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### The changing face of the European venture capital industry

Bottazzi, L.; Da Rin, M.; Hellmann, T.

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# The Changing Face of the European Venture Capital Industry: *Facts and Analysis*

LAURA BOTTAZZI, MARCO DA RIN, AND THOMAS HELLMANN

## LAURA BOTTAZZI

is an associate professor of economics at IGIER-Bocconi University and CEPR.

<http://www.igier.uni-bocconi.it/bottazzi>

## MARCO DA RIN

is an assistant professor of economics and finance at Turin University, ECGI, and IGIER-Bocconi University.

<http://web.econ.unito.it/darin>

## THOMAS HELLMANN

is an assistant professor of strategic management at Stanford University.

<http://faculty-gsb.stanford.edu/hellmann>

In just a few years public opinion of the European venture capital industry has gone from apathy to euphoria to skepticism. Unfortunately, much of the public debate has been based on general impressions and anecdotal evidence, such as the numerous boom-and-bust stories of Internet investments. Behind these volatile perceptions, what are the longer-term facts about European venture capital?

The Survey of European Venture Capital (SEVeCa) is the largest academic study to date about the industry. Its goal is to provide objective data on the state of the European venture capital industry. To that end, data were collected on the activities of European venture capital firms for the period 1998-2001, including information on more than 1,300 investment companies, more than 400 venture capital partners, and more than 150 venture capital funds. The main data collection for SEVeCa consisted of a survey sent to all registered European venture capital firms. The data were augmented with publicly available sources (e.g., web pages) and numerous direct inquiries at the venture capital firms. The overall response rate of 15% may be considered quite high for this type of research.

The main findings from the research project are that the European venture capital industry is much more integrated than previously believed. It also has significant links to the U.S., and is increasingly emulating U.S. investment practices. However, some aspects remain distinctively European, such as the

prominence of banks and corporations as investors. In addition, further removing barriers to cross-country investments could provide an important boost to the industry.

It is often believed that European venture capitalists are purely local investors who do not venture beyond their country borders. The SEVeCa study disproves this belief, showing that the European venture capital market is surprisingly integrated. First, 27% of all venture firms in our sample have a secondary office in a foreign country. Second, 25% of all venture capital firms have partners that come from a foreign country. Third, 24% of investments are made in foreign companies. The fraction of deals with foreign investors is particularly high in industries such as in financial services (42%), media and entertainment (34%), and telecommunications (31%).

The U.S. is by far the most popular destination for foreign investments, accounting for almost a third of all foreign deals. There are multiple additional links between the European and U.S. venture capital markets. For example, as many as 34% of all European venture capitalists had some work experience in the U.S.

A unique feature of the SEVeCa research project was to examine the human capital basis of the European venture capital firms. By linking data on investment deals to the partners who are in charge, the study documents the interrelationships between human capital and investment styles. For example, the data show

that partners with advanced degrees (master's or doctoral level) are more likely to make early-stage deals and sit on the board of directors. Level of professional experience prior to entering the field is important as well: Almost all venture capitalists who sit on the board have prior experience in finance, and three out of four also have a science education.

Compared with their U.S. colleagues, European venture capitalists have the reputation of being conservative and non-interfering ("hands-off"). The SEVeCa data, however, point to the presence of an increasing variety of investment styles across the continent. Sixty percent of all deals are seed- or early-stage investments, indicating a healthy level of risk tolerance. In terms of getting involved with their companies, 68% of venture capitalists sit on the board of directors, 69% monitor their company on a monthly or weekly basis, and 42% help to recruit key managers for their investment companies. The industry is also undergoing changes—whereas older venture capital firms tend to have more conservative investment styles, new entrants tend to be more risk-tolerant and to get more involved. The data show that new entrant firms invest more at the seed stage and that they monitor their investments more closely. Interestingly, partners in new entrant firms are no younger than those in the old guard firms (the average age of a European venture capitalist is 42 years); this suggests that they have more prior professional experience. Partners in new entrant firms are also more likely to have a business education and a master's degree. All of these characteristics help to explain why the new entrant firms adopt investment styles that more closely resemble those of U.S. venture capital firms.

A unique feature of the European market is that a significant number of venture capital firms are owned and managed by banks and corporations. Prior research has shown that in addition to financial goals, such venture capital firms may also have strategic objectives. The SEVeCa data suggest that in Europe, corporate venture capital firms invest more in early-stage companies. Partners in these firms have relatively less venture capital experience, although they are more likely to have master's degrees and/or a science education. By contrast, partners in bank-owned venture capital firms are more likely to have a business education. Most strikingly, bank venture capital firms also invest much less in early-stage deals and are less likely to frequently monitor their firms or to sit on the board of directors.

The SEVeCa study generates many important and novel policy implications. Our first and most important

finding is that human capital is a key driver of the investment activities of venture capital firms. Improving the availability of postgraduate education, including executive education or other professional training, is likely to have a very positive effect on the level of professionalism in the industry. Second, the extent of cross-country activity within Europe—and across the Atlantic—shows promising signs of an integrating market. European venture capitalists clearly consider it important to be able to invest outside of their own country. Simplifications of tax rules and cross-border investment regulations are likely to have a strong beneficial impact on the integration of the European venture capital industry. Third, we document a wide variety of behavior by different types of venture firms. It is very important that healthy competition among these different approaches to venture financing be encouraged. Measures which reduce bureaucratic red tape or which increase limited partners' ability to invest in all types of venture firms, as well as across borders, are likely to serve this purpose.

## 1. AN OVERVIEW OF EUROPEAN VENTURE CAPITAL

### 1.1 The SEVeCa Survey

We sent a questionnaire to 780 venture capital firms in the 15 EU countries, Switzerland, and Norway. We contacted only those venture firms that in 2001 1) were members of the European Venture Capital Association (EVCA) or of a national venture capital organization, 2) were actively engaged in venture capital, and 3) were still in operation in 2002. We thus deliberately excluded pure MBO firms. The overall response rate was over 15%.

We received 118 responses with various degrees of completeness. We then spent considerable time augmenting the data with information from a variety of sources, such as the websites of the respondents and commercially available databases like Amadeus or Zephyr. We also contacted all venture firms that had sent us incomplete answers, and managed to complete them in many cases. Overall, we obtained information on more than 150 funds, 480 general partners, 600 limited partners (investors), and 1,300 portfolio companies. This information is relative to funds raised and investments made between January 1998 and December 2001, and to the partners active at the end of that year.

One point worth stressing is the type of venture firm we look at. What exactly constitutes a venture capital

firm? This can be a source of some confusion. Traditionally, the industry is split into two distinct segments. The “pure venture” segment consists of private equity investments in young companies in high-growth industries that require money to pursue their initial growth targets. Within this segment, a distinction is often made between early- and late-stage investments. The second major segment is the “LBO/MBO” segment, which consists of private equity investments in established companies that operate in mature industries and require money to solve capital structure problems and/or to pursue additional growth targets. For our research, we wanted to focus on the pure venture capital segment. We therefore considered only firms that operate in that segment. However, venture capital firms can be active in both of these segments, sometimes using separate funds, other times using the same fund to invest in both segments. We thus included both pure venture firms as well as firms which operate in both the venture and the LBO/MBO segments, and excluded those which operate solely in LBOs and MBOs.

Exhibit 1 details how funds were invested by showing what percentage of each fund was invested in the pure venture segment. It is clear that LBO/MBO activity is relatively unimportant for our venture capital firms. Our study is thus truly focused on the pure venture segment.

A second important point to note is that our sample

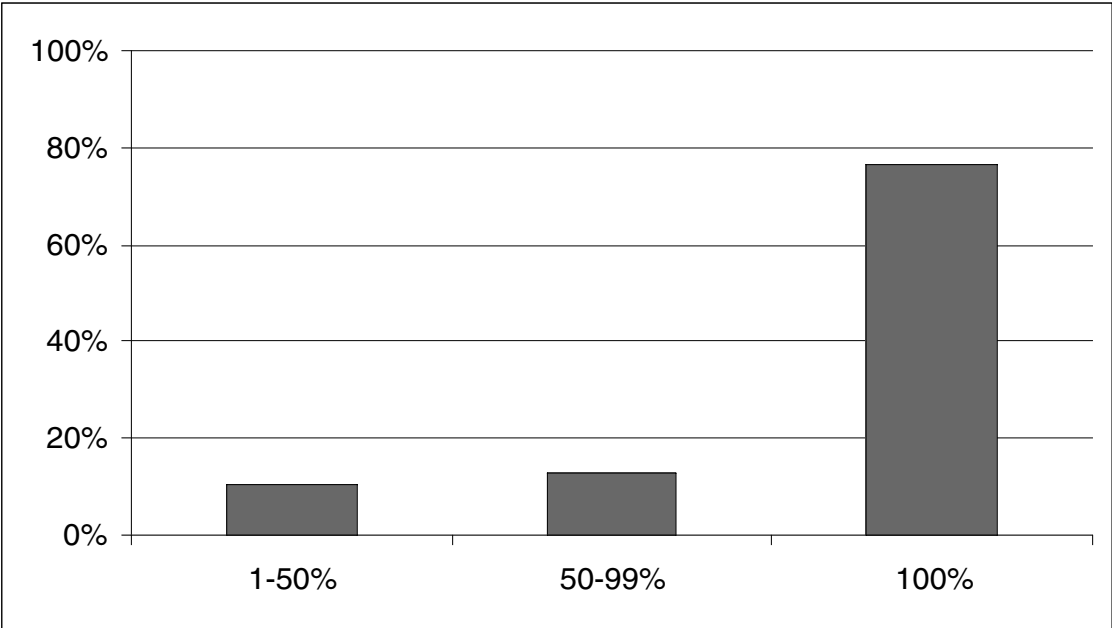
is quite representative of the entire population of European venture firms. Population statistics are collected from EVCA and national directories, and from the websites of individual venture firms. Exhibit 2 shows that respondents were fairly evenly distributed among countries, with most national response rates close to the overall rate of 15%.

**1.2 What Is the Structure of European Venture Capital Firms?**

That our sample is well representative of the overall European venture capital industry can be inferred also by its sector composition. For instance, Exhibit 3 shows the age distribution of our sample and that of the overall population. The European venture capital industry is still a young industry, having experienced its first boom in the late 1990s. As a consequence, we find that many of our venture capital firms are rather young. The median year of foundation is 1998 for the overall population and 1999 for our sample. In Section 2.2 we will return to the question of whether these new entrants are in some way different from the “old guard” of European venture capitalists.

How big are these venture capital funds? We examine the number of funds raised between 1998 and 2001 in Exhibit 4, Panel A. We see that fundraising accelerated until 2001 and then decelerated, in a way

**EXHIBIT 1**  
**Percentage of Funds Invested in Pure Venture Capital**



## EXHIBIT 2

### Survey Response Rate, by Country

	<i>Response rate</i>
Austria	35%
Belgium	13%
Denmark	14%
Finland	17%
France	14%
Germany	10%
Greece	25%
Ireland	20%
Italy	19%
Luxembourg	100%
Netherlands	9%
Norway	5%
Portugal	20%
Spain	25%
Sweden	35%
Switzerland	13%
United Kingdom	13%
<i>Total</i>	<i>15%</i>

similar to that reported by statistics published by EVCA for Europe as a whole. To compare our sample to the population we also collected information on the amount of funds under management from all the venture firms we contacted. We see in Exhibit 4, Panel B, that our sample is composed of venture firms with an amount of funds under management slightly smaller than that for the population as a whole, whether we look at average or median values. For example, the typical firm in our sample manages €57 million euros as compared to the €71 million managed by the typical firm in the population. The population also has a much larger variance in terms of size than the sample.

Another way to look at firm size is to consider the number of partners. Exhibit 5 shows the distribution of partners in the sample and in the population. There are considerable differences in the number of partners across firms. Most venture capital firms are rather small, employing five partners or less. A few firms, however, are considerably larger, reaching as many as 40 partners. These features of our sample resemble those of the population as a whole. In fact, the median number of partners is four for both the sample and the population.

Obviously these partners are supported by associates

and other staff. Indeed, for each partner, the typical venture capital firm employs an additional 1.5 people, very close to the two people of the population as a whole. However, our data indicate that there are large differences in the number of additional employees per partner. Exhibit 6 shows the variation in the number of employees per partner, which ranges from 0 to 18.5.

Who owns these venture capital firms? We find that, similar to the U.S., private independent venture capital firms dominate the industry. Exhibit 7 shows that they account for 70% of our sample. Banks are the second most important category with 15%, and corporations account for 11%. Public venture capital firms account for less than 4%. We will explore the significance of ownership in Section 2.3 below. The exhibit also shows that our sample closely tracks the ownership composition of the overall population, the only exception being a low share of public funds.

### 1.3 Who Invests into European Venture Capital?

Naturally, venture capitalists have to raise funds from some investors. Over the period 1998–2001, the average venture capital firm raised 1.3 funds. We look into the types of investor which supply these funds. Exhibit 8 provides a detailed breakdown of these investors. The exhibit shows the average percentage of funds held by six investor types, and the percentage of funds that have at least one investor of each type. Bank and institutional investors

## EXHIBIT 3

### Sample and Population Composition, by Age

Venture firm foundation year	Sample	Population
up to 1990	10%	27%
1990	3%	2%
1991	0%	2%
1992	3%	3%
1993	0%	2%
1994	4%	4%
1995	1%	3%
1996	6%	4%
1997	7%	8%
1998	15%	11%
1999	21%	16%
2000	22%	12%
2001	8%	6%

**EXHIBIT 4**  
**Funds Raised and Under Management**

<b>Panel A</b>		
Number of funds raised		
up to 1997		10
1998		21
1999		20
2000		43
2001		44
2002		9
<i>Total</i>		<i>147</i>
<b>Panel B</b>		
Amount under management (millions of euros)		
	Sample	Population
Average	185	527
Median	57	71
Minimum	2	1
Maximum	4,500	37,000

are the investors which are present in most funds, while corporate venture capitalists invest very selectively. Public investors, who are present in relatively few funds, typically provide a majority of the capital, while corporate investors invest the smallest share. These data thus suggest that different investor types behave quite differently.

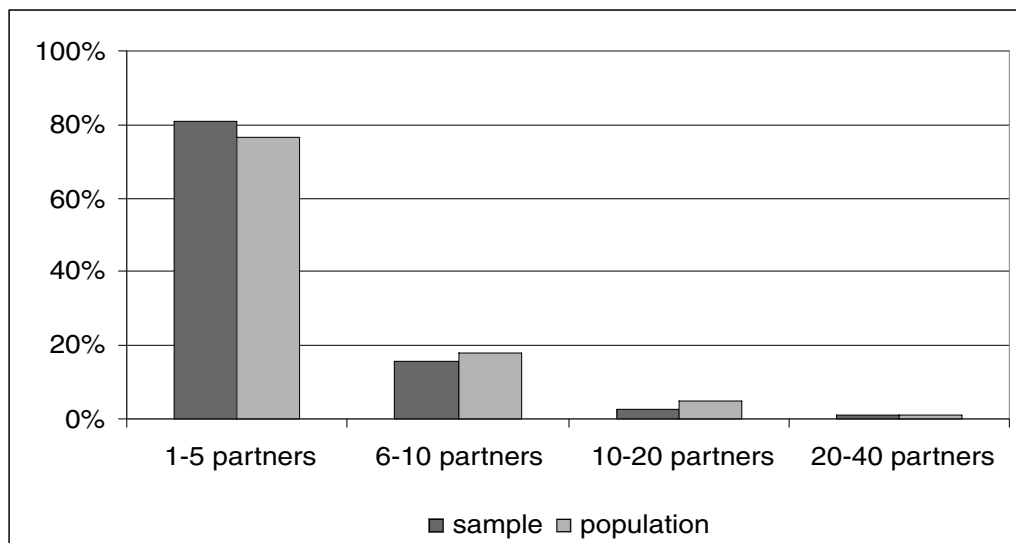
**1.4 Who Manages the Money?**  
**A Profile of European Venture Capitalists**

It is commonly argued that the venture capital business is largely driven by the people who make the investments. Yet, surprisingly little is known about these people and their human capital attributes, such as their educational and professional background or their experience as venture capitalists. Our survey attempts to address this important issue by asking: Who are the European venture capitalists, where do they come from, and what do they do?

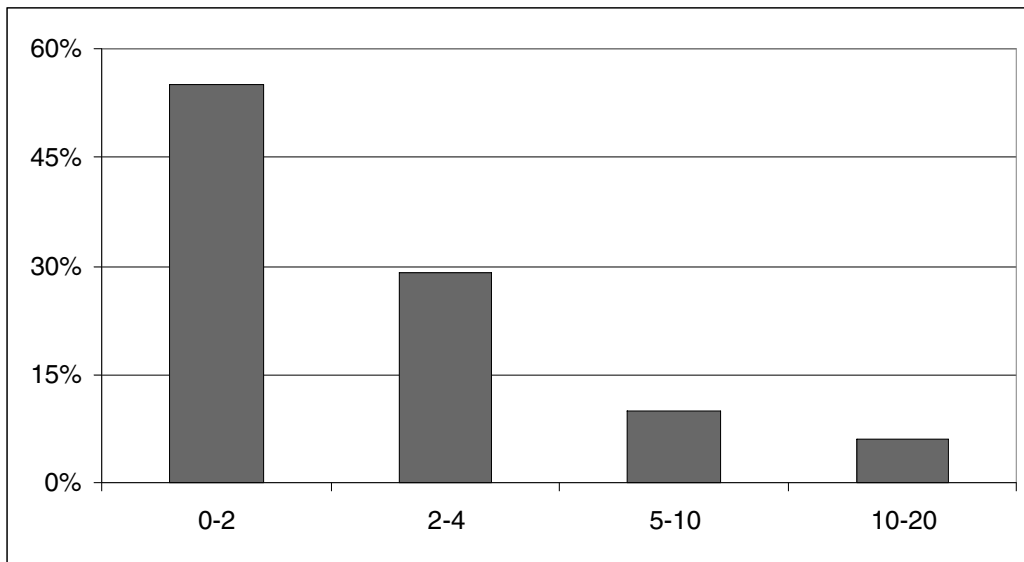
To start with, our survey gathers information on over 480 partners (senior managers for bank, corporate, and public venture firms). As can be seen from Exhibit 9, these partners range widely in age, but most of them are around 40 years old, with an average age of 42 years.

Their average work experience as venture capitalists is seven years, but varies from zero to 32 years, as shown

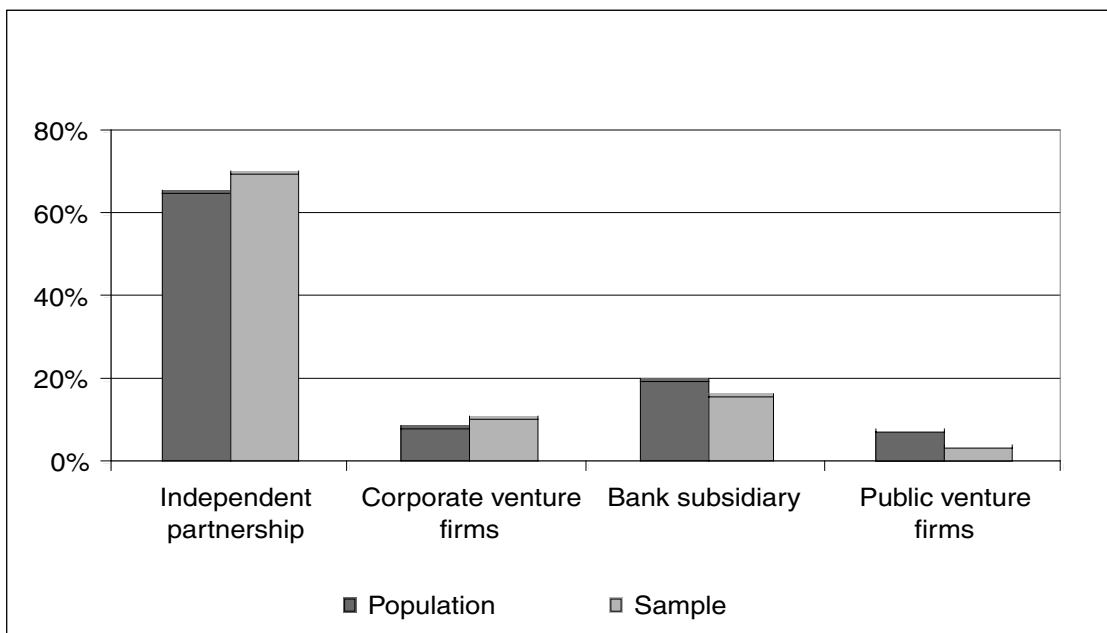
**EXHIBIT 5**  
**Number of Partners per Venture Capital Firm**



**EXHIBIT 6**  
**Number of Employees per Partner**



**EXHIBIT 7**  
**Venture Capital Firm Types**





in Exhibit 10. Interestingly, variation in experience is much more pronounced than variation in age. Another indication of the rapid maturation and growth of the industry is the large share of partners with less than five years of experience.

The fact that nearly half of the partners have less than five years of venturing experience also indicates that many of them must come from other occupations. What kind of prior work experience do these venture capitalists have? From Exhibit 11, we see that nearly half of all partners have professional experience in the financial sector, and about 40% have professional experience in the corporate sector.

Another intriguing finding of our survey concerns the educational achievements of European venture capitalists. These are impressive. Exhibit 12 shows that more than three-quarters of venture capitalists have a graduate degree. A higher business degree is common: About a third have an MBA. Graduate scientific education, while less common, is far from negligible: 11% have a master's in engineering or sciences, and over 16% a Ph.D. Most of the Ph.D.'s are in natural sciences.

Interestingly, even though business education is a relatively recent phenomenon in Europe, Exhibit 13 shows that a vast majority of venture capitalists have some. This

is due in large part to the high number of MBAs. What may come as a surprise is that less than a third have an engineering or science education. However, we have seen that a scientific background is most popular among Ph.D.'s. This suggests that while relatively few in number, partners educated in sciences have a very strong background, and can thus contribute to the effectiveness of investment decisions. In Section 2.4 we will explore

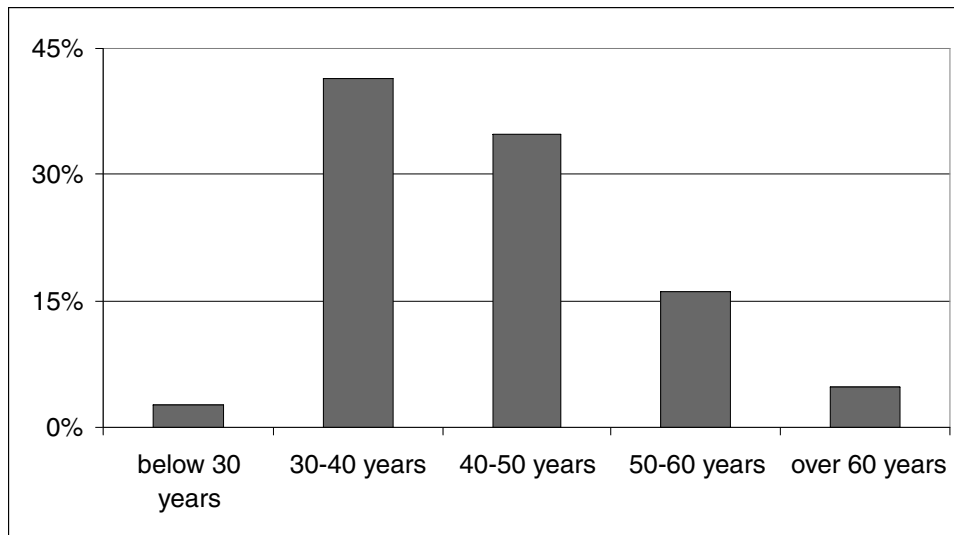
## EXHIBIT 8

### Investor Types

<i>Investor type</i>	<i>Average holding of investor</i>	<i>Percent of funds in which this investor type is present</i>
Bank investors	40%	44%
Corporate investors	25%	23%
Financial investors	30%	31%
Institutional investors	44%	40%
Public investors	53%	28%
Individual investors	45%	24%

## EXHIBIT 9

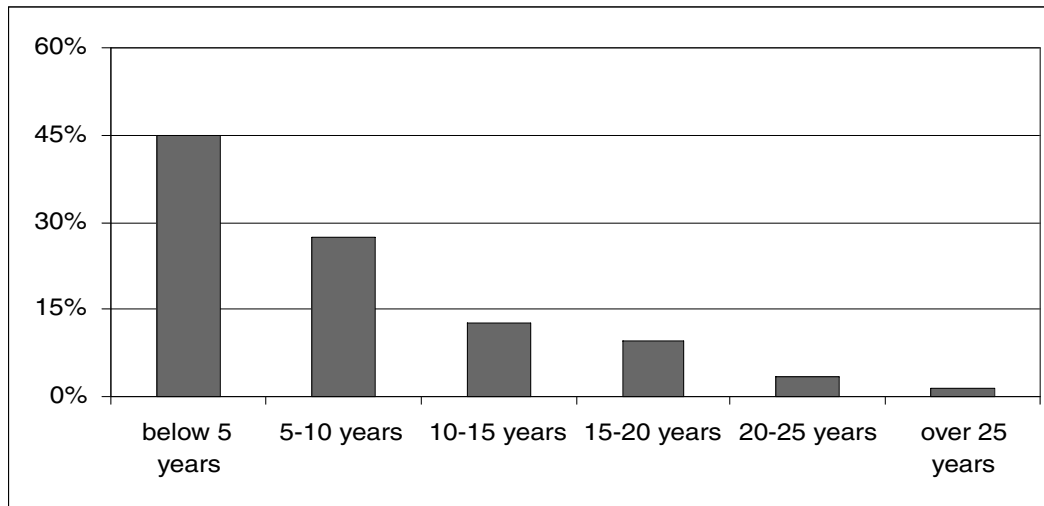
### Age Distribution of European Venture Capitalists





## EXHIBIT 10

### Distribution of Partners' Experience as Venture Capitalists



the effects of work experience and education on investment decisions.

Another interesting dimension to explore is the workload of these partners. How busy are these people? Our data suggest they are indeed very busy. For example, we asked how many business plans our venture capital firms received each year. In Exhibit 14 we calculate, for each year, the number of business plans that each firm received, divided by the number of partners. The data reveal a heavy and increasing workload, with some people having to analyze several hundred business plans a year. An interesting fact we uncover is that the demand for venture finance, far from decreasing after the dot.com crash, has actually increased.

Venture capitalists invest in only a small fraction of the business plans they see, as Exhibit 15 shows. Indeed, our data suggest that, on average, only one business plan per partner is financed each year. Interestingly, while the average number of business plans received per partner has increased over time, the number of those financed remained remarkably stable. In other words, venture firms have become more selective over time.

Overall, our findings uncover very busy venture firms whose partners have a great variety of work experience and a substantial educational background. While educational achievement is surprisingly high, it remains tilted towards financial degrees.

### 1.5 What Companies Do European Venture Capitalists Finance?

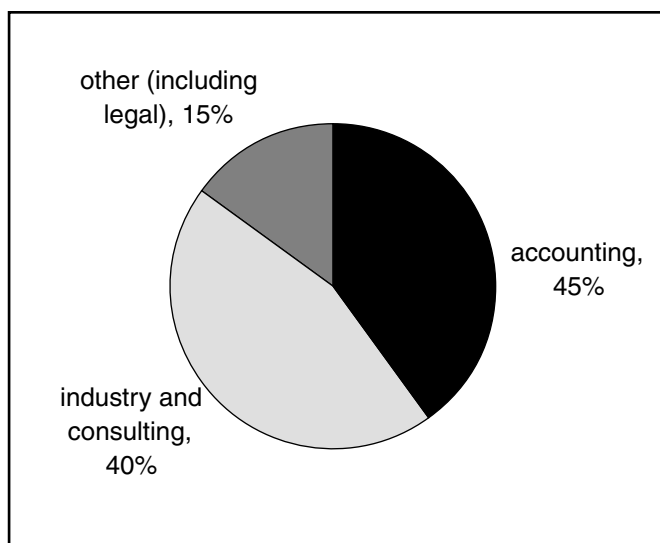
Venture capital is ultimately about the companies that get financed. Our survey covers information on over 1,300 firms financed by European venture capitalists. Exhibit 16 shows the number of companies by country. Not surprisingly, the big three European private equity markets—France, Germany, and the U.K.—show the largest number of firms financed. It is also interesting to note that a fair number of investments are made in the United States, a fact we will return to in Section 2.1.

In terms of industries, Exhibit 17 shows that in addition to the usual suspects of biotechnology and software (which includes Internet), industrial products, medical products, and electronics also rank high among European venture capital investments. We note that software and Internet deals account for about a quarter of all financings. Contrary to a common perception, the European venture capital industry did not invest only in fashionable Internet projects. In fact, the industry is surprisingly well diversified across several high-technology industries.

Venture capital is often disbursed in several rounds, where companies first have to prove themselves before receiving access to further funding. Yet somewhat surprisingly, Exhibit 18 shows that the majority of our sample companies received only a single round of financing over the sample period. This is likely to be due to the

## EXHIBIT 11

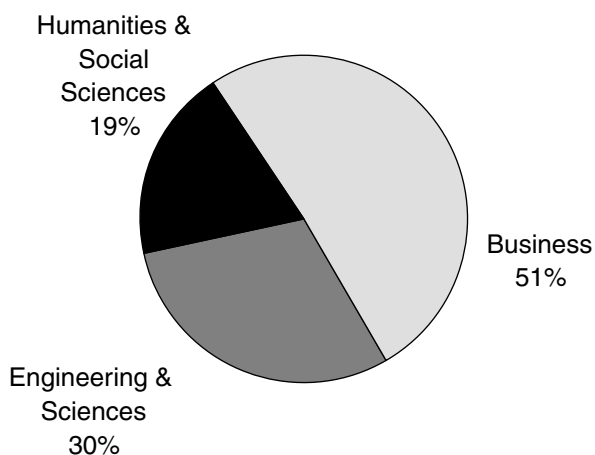
### Distribution of Partners' Professional Background



relatively short time horizon covered in the data. In fact, almost two-thirds of the rounds were disbursed in 2000 and 2001, which suggests many of them may have been followed up by further financing after our sampling ended. But it might also point to a potential difficulty in the market, where companies find it difficult to raise additional funds, especially after the dot.com crash.

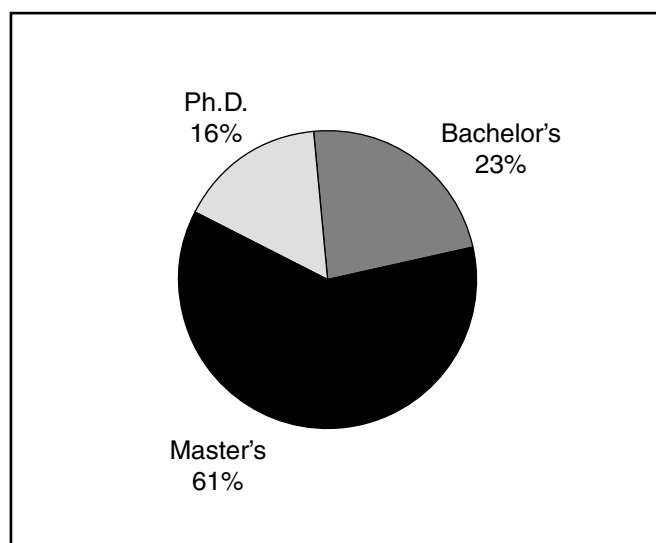
## EXHIBIT 13

### Partners' Educational Background, by Field



## EXHIBIT 12

### Partners' Educational Background, by Degree



We asked venture capitalists for additional information about their first investment round in each company. For example, we asked about the amount of money raised by each company for that round. Exhibit 19 shows a substantial spread between small and large deals, which reflects a wide variety in the financing needs of portfolio companies. It is worth pointing out that many deals involve amounts below €1 million.

Traditionally it has been argued that European venture capital shuns start-ups in favor of already existing firms with a track record. Our evidence suggests that this might no longer be true. In fact, venture financing at early stages, which typically requires relatively small sums, is becoming more common in Europe. Further evidence in support of this interpretation is presented in Exhibit 20, which shows the stage at which the venture capitalists first invested. More than half of the financing rounds were at the seed or start-up stage.

Another myth we can debunk is that European venture capitalists do not know how to cooperate. Instead we find that almost half of all deals are syndicated. In fact, more than 75% of our venture firms took part in a syndicated deal, and about half took on the role of lead at least once.

## EXHIBIT 14

### Number of Business Plans Received, per Partner

	Average	Minimum	Maximum
1998	20	5	300
1999	44	5	750
2000	104	2	1,150
2001	114	4	1,150

## EXHIBIT 15

### Number of Business Plans Financed, per Partner

	Average	Minimum	Maximum
1998	1.0	1	23
1999	1.5	1	19
2000	1.9	1	17
2001	1.4	1	17

## EXHIBIT 16

### Number of Companies Financed, by Country

	Number of Companies
Austria	55
Belgium	25
Denmark	54
Finland	92
France	241
Germany	210
Greece	19
Ireland	24
Italy	54
Luxembourg	6
Netherlands	41
Portugal	22
Spain	67
Sweden	103
Switzerland	32
United Kingdom	138
United States	102
Other	46
<i>Total</i>	<i>1331</i>

## 1.6 How Do European Venture Capitalists Interact with Their Companies?

Venture capital is widely believed to be a unique type of financial intermediary. Research based on U.S. data has shown that venture capital is unique in at least two respects: first, because venture capitalists frequently structure sophisticated financial deals and, second, because they often become actively involved with their portfolio companies, monitoring and supporting them. Does this also apply to the European venture capital market?

Our survey asked some questions that concern the degree of contractual sophistication. For example, we asked what financial instruments were used for financing companies. Given that marked differences exist across countries in legal and tax environments, which may influence the appeal of different financial instruments, we took a broad approach and defined four broad classes of financial instruments: pure debt, convertible debt, pure equity, and preferred equity. Exhibit 21 reports the percentage of deals for which each financial instrument was the main one. It shows that pure equity is the true workhorse of European venture capital.

By looking only at the *main* financial instrument used to finance a company, we somewhat understate the actual use of alternative, more sophisticated, financial instruments. In Exhibit 22 we then look at whether *any* of these financial instruments were used. The picture is now different: European venture capitalists are certainly no strangers to more sophisticated contracts, such as preferred equity or convertible debt.

Further probing the sophistication of contracts, we asked venture capitalists whether they used contingent clauses in their contracts. A contingent clause specifies the circumstances under which a venture capitalist can take certain actions, such as liquidating the company, taking control of the board, or firing the CEO. Exhibit 23 reports the incidence of these contingent control clauses. The right to force a trade sale—that is to sell a portfolio company to an industrial company—is used in more than half of the cases. Other contingent clauses are less common, but they are typically used in at least a third of the deals. Our data reveal two facts which reflect the sophistication of these contracts. First, each deal entails on average the use of more than two contingent clauses, and, second, more than two-thirds of the deals make use of at least one contingent clause.

In addition to crafting financial deals, venture capitalists can play an important role in terms of monitoring

and supporting their companies. As can be seen from Exhibit 24, more than a third of venture capitalists state that they visit their portfolio companies at least monthly, reflecting an active attitude regarding the management (of portfolio companies). Moreover, venture capitalists can monitor their companies by taking a board seat, thus contributing directly to honing strategies; we find this to be the case for 66% of our companies.

Venture capitalists can also play an important role by helping a company to recruit board directors and senior managers. Exhibits 25 and 26 examine the input of venture capitalists into a variety of specific recruitment challenges. Interestingly, these percentages are much lower than the level of board participation. This suggests that many European venture capitalists play a role in monitoring their companies, but prefer not to intervene in the details of building executive teams. Interestingly, when they do they focus mostly on the appointment of CEOs and CFOs rather than that of more technical figures like head of R&D or vice president for marketing. Moreover, help in the recruiting of management is more frequent than help in hiring other board members.

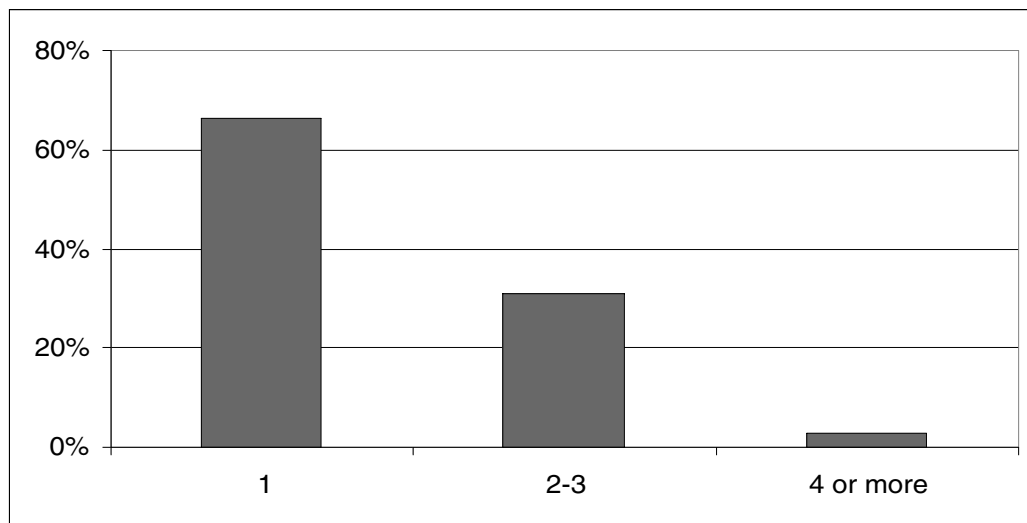
Another interesting question regards the extent of networking within the portfolio of companies of the venture capitalist. This is sometimes referred to as a “Keiretsu” effect. It reflects another way in which venture capitalists can support their companies: by putting them in contact

with potential clients and suppliers. We find that less than 5% of all firms have a supplier or client from among the portfolio companies of their respective venture capitalist. However, this need not be considered low, as recent research on U.S. data reveals similar low incidences of Keiretsu effects. Moreover, the number of venture firms which provide this type of support is far from trivial, totaling about a third of the sample.

**EXHIBIT 17**  
**Number of Companies Financed,  
 by Industry**

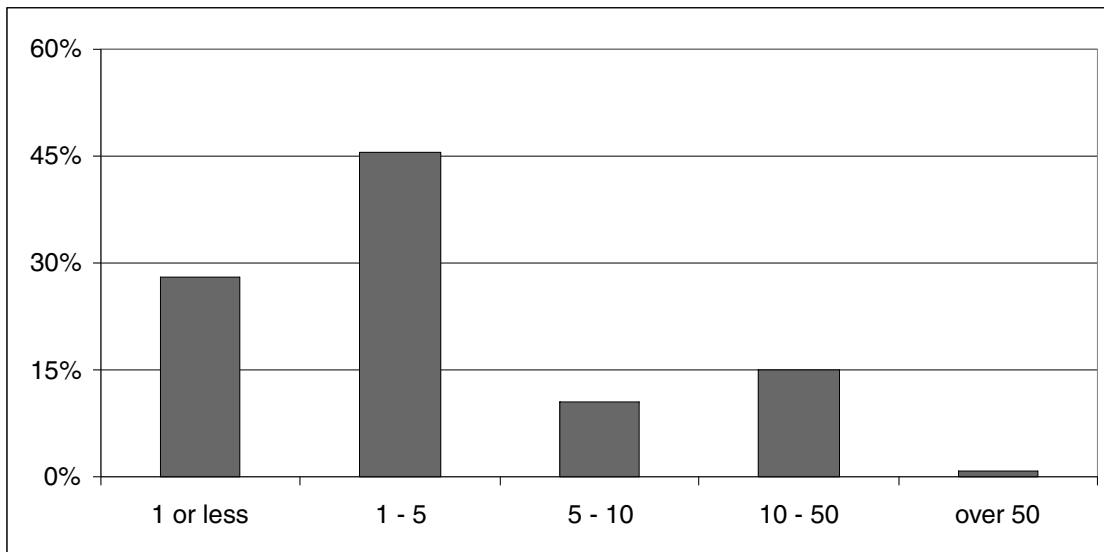
	<i>Number of Companies</i>
Biotech and pharmaceuticals	182
Medical products	103
Software and Internet	397
Media and entertainment	59
Food and consumer goods	52
Industrial services	64
Telecom	85
Industrial products	152
Consumer services	35
Financial services	26
Electronics	94
Other	82
<i>Total</i>	<i>1331</i>

**EXHIBIT 18**  
**Number of Financing Rounds per Company**



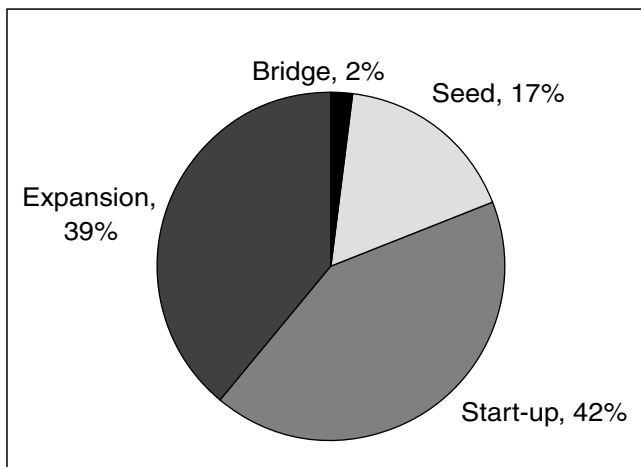
## EXHIBIT 19

Venture Deals, by Amount of Financing (in millions of current euros)



## EXHIBIT 20

Venture Deals, by Stage



A final question concerns the way venture capital firms choose their investments. We asked respondents which were the three most important investment criteria that guide their investment decisions. Exhibit 27 reports the results. Interestingly, most European venture capital firms believe that a good management team is a key criterion. Market size, technology, and valuation were also widely cited as key investment criteria. Past performance, strategy, and the availability of exit options were of lesser

concern. These figures suggest that European venture capitalists are more interested in the long-term value-creation potential of companies than in the possibility to make short-term financial returns. Overall, we thus find European venture capital firms to be increasingly sophisticated and willing to actively support their firms.

One important limitation of the study is the absence of any performance data. In order to secure a high response level the researchers made a conscious choice not to ask about the data that venture capital firms consider most proprietary, namely the rates of return on their investments.

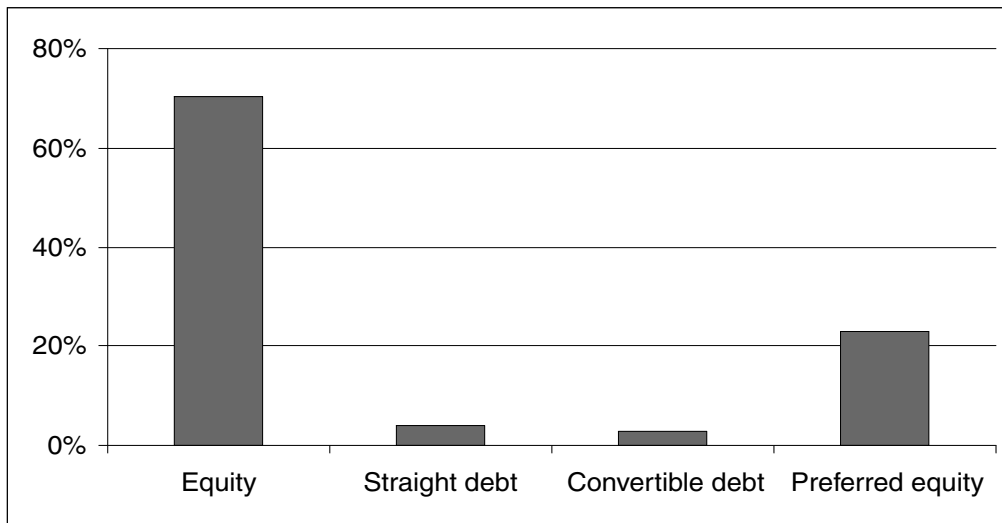
### 2. AN ANALYSIS OF EUROPEAN VENTURE CAPITAL

#### 2.1 How Integrated Is the European Venture Capital Industry?

Is the European venture capital market a collection of segmented national markets? Or is there a lot of integration both within Europe and across the Atlantic with the U.S. and Canada? As the European venture capital industry matures and the option of venture financing becomes increasingly attractive to innovative companies, these questions are of growing importance both to practitioners and policymakers who want to foster the growth of the industry. Our data clearly suggest that there is considerable integration within Europe and across the

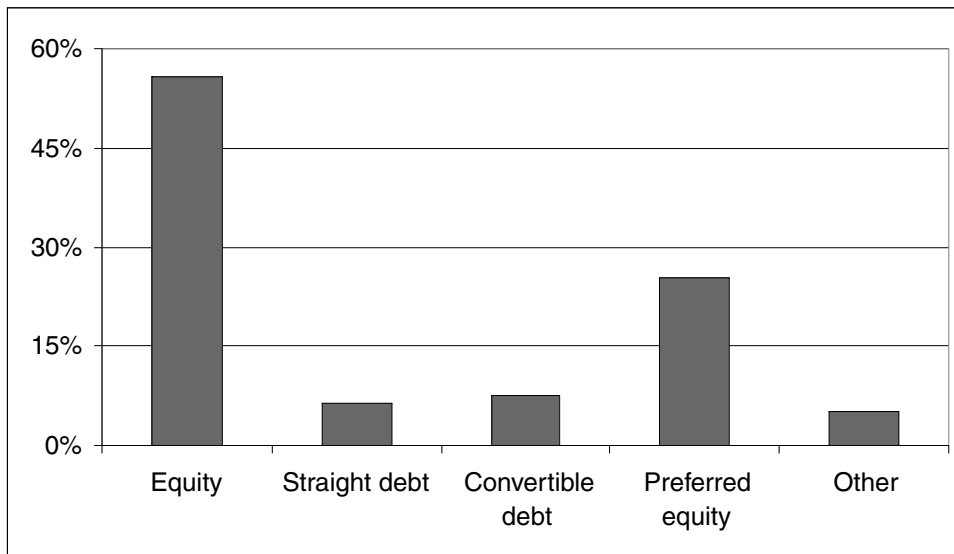
## EXHIBIT 21

### Main Financial Instrument Used in Venture Deals



## EXHIBIT 22

### Financial Instruments Used in Venture Deals



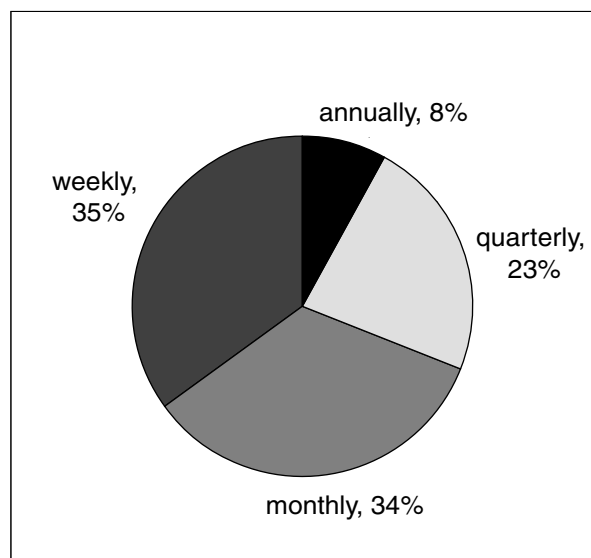
## EXHIBIT 23

### Frequency of Contingent Control Clauses

<i>Contingent control clauses</i>	
Rights to profits	43%
Voting rights	33%
Venture capitalists' right to board control	36%
Liquidation rights	33%
Right to force a co-sale agreement	54%
Right to fire CEO	31%
Right to refuse additional financing	26%

## EXHIBIT 24

### Monitoring Frequency



Atlantic. We note such integration at three distinct levels.

First, we note that a significant number of venture capital firms have secondary offices. Exhibit 28 shows the number of venture capital firms with secondary offices. We find that one out of four opened a secondary office, most of them in France and in the U.K. It also shows the countries where these are located. The single most popular destination for the secondary office is the U.S. Within Europe, the Netherlands and Germany registered the most secondary offices.

Second, we find a considerable amount of cross-border integration at the partnership level. Overall, nearly a quarter of all partners come from another country. Exhibit 29 shows the distribution of foreign partners by country of origin. Finland, France, Germany, and the U.K. are the largest providers of venture partners, suggest-

ing that the largest markets for venture capital are “exporting” venture expertise.

Naturally, the U.S. also has a big influence on the European venture capital market. We find that only 8% of all European venture capitalists are originally from the U.S. Interestingly, 34% of all European partners have some work experience in the U.S. The number of partners with specific experience in practicing venture capital in the U.S. is lower, at about 7%.

Third, we find a surprisingly high level of cross-border investments. We found 314 foreign venture deals in our survey, which constitutes nearly a quarter of our sample investments. Exhibit 30 shows the percentages of foreign investment by origination countries. We see that the most active cross-border investors are Germany, Switzerland, and the U.K. It also shows the destination countries, showing that the U.S. attracts by far the most investments from abroad. Within Europe, the U.K. and France attracted the most foreign investments.

We also examine which sectors show the highest level of integration. Exhibit 31 shows the percentage of cross-border deals across the different industry segments. We see that high-tech industries obtain a somewhat higher share than other sectors. The integration of the venture capital industry thus appears to be proceeding fastest for high-technology sectors.

Overall, our data show a surprisingly high integration of the European venture capital industry at all levels. This changes the common perception that venture capital is a purely local business and that European venture capitalists limit themselves to investing in the domestic economy.

### 2.2 Are the New Venture Capital Funds Different from the Older Ones?

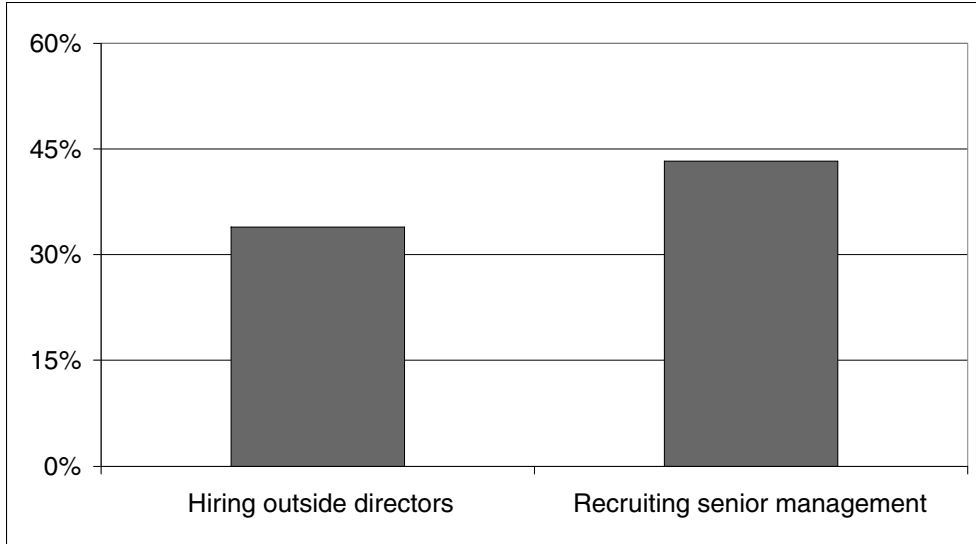
We noted before that at the end of the 1990s there was a wave of new entrants into the venture capital industry. An important question relates to whether these new entrants are any different from the “old guard.” One might conjecture that partners in the new firms are younger. A lot has been said about the young age of many of the dot.com entrepreneurs. Is this also true for the new venture capitalists? Our data suggest not. The average partner age in the new entrant venture firms (i.e., those opened after 1997) was 42, which is just below the average age of 43 in older firms.

But even though partners of new entrants are not younger, they are still different. For example, consider their educational backgrounds. Exhibit 32 compares



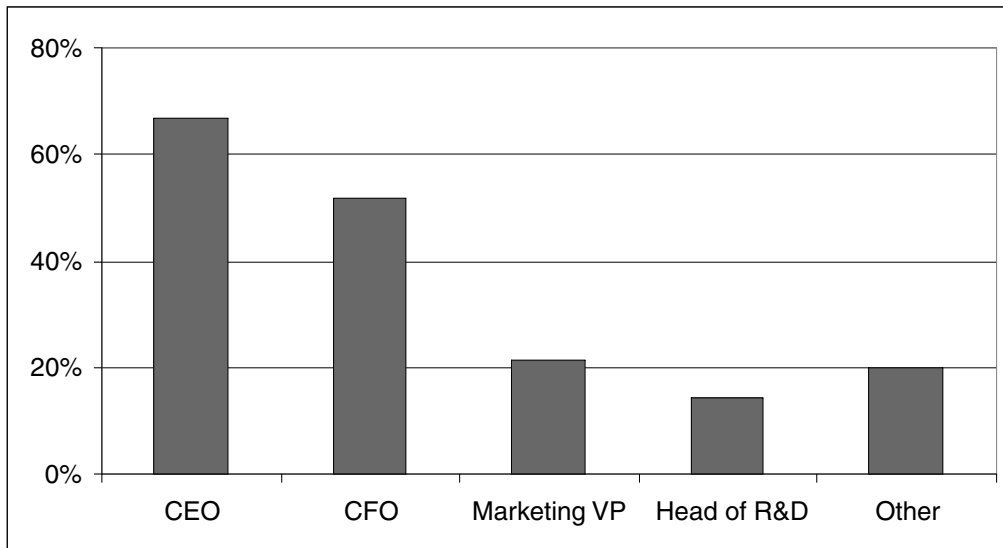
## EXHIBIT 25

Venture Capitalists' Contribution to Building Managerial Teams (Frequency)

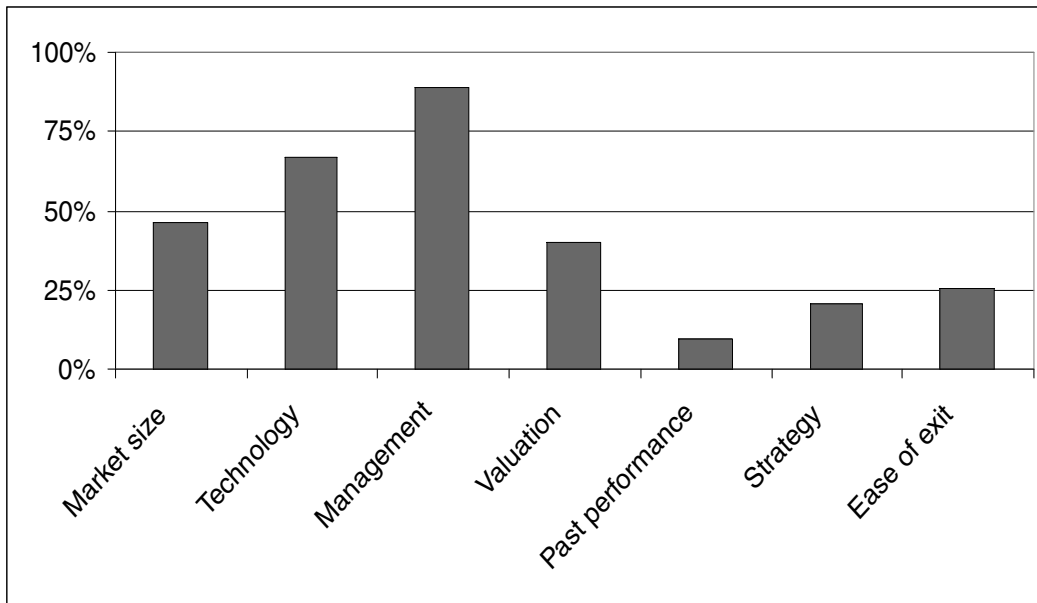


## EXHIBIT 26

Venture Capitalists' Contribution to Recruiting for Key Managerial Posts (Frequency)



**EXHIBIT 27**  
Investment Criteria



**EXHIBIT 28**  
Locations of Foreign Offices

	Number of domestic firms with foreign office	Number of offices of foreign venture firms
Austria	2	0
Belgium	0	1
Denmark	1	1
Finland	4	0
France	5	0
Germany	4	2
Greece	0	0
Ireland	0	0
Italy	1	1
Luxembourg	1	0
Netherlands	2	3
Norway	0	0
Portugal	0	0
Spain	1	1
Sweden	1	1
Switzerland	4	1
United Kingdom	6	0
United States	N/A	6
Other	N/A	5
Unknown	N/A	10
<b>Total</b>	<b>32</b>	<b>32</b>

**EXHIBIT 29**  
Foreign Partners

Austria	7%
Belgium	2%
Denmark	3%
Finland	10%
France	11%
Germany	12%
Greece	2%
Ireland	1%
Italy	5%

Luxembourg	1%
Netherlands	1%
Norway	1%
Portugal	1%
Spain	3%
Sweden	4%
Switzerland	9%
United Kingdom	10%
United States	8%

## EXHIBIT 30

### Percentage of Foreign Investments, by Originating Country

	Percentage of foreign investment, by origination country	Percentage of foreign investment, by destination country
Austria	0.80%	0.10%
Belgium	1.40%	0.50%
Denmark	1.00%	0.30%
Finland	1.40%	0.30%
France	2.10%	2.00%
Germany	5.80%	1.50%
Greece	0.00%	0.00%
Ireland	0.00%	0.50%
Italy	1.10%	1.50%
Luxembourg	1.10%	0.20%
Netherlands	1.40%	0.80%
Norway	0.00%	0.50%
Portugal	0.00%	0.10%
Spain	0.30%	0.20%
Sweden	0.30%	1.30%
Switzerland	4.30%	1.70%
United Kingdom	2.80%	2.00%
United States	NA	7.70%
Other	NA	2.60%
<i>Total percentage of foreign investments</i>	<i>23.60%</i>	<i>23.60%</i>

## EXHIBIT 31

### Percentage of Foreign Investments, by Industry

Biotech and pharmaceuticals	24%
Medical products	28%
Software and Internet	27%
Media and entertainment	34%
Food and consumer goods	17%
Industrial services	13%
Telecom	31%
Industrial products	11%
Consumer services	22%
Financial services	42%
Electronics	31%
Other	13%
<i>Total foreign investments</i>	<i>24%</i>

educational levels among the two types of firms; Exhibit 33 shows their fields of education. The new entrants show a higher proportion of master's degrees and greater emphasis on a business education. Also, the overall educational achievement of new entrants is higher compared to the old guard.

Analysis of professional backgrounds reveals milder differences. Exhibit 34 shows that partners in the younger firms tend to have only slightly more of a consulting, and less of a finance, background than their older incumbent colleagues.

An intriguing result of our study is that not only were new entrants different, they also specialized in different sectors. Exhibit 35 shows that the new entrants emphasized software and Internet deals. Both partners' backgrounds and investment patterns are consistent with the notion that the venture capital boom of the late nineties was largely driven by business opportunities (in particular the Internet), rather than more technological opportunities. Note, however, that the difference with the old guard is not enormous, mainly because the old guard itself invested heavily in that sector. The biggest differences between the new entrants and the old guard are thus in the entertainment and media sector. Interestingly, where the old guard remains strongest are the biotechnology and medical sectors.

Another interesting fact revealed by our data is that the new entrants focused much more on investing in early-stage companies, especially at the seed stage, as shown in Exhibit 36.

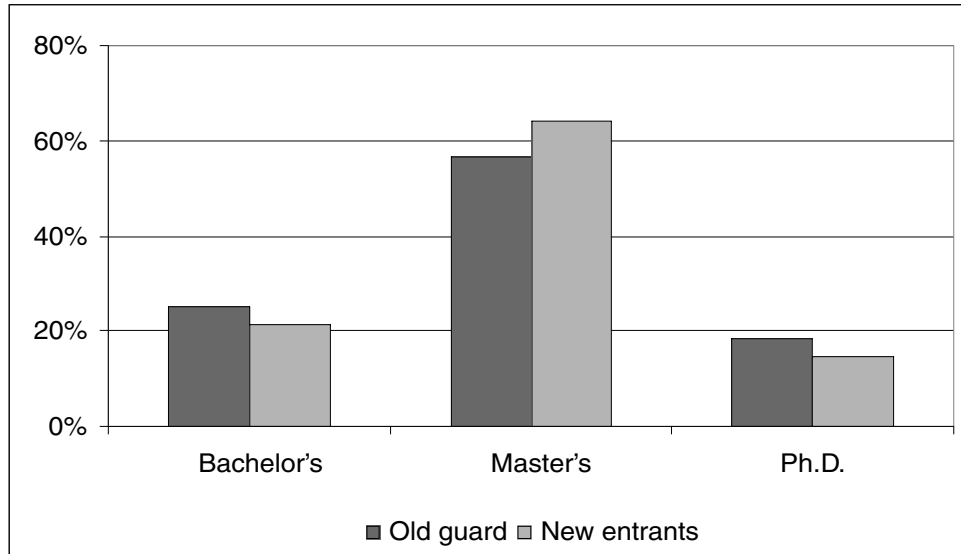
Finally, we note that the new entrants tend to be more closely involved with their companies, in terms of a higher monitoring intensity. Exhibit 37 confirms that new entrants are 10% more likely to monitor their companies intensively.

Overall we see that there is a marked difference between the old guard and the new entrants. The new entrants have adopted an investment style that by and large can be characterized as more risk-tolerant and more hands-on than the older generation of European venture capital firms.

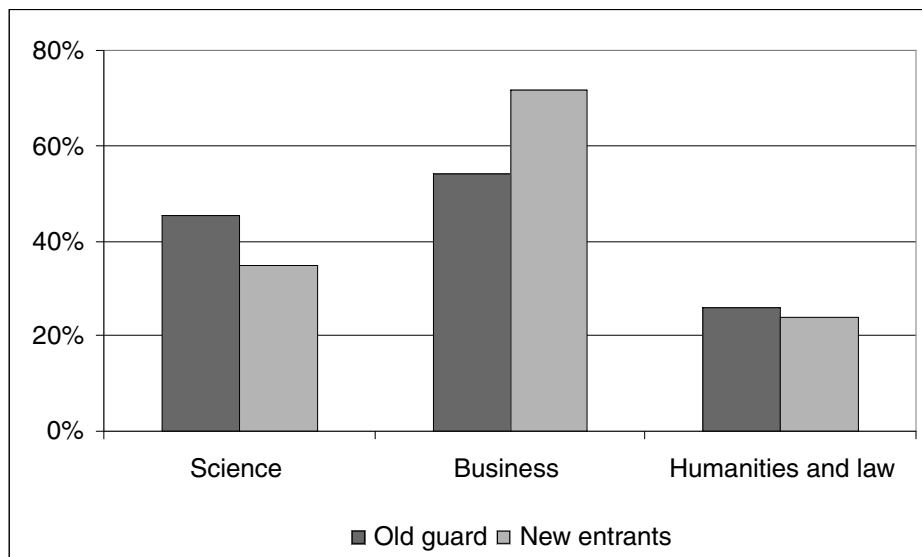
### 2.3 Do Different Types of Venture Capital Firms Behave Differently?

Does it matter who owns the venture capital firm? For this, we consider whether independent, bank, public, and corporate venture capital firms behave differently. There is a debate about whether we should expect each

**EXHIBIT 32**  
**Partners' Educational Levels,**  
**by Cohort of Venture Firms**

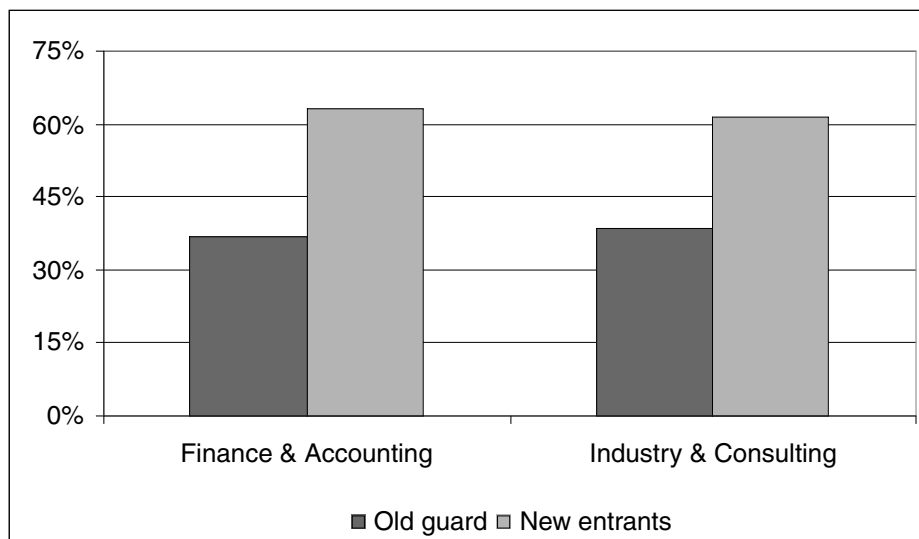


**EXHIBIT 33**  
**Partners' Educational Background,**  
**by Cohort of Venture Firms**



## EXHIBIT 34

### Partners' Working Experience, by Cohort of Venture Firms



## EXHIBIT 35

### Investments by Industry and by Cohort of Venture Firms

	<i>Old guard</i>	<i>New entrants</i>
Biotech and pharmaceuticals	20%	9%
Medical products	10%	6%
Software and Internet	27%	32%
Media and entertainment	1%	7%
Food and consumer goods	4%	4%
Industrial services	3%	6%
Telecom	5%	7%
Industrial products	15%	9%
Consumer services	2%	3%
Financial services	1%	2%
Electronics	6%	8%
Other	5%	6%
<b>Total</b>	<b>100%</b>	<b>100%</b>

of these firm types to invest differently. For instance, one may ask whether banks are well positioned to take a leadership role in the origination of early-stage venture deals, or whether a strategic motivation precludes corporate investors from investing in lower-technology companies. To shed some light on the respective roles and styles of the different types of venture capital firms, we let the data speak.

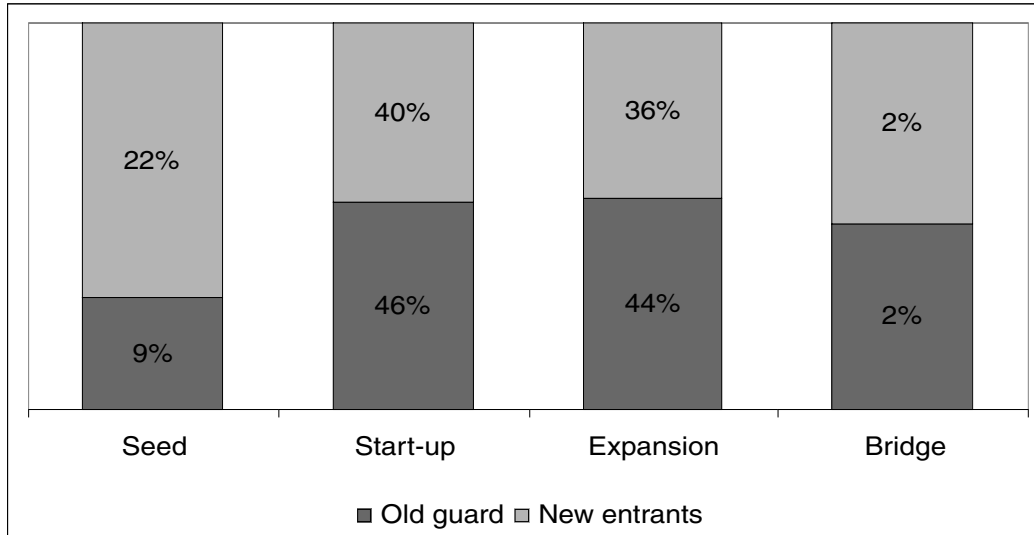
First we reconsider the age and experience of partners across the four different types of venture firms. Exhibit 38 shows that, while their ages are quite similar, independent venture capitalists have twice as much experience as corporate or public venture capitalists do.

What about educational background? There are differences across venture capital types. Exhibit 39 shows that the percentage of partners with a master's degree is particularly high among corporate venture capitalists, who also have the highest percentage of partners with a graduate degree. Public venture capitalists show a distinctly lower average educational achievement.

Moreover, different types of venture capital firms hire partners with different educational backgrounds. Exhibit 40 shows that independent and corporate venture capitalists are similar in this respect, as they have a

## EXHIBIT 36

### Investment Stages, by Cohort of Venture Firms



## EXHIBIT 37

### Monitoring Frequency, by Cohort of Venture Firms

	<i>Old guard</i>	<i>New entrants</i>
High intensity	45%	55%
Low intensity	55%	45%

## EXHIBIT 38

### Partners' Average Age and Experience, by Type of Venture Firm, in Years

	<i>Age</i>	<i>Experience</i>
Independent venture firms	43	8
Corporate venture firms	41	4
Bank subsidiaries	40	7
Public venture firms	42	4

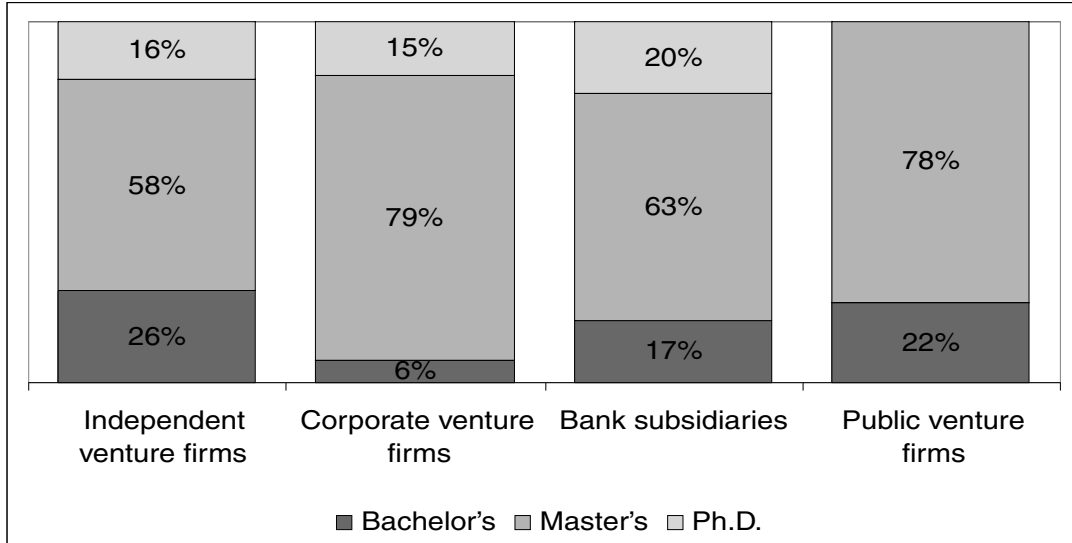
relative preference for people with an engineering or science education. By contrast, bank venture capitalists show a particularly strong preference for people with a business education, and public venture capitalists for those with a humanities or social sciences preparation. Strikingly, no partner of a public venture capital firm has a science background.

Not only do different types of venture capital firms hire different kinds of partners, they also make different types of investments. Exhibit 41 shows the market share of the four types of venture capital firms in the various industries. We see that public venture capitalists stayed away from software and Internet investments. Unlike other venture firms, they also concentrated most of their investments in industrial products, biotech, and media. They were therefore much less diversified, as a category, than the others. Interestingly, corporate investors chose to stick to their industrial expertise, contributing a large share of investments in medical products and industrial services, while investing relatively little in software and Internet and media. Bank-backed venture firms were the most aggressive investors in Internet deals, as well as in industrial products.

Different types of venture capital firms also emphasize different stages of investment. Exhibit 42 shows that independent and corporate venture capitalists are

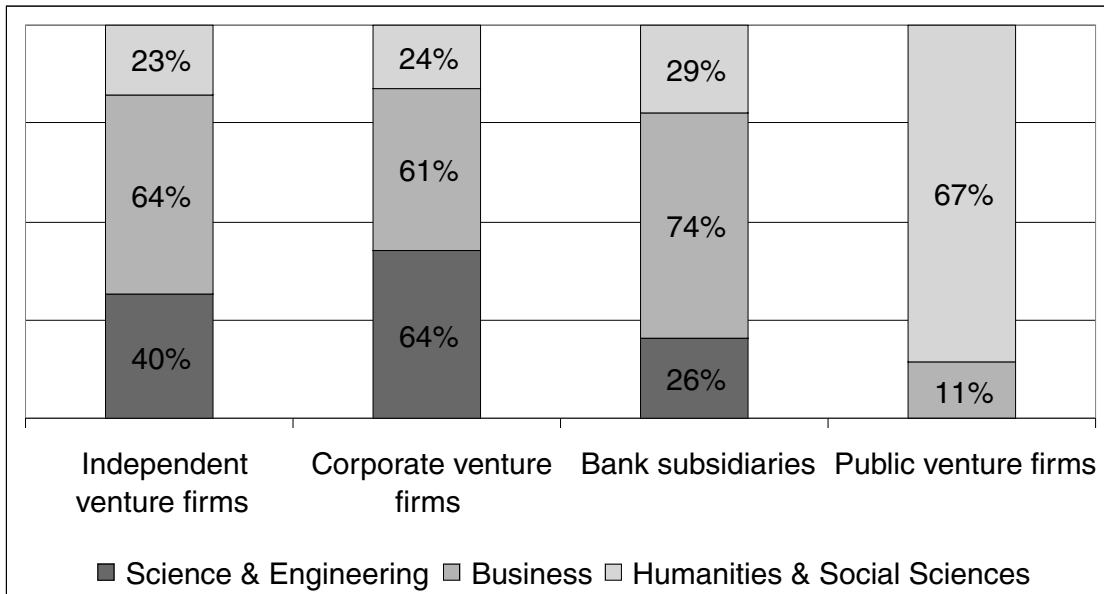
### EXHIBIT 39

Partners' Educational Background, by Degree



### EXHIBIT 40

Partners' Educational Background, by Field





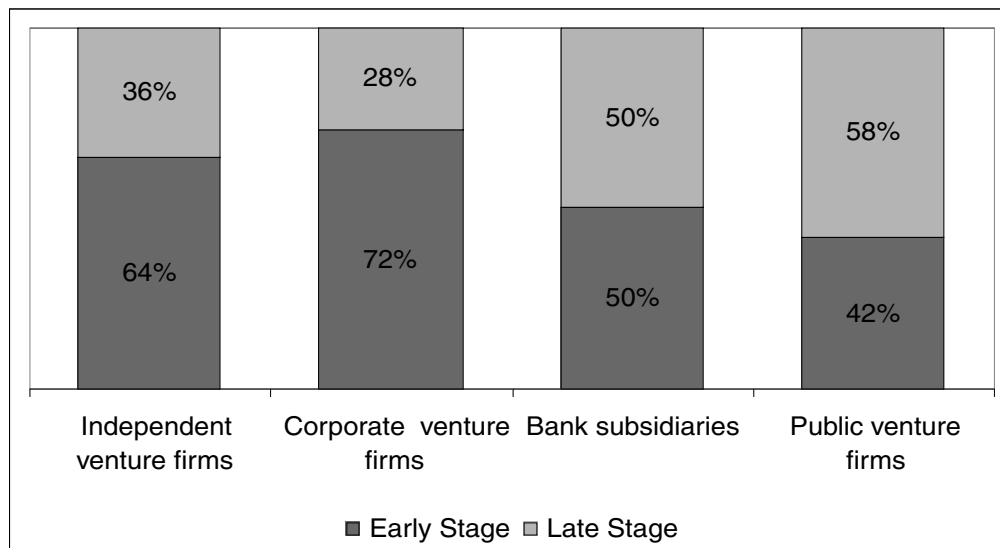
## EXHIBIT 41

### Investment Patterns, by Industry and Type of Venture Firm

	<i>Independent venture firms</i>	<i>Corporate venture firms</i>	<i>Bank subsidiaries</i>	<i>Public venture firms</i>
Biotech and pharmaceuticals	14.20%	7.23%	10.75%	18.26%
Medical products	8.10%	25.30%	4.17%	9.57%
Software and Internet	30.75%	19.28%	32.68%	0.00%
Media and entertainment	4.34%	2.41%	4.17%	19.13%
Food and consumer goods	3.40%	3.61%	7.89%	1.74%
Industrial services	5.63%	8.43%	3.29%	1.74%
Telecom	7.39%	6.02%	5.26%	3.48%
Industrial products	8.45%	8.43%	13.38%	32.17%
Consumer services	3.05%	2.41%	1.32%	1.74%
Financial services	2.00%	3.61%	2.63%	0.00%
Electronics	7.98%	3.61%	5.92%	5.22%
Other	4.69%	9.64%	8.55%	6.96%
	100.00%	100.00%	100.00%	100.00%

## EXHIBIT 42

### Venture Deals by Stage and Type of Venture Firm



similar also in their focus on earlier investment stages, which is definitely more pronounced than that of bank or public venture firms. Notice that in this exhibit we aggregate seed and start-up financing into “early stage” and other stages as “late stage” for ease of comparison.

The commitment to monitor or take a board seat is also quite different across types of venture firms. We simplify the information from Exhibit 24 by creating two levels of monitoring, high and low. We say that venture capitalists have a high monitoring intensity if they personally interact with a company at least on a monthly basis. Exhibit 43 shows that independent venture capitalists have the highest monitoring intensity, closely followed by corporate investors. Once again, bank and public venture capitalists behave differently, and interact less frequently with the firms they invest in.

Exhibit 44 provides a similar picture for the frequency with which venture capitalists serve on their firms’ board seats. A noticeable result is that public venture firms seem to refrain from sitting on corporate boards.

Overall, we find considerable differences in the investment styles of independent, corporate, and bank

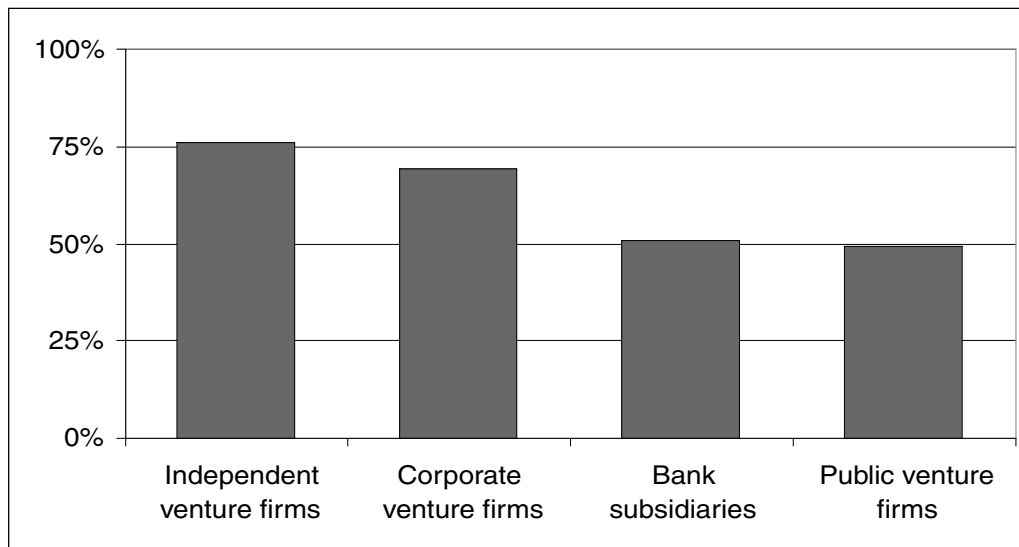
venture capitalists. Who owns a venture firm does make an important difference.

## 2.4 How Does the Partner’s Human Capital Affect Venture Investments?

If venture capital is driven by its people, we can now ask how the human capital of venture capitalists affects investment behavior. A novel aspect of our research is to focus on the people dimension of venture capital. We believe our findings are intriguing. We focus on three measurable differences between venture capitalists:

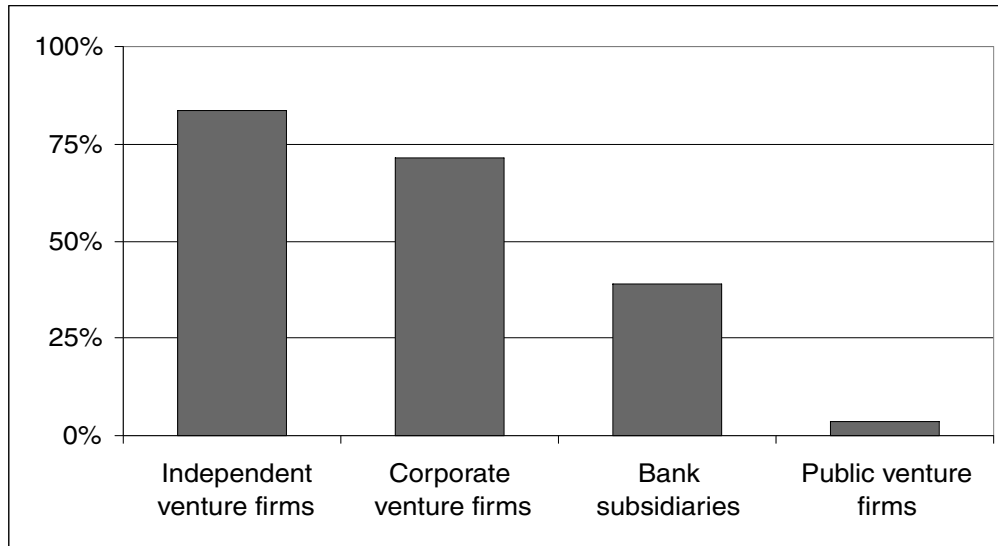
- First we consider *educational achievements*. We ask whether there are systematic differences among venture partners depending on whether they have a bachelor’s degree, a master’s, or a Ph.D. One of the notable strengths of our data is that we can relate each partner to the portfolio companies (s)he supervises.
- Second, we consider *educational backgrounds*. In particular, we ask whether partners who pursued

### EXHIBIT 43 Monitoring Frequency, by Type of Venture Firm



## EXHIBIT 44

### Frequency of Presence on Board Seats, by Type of Venture Firm



scientific studies invest differently than others. Presumably, partners with an education in science may have an advantage in gaining a deeper technological understanding of their investment companies. But not all venture capital investments demand such specialized knowledge, and so we ask whether a division of labor naturally arises among partners with different types of education.

- Third, we ask whether the *professional experience* of partners also matters. In particular, we want to understand whether partners with a financial background invest differently than those without it. Our conjecture is that a financial background provides partners with a different lens of looking at and interacting with their portfolio companies.

In our analysis we make some simple assumptions to help us make the best use of the richness of our data. If more than one partner is reported to be in charge of a portfolio company, we use the highest educational level among the various partners in charge. Likewise, if several partners are listed to be in charge of a particular company, we report whether at least one of them had a scientific education or some working experience in finance. This

approach has the advantage of making use of all available information, and in particular of taking into account all the expertise which is at work when a partner, or a team of partners, takes charge of a company.

We begin by examining how different partners focus on different industry segments. Exhibit 45 shows the relative proportion of investments by partners whose highest degree is at bachelor's, master's and Ph.D. level across the various industry segments. Biotechnology and medical products are clearly the sectors that have the most Ph.D.'s. This reflects the high scientific requirements of operating in this industry. Masters play a large role in the software and Internet sector, as well as the telecom and industrial products sectors. Bachelors are relatively strong in the areas of media and consumer and financial services, where technical considerations are arguably less important.

Exhibit 46 examines the equivalent figures for science education and financial experience. Again, science education is associated with high-tech industries. Interestingly, some financial background is present in almost all venture teams.

We then ask which venture capitalists focus on early-stage investments. Exhibits 47 and 48 document how partners with different human capital attributes are attracted to different investment stages. We see that a higher degree

clearly results in more frequent investments in early-stage deals. In particular, partners without graduate education seem to concentrate in the bridge finance segment. Also, seed and start-up investments seem to attract the same type of partners, in terms of educational achievement.

Perhaps surprisingly, the stage of financing seems to be unrelated to a scientific background. In fact, as Exhibit 46 showed, a background in science is more important for

the industry than for the stage of investment. A similar conclusion can be drawn from Exhibit 48 for the presence of financially expert partners.

Venture capital is not only about money. It is also about steering and supporting portfolio companies. This is done in a number of ways. We look at three of the most relevant ones. First, venture capitalists exercise influence on their companies and their strategies by taking board seats. Exhibits 49 and 50 show the willingness to take a board seat by partners with different human capital attributes. The exhibits show the percentage of all board seats taken by different types of partners. Once again we find that a graduate degree has a big effect, as more educated partners are much more likely to sit on a board than those with only a bachelor's degree. Some work experience in finance is also conducive to taking an active attitude towards boards. The same, though to a lesser extent, is true of a scientific education.

The second dimension along which venture partners can add value is by helping to recruiting management. Exhibit 25 showed that help in management recruiting is frequent. But is it related to human capital? Exhibits 51 and 52 show that support in management recruiting is somewhat lower among partners with higher education, and does not seem to be related to the field of education or the work experience.

Finally, we note that different partners may take different attitudes towards interacting with their companies. Exhibits 53 and 54 examine how the frequency of interaction with a portfolio firm is related to the human capital of the responsible partners. We find that the frequency of interaction decreases somewhat with the level of the degree. We also find that a scientific background is more conducive to frequent interaction than work experience in finance. This might be a reflection of two factors. First is the

## EXHIBIT 45

### Venture Deals, by Industry and Educational Level of Monitoring Partners

	<i>Bachelor's</i>	<i>Master's</i>	<i>Ph.D.</i>
Biotech and pharmaceuticals	17%	14%	68%
Medical products	8%	20%	72%
Software and Internet	3%	53%	44%
Media and entertainment	25%	41%	34%
Food and consumer goods	16%	65%	20%
Industrial services	0%	65%	35%
Telecom	8%	55%	36%
Industrial products	16%	54%	30%
Consumer services	26%	47%	26%
Financial services	15%	62%	23%
Electronics	5%	26%	69%
Other	8%	62%	31%

## EXHIBIT 46

### Venture Deals, by Industry, Educational Background, and Work Experience of Monitoring Partners

	<i>Education: Science Background</i>	<i>Work Experience: Finance</i>
Biotech and pharmaceuticals	83%	88%
Medical products	82%	91%
Software and Internet	79%	92%
Media and entertainment	54%	98%
Food and consumer goods	56%	98%
Industrial services	56%	97%
Telecom	72%	93%
Industrial products	49%	97%
Consumer services	66%	97%
Financial services	77%	96%
Electronics	73%	93%
Other	54%	96%

## EXHIBIT 47

### Stage of Investment, by Degree of Monitoring Partners

	<i>Bachelor's</i>	<i>Master's</i>	<i>Ph.D.</i>
Seed	9%	39%	53%
Start-up	8%	35%	57%
Expansion	14%	44%	42%
Bridge	41%	41%	18%

higher propensity of partners with a scientific background to invest in high-tech companies, which are more likely than those in mature industries to require frequent advice and interaction. Second, a science education may itself generate a higher propensity to interact since technically-minded partners may take a more active interest in the development of the technologies being developed at portfolio companies.

Overall, the data suggest that human capital is important in terms of the way that venture capitalists invest in and relate to their portfolio companies. Higher education, a background in science, and prior professional experiences all have an impact on where venture capitalists invest and how they can add value to their companies.

## EXHIBIT 48

### Stage of Investment, by Educational Background and Work Experience of Monitoring Partners

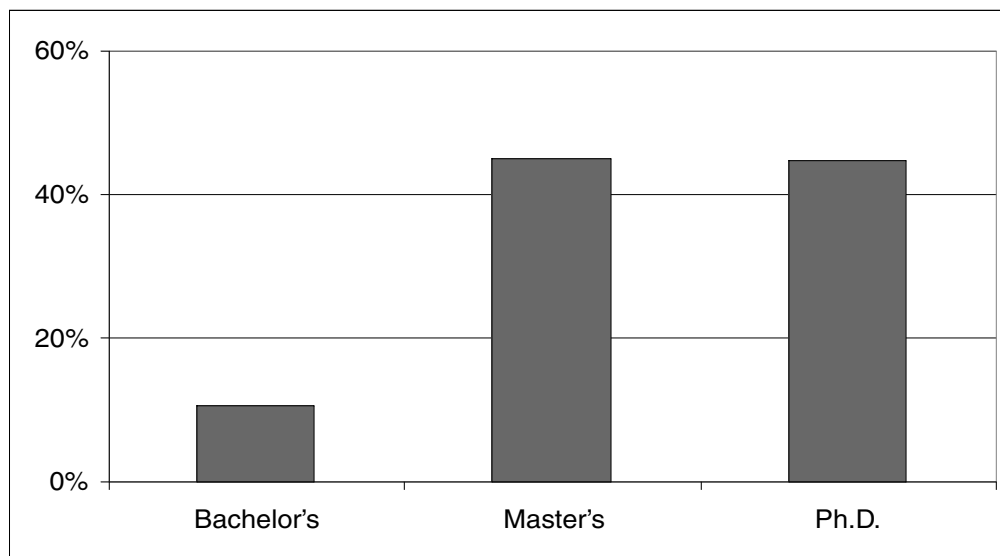
	<i>Education: Science Background</i>	<i>Work Experience: Finance</i>
Seed	69%	94%
Start-up	77%	91%
Expansion	68%	94%
Bridge	74%	95%

## CONCLUSION

The SEVeCa survey is a unique large-scale project to gather systematic data on the state of the European venture capital industry. We were concerned not only with providing descriptive data on European venture capital firms, but also on the human

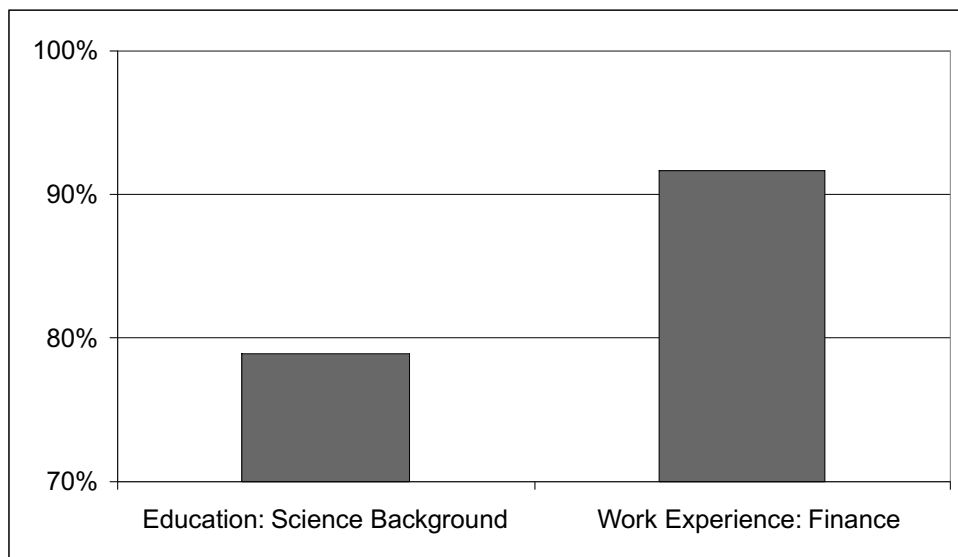
## EXHIBIT 49

### Percentage of Board Seats, by Educational Level of Monitoring Partners



## EXHIBIT 50

### Percentage of Board Seats, by Educational Background and Work Experience of Monitoring Partners



## EXHIBIT 51

### Frequency of Help in Recruiting, by Degree of Monitoring Partners

	<i>Bachelor's</i>	<i>Master's</i>	<i>Ph.D.</i>
Hiring board directors	42%	36%	30%
Recruiting managers	44%	45%	41%

## EXHIBIT 52

### Frequency of Help in Recruiting, by Educational Background and Work Experience of Monitoring Partners

	<i>Education: Science Background</i>	<i>Work Experience: Finance</i>
Hiring board directors	34%	33%
Recruiting managers	48%	43%

capital of venture capital partners and the investment practices they adopt. The survey provides some new and intriguing findings. The European venture capital industry is more integrated than previously suspected. The industry is currently undergoing a change of guard, where new entrant firms show more interest in adopting “hands-on” investment practices. The large presence of bank-owned and corporate-owned venture capital firms contributes to the considerable heterogeneity of the European venture capital industry. And human capital is a critical

determinant of the investment style of venture capital firms.

True to our academic roots, we insist on one final word of caution. The data presented in this report consist of descriptive statistics and simple cross-tabulations. To provide a more complete analysis of the behavior of European venture capital firms, it is necessary to provide a more comprehensive conceptual framework, in which multivariate regressions are used to evaluate statistical relationships between the variables of interest. We have already begun with this more systematic work, and refer the interested reader to our respective web pages, which contain regular updates on our academic writings.

## ENDNOTE

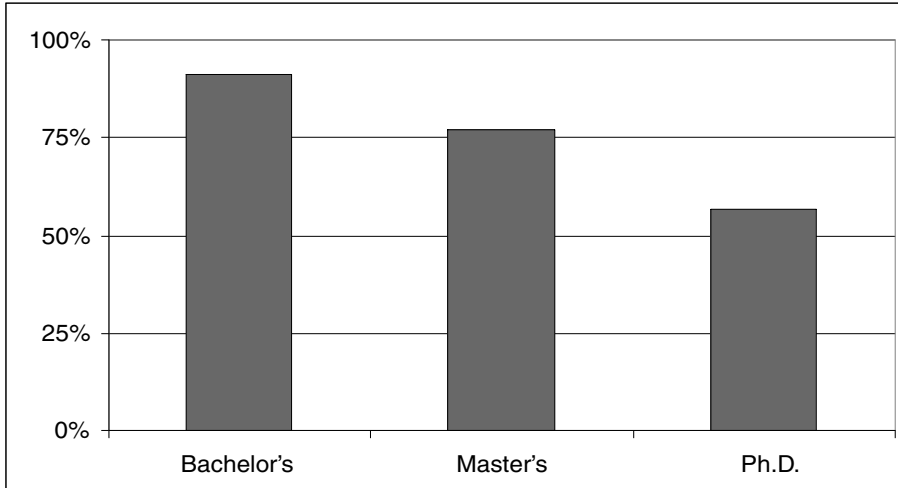
We would like to thank the many venture capitalists who generously provided us with data. We owe a special thanks to March Schublin at the European Investment Fund for supporting this project from day one. Elena Rotondi cheerfully and efficiently helped us at all stages. Our colleague Pietro Terna at Turin University made the online collection of data possible. Last but not least, Roberto Bonfatti, Matteo Ercole, and Alessandro Gavazzeni provided

long hours of outstanding research assistance.

*To order reprints of this article, please contact Ajani Malik at [amalik@ijournals.com](mailto:amalik@ijournals.com) or 212-224-3205.*

### EXHIBIT 53

Percentage of Frequent Interaction with Companies, by Educational Level of Monitoring Partners



### EXHIBIT 54

Percentage of Frequent Interaction with Companies, by Educational Background and Work Experience of Monitoring Partners

