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**HUMAN CAPITAL AND THE INTERNATIONALIZATION OF VENTURE
CAPITAL FIRMS**

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ABSTRACT

We examine the neglected area of internationalisation by VCs. Using a representative sample of 195 VCs, we show that the decision of a European VC firm to invest internationally is driven by its human resources. Having more VC executives in general and more VC executives with previous international experience in specific, results in a higher probability of investing internationally. In contrast, more VC executives with experience in the VC industry or with an engineering background lead to a higher probability of remaining domestic.

INTRODUCTION

The internationalisation decision is an extensively researched topic in manufacturing industries but it has received relatively little attention in knowledge intensive service industries such as venture capital (VC) (Hall and Tu, 2003; Wright, Pruthi and Lockett, 2005). The decision whether or not to internationalise is, however, an important step in the strategic development of a venture capital (VC) firm. VC firms can internationalise by raising funds in another country, by direct investment in a foreign country, by establishing a physical presence in a foreign country and investing from there, or by taking an equity stake in a foreign VC fund (Dixit and Jayaraman, 2001). The European Venture Capital Association estimates that 28.8 % of the amount invested by European VC firms in 2003 investments was made outside the home country. This percentage increases to 46.2 % of all UK investments (see Table 1). Baygan and Freudenberg (2000) suggest that VC firms may invest in non-domestic countries where entrepreneurship, innovation, growth prospects and expected returns are highest, seeking new investment opportunities (Gompers, 2005). Adopting an approach that synthesises internationalisation theory and the resource-based/capabilities perspective, we suggest that the specific human capital resources and expertise makes it a particularly novel sector in which to examine internationalisation.

The main research question in this paper is whether human resource factors influence the decision of a VC firm to invest abroad or not. VC firms are specialised financial intermediaries, able to reduce agency problems before and after the investment (Amit et al., 1998). Before the investment, VCs have to select worthwhile investment candidates following a thorough due diligence process and write contracts that fit with the local legal environment. After the investment, the portfolio companies have to be monitored actively and optimal exit routes have to be sought. Given the people intensive nature of the VC industry, human capital will be especially important to overcome uncertainty and information asymmetries in foreign markets (Wright et al., 2005). Human capital is the possession of knowledge that is not easily appropriable and which yields competitive advantages (Barney, 1991). Human resources are firm specific and therefore important drivers of a VC firm's strategy. We therefore expect that there will be differences in the human capital of the VC firms that do internationalise compared to

those that remain local. Our results confirm this expectation in that both the total stock of general human capital, rather than the general educational or functional experience of the top management team, and the specific human capital are significant predictors of a VC firm's internationalisation. These findings have important implications for VC firms, as they show that VCs who wish to internationalise should reflect this decision in the development of their human capital. Moreover, it is also important for entrepreneurs, seeking VC money, who wish to internationalise themselves in that they could benefit from the human capital of an international VC. Looking for the right investor, with matching human capital, is therefore important from the entrepreneur's point of view.

The paper is structured as follows. Formal hypotheses on the relationship between a VC firm's human capital and its probability of internationalising are developed in the next section. Thereafter, the research method is described, including a discussion of the data collection, sample and variables. Results of the bivariate and multivariate statistical tests are presented. The paper ends with a discussion of the findings and potential avenues for future research.

THEORY DEVELOPMENT

There are compelling reasons for VC firms to invest in geographical areas close to their home base, merely due to the fact that it is more difficult to reduce information asymmetries between entrepreneurs and investors as geographical distance increases (Sorenson and Stuart, 2002). Reducing information asymmetries is important in the pre-investment screening and selection process and in the post-investment monitoring and value adding (Sapienza et al., 1996). Next to information asymmetry problems, VCs investing outside their home country have additional hurdles to overcome, that are more important as the psychic distance between their home base and the target region increases (Johanson and Vahlne, 1977). They often have to compete with regionally dominant and well-established national firms. They have to understand the local conditions, and the legal and institutional environment that may hamper or enhance their ability to extract economic returns from innovative ideas (Bruton et al., 2005). Recently, however, competitive pressures and the trend towards larger funds have pushed an increasing number of VC firms to invest internationally, while other VC firms have a deliberate

strategy of investing locally. The main reasons for VCs to internationalise are to broaden the scope of investment opportunities (Hall and Tu, 2003; Gompers, 2005), to learn from foreign partners or competitors, or to leverage existing resources in order to create value (Etemad, 2004).

Different theories have been proposed to understand a firm's internationalisation decision. Early economic literature stresses factor-based advantages of regions to understand international trade. Rational decision-making is emphasized to understand a firm's foreign direct investments, taking into account for example transportation costs, trade barriers, relative wages and market sizes (Hymer, 1960). Johanson and Vahlne (1977) see internationalisation as a learning process, stressing the internal information gathering and previous experience to explain further gradual steps in international commitment. Knowledge of foreign markets through experience is important for international development. Meyer and Shao (1995) stress that cultural and geographic distance may create problems in cross-border VC investments. This explains why many firms first target foreign countries that are close to their home country and then further internationalise gradually.

A more recent stream of literature acknowledges that the internationalisation decision in smaller companies may well be driven by different factors than in larger companies (Westhead, Wright and Ucbasaran, 2001). A specific type of international entrepreneurial companies is the 'born global' company, which does not take a gradual approach with respect to internationalisation but internationalises radically at an early stage in its development (e.g. Oviatt and McDougall, 1997, Madsen and Servais, 1997; Autio et al., 2000). Many small knowledge-intensive firms, from small domestic markets, have successfully deployed narrow but well-defined market segments worldwide and have served their markets well (Oviatt and McDougall, 1997), sometimes in symbiotic collaboration with local partners to deliver higher value than competitors (Etemad, 2004). Oviatt and McDougall (1997) maintain that entrepreneurship theory and the resource-based view of the firm better explain the 'born global' phenomenon. Numerous studies in this stream of literature stress the importance of the entrepreneur in the international development of these ventures: his or her international attitude, motivation, orientation, experience and network (Andersson, 2004). The entrepreneur as a proactive individual is

especially important in growth-oriented industries, for firms in the early phase of the internationalisation process.

As most VC firms are not born global but first build their activities and core competencies in their home market, we propose that the human resources of a VC firm are especially important in the internationalisation process. VC firms are more comparable to SMEs than to large multinational companies, that are the core of most of the internationalisation literature, given their often-limited resource base and the fragmented market they operate in. In their internationalisation strategy, they should therefore carefully consider their own drivers and competitive advantages.

Etemad (2004) proposes that there are internal forces that push entrepreneurial companies from the inside to internationalise. “The push forces are entrepreneurial in nature and follow the Schumpeterian quest for creating opportunities” (Etemad, 2004, p. 6). Some VCs will more easily internationalise than others, depending on the VC’s human resources. Both general and specific resources and knowledge may facilitate the internationalisation process. Several authors have stressed the importance of a founder or management team with international vision, with relevant international experience and with appropriate education and business exposure as catalysts for internationalisation (e.g. Oviatt and McDougall, 1997; Madsen and Servais, 1997; Bloodgood et al., 1996).

These human resources are especially important for the service companies that VC firms represent, given the importance of both knowledge and experience in managing the VC cycle, from fund raising to investing, monitoring and exiting (Lockett, Murray and Wright, 2002). In order to be successful in international markets, VC firms must first be able to generate a sufficient deal flow and a deal flow of sufficient quality. Next, they have to be able to assess the potential to turn an interesting idea into a value-creating proposal in the target region, which is not the same environment as their home country. They may have to look for co-investment partners in the local country. They have to write contracts that conform to the legal system of the target region and to the local practices. Thereafter, they have to manage the post-investment process. Monitoring, governance and value adding practices are different in different parts of the world (Wright et al., 2002; Bruton et al., 2005; Pruthi et al., 2003) and VC executives should understand these differences. Finally, they have to look for attractive exit routes. Stock

markets are not equally important and accessible all over the world, so exit routes may well be different in the target region than in the home country (Jääskeläinen and Maula, 2005). Overcoming these hurdles requires a significant human resource base.

A VC firm's human resources are either an enabler of – if sufficiently developed – or a deterrent to internationalisation. The top management team is especially important in defining and implementing an internationalisation strategy, as a VC firm is usually composed of a small number of people - the managing partners - with great deal making and value adding skills (Dimov and Shepherd, 2005). We therefore focus on the human capital of VC executives in the remainder of this paper. Human capital refers to the knowledge that is not easily appropriable and which yields competitive advantages (Barney, 1991). Human capital may be general, such as the general education of the executives, or specific to the tasks at hand, such as the experience as a VC manager or experience in international ventures (Dimov and Shepherd, 2005).

The more VC executives there are employed in a given VC firm, the broader the resource base of the VC firm. More VC executives mean more explicit or tacit knowledge about the key processes necessary in successfully exploiting the VC opportunities (Dimov and Shepherd, 2005), thus a higher amount of human knowledge and better skills at executing specific tasks. The shared knowledge and experience of several VC executives make for a higher level of knowledge in the VC firm (Dimov and Shepherd, 2005). VCs with limited human capital may lack the resources to learn about the conditions in international markets and to compete with well established local competitors (Buckley et al., 1992). Therefore, more VC executives imply higher chances that there is sufficient combined knowledge and experience for the internationalisation process at the level of the VC firm. We therefore hypothesize:

Hypothesis H1: The more VC executives work in a VC firm, the higher the probability that the VC firm invests internationally.

VC executives may, however, differ in their backgrounds, education, experience and skills (Botazzi et al., 2004). We distinguish the general human capital from the specific human capital of a VC firm (Dimov and Shepherd, 2005). While the former

enhances the general functioning of a VC firm, the latter is especially relevant for the internationalisation question. The general education and practical experience of the VC executives may represent an important stock of general human capital (Madsen and Servais, 1997; Gimeno et al., 1997), enhancing the overall efficiency and effectiveness of the VC firm and thereby positively contributing to the internationalisation propensity. Dimov and Shepherd (2005) have shown that more general human capital in a VC firm is associated with more “home runs”. We argue that a high level of general human capital not only influences the ability of the VC firm to select the very best projects and monitor them adequately, but also is a determinant in its decision to internationalise. For example, a doctoral degree leads to a profound knowledge that is not constrained by geographic boundaries but which is broadly applicable in different geographic settings. This knowledge may be fully exploited by transferring it to different geographical regions (Wright et al., 2005). Further, the higher the educational level of the VC executives, the better their ability should be to understand how barriers to internationalisation may be overcome, to identify international opportunities and to act upon them.

The experience of VC executives also contributes to the general human capital of the VC firm. Westhead et al. (2001) have shown that more industry specific know-how leads to more export orientation in new and small firms. In the same vein, we expect that VC executives with more experience in the VC sector have a positive impact on the internationalisation decision of the VC firm. Highly experienced VC managers will want to leverage their general VC expertise by applying it in different countries, as it is transferable between countries. Some types of functional experience may be facilitators in the decision to internationalise. Experience in law helps VC executives in writing contracts, in aspects of due diligence and in exiting (Dimov and Shepherd, 2005). More VC executives with a legal background are therefore expected to be associated with more internationalisation. Experience in finance and accounting helps in the screening and due diligence process and in the exit decisions, consulting experience helps in early problem detection and communicating advice to entrepreneurial management teams and M&A experience helps in exiting (Dimov and Shepherd, 2005). These are all aspects of the VC investment cycle that are more difficult in an international than in a domestic setting, given differences in the institutional, legal and sociologic environment (Bruton et al.,

2005). More experience in these domains will therefore facilitate the internationalisation of a VC firm and increase the probability of investing internationally.

We therefore hypothesize:

Hypothesis H2A: The higher the proportion of VC executives with a Ph.D., the higher the probability that the VC invests internationally.

Hypothesis H2B: The higher the proportion of VC executives with a legal background, the higher the probability that the VC invests internationally.

Hypothesis H2C: The higher the proportion of VC executives with a financial or accounting background, the higher the probability that the VC invests internationally.

Hypothesis H2D: The higher the proportion of VC executives with a consulting background, the higher the probability that the VC invests internationally.

Hypothesis H2E: The higher the proportion of VC executives with a background in M&A, the higher the probability that the VC invests internationally.

Specific human capital is education and experience with a scope of application that is limited to a particular activity or context (Gimeno, 1997). An important specific human capital factor, relevant for the internationalisation question, is the degree to which the VC executives have previous international experience. It is well documented that previous international experience of top managers is a strong predictor of the internationalisation of the focal firm (Madsen and Servais, 1997; Oviatt and McDougall, 1997). If top managers have worked abroad – either as a VC executive or in another function - they have a better understanding of differences in markets, in legal and institutional environments, etc. They will have bridged a part of the psychological distance that exists between countries and will be better equipped to cope with information asymmetry problems (Wright et al., 2005). Therefore, previous experience in international markets is a key influence encouraging smaller firms to further internationalise (Westhead et al., 2001).

The availability of VC investment executives with local country knowledge and expertise will facilitate entry in those markets. For example, Kenney et al. (2002) have shown that US trained Asian VC executives may return to their home country, thereby establishing close links between US and Asian VC industries and facilitating cross-border investments. Next to the enhanced knowledge of the environment, VC executives with international experience will have built networks that may facilitate entry in the foreign market (Wright et al., 2005) or that may allow the VC firm to establish early links to draw upon essential resources. Leeds and Sunderland (2003) suggest that VC personnel with local ties are a prerequisite for success. Relevant ties for VC firms are links with legal, financial and accounting firms or with intermediaries that may increase high quality deal flow. Enhanced knowledge of foreign markets and ties in the local environment will, of course, be more important when investing in distant countries compared to geographically and culturally close countries. Hence:

Hypothesis H3: The greater the specific human capital is with respect to international experience of the VC executives, the higher the probability that the VC firm invests internationally.

RESEARCH SETTING AND METHOD

Research setting and Sample

The foregoing hypotheses are tested in five European countries: Belgium, Germany, the Netherlands, Sweden and the UK. These countries are chosen because they are important European VC markets and their VC industry is mature. Moreover, these countries geographically cover a large and diverse part of Europe. EVCA statistics (see Table 1) show that the UK is the most international market of the five countries in our study, as 46% of all investments by UK-based VC companies occur outside of the UK. VCs in the Netherlands also have a more international focus (32% invested internationally), while VCs in Sweden, Germany and Belgium are more local, with respectively 19%, 17% and 10% of the value of their investments made outside their home countries.

Insert Table 1 about here.

Data were collected through postal or e-mail surveys (or a combination of both), based on a questionnaire developed and first administered in the UK. The questionnaire was developed on the basis of instruments used to analyse internationalisation in other sectors, adapted on the basis of existing literature and pilot interviews with VCs that had internationalized. The population of VC firms in each country was identified through the guides of the national and European venture capital associations, trade directories and VC firm websites. Responses were obtained from senior managers or managing partners as key respondents, so as to be sure to capture the policy of the VC firm. Questionnaires were sent out either by post or electronically between 2002 and 2004 to 151 UK VCs, 74 Belgian VCs, 169 German VCs, 63 Dutch VCs and 94 Swedish VCs, identified through their membership of the EVCA or the national venture capital associations. In order to be as complete as possible, non-member firms that act as VC firms were added. These were identified through trade directories and VC firm websites. A follow-up was undertaken by sending reminders or by calling the VC firms after three to six weeks.

This process resulted in a sample of 195 usable responses over the five European countries (16 Dutch VCs, 29 Swedish VCs, 31 Belgian VCs, 51 German VCs and 68 British VCs) or a 35.4 % overall response rate. Response rates in each of the five countries separately were good, ranging from a minimum of 25.4 % in the Netherlands to a maximum of 45.0 % in the UK. Overall, the sample was broadly representative of the VC populations across the countries, with some explicable differences. For example, with respect to the UK sample, respondents managed a significantly larger size of investment funds, and had significantly larger maximum investment preferences but the number of investment executives and the minimum investment preference were not significantly different. These differences are not surprising since venture capital firms that are larger in terms of financial resources are more likely to internationalise and thus may be more willing to participate in the survey. However, there were no significant differences on these variables between respondents who replied to the first versus the reminder mailing. With regard to the Belgian venture capital market, our sample holds a relatively larger percentage of captive VCs than the sample of the BVA (Belgian Venturing Association), more in particular 19.4% versus 6.2%. Furthermore, our sample contains a smaller percentage of independent VCs (54.8% vs. 67.2%). However, based on total fund size, our sample is representative of the Belgian VC population. With respect to the German venture capital market, our sample also contains a larger percentage of captive investors than the BVK (German Private Equity and Venture Capital Association) population (34.1% > 16.3%) and a smaller percentage of independent investors (54.5% < 77.1%). However, the VCs' focus on early stage investments (40.9% vs 40.2%) and later stage investments (59.1% vs 59.8%) is comparable to the industry average. Furthermore, our sample firms are smaller regarding the average number of investments under management (16.79 < 27.76) and slightly larger in the average number of employees (12.32 > 8.93). These differences may be explained by the exclusion of underrepresentation sector VCs which tend to be smaller in terms of employment but which have a larger number of small investments.

Table 2 gives a description of the sample, after removing five outliers. A VC firm in our sample has an average total fund size of € 385.52 million (median = € 72.52

million) and employs on average 16.69 people in total (median = 9.00). The VCs made on average 15.04 new investments (median = 9.00) in the last three years and exited on average 8.78 investments (median = 4.00). Furthermore, VC executives managed on average 2.36 new investments (median = 1.50) and 1.19 exits (median = 0.67).

Insert Table 2 about here.

110 VCs are independent, 39 VCs are captive, 15 are semi-captives, and 17 are public sector VCs. 68 % of the funds have a focus on non-technology-related investments, and roughly half of the funds like to invest in the seed or early stage of development. 70 % of the VCs prefer to invest in the expansion stage and 56 % prefer MBOs/MBIs. Investment preferences may span different investment stages.

Respondents were asked whether they invest in foreign countries. 94 respondents (48%) are classified as international VCs. The proportion of international VCs is broadly the same in the different countries of our study, with slightly more UK VCs and slightly less German VCs having an international focus. Half of the international VCs invest at arm's length, i.e. they directly invest from their home country in a company located outside their home country. One third of the international VCs establish a branch office in the target country. This is somewhat higher than the figure reported by Botazzi et al. (2004), who found that 27% of the European VC firms in their survey had an office in another country. The remainder of the international VCs take an equity stake in an existing VC fund in the target country, acquire an existing VC fund abroad or form a joint venture with a partner in the target country. None of the international VCs adopt a licensing or franchising strategy. We pool all entry modes in the analyses, although we acknowledge that the specialized resources needed to directly invest in a company in a neighbouring country are less specific than those needed to establish a branch office in another continent.

Variables and method of analysis

The main variables of interest, namely the human resources available in the VC firm, are self-reported variables. Respondents were asked to indicate the number of VC executives and the percentage of VC executives with different types of education and experience. The number of investment executives is used as a proxy for general human capital. The latter is also measured as the percentage of VC executives with a Ph. D. degree, the percentage of VC executives with experience in the VC or private equity industry, with law experience, financial or accounting experience, consulting experience and M&A experience. Specific human capital is measured as the percentage of VC executives with previous international work experience.

A VC firm in our sample (see Table 3) employs on average 9.43 investment executives (median = 6.00). Of these investment executives, on average 16.62 % has a doctorate degree (median = 0.00), 47.86 % has experience in the VC or private equity industry (median = 50.00), 11.14 % has experience in law (median = 0.00), 51.40 % has experience in finance and accounting (median = 50.00), 29.03 % has experience in consulting or strategy (median = 25.00) and 43.98 % has experience in M&A (median = 40.00). In terms of specific human capital, on average 45.76 % of the VC executives in our VC firms has previous international work experience (median = 40.00).

Insert Table 3 about here.

Multivariate analysis is used to test the hypotheses. More in particular, we run a multivariate logistic regression with the dependent variable taking the value 1 if the VC firm has internationalised and 0 if it is investing domestically. The independent variables of interest are the human resource policy variables, presented in Table 3. Table 4 gives the correlations between all variables used in the multivariate regression. VC age is included as a control variable. Following the prediction from the stage models of internationalisation (Johanson and Vahlne, 1977), older VC firms are therefore expected to be more internationally oriented than young VC firms. Finally, the percentages of VC executives with an undergraduate degree, with engineering experience or with experience

in technological sectors are included as control variables (for the descriptive statistics on the control variables: see Table 3).

Insert Table 4 about here.

RESULTS

The characteristics of the subsamples of international and local VC firms are presented in Table 2. As expected and consistent with Hall and Tu (2003), international VC firms are significantly larger than local VC firms irrespective of the measure of size used, i.e. total size of funds (in million Euros) or number of people employed. These two variables are highly correlated. Whereas the average total size of funds amounts to € 660.90 million for an international VC firm, this only amounts to € 139.25 million for a local VC firm (median: € 233.50 million versus € 336 million). However, it needs to be borne in mind that the standard deviation of this variable is also substantially larger for the international VC firms than for the domestic VC firms. Furthermore, an international VC firm employs on average 24.92 people (median = 16.00), while a domestic VC firm only employs on average 9.11 people (median = 6.00).

International VC firms made on average 16.10 new investments in the last three years, which is significantly more than the average of 13.79 new investments for the domestic VC firms (median: 10.00 versus 7.00 new investments). Moreover, international VC firms have also exited significantly more investments over the last three years than the domestic VC firms, on average 12.18 investments versus 5.25 investments (median: 7.00 versus 2.00 exits). This is, of course, strongly related to the larger size of international VC firms. This might further be an indication that VC firms entering international markets have to be able to show that they are successful, i.e. that they are able to exit their deals. Furthermore, international VC firm's investment executives have significantly less new investments to manage than domestic VC firms executives (1.71 versus 3.05 new investments/executive). Domestic VC firms have a significantly stronger

preference for investments in seed or start-up stages compared to international VC firms, in contrast with the findings of Hall and Tu (2003).

Finally, the bivariate results also show that international VC firms also have a larger stock of human resources (see table 3). International VC firms employ significantly more investment executives than do domestic VC firms (13.76 versus 5.65 investment executives) and they employ significantly more VC executives with a doctorate degree (18.09% versus 14.05%).

The results of the multivariate analysis are presented in Table 5. Consistent with hypothesis 1, having more investment executives is associated with a higher probability of internationalisation. Hypothesis 2 is not supported in the multivariate analysis. None of the coefficients relating to the percentage of VC executives with a Ph.D. or with specific function expertise or education is significantly positive. On the contrary, having more VC executives with experience in the VC/PE industry leads to a higher probability of being a domestic VC firm. Our results therefore suggest that it is only the total stock of general human capital that is relevant in the internationalisation decision of a VC firm, rather than the general educational or functional experience of the top management team. In contrast, specific human capital is a significant predictor of internationalisation. Having more executives with previous international work experience is positively associated with an international investment focus, supporting hypothesis 3.

Insert Table 5 about here.

The control variables show that more VC executives with functional experience in engineering are associated with a more domestic investment focus. Although the bivariate analyses show that international VC firms employ marginally significant more VC executives with at least an undergraduate degree (87.88 % versus 83.84 %), this is not supported in the multivariate analysis. Furthermore, international VC firms are also slightly older than domestic VC firms. They are on average 14.16 years old (median = 10.00), while local VC firms are on average 12.03 years old (median = 8.00). This difference is only marginally significant in the bivariate analysis, but not significant in the multivariate analysis. This goes against Hall and Tu (2003), who found that younger

VC firms tend to internationalise more than older VC firms. The coefficients of the other control variables are not significant, neither in the bivariate or multivariate analysis (VC executives with experience in line management (42% on average), in high-tech based industries (29% on average) and in engineering (22% on average)).

CONCLUSIONS

We have shown that human capital matters in the decision of VC firms whether or not to invest internationally. Having a broad stock of general human capital - more VC executives - and having more specific human capital – more VC executives with previous international experience -significantly increases the probability of the VC firm investing abroad. The general and specific human capital is therefore valuable in order to overcome the hurdles that internationalisation inevitably brings about.

Our study has, however, several limitations. First, we only consider one aspect of operating in an international market, namely investing abroad. VC firms may also raise funds abroad. This has become more and more important in the European VC industry. This important aspect of the internationalisation of a VC firm may be an important driver of the foreign investment decision. Further research is required to examine this issue. Second, we combine analysis of different entry modes. For example, we treat investing abroad in the same way as establishing a branch office abroad. Further research is needed to examine these different entry modes. Finally, we ignore psychic distance and treat investing in a neighbouring country in the same way as investing in a different continent. We ignored the dynamic nature of the internationalisation process, as increasing knowledge of and commitment to a particular market affects the quality of the resources and hence further decision-making.

Our study is nevertheless important for VC firms, as it shows that VC firms wishing to internationalise should reflect this decision in the development of their human capital. They should focus on expanding the number of VC executives, and especially seek to recruit VC executives with international experience. It is moreover important for entrepreneurs seeking VC money, especially if they wish to internationalise themselves. This because, as this study shows, specific human capital is an essential resource to international VCs, a resource that could also benefit portfolio companies who wish to

internationalise. Looking for the right investor, with matching human capital, is therefore important from the entrepreneur's point of view.

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TABLE 1**Domestic versus international VC investments in 2003¹**

	Total investment by VC industry (1)	Invested in domestic country (2)	% invested in domestic country	% invested internationally
Europe	29,095,918	20,706,779	71,2	28,8
Belgium	304,457	247,823	90,3	9,7
Germany	2,481,200	2,054,760	82,8	17,2
Sweden	1,015,295	818,642	80,6	19,4
The Netherlands	1,092,254	744,335	68,1	31,9
UK	13,538,599	7,277,200	53,8	46,2

Source: EVCA Yearbook, 2004

TABLE 2

International versus domestic venture capital firm characteristics

	Total sample				International VC firms				Domestic VC firms				Significance
	N	Mean	Median	S.D.	N	Mean	Median	S.D.	N	Mean	Median	S.D.	
Size													
Total fund size in million euros	133	385.52	72.52	725.54	63	660.90	233.50	953.76	63	139.25	33.36	239.19	****
Total number of employees	185	16.69	9.00	21.06	89	24.92	16.00	25.51	91	9.11	6.00	11.64	****
<i>New investments in the last 3 years</i>													
Number of exits in the last 3 years	136	15.04	9.00	18.51	68	16.10	10.00	15.96	61	13.79	7.00	20.62	**
	135	8.78	4.00	15.72	68	12.18	7.00	19.29	60	5.25	2.00	9.87	****
<i>New investments/executive Exits/executive</i>													
	133	2.36	1.50	2.65	68	1.71	1.29	1.55	58	3.05	1.78	3.47	***
	134	1.19	0.67	1.94	68	1.27	0.67	1.89	59	1.11	0.67	2.09	
Investment strategy													
Fund type (1=high-tech, 0=non-high-tech / generalist)	134	0.32	0.00		67	0.30	0.00		60	0.35	0.00		
Stage preference													
Seed / start-up	139	0.27	0.00	0.45	69	0.16	0.00	0.37	63	0.40	0.00	0.49	***
Early stage	139	0.45	0.00	0.50	69	0.38	0.00	0.49	63	0.54	1.00	0.50	*
Expansion / Development	139	0.70	1.00	0.46	69	0.74	1.00	0.44	63	0.65	1.00	0.48	
MBO / MBI	139	0.56	1.00	0.50	69	0.61	1.00	0.49	63	0.52	1.00	0.50	
Other stage	139	0.06	0.00	0.25	69	0.06	0.00	0.24	63	0.08	0.00	0.27	

Significance level: * < 0.10, ** < 0.05, *** < 0.01, **** < 0.001

Significance levels indicated for the differences between international and local VC firms (chi-square tests or Mann-Whitney tests)

TABLE 3

International versus domestic venture capital firm human capital

	Total sample				International VC firms				Domestic VC firms				Significance
	N	Mean	Median	S.D.	N	Mean	Median	S.D.	N	Mean	Median	S.D.	
General human capital													
Number of investment executives	188	9.43	6.00	10.96	89	13.76	8.00	13.82	92	5.65	4.00	5.13	****
Percentage of executives with													
Doctorate degree	147	16.62	0.00	24.74	67	18.09	10.00	23.24	77	14.05	0.00	24.26	**
Experience in the VC/PE industry	174	47.86	50.00	31.30	82	43.37	40.00	27.89	88	51.13	50.00	33.96	
Experience/qualifications in law	153	11.14	0.00	19.15	68	10.16	5.00	13.58	81	10.70	0.00	20.86	*
Experience/qualifications in finance and accounting	178	51.40	50.00	29.11	84	46.70	40.50	27.90	90	54.93	52.50	29.49	*
Experience/qualifications in consulting/strategy	166	29.03	25.00	26.58	80	31.10	27.00	24.23	84	26.19	23.50	27.79	*
Experience in mergers & acquisitions	172	43.98	40.00	33.27	84	43.54	40.00	32.08	86	43.98	40.00	34.36	
<i>Specific human capital</i>													
% Previous international work experience	169	45.76	40.00	34.62	84	54.33	50.00	33.30	83	37.38	30.00	34.00	****
<i>Control variables</i>													
Age of VC fund	189	12.92	9.00	8.82	89	14.16	10.00	9.22	93	12.03	8.00	8.40	*
Percentage of executives with													
Undergraduate degree	178	85.76	100.00	27.55	85	87.88	100.00	27.48	90	83.84	100.00	27.74	*
Experience in line management	166	42.08	33.00	33.29	77	41.81	30.00	31.43	87	42.74	33.00	35.26	
Experience/qualifications in high-tech-based industries	158	29.06	15.00	34.21	72	30.89	16.50	34.59	84	27.62	12.50	34.39	
Experience/qualifications in engineering	161	21.99	15.00	25.08	75	20.53	15.00	22.23	81	22.52	12.50	26.70	

Significance level: * < 0.10, ** < 0.05, *** < 0.01, **** < 0.001

Significance levels indicated for the differences between international and local VC firms (chi-square tests or Mann-Whitney tests)

TABLE 4
Correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Log (number of investment executives)	1.000												
2.% of executives with doctorate degree	0.174**	1.000											
3.% of executives with experience in the VC/PE industry	-0.157**	-0.086	1.000										
4.% of executives with experience / qualifications in law	0.091	0.024	0.075	1.000									
5.% of executives with experience / qualifications in finance and accounting	-0.153**	-0.237***	0.237***	0.118	1.000								
6.% of executives with experience / qualifications in consulting / strategy	-0.036	0.027	0.339****	0.166**	0.013	1.000							
7.% of executives with experience in M&A	-0.059	-0.065	0.304****	0.243***	0.328****	0.310****	1.000						
8.% of executives with previous international work experience	-0.069	0.135	0.167**	0.191**	-0.082	0.399****	0.278****	1.000					
9. Log (number of years in operation)	0.488****	-0.074	-0.154**	0.024	-0.035	-0.150*	-0.174**	-0.194**	1.000				
10.% of executives with undergraduate degree	0.039	-0.230***	0.150*	0.130	0.131*	0.176**	0.124	0.264****	0.090	1.000			
11.% of executives with experience in line management	-0.215****	0.015	0.212***	0.050	0.033	0.349****	0.225***	0.499****	-0.173**	0.297****	1.000		
12.% of executives with experience / qualifications in high-tech-based industries	-0.119	0.307****	0.249***	0.127	-0.141*	0.392****	0.262****	0.435****	-0.269****	0.080	0.400****	1.000	
13.% of executives with experience / qualifications in engineering	-0.023	0.135	0.133*	0.121	-0.146*	0.277****	0.068	0.283****	-0.115	0.217***	0.292****	0.447****	1.000

Significance level: * < 0.10, ** < 0.05, *** < 0.01, **** < 0.001 (2-sided)
Spearman correlation coefficients

TABLE 5**Logistics regression of internationalisation by VC firm characteristics (N=125)**

Independent variables	Coefficients	Standard error	Significance
<i>General human capital</i>			
Log (number of investment executives)	2.826	0.834	***
% doctorate degree	0.001	0.011	
% experience in the VC/PE industry	-0.015	0.008	*
% experience / qualifications in law	0.015	0.014	
% experience / qualifications in finance and accounting	-0.013	0.009	
% experience / qualifications in consulting / strategy	0.017	0.011	
% experience in M&A	-0.002	0.009	
<i>Specific human capital</i>			
% previous international work experience	0.018	0.009	**
<i>Control variables</i>			
Constant	-1.250	1.271	
Log (age)	-0.961	0.809	
% undergraduate degree	0.002	0.009	
% experience in line management	0.004	0.009	
% experience / qualifications in high-tech-based industries	0.001	0.008	
% experience / qualifications in engineering	-0.025	0.012	**
N	125		
Nagelkerke R ²	0.348		
Percentage correctly predicted	68.8		

Significance level: * < 0.10, ** < 0.05, *** < 0.01, **** < 0.001

Dependent variable is 1 if the VC firm is international and 0 if the VC firm is domestic.