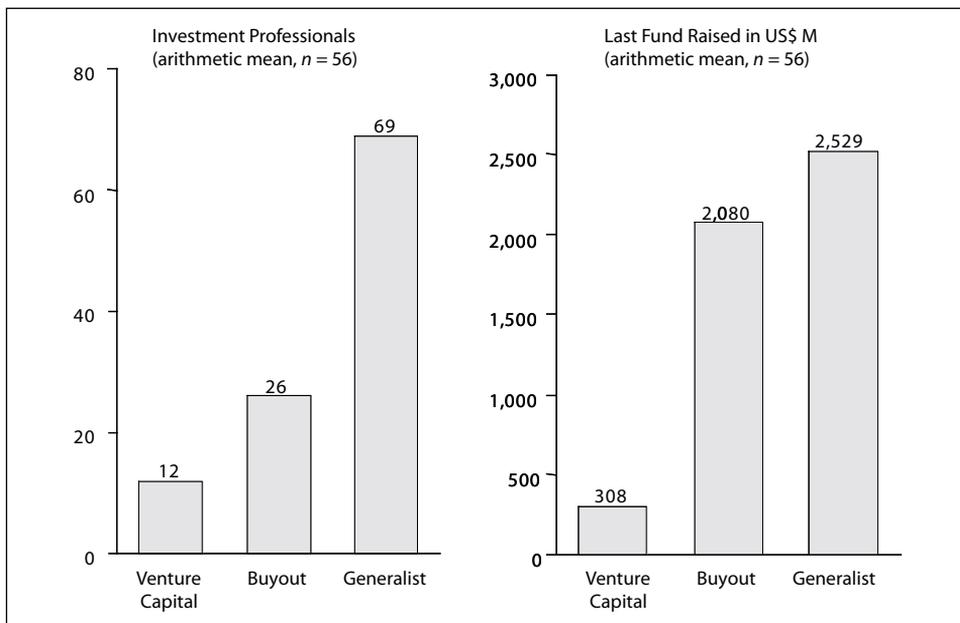


Source: Own database

We observe a similar pattern for the size of the organization. With an average of 17 investment professionals ranging from two to 118 professionals, 50 percent of the firms in our database employ less than ten professionals, 75 percent less than 17. This observation confirms our initial statement that from an organizational perspective, private equity firms are in fact tiny investment boutiques. We might argue that private equity firms are relatively small due to the immaturity of the sector as a whole, since institutional private equity did not develop until the late 1970s. Indeed, we find a moderately positive correlation between both the age of the companies and the size of the fund ($r = 0.496$), and the age of the companies and the size of the organization ($r = 0.569$), as observed in other industries (Evans (1987)). However, we observe that a strikingly large share of established private equity firms (i.e., older than ten years) remain relatively small. Of the companies in our sample that were founded more than ten years ago, 52 percent have less than the arithmetic mean of 17 investment professionals. Therefore, we investigate whether there might be other factors that influence the size of private equity firms.

In their study of U.S. private equity firms, Covitz and Liang (2002) find that buyout firms manage funds on average four times the size of venture capital firms. We might assume that such a size difference between different financing stages also applies to the size of the organization. In fact, our sample exhibits a strong positive correlation ($r = 0.774$) between the size of the organization and the fund volume. Controlling for age as a determinant of firm size, we analyze the size patterns of the 56 firms of our sample with an age of more than ten years. Distinguishing between venture capital firms, buyout firms, and generalists, we find significant size differences between firms of different financing stage focus. Although venture capital firms have, on average, fund volumes of US\$308M managed by 12 investment professionals, buyout firms not only have much larger funds (US\$2,080M), but also have more than twice the organizational size (26 investment professionals). Generalists are by far the largest firms, with an average fund volume of US\$ 2,529M and 69 investment professionals (see *figure 2*).

Figure 2: Size of private equity firms by investment stage focus



Source: Own database

The differences in fund volumes between firms that invest in young companies (venture capital) and established companies (buyout) can be attributed to the higher valuations and larger underlying operations of established companies compared to start-ups. These differences may also have implications for the fund volume that is managed by each investment professional. On average, the buyout investment professionals of the companies included in our study manage US\$70.2M as opposed to US\$26M for venture capital

firms and US\$33.6M for generalists, yet the reasoning above does not account for the observed differences in the size of the organization between venture capital, buyout firms, and generalists. Although fund sizes might be larger due to the higher financing needs of established companies, there is no apparent argument for why venture capital firms have, on average, smaller operations than buyout firms or generalists. Thus, in our subsequent analysis of the determinants of firm size, we not only focus on the reasoning as to why private equity firms remain small companies compared to other professional services sectors, we also explain differences between financing stage foci.

3 BUSINESS MODEL CHARACTERISTICS AS A FRAMEWORK TO EXPLAIN THE SIZE OF FIRMS

The question of the determinants of firm size has a long history in academic research. Firm size is often seen as a means of achieving a competitive advantage in a company's cost position (Chandler (1990)). Ever since the fundamental research of Bain (1954) in the 1960s, numerous studies have analyzed the effect of economies and diseconomies of scale (see, for instance, Williamson (1975; 1988); Milgrom and Roberts (1988), Aghion and Tirole (1997); Stein (2002)). Aside from expanding the scale of existing businesses, another stream of literature deals with a company's expansion into related lines of business. This type of business expansion by diversification, which was first discussed by Ansoff (1957; 1958), was subsequently theoretically substantiated by Teece (1980), Panzar and Willig (1981), as well as by proponents of the so-called resource-based view of the firm (for an overview see Montgomery (1994)), with the concept of economies of scope. A common characteristic of the majority of these studies has been their focus on capital-intensive industrial companies, yet it remains questionable if those traditional theories might also be appropriate for explaining firm size in the context of professional services firms, since their input factors consist primarily of human capital rather than machines.

With the rapid growth of professional services firms since the 1980s, this business sector has gained more and more attention from academic research. Several studies analyze the growth of professional services, particularly regarding law firms. Most prominent among these studies is the tournament theory of Galanter and Palay (1990; 1991), who attribute the exponential growth of large law firms to their incentive structure. As experienced lawyers develop more client work than they can handle, the law firms hire associates to leverage the experienced lawyer's human capital. Associates are given the incentive of a prospective promotion to partnership. As long as the company keeps a constant percentage of associates promoted to partners and a constant number of associates per partner, which is the so-called leverage ratio, the result is exponential growth of the organization. Thomas, Schwab, and Hansen (2001) propose an alternative theory on the emergence of "megafirms" in professional services in general. Referring to case studies in the law, accounting, and the investment banking sector, they discuss demand side factors, such as a global client structure and larger, more globally oriented multidisciplinary client projects, as the main determinants of an increasing firm size in these industries.

There are many studies in the private equity context dealing with theories that are frequently discussed concerning the growth of firms such as the aforementioned diversifi-

cation. For example, VCs can either focus their portfolios on early-stage ventures, diversify their portfolio across investment stages, or concentrate on late-stage investment opportunities (Elango et al. (1995); Manigart et al. (2002)). Moreover, while some VC firms focus their investments on one or a few industries, others diversify their portfolios across different sectors (Gupta and Sapienza (1992); Norton and Tenenbaum (1993)). Research also shows that VC firms invest with a different geographic scope. While some VCs select their investitures within a small geographic region, others invest internationally or even globally (Gupta et al. (1992); Hall and Tu (2003)).

Studies on diversification in the venture capital business tend to focus on aspects of risk diversification and give little insight on how diversification might impact the organizational structure of private equity firms and their growth. Overall, it can be said that theories of firm size in general, and the professional services and the private equity sector in particular, have their shortcomings. These theories do not account for differences in the underlying business models and their organizational roots. In our view, this is an important dimension in explaining the size differences between private equity companies that focus either on venture capital or buyout financing, as well as of different professional services industries.

According to zu Knyphausen-Aufsess and Meinhardt (2002), a business model features three distinctive elements: (1) the characteristics of the services provided, (2) the organizational structure to provide these services, and (3) the metric of economic return.

3.1 CHARACTERISTICS OF THE SERVICES PROVIDED

The first element of the business model concept specifies what type of services will be provided in what kind of markets. Zu Knyphausen-Aufsess and Meinhardt (2002) argue that the scalability of a business model increases with the degree of standardization of the services provided. When individual client solutions can be translated into standardized services, they can be applied to multiple projects, thereby enhancing the efficiency of the company. Moreover, standardization allows replicating such services by delegating them to extra employees who are hired and trained to perform those standardized tasks. As a typical example of such standardization in professional services, zu Knyphausen-Aufsess and Meinhardt (2002) cite the sector of systems integration services where companies with several thousand employees emerged. One well-known example of such a company is Accenture.

To investigate the level of task standardization and delegation in more detail, we conducted additional research on selected private equity companies of our database, such as Apax Partners, Atlas Venture, Permira, and Warburg Pincus. In total, we conducted 23 interviews with partners and non-partner investment associates of 18 private equity firms. To validate the findings of our interviews, we reviewed more than 4000 press articles, and screened internet sources and company publications. We have aggregated our research findings by conducting a cross-company comparison (Eisenhardt (1989; 1991)). We report example quotations from our interviews in *table 1*.

Table 1: Example quotations from our interviews (partly translated by the authors)

<p><i>Characteristics of the services provided: PE firms have a low leverage because tasks are little standardized and cannot be delegated</i></p> <p>“You can’t delegate everything and expect your associates to present you the evidence. You have to do many things yourself in order to be certain, that they are done right. (...) Which logic, structure, and analytics a professional uses is very variable and should always be advised by an experienced investor.” (Alf Grunwald, Warburg Pincus)</p> <p>“Particularly in the early stage, the partners’ experience in markets, management, technology, and business models has to be much more distinct than as in buyout firms. The buyout firm is often analytically simpler, but has a much more complicated structure. In venture capitals, only the sub-tasks can be delegated, not complete modules.” (Alf Grunwald, Warburg Pincus)</p> <p>“My personal opinion is that the task profile should not be changed when someone becomes a partner. Ideally, the organization should consist entirely of partners without any associates. The partners should also build [valuation] models. One can only leverage himself internally through analysts and associates and externally through investments banks and consulting firms to a certain point. From my point of view, it isn’t good to delegate too many tasks and then only interpret the results. In certain analyses, too much subjectivity is introduced, that the decision quality is much higher if the partners take on these tasks themselves. Private equity and consulting are different in the fact that in consulting, the partners are mainly involved in the market and the non-partners do the actual work.” (Christian Stahl, Apax)</p>
<p><i>Characteristics of the decision process: Investment decisions can only be made in small committees</i></p> <p>“Communication within the firm is very important for decision-making. The lines of communication get more complex as the number of offices grows. We would think long and hard now before opening another office. We certainly had the opportunity to open offices in other locations, like Israel or Far East. We resisted that on the basis that we did not want to have too much complexity. Had the market environment continued we would have maintained our presence on the West Coast. We could have managed that level of communication overhead but we had reached the limits of what we could effectively do. Had we decided to open an office in Far East we would have concluded that we would need to run that as a separate fund entity with local decision-making.” (Christopher Spray, Atlas Venture)</p> <p>“If the number of partners could grow, a ‘bottleneck’ would occur at the investment committee level. If the partners do not informally exchange ideas about investment decisions before hand, coming to a decision could be quite difficult.” (Torsten Vogt, Permira)</p>
<p><i>Metric of economic return: Funds become bigger, not the organization</i></p> <p>“Each individual deal situation represents a substantial driver of the labor input. Therefore, the input at first is not dependent on the size of the company. (...) The number of senior partners and their supervising ability limits the fund size.” (Torsten Vogt, Permira)</p> <p>“It takes just about the same amount of work to do an investment with €100 million equity as with € 1 billion.” (Christian Stahl, Apax)</p>

Our first observation is the rather low degree of delegation in private equity in general. The leverage of the companies we investigate rarely exceeds three non-partner investment professionals per partner. For example, Apax Partners, a leading generalist private equity firm founded in 1972 that employs 117 professionals, operates with a leverage of 2.3. The buyout firm Permira, which was set up in 1985, has a leverage of only 1.3, employing a total of 65 professionals. Atlas Venture, which can look back on a venture capital history of more than 25 years, has 34 professionals with a leverage as low as 0.9 (all figures as of October 2003)¹. Moreover, these figures illustrate a second observation on the differences between private equity companies that focus on different stages of firms' development. Venture capital firms not only have smaller organizations, they also seem to exhibit a lower leverage, i.e., a lower degree of task delegation compared to buyout firms or generalists.

Taking these observations as a starting point, we analyze the operations of private equity firms. An analysis of the partitioning of tasks between partners and non-partners shows that private equity partners are heavily involved in the daily operations of a private equity firm. They not only engage in the acquisition of new projects, but also spend a significant part of their time conducting due diligence, as well as monitoring and supporting portfolio companies. The private equity firms unanimously emphasize that due to the characteristics of the tasks performed, a high degree of involvement of the partners in the operational business is needed. To a great extent, the private equity business requires individual judgments that are based on long-standing operational experience. Such know-how is implicit in nature, and therefore cannot be codified or easily transferred (Polanyi (1966, 14)). As Nonaka (1994) points out, implicit knowledge is context specific and resides in the respective individual. Its transfer requires close interaction with the individual who possesses the knowledge and its recipient. Therefore, the transfer of implicit knowledge is complex and time consuming (Kogut and Zander (1992)).

Considering the type of knowledge required to perform tasks in the private equity business, we can argue that it limits the degree of delegation to non-partner professionals with a lower level of experience. The knowledge transfer requires intensive coaching, which is limited by the capacity constraints of an individual partner. This reasoning, for example, is a main rationale for Warburg Pincus, a global "generalist" founded in 1966, to limit the ratio of partners to non-partners to 1 : 1².

Moreover, a difference in the ability to codify knowledge enables us to explain the differences between venture capital- and buyout firms. Because the speed of transfer of knowledge decreases with a decreasing ability to codify and standardize the knowledge (Kogut and Zander (1992)), partners in venture capital firms might have a lower coaching capacity than would their counterparts in buyout firms, since the knowledge required might be more implicit in nature. In fact, a characteristic of venture capital investments

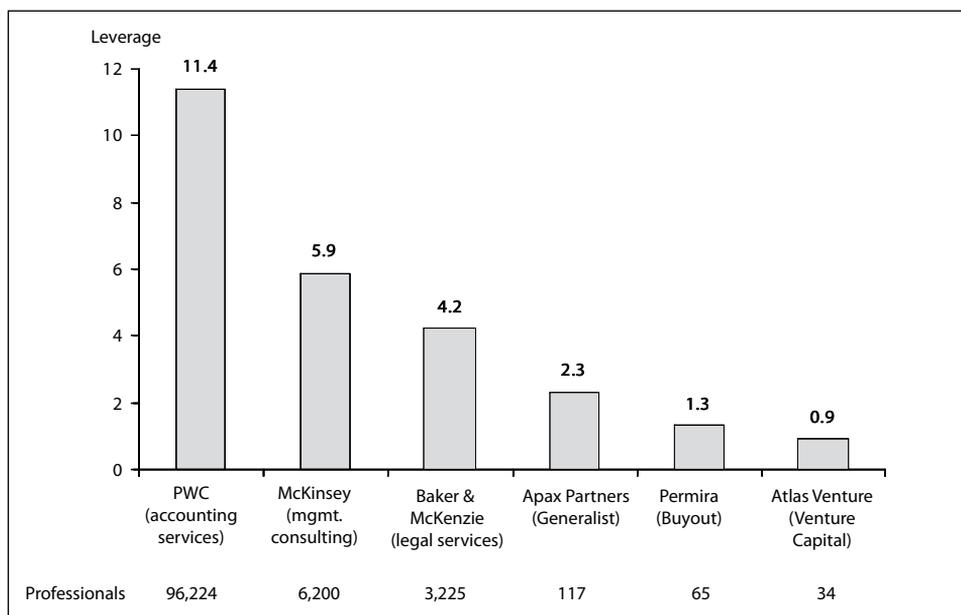
1 Since October 2003, the business models of our case study firms have moved forward. In particular, Apax Partners now focuses only on buyout deals and can no longer be considered a "generalist" (October 2007).

2 The leverage difference between Pincus Warburg (1.0) and Apax Partners (2.3; see above) is somewhat surprising, since both firms are classified as "generalists". However, a look on the respective firm histories reveals that Pincus Warburg had its origins in the VC business, but Apax Partners is rooted in the buyout business. Hence, we can interpret the leverage difference as a legacy from different firm histories.

is a high level of uncertainty with limited available data on which to base the assessment of an investment (Gompers and Lerner (2001, 21-47)). When Atlas Venture invested in Systemonic, a German technology company focusing on integrated circuits, the responsible partner based his assessment of the investment on the perception of the abilities of the founder and on a vague idea of the quality of the entrepreneur's invention. Despite the lack of objective data, based on his long-standing experience in the IT sector the partner felt comfortable in investing in Systemonic. Moreover, the companies we interviewed rate implicit knowledge as being extremely important for venture capital investments in particular.

Although implicit knowledge is considered as important for buyout investments, a company assessment in this sector is often based on the track record of an established management team and on the quality of a proven product technology (Elango et al. (1995)). Further, an assessment of buyout investments includes additional aspects that rely on more explicit knowledge, such as legal, accounting, or tax issues. As practiced by the buyout firm Permira, such knowledge can be transferred to less experienced professionals through formal training. In addition, the scope of tasks to be performed in buyout investments is typically far larger than in the venture capital context, due to the longer history and larger size of the portfolio companies. Thus, the delegation of tasks to less experienced professionals can occur to a greater extent in buyout firms than in venture capital firms.

Figure 3: Leverage of selected professional services firms



Source: Own calculation based on company information

The specific characteristics of the tasks might explain not only the differences in the size and leverage ratio of private equity firms of different financing stage focus, but also might provide insights on the size differences of professional services firms in general. Indeed, the leverage ratio seems to be one indicator that differentiates between the degree of standardization of the services of different professional services industries. *Figure 3* ranks leading players of different professional service industries according to the number professionals, as well as the industries' respective leverage ratio. Of these companies, which employ more than 96,000 professionals, the accounting firm PricewaterhouseCoopers is not only the largest company in terms of professionals, but also exhibits the highest leverage, 11.4. The management consulting firm McKinsey & Company employs around 6,200 professionals with a partner leverage of 5.9, while the law firm Baker & McKenzie has some 3,000 professionals with a leverage of 4.2. In contrast to such megafirms in professional service sectors, private equity firms seem to have not only much smaller organizations, but also a significantly lower leverage ratio. The analysis above suggests the following proposition:

P₁: *The higher the degree of task standardization and delegation, the larger the size of the organization.*

3.2 ORGANIZATIONAL STRUCTURES/CHARACTERISTICS OF THE DECISION PROCESS

The second element of the business model concept relates to the organizational structures to provide a company's services (Treacy and Wiersema (1995); zu Knyphausen-Aufsess and Meinhardt (2002)). Referring to a concept of Laux and Liermann (1997), that decisions are the main constituents of the organizational structure of a company, we investigate how the decision-making process might influence the size of an organization. Although the characteristics inherent of the tasks discussed in the previous section might limit the degree of delegation, this fact does not necessarily imply that it limits the size of a private equity firm per se. Other than growing by delegation, a company might increase the size of its group of partners. Therefore, we analyze whether hiring additional partners might affect the decision-making process and hence the size of a private equity firm.

A central element of the decision-making process in private equity is the investment decision, which has been the focus of numerous studies especially in the venture capital, but less so in the buyout context. A number of authors suggest phase models that describe the investment decision as a rather linear, well-structured and "rational" process (e.g., Tyebeje and Bruno (1984); Fried and Hisrich (1994); Boocock and Woods (1997)). However, this picture has been questioned by studies that go into the details of those phases. For example, Fried and Hisrich (1994), Muzyka et al. (1996) and Kaplan and Strömberg (2004) have shown that VC firms typically apply only a small number of those decision criteria that the normative literature suggests as sound. Information overload urges the investment managers to eventually rely on their "gut feeling" instead of going through complex decision procedures (Kahn (1987); Hisrich and Jankowicz (1990)). This finding may lead to the conclusion that investment managers' experience is an important ingredient for "good" decisions. However, Shepherd et al. (2003) show that very experienced

VCs tend to rely too much on their intuition and routines, and therefore may be less successful than medium-experienced VCs – in short, that they are overconfident in their abilities and that this overconfidence has a negative effect on the accuracy of their decisions (Zacharakis and Shepherd (2001)). Zacharakis and Meyer (1998) conclude that the often stated rationality of VC decision-making processes is a myth, and that since many investments do not provide a satisfactory return, VCs have every reason to improve their understanding of this process.

While the studies mentioned discuss criteria of investment decisions as well as the order of decisions to be taken, the link to organizational processes is missing. In our research we find that the private equity firms included in our sample – venture capital firms, buyout firms, and generalists – have a similar decision process in their basic structure, one which resembles those reported in other studies of private equity firms (Wright and Robbie (1998); Lerner (2000)). A team of investment professionals in charge of conducting a due diligence on a specific investment opportunity prepares an investment memorandum that is presented to an investment committee. Here, the deal is discussed and open questions are readdressed to the due diligence team until open issues are sufficiently answered. Then the committee makes its investment decision.

Since a significant portion of the a partner's compensation in a private equity firm is linked to the total performance of the fund (Sahlman (1990, 494-499)), the partners collaborate in the success or failure of each investment. For that reason, investment committee members have a strong incentive to discuss a deal intensively as well as to make a joint investment decision (Lerner (2000, 130)). Because the formation of an individual's opinion requires to a great extent the exchange of implicit knowledge, intensive informal discussions are required between committee members. The private equity companies in our study emphasize that these discussions allow them to address critical issues early on in the investment-decision process and to improve the overall quality and efficiency of the process. In contrast, because of the complex nature of the investment decision, formalized decision rules are regarded as inappropriate. Further, due to an increasing number of informal bilateral discussions, adding new partners to the investment committee also leads to an increasing complexity of the decision-making process. The private equity companies consider that when decision makers cannot sufficiently exchange their views on particular investment decisions, the investment committee acts as a bottleneck that ultimately limits the size of the firm.

The bottleneck argument also holds true when we consider not only the investment decision, but also the provision of non-financial assistance that is seen as an important part of the “value-added” that private equity companies have to offer (Sahlman (1990)). Partners tend to stay highly involved in this assistance; otherwise they cannot ensure that the investment project achieves the results on which they have based the investment decision. Considering the growth of the business, we might argue that once the workload of supporting portfolio companies exceeds the capacity of the partner group in place, additional investment projects could be handled by hiring additional partners. However, enlarging the partner group would again make the decision-making process more complex.

Our findings are substantiated by research on the optimal size of investment committees. In a formal model, Gjolberg and Nordhaug (1996) compare the marginal coordination costs of additional committee members with their marginal benefit, i.e., that a committee will come to a “correct” decision. These authors point out that the number of bilateral discussions in a committee equals $n(n - 1)/2$. This fact means that the number of communication channels and the marginal decision costs increase exponentially with the size of the investment committee. Moreover, game theory studies on committee decision making suggest that the quality of a committee decision decreases with an increase in the size of the committee. Mukhopadhaya (2003) and Persico (2004) show that if information acquisition is costly, then because of the free-rider problems in information acquisition, a larger committee may make worse decisions. The benefits of a potentially better decision by a larger committee are outweighed by the decreasing incentive of committee members to gather relevant information because they have perceived that their decision will have a waning impact on the final result. Furthermore, Persico (2004) determines the optimal voting mechanism as consisting of the voting rule and the committee size. He concludes that large pluralities, or in the extreme, unanimity, as a voting rule in the context of an increasing committee size, are optimal only if the information available to the committee members is sufficiently accurate. Conversely, this conclusion implies that when the accuracy of the relevant information is limited, the quality of decision making decreases with the size of the committee, and that large pluralities are or will be the dominant voting rule, as is the case in private equity.

These theoretical concepts corroborate the findings of our research, that the characteristics of the organizational structure of a particular business model have an impact on the size of the organization. These characteristics are strikingly different in the private equity sector compared to other professional services firms. For example, although management consultancies also have centralized decision committees, these committees focus primarily on higher-level decisions, such as the promotion to partnership or overall business priorities (Nanda (2003a, 296-311)). In contrast, the decentralized units control the daily operations of global management consultancies on decisions on the execution of particular projects (Nanda (2003b, 461)). Therefore, the structure of the decision processes cannot be seen as an inhibitor of the growth of these companies.

Another case is the mutual fund industry. Chen et al. (2004) show that investment decisions are usually taken by very small units, which are often run by only one investment manager. This decision process reduces the necessity of convincing others and of passing this information up through the organization (see also Stein (2002) and Prather and Middleton (2002)). Investment decisions in mutual funds are essentially decentralized decision making on the basis of the daily operational work. This structure allows mutual funds to set up multiple fund units that operate relatively independently of one another, thus creating huge fund families that can obtain better concessions on trading commissions and earn higher lending fees for the stocks held by their funds. Moreover, these funds are then marketed to the customers via dense distribution networks. The result is that in 2006, Fidelity, which is a leading multiple-fund firm, employs about 40,000 people worldwide.

To complete our discussions on the organizational structure as the second element of a business model, we establish the following proposition:

P₂: *The more centralized the decision processes of the operational business, the smaller the size of the organization.*

3.3 METRIC OF ECONOMIC RETURN

The third element zu Knyphausen-Aufsess and Meinhardt (2002, 76) cite as a distinctive characteristic of a business model is the metric of economic return. This aspect describes the various sources of economic return and how they interrelate. In professional service companies that are organized as partnerships, the metric for economic return is profitability, i.e., the profit per partner (Nanda, 2004, 1). For private equity companies, we can describe the profitability equation as follows:

$$(\text{Profit/Partner}) = (\text{Carry/Partner}) + (\text{Base Compensation/Partner})$$

The partners of a private equity company have an incentive to increase the size of the firm if such an increase in size will positively impact the profit per partner. Thus, we can rewrite the metric's two components carry and base compensation as:

$$\text{Carry} = \text{Fund Volume} * \text{Carry Rate} * (\text{Fund Multiple} - 1)$$

and

$$\text{Base Compensation} = \text{Management Fee} - \text{Personnel Costs} - \text{Other Operational Costs}$$

where

$$\begin{aligned} \text{Carry Rate} &= \text{Share of Capital Gains} \\ \text{Fund Multiple} &= \text{Fund Distributions/Invested Fund Volume} \\ \text{Management Fee} &= (\text{Fund Volume} * \text{Management Fee Rate}) \\ \text{Personnel Costs} &= \text{Leverage} * \text{Partners} * \text{Compensation Non-partner Professionals} \\ \text{Leverage} &= \text{Non-partner Professionals/Partner} \end{aligned}$$

The equations clarify that there is a positive relation between fund volume and profit per partner for both carry and the base compensation. Therefore, the partners might have an incentive to increase fund size.

In contrast, there is a negative relation between leverage and base compensation. On the one hand, personnel costs increase with the number of non-partner professionals per partner, but on the other hand, revenues in the form of management fees remain constant. For base compensation, the revenues and costs are decoupled, because revenues are fixed, depending on the size of the fund, but costs are variable, depending on the number of professionals employed. As a consequence of this metric of economic return, the partners

of a private equity firm have a stronger incentive to scale the fund size rather than to scale the size of the organization. This view was confirmed in the interviews we conducted and might be one of the reasons for the ongoing trend of steadily growing fund sizes in the private equity industry.

Contrasting this third element of the business model with the metric found in other professional service industries pinpoints yet again some noteworthy differences. According to Nanda (2004, 1), the metric of economic return for typical professional partnerships such as law firms can be expressed as follows:

$$(\text{Profit/Partner}) = (\text{Profit/Revenue}) * (\text{Revenue/Professional}) * (1 + \text{Leverage})$$

This equation illustrates that there is a positive relation between the leverage and the economic return to the partners. The higher the number of non-partner professionals per partner, the higher the profit per partner, given that all other variables remain constant. Nanda (2004) empirically tested and confirmed this relation for the top 100 U.S. law firms from 1994 to 1999. For its metric of economic return, it is fundamental to the business model of professional service firms, such as law, accounting, or management consulting firms, that the main sources of return are the professionals' working hours billed to the clients. Since the billable hours per partner can be increased primarily by increasing the leverage, there is a strong incentive for the partners of such professional partnerships to increase the size of the organization. This aspect clearly differentiates these business models from the metric of economic return found in private equity, because adding professionals in the latter mainly implies higher personnel costs without direct impact on revenues.

The above analysis can be summarized in a third proposition as follows:

P₃: *The more directly profitability is linked to the number of professionals, the larger the size of the organization.*

4 CONCLUSION AND IMPLICATIONS

In this paper we identify determinants of firm size in private equity. We base these determinants on the observation that private equity firms have relatively small organizations, in particular, as compared to firms of other professional services sectors. We identify size patterns based on a quantitative study of European private equity firms, which we then explain by a qualitative study on selected private equity firms. We frame our research within a business model concept that guides our research and that explains size differences not only within the private equity sector, but also of professional services firms in general. We demonstrate that any of three complimentary elements of a business model can be fundamental determinants of firm size: the characteristics of the services provided, the organizational structure and/or the characteristics of the decision process, and the metric of the economic return. Supplementary to other concepts on firm size, this analysis not only includes elements that promote an increase in size, but also factors that inhibit an increase in size.

Considering our first proposition on the degree of task standardization and delegation as a determinant of the size of the organization, we could argue that there should be an “optimal” leverage ratio for a given task, i.e., underlying business. Therefore, one possible direction for future research might be to investigate performance differences for varying leverage ratios of firms of the same financings stage focus.

A discussion of an “optimal” size for investment committees could also be pursued by considering our second proposition, that the degree of centralization of decision processes impacts firm size.

Furthermore, our research allows us to draw normative implications for private equity firms that strive to expand their business. Generally speaking, there are two ways to avoid the investment decision bottleneck. Either private equity firms should expand through separate funds and/or investment committees with dedicated management teams. This solution means that growth is most appropriate only when there is limited interaction required between the separate management teams to achieve the set of business objectives. Otherwise, private equity firms should establish a hierarchy of decision committees, structured by the size of deals or decision topics for example, to reduce decision complexity of a single board.

The implications of the third proposition on the influence of the link between profitability and number of professionals on firm size are twofold. First, the proposition posits that continued growth and consolidation of the private equity sector will primarily impact fund volumes rather than the size of the organizations. Due to the lower capital needs of venture capital portfolio companies, we might expect that the main focus of fund raising volumes will continue to shift towards buyout firms. Second, the analysis highlights that the partners of private equity firms might have an incentive to neglect the development of the organization. This aspect is a critical consideration for institutional investors in private equity.

It is, in the end, an interesting speculation – and an avenue for further research – whether the remuneration model, i.e., the “metric of economic return,” not only directly influences the size of the organization, as stated in proposition 3, but also has an impact on delegation and centralization³. On the one hand, we can assume that the remuneration model that is used in private equity firms has a negative impact on delegation (not necessarily on standardization). Obviously, the more a partner can benefit from a carry, the more he or she will tend to make the decisions him- or herself, provided that the delegation of tasks to less-experienced associates bears the risk of an inferior outcome. On the other hand, such an incentive structure may also promote centralization, since the important decisions are all made within a small investment committee that shares the relevant knowledge. Therefore, the incentive structure overall may have an essential impact on the size of private equity firms.

3 We thank Anja Tuschke for this idea.

REFERENCES

- Aghion, Philippe and Jean Tirole (1997), Formal and real authority in organizations, *Journal of Political Economy* 105, 1-29.
- Ansoff, H. Igor. (1957), Strategies for diversification, *Harvard Business Review* 35(5), 113-124.
- Ansoff, H. Igor. (1958), A model for diversification, *Management Science* 4, 392-414.
- Anson, Mark (2004), Trends in Private Equity, *Journal of Wealth Management* 7(3), 84-91.
- Bain, Joe S. (1954), Economies of scale, concentration and the condition of entry in twenty manufacturing industries, *American Economic Review* 44, 15-39.
- BenDaniel, David J., Jesse E. Reyes, and Michael R. D'Angelo (2000), Concentration in the venture capital industry, *Journal of Private Equity* 3(3), 7-13.
- Bertoni, Fabio, Massimo G. Colombo, and Luca Grilli (2005), External private equity financing and the growth of new technology based firms: The chicken and egg problem revisited, Paper presented at the Annual Entrepreneurship, Innovation and Small Business (EISB) Conference, Barcelona, September 2005.
- Boocock, Graham and Margaret Woods (1997), The evaluation criteria used by venture capitalists: Evidence from a UK venture fund, *International Small Business Journal* 16, 36-57.
- Bruton, Gary D., Vance H. Fried, and Robert D. Hisrich (1998), Venture capitalists and CEO dismissal, *Entrepreneurship Theory and Practice* 21, 41-54.
- Busenitz, Lowell W. (2007), The impact of venture capital investments on ventures and economic development, in Hans Lundström (ed.), *Handbook of Research on Venture Capital*, Cheltenham, UK and Northampton, MA: Edward Elgar (forthcoming).
- Chandler, Alfred D. (1990), *Scale and Scope: The Dynamics of Industrial Capitalism*, Cambridge, MA: Harvard University Press.
- Chen, Joseph, Harrison Hong, Ming Huang, and Jeffrey D. Kubik (2004), Does fund size erode mutual fund performance? The role of liquidity and organization, *American Economic Review* 95, 1276-1302.
- Covitz, David and J. Nellie Liang (2002), Recent developments in the private equity market and the role of preferred returns, Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, DC, Research Report, www.bis.org/publ/cgfs19board1.pdf.
- Eisenhardt, Kathleen M. (1989), Building theories from case study research, *Academy of Management Review* 14, 532-550.
- Eisenhardt, Kathleen M. (1991), Better stories and better constructs: The case for rigor and comparative logic, *Academy of Management Review* 16, 620-627.
- Elango, B., Vance H. Fried, Robert D. Hisrich, and Ami Polonchek (1995), How venture capital firms differ, *Journal of Business Venturing* 10, 157-179.
- Evans, David S. (1987), Tests of alternative theories of firm growth, *Journal of Political Economy* 95, 657-674.
- Fried, Vance H. and Robert D. Hisrich (1994), Toward a model of venture capital investment decision making, *Financial Management* 23, 28-37.
- Galanter, Marc S. and Thomas M. Palay (1990), Why the big get bigger: The promotion-to-partner tournament and the growth of large law firms, *Virginia Law Review* 76, 747-811.
- Galanter, Marc S. and Thomas M. Palay (1991), *Tournament of Lawyers: The Transformation of the Big Law Firm*. Chicago, IL: University of Chicago Press.
- Gjolberg, Ole and Odd Nordhaug (1996), Optimal investment committee sizes, *Journal of Portfolio Management* 22(2): 87-94.
- Gompers, Paul A. and Josh Lerner (2001), *The Money of Invention: How Venture Capital Creates New Wealth*. Boston, MA: Harvard Business School Press.

- Gupta, Anil K. and Harry J. Sapienza (1992), Determinants of venture capital firms' preference regarding the industry diversity and geographic scope of their investments, *Journal of Business Venturing* 7, 347-362.
- Hall, Graham and Ciwen Tu (2003), Venture capitalists and the decision to invest overseas. *Venture Capital* 5, 181-190.
- Hisrich, Robert D. and A. D. Jankowicz (1990), Intuition in venture capital decisions: An exploratory study using a new technique, *Journal of Business Venturing* 5, 49-62.
- Kaplan, Steven N. and Per Strömberg (2004), Characteristics, contracts, and actions: Evidence from venture capitalist analyses, *Journal of Finance* 59, 2177-2210.
- Khan, Arshad M. (1987), Assessing venture capital investments with non-compensatory behavioural decision models, *Journal of Business Venturing* 2, 193-205.
- Laux, Helmut and Felix Liermann (1997), *Grundlagen der Organisation: Die Steuerung von Entscheidungen als Grundproblem der Betriebswirtschaftslehre*, Berlin: Springer.
- Lerner, Josh (2000), *Venture capital and Private Equity: A Casebook*, New York: John Wiley & Sons.
- Manigart, Sophie, Koen De Waele, Michael Wright, Ken Robbie, Philippe Desbrières, Harry Sapienza, and Amy Beekman, A. (2002), Determinants of required return in venture capital investments: A five-country study, *Journal of Business Venturing* 17, 291-312.
- Milgrom, Paul and John Roberts (1988), An economic approach to influence activities in organizations, *American Journal of Sociology* 94, Supplement, 154-179.
- Montgomery, Cynthia (1994), Corporate diversification, *Journal of Economic Perspectives* 8, 163-178.
- Mukhopadhyaya, Kaushik (2003), Jury size and the free rider problem, *Journal of Law, Economics & Organization* 19, 24-44.
- Muzyka, Daniel, Sue Birley, and Benoit Leleux (1996), Trade-offs in the investment decisions of European venture capitalists, *Journal of Business Venturing* 11, 273-287.
- Kogut, Bruce and Udo Zander (1992), Knowledge of the firm, combinative capabilities, and the replication of technology, *Organization Science* 3, 383-397.
- Nanda, Aahish (2003a), Bain & Company, Inc.: Making Partner, in Thomas J. DeLong and Ashish Nanda (eds.), *Professional Services: Text & Cases*, New York: McGraw-Hill/Irwin, 296-311.
- Nanda, Ashish (2003b), Tom Tierney at Bain & Company, in Thomas J. DeLong and Ashish Nanda (eds.), *Professional Services: Text & Case*, New York: McGraw-Hill/Irwin, 448-463.
- Nanda, Ashish (2004), Profitability drivers in professional services firms, Harvard Business School, Cambridge, MA, Harvard Business School Paper No. 9-904-064.
- Nonaka, Ikujiro (1994), A dynamic theory of organizational knowledge creation, *Organization Science* 5, 14-37.
- Norton, Edgar and Bernhard H. Tenenbaum (1993), Specialization versus diversification as a venture capital investment strategy, *Journal of Business Venturing* 8, 431-442.
- Panzar, John C. and Robert D. Willig (1981), Economies of scope, *American Economic Review* 71, 268-272.
- Penrose, Edith (1959), *The Theory of the Growth of the Firm*, Oxford: Blackwell.
- Persico, Nicola (2004), Committee design with endogenous information, *Review of Economic Studies* 71, 165-194.
- Polanyi, Michael (1966), *The Tacit Dimension*, Garden City, NY: Doubleday.
- Prather, Larry J. and Karen L. Middleton (2002), Are N + 1 heads better than one? The case of mutual fund managers, *Journal of Economic Behavior and Organization* 47, 103-120.
- Sahlman, William A. (1990), The structure and governance of venture capital organizations, *Journal of Financial Economics* 27, 473-521.
- Shepherd, Dean A., Andrew Zacharakis, and Robert A. Baron (2003), VCs' decision processes: Evidence suggesting more experience may not always be better, *Journal of Business Venturing* 18, 381-401.

- Stein, Jeremy (2002), Information production and capital allocation: Decentralized versus hierarchical firms, *Journal of Finance* 57, 1891-1921.
- Teece, David J. (1980), Economies of scope and the scope of enterprises, *Journal of Economic Behavior and Organization* 1, 223-247.
- Thomas, Randall S., Stewart J. Schwab, and Robert G. Hansen (2001), Megafirms, *North Carolina Law Review* 80, 115-198.
- Treacy, Michael and Fred Wiersema (1995), *Discipline of Market Leaders: Choose Your Customers, Narrow Your Focus, Dominate Your Market*. New York: HarperCollins.
- Tyebjee, Tyzoon and Albert V. Bruno (1984), A model of venture capitalist investment activity, *Management Science* 30, 1056-1066.
- Williamson, Oliver E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: Simon and Schuster.
- Williamson, Oliver E. (1988), Corporate Finance and corporate governance, *Journal of Finance* 43, 567-591.
- Wright, Michael and Ken Robbie (1998), Venture capital and private equity: A review and synthesis, *Journal of Business Finance & Accounting* 25, 521-570.
- Zacharakis, Andrew L. and G. Dale Meyer (1998), A lack of insight: do venture capitalists really understand their own decision process, *Journal of Business Venturing* 13, 57-76.
- Zacharakis, Andrew L. and Dean A. Shepherd (2001), The nature of information and overconfidence on venture capitalists' decision making, *Journal of Business Venturing* 16, 311-332.
- Zu Knyphausen-Aufsess, Dodo and Yves Meinhardt (2002), Revisiting strategy: Ein Ansatz zur Systematisierung von Geschäftsmodellen, in Thomas Bieger, Nils Bickhoff, Rolf Caspers, Dodo zu Knyphausen-Aufsess, and Kurt Reding (eds.), *Zukünftige Geschäftsmodelle: Konzept und Anwendung in der Netzökonomie*, Berlin: Springer, 63-90.

Order form – Order now!

Verlagsgruppe Handelsblatt GmbH
Abo-Service Ausland
Postfach 10 27 53
40018 Düsseldorf
Germany

Fon: 0049 211 887 1730
Fax: 0049 211 887 1738
e-mail: abo-service@vhb.de
Internet: www.sbr-online.com



simply the best research.

Use this form to order your free sample copy and to subscribe to sbr!

Free sample copy

Please send me a free sample copy of **sbr**
PB-ZFSBRPH1

Subscription

Open ended subscription*
 One-Year subscription

PB-ZFSBRO15

* In case of open-ended subscription an invoice will be issued at the end of each subscription year to cover the next year. Cancellation within a period of at least 21 days before the new subscription year begins.

Subscription rates**

Schmalenbach Business Review (**sbr**),
ISSN: 1439-2917, Quaterly

Institutions: \$ 95.00 £ 60.00 € 91.00

Individuals: \$ 48.00 £ 30.00 € 45.00

Students*: \$ 24.00 £ 50.00 € 21.00

* Student rate only accepted with copy of validated ID.

** Postage rates are – depending on the currency you want to be charged in – \$ 14, £ 8, € 12.

Payment

Payment is due within 14 days on receipt of invoice. You will receive the invoice directly from Verlagsgruppe Handelsblatt GmbH in Düsseldorf.

Address

Institute/Company

Position/Department

First and Surname

Street and Number

Zip Code City

State Country

Fon

Fax

e-mail

Signature

Date