

The First Step of the Capital Flow from Institutions to Entrepreneurs: The Criteria for Sorting Venture Capital Funds

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JEL codes: G23, G24

Keywords: Entrepreneurial Finance, Venture Capital, Asset Allocation Criteria, Institutional Investor

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1. Introduction

The development of a vivid innovative entrepreneurial environment in a particular country is affected by the supply of capital to back risky ventures. Venture Capital (VC) funds provide a professional capital source for such ventures. It is well documented in literature, such as Levine (1997), Hellmann and Puri (2000), Kortum and Lerner (2000), Belke et al. (2003), and Fehn and Fuchs (2003) that VC-backed firms create more innovations, employment and growth than their peers. There exists a broad consensus that a strong VC culture is a cornerstone for commercialization and innovation in modern economies. However, the VC funds are not the first elements of the capital supply chain. They manage as General Partners (GPs) capital committed by their investors, the Limited Partners (LPs), e.g. pension funds, insurances, funds of funds, and endowments.¹ That opens the discussion about the selection criteria of those institutions when they allocate their capital to VC funds. This issue is of particular meaning because it addresses the flow of funds from the original suppliers via a chain of agents to the final destinations: risk capital seeking ventures. In fact, there are sometimes several levels of intermediaries within that chain of agents. All of these agents are in a similar competition for fundraising as the entrepreneurial ventures are. The same problem of sorting out the lemons as it is described in Akerlof (1970) is equally valid in the GP selection process. However, the specific context of delegated responsibility from LPs to GPs is under-researched. There is almost no scientific knowledge about the LPs' sorting criteria. We focus on this issue and run a comprehensive survey among 1,079 institutional investors world-wide to determine these criteria. We find that *Deal Flow and Access to Transactions*, the *Historical Track Record*, *Local (Host Country) Market Experience*, the *Match of the Team Background with the Proposed Investment Strategy*, the *Reputation of Team Members*, and the *Alignment of the LPs' and the GPs' Interests* are the priority

¹ Please refer e.g. to Sahlman (1990) for an extensive description and definition of LPs, GPs, and their relationship.

selection criteria. There are several other less important ones, but *Fee Structure* and the *Commitments of other Reputed LPs* are the least important. The results are robust towards different geographic regions, as well as towards different types and sizes of institutions. They confirm the notion that “Venture Capital is a people’s business”. The findings underline the importance for GPs to operate close to their investments, to build a strong operational network that secures deal flow, and to focus on long term quality to establish a successful track record. Institutional investors analyze if GP team staffing corresponds to the proposed investment focus and strategy, and if incentives are structured in a way that the interests of all involved parties are aligned. With respect to the fee structure, we learnt from LPs, that there is no meaningful variation across different funds. At the time of a fund closing, the level and structure of fees usually corresponds exactly to the prevailing market conditions. In general, of course, Limited partners would prefer a stronger performance oriented compensation, but there is always a split between a management fee and a share of the capital gain.

A principal component analysis reveals an interesting structure of the allocation process: Institutional investors’ selection of VC funds is driven by three main aspects, “*Local Expertise and Incentive Structure*”, “*Investment Strategy and Expected Implementation*”, and “*Prestige/Standing vs. Cost*”. Hence, it becomes evident that Limited Partners apply the same criteria when sorting GPs as GPs apply when selecting promising ventures. They search for teams that are able to implement a certain strategy at given cost. Thereby, they try to create an incentive structure that mitigates agency costs.

The results contribute to a better understanding of entrepreneurial finance. VC funds are the agents of their investors, just as the entrepreneurial teams are agents of the VCs. The procedure for selecting promising investments are applied (at least) two times in the Venture Capital allocation process, first at the stage(s) of the institutional investors, and second, between the VC fund and the entrepreneurial venture. A business plan written by an

entrepreneur is equally treated as a VC's offering memorandum when she raises a fund. Entrepreneurs should be familiar with this process when they seek Venture Capital backing: It is all about people, their expected ability to implement a certain strategy, and about incentive structures. The way VCs approach entrepreneurial ventures corresponds to the way they are approached by themselves.

The paper is structured as follows: First, we provide an overview of related literature. Then, we describe our survey among institutional investors, the targeted population, and the resulting sample. Subsequently, we derive our results, perform robustness checks and conclude.

2. Literature Review

Literature about the allocation process in the VC relationship can be split into three segments. First, there exist numerous contributions on the macroeconomic level to determine the conditions required for a vivid risk capital market segment. These papers focus on the geographical flow of funds. As a second strand, the processes and criteria that GPs apply when selecting entrepreneurial ventures is well discussed. However, the third strand, papers that focus on the allocation step in between, which is the flow of capital from institutional investors to VC funds, are rare. This is surprising, as the selection criteria of the investors that channel funds into the asset class in the first step are as important as the GPs' criteria which subsequently direct these funds to entrepreneurial ventures. The importance also results from the fact that this first step of the allocation process determines the aggregate funds available to back entrepreneurial ventures.

We summarize these three strands of literature and subsequently point to our paper's contribution.

2.1. *Literature on International Allocation Determinants*

Fried and Hisrich (1989), stress that the first determinant for the international VC allocation process is the overall portfolio weight of the VC exposure. This is a strategic choice and depends on an LP's size, its type, and the expected return/diversification benefits, among other individual criteria. However, the next step is to decide upon a geographic segmentation. The investors have to estimate the future demand for VC in certain countries or regions, and hence, the chances that their capital becomes invested in successful ventures. Therefore, it is important for them to assess certain parameters that contribute to the success of start-up corporations and to the demand for VC in a particular country, and this establishes the first strand of literature.

Gompers and Lerner (1998) point out that there are more attractive opportunities for entrepreneurs if the economy is growing quickly. Wilken (1979) argues that economic development facilitates entrepreneurship as it provides a greater accumulation of capital for investments. The ease of start-ups is expected to be related to societal wealth, not only due to the availability of start-up financing, but also to higher income among potential customers. Romain and van Pottelsberghe de la Potterie (2004) find that VC activity is cyclical and significantly related to GDP growth.

Beside the general economic conditions, the development of a national capital market influences the VC segment. Bygrave and Timmons (1985) reveal that VC activity is strongly related to the IPO market. Jeng and Wells (2000) stress that the main force behind the cyclical swings in the VC market is the IPO activity because it reflects the potential return to the VC funds. Kaplan and Schoar (2005) confirm this finding. Black and Gilson (1998), Gompers and Lerner (2000), and Schertler (2003) point out that risk capital flourishes in countries with deep and liquid stock markets.

Legal structures and the protection of property rights also influence the activity of a national VC market. La Porta et al. (1997 and 1998) confirm that the legal environment strongly determines the size and extent of a country's capital market and local firms' ability to receive outside financing. Glaeser et al. (2001), and Djankov et al. (2003 and 2005) suggest that parties in common-law countries have greater ease in enforcing their rights from commercial contracts. Cumming et al. (2006) find that the quality of a country's legal system is even stronger connected to facilitating VC-backed exits than the size of a country's stock market. Cumming et al. (2010) extend this finding and show that cross-country differences in legality, including legal origin and accounting standards, have a significant impact on the governance of investments in the VC industry. Cumming and Johan (2007) highlight that the perceived importance of regulatory harmonization increases institutional investors' allocations to the asset class. La Porta et al. (2002) find lower cost of capital for companies in countries with better investor protection, and Lerner and Schoar (2005) confirm these findings.

Access to viable investments is another important factor for the activity of a regional VC market. In order to foster a growing risk capital industry, Megginson (2004) argues that R&D culture, especially in universities or national laboratories, plays an important role. Gompers and Lerner (1998) show that both, industrial and academic R&D expenditure is significantly correlated with VC investments. Kortum and Lerner (2000) highlight that the growth in VC fundraising in the mid-90s in the US may be due to a surge of patents in the 1980s and 1990s. Schertler (2003) emphasizes that the number of employees in the field of R&D, and the number of patents, as an approximation of the human capital endowment, has a positive and highly significant influence on VC activity. Romain and van Pottelsberghe de la Potterie (2004) find that the level of entrepreneurship interacts with the R&D capital stock, with technological opportunities, and the number of patents.

2.2. Literature on the Selection of Entrepreneurial Ventures

The second strand of literature focuses on the GPs' selection process of entrepreneurial ventures. Macmillan et al. (1985) run a survey among 150 GPs in the US. They report the importance of the "jockey" (the entrepreneur), and not the "horse" (the product) for the GPs' selection process. In a follow-up project, Macmillan et al. (1987) suggest 25 screening and several performance determinants for start-up corporations and find five drivers that GPs apply in their screening process. The drivers express the risk of failure related to unqualified management, related to qualified but inexperienced management, related to the project risk, to the venture's competitive position, and to expected divestment difficulties and horizons. Robinson (1987) collects data on the decision criteria of 53 VC senior partners. The first three criteria in order of importance are personal motivation, organizational/managerial skills, and executive/managerial experience. Roure and Keeley (1990) propose 11 criteria to predict a venture's performance. They show for a sample of 36 VC transactions that 7 criteria are indeed discriminative. Hall and Hofer (1993) criticize that prior literature has so far not considered that the various investment phases, which VC focus on, require different decision criteria. Norton (1995) provides a comprehensive summary of literature contributions to the selection criteria applied by GPs under agency theoretic aspects. Cumming (2006) adds to this discussion and focuses on the immanent adverse selection problem. He analyzes how GPs respond to the selection problem via the capital structure choice and via syndication. Fried and Hisrich (1994) do not focus on individual decision parameters, but develop a general decision making model for the GP's selection process. Similarly, Zacharakis and Meyer (2000) perform an experiment among 53 VCs. They show that too much information and too many criteria can hinder a VC's decision process. They recommend the use of actuarial models and detect that only a very few VCs use some kind of factor checklist for their allocation decisions. Baum and Silverman (2004) investigate for Canadian biotechnology start-ups the role of VCs as "scouts" to identify future potential, and as

“coaches” to realize it. They find that VCs identify successful technologies, and thereby, are attracted by management team characteristics. Unfortunately, they rather tend to overemphasize these characteristics, and lack the ability to identify start-ups with inherently superior management teams. Wright and Robbie (1996) provide many financial and non-financial investment decision criteria, and importance rankings gained via a survey among 66 British VCs. Similarly, Kryzanowski and Giraldeau (2001) determine such criteria from 68 Canadian, and 82 US Venture Capital funds. Osnabrugge and Robinson (2001) investigate the influence of the origins of the committed capital for a GP’s management style and investment preferences. They differentiate independent funds, which are not associated with a parent organization, and captive funds, which are established by, and manage capital of a parent firm. They claim that independent funds are slightly more thorough in their investment process.

2.3. *Literature on the Selection of GPs*

Beside the large body of literature dealing with the macro-economic environment that spurs active VC markets, and the selection criteria applied by GPs when sorting entrepreneurial ventures, the third strand of literature is rather small, and only a little is known about the relationship between LPs and GPs. Just a few papers focus on the selection process of LPs on a more detailed level. Gompers and Lerner (1998), for example, find that historic fund performance is an important determinant of a GP’s ability to raise a new fund. They argue that this pattern is not irrational regarding the findings of Grinblatt et al. (1995), and also point to Sirri and Tufano (1998) who show for mutual funds that they receive more commitments if they outperform their peers. Gompers and Lerner (1998) also address the role of a GP’s reputation for fundraising: Firm age and size positively affect fundraising, and additionally, reputation gained by successful IPO exits increases the chances to raise a subsequent fund and its size. Kaplan and Schoar (2005) confirm the effect of historic performance on the size of follow-on funds, and they also proof the rationality of considering

past performance as decision parameter: There exists strong performance persistence for VC funds. Successful funds tend to be the more successful funds in the future, and vice versa.

Similar to us, Fried and Hisrich (1989) directly approach the sources of VC, and interview representatives of 18 LPs, respectively closely related businesses. They detect five general criteria for the selection of GPs: people, teamwork, prior performance, discipline, and strategy. Barnes and Menzies (2005) also address the LPs' allocation criteria by interviewing 21 players. They find that LPs follow clear procedures when (annually) allocating their VC exposure. The goal is to determine a GP's reputation which is used as proxy for future performance.

We contribute to the existing literature by addressing the primary source for Venture Capital directly: We perform a world-wide survey among institutional investors that invest in VC funds, and analyze their GP selection criteria. We present the survey, the methodology, and the results in the following sections.

3. The Survey

Due to space limitations we cannot describe the questionnaire in detail, but attach it as Appendix to this paper. The questionnaire is divided into two parts. The first part contains some descriptive information on the respondent's institution in terms of its type, its size, and allocations. The second part deals with the GP selection criteria.

The survey was sent in January 2007 via email to 1,079 institutional investors world-wide. The geographic distribution of the addressees is as follows: 77% USA and Canada, 17% Europe, 5% Asia, and 1% others. The addresses are collected from four commercial

databases.² It is not known what the entire population of potential LPs is in terms of numbers and funds under management. A reliable or official list of institutional investors that qualify for VC partnerships does not exist. Each of the three databases claims to cover the whole population of potential LPs. But, in matching them, we increase the number of players and, hence, gain a unique world-wide compendium of potential Limited Partners. Furthermore, we check several references and actively search for important and well-known LPs manually in our repository. We deliberately attempt to cover as many LPs as possible. Nevertheless, matching the databases and the cross-checks might not secure that our database covers the entire LP population. Regarding the geographical distribution of investors, for example, we have the following concern: Even though the USA, as an economic region and as the best developed financial market, probably embodies the biggest (in terms of fund volumes), most sophisticated, and the largest number of LPs, other regions, notably Asia, might be under-represented. However, in terms of funds under management, our data collection should reliably represent the population. Our cross-checks should guarantee that none of the larger LPs is missing, be it in the USA, Europe or Asia, and the larger institutions are the more important ones in terms of their market weight.

From the 1,079 Limited Partners addressed we received from 75 valuable responses. The number of responses is not large but still satisfying, when compared to other studies that collect primary data from VC market participants by means of a questionnaire. For instance, Lerner and Schoar (2005) collect data from 28 Private Equity funds, and Köke (1999) considers a sample of only 21 responses. The responding LPs are segmented into the following groups: corporate investors, government agencies, banks, pension funds, and insurance companies, funds of funds, endowments, and “not available”. A geographic

² Dow Jones and Company: The Directory of Alternative Investment Programs, Dow Jones and Company: Galante's Venture Capital & Private Equity Directory, Private Equity Intelligence: The Global Fund Raising Review, and Private Equity International: The Global Limited Partners Directory.

distinction is made according to the origin of the investors: USA and Canada, Europe, and rest of the world. The segments are presented in Table 1.

Type of Investor	Occurrence	Origin of Investor	Occurrence
Corporate Investors	4	USA and Canada	34
Government Agency	1	Europe	38
Banks	3	Rest of the World	3
Pension Funds	8		
Insurance Companies	1		
Funds of Funds	29		
Endowments	2		
Others	26		
Not Available	1		

Table 1: Segmented Respondents (Type and Origin of Investors)

Unfortunately, the response rate from LPs that do not differentiate themselves among the proposed investor sub-groups is quite large, and therefore, only the ‘funds of funds’ group can be distinguished as homogeneous. The “Others” group consists of “fund advisers”, “gate-keepers”, “independent asset managers”, “corporate finance institutions”, and “other asset managers”. This is the segmentation made in the commercial databases. Unfortunately, we cannot find out about the mix in our sample, because this differentiation was not made in the questionnaire. Furthermore, we obtained more answers from European LPs (49.3% of all the answers), as compared to their occurrence in our depository of 17%.

59 respondents provided information regarding the size of the managed funds, and from 68 we received their percentage allocation in the VC asset class. Table 2 presents the sample segmented by size and by the world-wide percentage allocation in the VC asset class.

Fund Size	Occurrence	VC Allocation	Occurrence
< € 100 mn	9	< 30%	29
€ 100 – 999 mn	18	30% - 89%	8
€ 1,000 – 9,999 mn	23	90% - 100%	31
> € 9,999 mn	9		

Table 2: Segmented Respondents (Fund Size) and VC/PE Allocation

The fund sizes are relatively heterogeneous, while the exposure in the VC asset class is not. A large portion of the funds allocates 90% or more of their funds under management into the asset class. Summarizing the descriptive statistics, we claim that we received a diverse sample of LPs, with respect to size, type, geographical origins, and with large exposure in the VC asset class. However, these criteria might not sufficiently represent the population of LPs, and hence, we face a sample selection bias. Consequently, in a subsequent section of this paper, we address the bias caused by a potentially incompletely covered population of addressees, and by self-selection in our sample. Prior to that, we present the survey results, and comprehensively analyze the respondents' GP selection criteria.

4. Analyses

Within the survey, we use 7-point Likert Scales ranging from *not at all important* (=1) to *very important* (=7) for the nomination of several proposed GP selection criteria. Given the characteristics of this survey technique, the data collected are of an ordinal scale. However, one cannot assume that the respondent estimates the difference between a score of 6 and a score of 7 is the same as between a score of 3 and being 4. The ordinal nature of the responses must be respected when analyzing the data. Hence, we present the first moments of the importance distributions, but base our conclusions on statistical tests that determine a ranking of the selection criteria. Throughout this paper, we apply non-parametric methods to investigate differences among the selection criteria, or between sub-groups of our sample. These are namely the Mann Whitney U Tests for two unrelated samples and Wilcoxon Signed Rank Tests for paired samples. Within the tests, we follow the approach of not having prior expectations regarding the location of central parameters and hence, define non-directional alternative hypotheses. Finally, we run principal component analysis to reveal a common response structure.

The results retrieved from Likert scales might be subject to distortion from several causes.³ Respondents may avoid using extreme response categories (central tendency bias), agree with statements as presented (acquiescence bias), or try to portray themselves or their organization in a more favorable light (social desirability bias). However, we expect to face no other than a central tendency bias in the LPs' responses, because we do not provide prepared statements nor do we ask for information that could increase the respondent's prestige.

We propose several allocation criteria and ask the addressees about their importance in the GP sorting process. Our choice of criteria depends on the findings in literature, on our own expertise, and on pre-held interviews with LPs. To ensure that no selection determinant is missed out in our questionnaire, we ask the respondents in parallel to determine their three most important decision criteria using keywords. The analyses of these keywords reveal that no determinant was omitted. Figure 1 presents the (self-explaining) criteria, the mean importance nominations (black squares), and their standard deviations (bars to the left [- σ] and to the right [+ σ]).

³ See e.g. Barnett (1991).

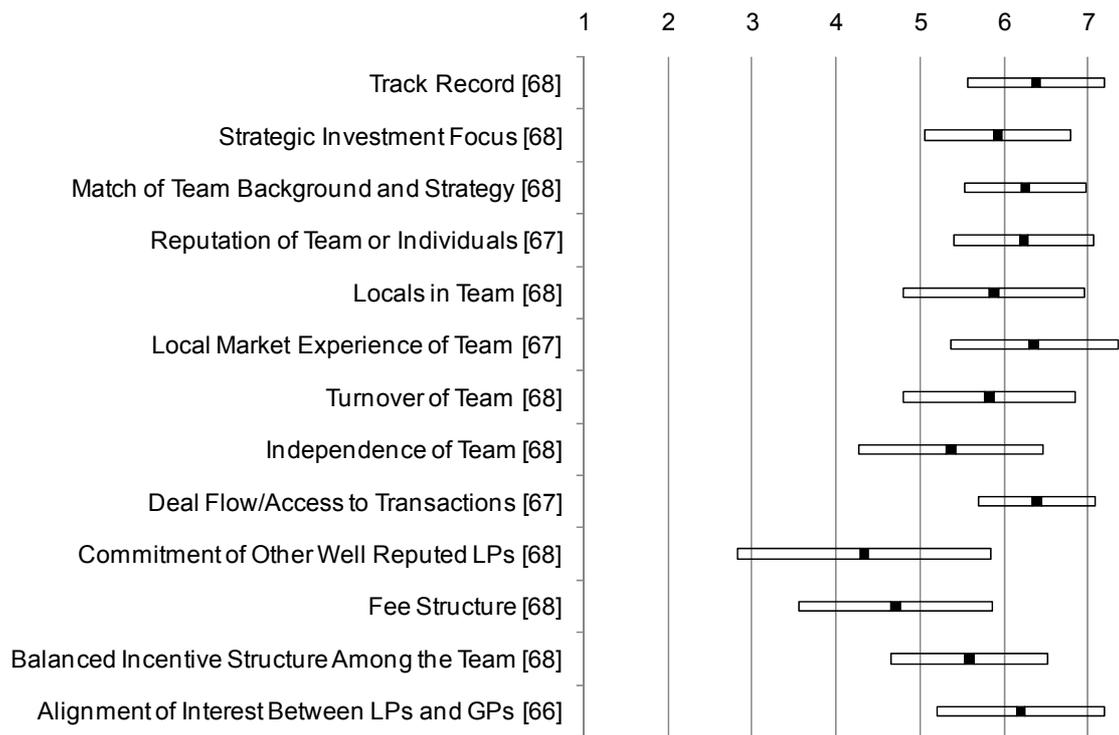


Figure 1: Selection Criteria, Number of Responses [#], Mean Importance Nominations and their Standard Deviations

The means of the ratings for each determinant vary from 4.3 for *Commitment of Other Well Reputed LPs* to 6.4 for *Deal Flow/Access to Transactions*. However, especially among the top criteria, the difference in means is only very small, which points to the above discussed potential central tendency bias. We try to overcome this bias by running pair-wise Wilcoxon Signed Rank Tests. This non-parametric test is adequate to determine if there is a difference of the central parameters of two related samples. Hence, we test every criterion against all others, using the hypotheses that the mean importance nominations of the two criteria are equally important: $H_0: \mu_i = \mu_k$ and $H_1: \mu_i \neq \mu_k$. Table 3 presents the matrix of these test results.

Z Sig. (Two-Tailed)	Strategic Investment Focus	Match of Team Background and Strategy	Reputation of Team or Individuals	Locals in Team	Local Market Experience of Team	Turnover of Team	Independence of Team	Deal Flow/Access to Transactions	Commitment of Other Well Reputed LPs	Fee Structure	Balanced Incentive Structure Among the Team	Alignment of Interest Between LPs and GPs
Track Record	2.989 .003	1.076 .282	1.198 .231	3.006 .002	.318 .750	3.966 .000	5.042 .000	.082 .935	6.706 .000	6.488 .000	4.899 .000	.864 .387
Strategic Investment Focus		2.896 .004	2.268 .023	.118 .906	3.393 .001	.602 .547	3.663 .000	3.566 .000	6.046 .000	5.845 .000	2.252 .024	1.791 .073
Match of Team Background and Strategy			.042 .966	2.599 .011	1.492 .136	3.159 .002	5.358 .000	1.480 .139	6.328 .000	6.329 .000	4.398 .000	.212 .832
Reputation of Team or Individuals				2.449 .014	1.472 .141	2.865 .004	4.992 .000	1.340 .180	6.447 .000	6.219 .000	3.974 .000	.186 .852
Locals in Team					4.281 .000	.343 .732	3.334 .001	3.399 .001	5.617 .000	5.478 .000	2.298 .022	2.157 .031
Local Market Experience of Team						4.341 .000	5.367 .000	.071 .944	6.359 .000	6.418 .000	4.720 .000	1.400 .162
Turnover of Team							3.547 .000	4.165 .000	5.609 .000	5.731 .000	1.858 .063	2.924 .003
Independence of Team								5.924 .000	4.072 .000	3.343 .001	1.258 .208	4.593 .000
Deal Flow/Access to Transactions									6.771 .000	6.650 .000	5.198 .000	1.522 .128
Commitment of Other Well Reputed LPs										2.219 .026	5.017 .000	5.826 .000
Fee Structure											4.874 .000	6.193 .000
Balanced Incentive Structure Among Team												4.287 .000

Table 3: Matrix of the Pair-Wise Wilcoxon Signed Rank Tests Results (Test Values and Two-Tailed Significance Levels)

Table 3 shows the test values of the pair-wise Wilcoxon Signed Rank Tests and the corresponding significance values of the test variable. The test hypotheses cannot be rejected in many cases at the 0.05 significance level, and hence, a final ranking of the selection criteria is impossible to obtain. Some of the criteria are tied. However, we illustrate the test results in Figure 2, where we determine tier groups of criteria importance.

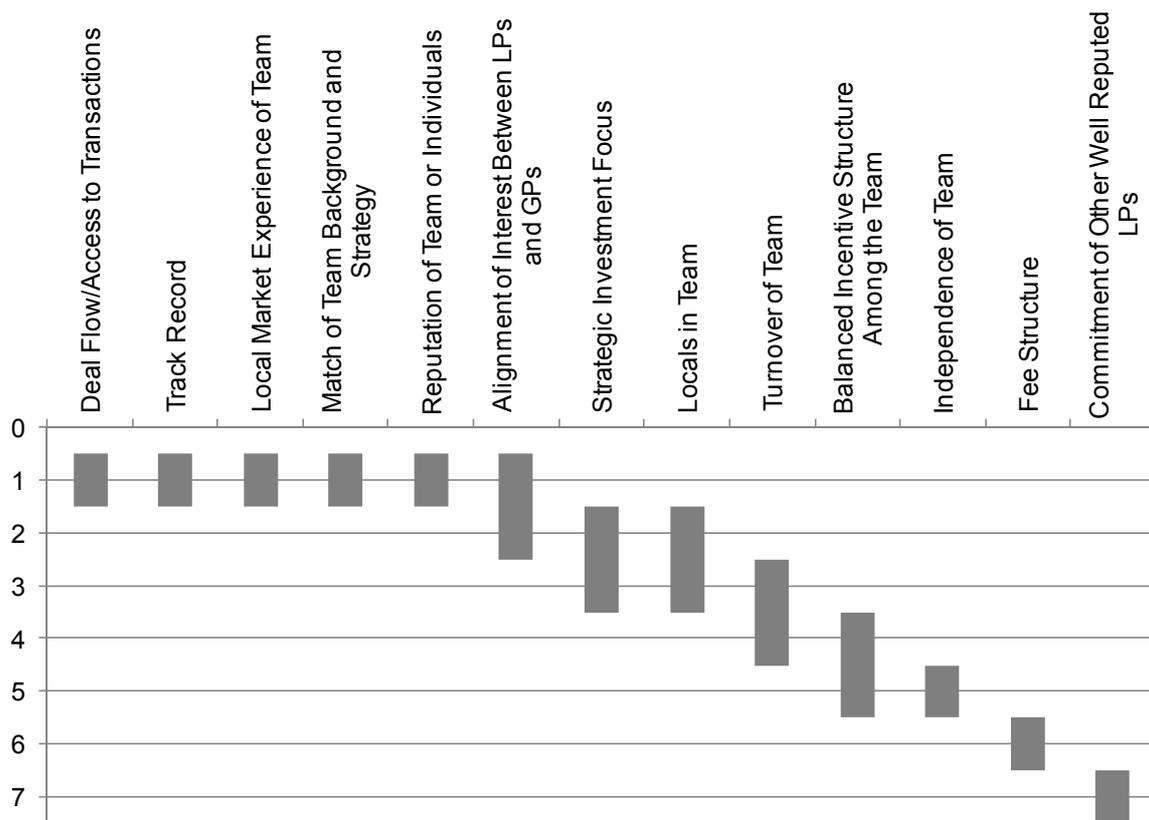


Figure 2: Ranking of GP Selection Criteria

Figure 2 shows that according to the pair-wise Wilcoxon Signed Rank Tests, the criteria, *Deal Flow/Access to Transactions*, *Track Record*, *Local Market Experience*, *Match of Team Background and Strategy*, and *Reputation of Team or Individuals* form the top tier, and *Strategic Investment Focus* and *Locals in Team* form the second tier group. However, in a subsequent section of this paper we detect the consequences of a selection bias in our sample and realize that the *Reputation of Team or Individuals* rather ranks in the second tier group than in the first one.

It is not clear, if the criterion *Alignment of Interest Between LPs and GPs* belongs to the first or to the second tier group. This is similar for *Turnover of Team*, which also classifies for the second and the third tier group. However, it is clearly ranked less important than *Alignment of Interest Between LPs and GPs*. *Balanced Incentive Structure Among the Team*

is either as important as *Turnover of Team* or forms the next tier group, together with *Independence of Team*. In any case, the criterion is less important than *Locals in Team*. The *General Level of Fees* and the *Commitment of Other Well Reputed LPs* follow the ranking in that order.

The results directly confirm the finding of Gompers and Lerner (1998) who show that historic performance determines the chances for fundraising. This also yields to Kaplan and Schoar (2005) who find strong performance persistence for VC funds and hence, provide the proof, that the historic track record has predictive power for future performance. However, from the results we gain many more insights into the allocation process of institutional investors. First, LPs pay attention to the GPs' staffing policy, especially, if the staff corresponds to the proposed investment strategy. Second, LPs want their investees to act locally to provide competitive advantages. Third and this is directly related to the aforementioned criteria, the most sophisticated strategy, local market experience, and a successful track record are meaningless if deal flow and access to transactions is not granted. The latter determinant represents the likelihood to be approached by entrepreneurs, and deal supplying institutions or individuals, and is particularly depending on two characteristics: the quality of the GP's network and his reputation.

Hence, reputation plays a very important latent role to receive funding from institutional investors, because reputation likewise affects several other criteria. On the other side, reputation is gained via an efficient and functional team, and by its track record. Therefore, the allocation criteria are strongly interrelated, and it is impossible to detect the real causal relationship. It is like a "chicken and egg problem": *Deal Flow and Access to Transactions* emerges if a team has a good reputation and a successful track record. However, developing a track record is only possible after a sufficient deal flow.

Focusing on the less important criteria, it remains to highlight that LPs do not consider a competitor's commitment if they decide about their own fund allocations. However, it is not

clear, if the ranking of this criterion is affected by some kind of the before mentioned social desirability bias.

Somewhat surprising is the fact, that LPs do not pay much attention to the fee structure. We learnt from them in additional interviews that the typical fee structure, based on fixed components, and a profit sharing rule, is commonly accepted.⁴ The institutional investors are aware that the complex structure of principals and agents is only maintainable and feasible if the compensation scheme is adapted accordingly. LPs are themselves performance oriented enumerated, and claim that: “Without the appropriate incentives between LPs and GPs, and between GPs and the entrepreneurs, there is no Venture Capital asset class.” The highly important ranked criterion *Alignment of Interest Between LPs and GPs* from Figure 2 points exactly to this issue. Even if the level and structure of fees is currently under scrutiny, and researchers, e.g. Phalippou (2009), claim that on average, the fees paid are not justified on a risk-adjusted base, LPs accept those structures. We learnt from them that there is not much variation in the fee structures across GPs and that at their closing, newly raised funds always comply with the level and structure of fees prevailing in the market.

In a further step, and to provide additional support for the discussion above, we determine the latent drivers of the GP selection process and run a principal component analysis among the responses. A detailed discussion of principal component analyses is carried out e.g. in Hair et al. (1998). The method is useful to detect a common response structure. This structure represents latent or superior criteria that affect the allocation decisions of all survey participants likewise. The general model for p responses and q principal components, or latent factors takes the form:

⁴ A comprehensive description and discussion of compensation models can be found in Bygrave et al. (1985), Jensen (1989a and 1989b), Sahlman (1990), Murray and Marriott (1998), Gompers and Lerner (1999a and 1999b), Metrick (2006), Metrick and Yasuda (2008), and Phalippou (2009).

$$x_i = \alpha_{i1}F_1 + \alpha_{i2}F_2 + \dots + \alpha_{iq}F_q + e_i \quad (i = 1, \dots, p) \quad (4).$$

Where x_i represent the responses given, and $\alpha_{i1}, \dots, \alpha_{iq}$ are the loadings related to the principal components F_1, \dots, F_q , while e_i are residuals. We assume that the principal components are uncorrelated with each other, and with the residuals. Further, they have zero means, and unit variance. Additionally, the residuals are uncorrelated with each other, have zero means, but not necessarily equal variances. The next step is to extract the first m components that explain the most of the variation in the given responses. The decision of when to stop extracting factors depends on the point when only little random variability remains. Various stopping rules have been developed as described in Dunteman (1989): Kaiser's Criterion, Scree Plot, variance explained criteria, Joliffe Criterion, Comprehensibility, Bootstrapped Eigenvalues and Eigenvectors. However, Kaiser's (1958) criterion is the most widely used stopping rule and recommends dropping all factors with an Eigenvalue below one because most of the total variance is determined by components beyond the Eigenvalue of one.

One of the preconditions for achieving good results in principle component analysis is to run tests for its suitability. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) and Bartlett's Test of Sphericity are such tests. The MSA value is based on the partial correlations among the input variables and should be above 0.5. Bartlett's Test of Sphericity proves that the correlation matrix is not an identity matrix. The test value should be below the 0.05 significance level. We achieve an MSA value of 0.67 and the p-value of the Bartlett's Test is 0.000. Hence, we proceed with the principle component analysis and determine the principal components' Eigenvalues, the percentage of variance explained and the cumulative percentage of variance explained by including the individual components. Tabel 4 presents the result.

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	3.892	29.940	29.940
2	1.898	14.603	44.542
3	1.716	13.203	57.745
4	.997	7.668	65.413
5	.938	7.216	72.628
6	.880	6.772	79.401
7	.634	4.874	84.275
8	.534	4.107	88.382
9	.460	3.541	91.923
10	.349	2.682	94.605
11	.283	2.176	96.781
12	.246	1.895	98.676
13	.172	1.324	100.000

Tabel 4: The Latent Drivers' Eigenvalues, Percentage of Explained Variance, and Cumulative Percentage of Explained Variance

From Table 4 we realize that three latent drivers determine the GP selection process. These three factors account for 57.75 % of the variance in the responses given. We extract the components, and rotate the matrix of the component loadings. For our purpose, the appropriate rotation method is the Varimax Rotation. Rotation is used to minimize and maximize the loadings of the particular criteria on the individual components. Ideally, each criterion is loaded exclusively on one of the latent drivers. Kline (1998) points out, that the rotation changes the factor loadings, and hence, the factors' interpretation, but leaves the analytical solutions *ex-ante* and *ex-post* rotation unchanged. Table 5 shows the reallocation of total, percentage, and cumulatively percentage explained variance after rotation, including the first three principal components.

Rotation Sums of Squared Loadings		
Total	% of Variance	Cumulative %
2.830	21.769	21.769
2.653	20.412	42.181
2.023	15.564	57.745

Table 5: The Extracted Components' Total Variance, Percentage and Cumulative Percentage of Explained Variance After Rotation

Finally, we determine the matrix of rotated factor loadings to interpret the latent GP selection criteria. This matrix is presented in Table 6.

Decision Criteria	Latent Drivers		
	1	2	3
Track Record	,026	,129	,696
Strategic Investment Focus	-,094	,645	,129
Match of Team Background and Strategy	,265	,743	-,313
Reputation of Team or Individuals	,120	,580	,073
Locals in Team	,823	,003	-,015
Local Market Experience of Team	,867	,062	,055
Turnover of Team	,691	,395	,341
Independence of Team	,098	,755	,104
Deal Flow/Access to Transactions	,186	,713	,068
Commitment of Other Well Reputed LPs	-,052	,017	,827
Fee Structure	,256	-,021	,709
Balanced Incentive Structure Among the Team	,337	,259	,310
Alignment of Interest Between LPs and GPs	,776	,167	,045

Table 6: Matrix of Rotated Factor Loadings

The rotation allows for interpretation of the three detected latent drivers. The criteria *Locals in Team*, *Local Market Experience of Team*, *Turnover of Team*, *Balanced Incentive Structure Among the Team*, and *Alignment of Interest Between LPs and GPs* have each their highest loading on component 1 (formatted bold in Table 6). Hence, the superior latent decision criterion number one can be called “*Local Expertise and Incentive Structure*”. The criteria *Strategic Investment Focus*, *Match of Team Background and Strategy*, *Reputation of Team or Individuals*, *Independence of Team*, and *Deal Flow/Access to Transactions* each have a high loading on the second principal component. Therefore, the second superior selection criterion can be named “*Investment Strategy and Expected Implementation*”. Finally, *Track Record*, *Commitment of Other Well Reputed LPs*, and *Fee Structure* each have a high loading on the third factor. As a consequence, the third latent factor represents the relationship “*Prestige/Standing vs. Cost*”.

Our approach and these findings merit clarification and further discussion: At the first stage, we present in Figure 1 the importance of several criteria evaluated by institutional investors when they decide about their asset allocation in particular Venture Capital funds. Since there is a large dispersion in the importance nominations, it is not clear which of the

criteria is the most important. Additionally, the responses could be affected by a central tendency bias. Therefore, we run Wilcoxon Signed Rank Tests to overcome a potential bias and to determine a ranking. The test results are presented in Table 3, and graphically in Figure 2. Unfortunately, the tests still fail to detect clear ranks for all of the allocation criteria, and we determine tier groups of importance. However, since many of the criteria are interrelated anyway, it remains difficult to provide a final ranking. For this reason, we perform principle component analysis to detect common drivers that affect the allocation decisions of institutional investors in Venture Capital funds. Extraction of three principal components and rotation of the matrix of factor loadings leads to the interesting finding that LPs evaluate GPs according to three criteria, in principle. We label these criteria “*Local Expertise and Incentive Structure*”, “*Investment Strategy and Expected Implementation*”, and finally, “*Prestige/Standing vs. Cost*”. Hence, the complex process to decide among particular GPs for capital commitments can be broken down to these three key determinants.

In summary, our findings are very similar to the results about the allocation criteria that GPs apply when sorting entrepreneurial ventures, as described in our literature overview. They are especially in line with the results from Macmillan et al. (1985) who stress the importance of the “jockey” (the entrepreneur), and not the “horse” (the product). They further support Macmillan et al. (1987), and Robinson (1987) who point to the qualification and experience of the entrepreneurial management team and its ability to implement a proposed strategy. They also confirm Norton (1995) and Cumming (2006) on the importance of the selection criteria and mechanisms to mitigate agency problems. It can be argued that the flow of capital from institutions to entrepreneurial ventures is a two-step process. Both steps, the flow from institutional investors to GPs and from GPs to entrepreneurial ventures, are characterized by severe agency problems as highlighted by Sahlman (1990). Hence, both steps of this allocation process follow very similar rules. LPs and GPs have to sort out the lemons. Both apply sorting criteria according to the expected success of the investment with

respect to the ability of teams to implement a certain strategy, and to the mitigation of agency conflicts.

In the following section, we describe how we detect if the presented results are exposed to a bias caused by the consideration of a sample of respondents which might not properly represent the population of LPs.

5. Sample Selection Bias

For the assessment if our results are exposed to a sample selection bias we analyze the response behavior of different sub-groups of respondents. As argued above, our sample might not sufficiently represent the population of limited partners with respect to the geographic origins of the respondents, the different types of investors, or their size. We perform Mann Whitney U Tests to detect different response behavior among the sub-groups. Therefore, we split the sample according to a particular characteristic and test if the response behavior among the sub-groups is identical. Hence, we test the hypotheses with the mean importance nominations of both sub-groups are equal: $H_0: \mu_i = \mu_k$ and $H_1: \mu_i \neq \mu_k$, where $\mu_{i,k}$ are the mean importance nominations for the individual decision criteria among the two sub-samples. If we detect differences among these importance nominations our results might be biased if our sample does not correctly represent the population. In the first test, we split our sample according to the geographical origin of the LPs into two regions: non-European and European LPs. Table 7 presents the descriptive statistics of the two sub groups, the test variables and the two-tailed significance values.

Non-European vs. European Funds		Track Record	Strategic Investment Focus	Match of Team Background and Strategy	Reputation of Team or Individuals	Locals in Team	Local Market Experience of Team	Turnover of Team	Independence of Team	Deal Flow/Access to Transactions	Commitment of Other Well Reputed LPs	Fee Structure	Balanced Incentive Structure Among the Team	Alignment of Interest Between LPs and GPs
Sample Descriptive Statistics, Test Values and Results														
Non-European	N	31	31	31	30	31	31	31	31	31	31	31	31	30
	Mean	6.26	6.06	6.39	6.00	6.06	6.39	5.90	5.39	6.39	3.94	4.68	5.71	6.27
	Std. Deviation	.930	.814	.715	.871	.929	.803	.746	1.202	.761	1.672	1.137	.693	.785
European	N	36	36	36	36	36	35	36	36	35	36	36	36	35
	Mean	6.47	5.81	6.11	6.42	5.72	6.34	5.72	5.33	6.40	4.67	4.75	5.53	6.17
	Std. Deviation	.696	.920	.708	.770	1.186	1.162	1.210	1.042	.651	1.309	1.180	1.082	1.150
	Mann-Whitney U	501.5	465.5	431.0	391.5	467.5	521.5	534.5	539.5	532.5	432.0	528.5	517.0	514.5
	Z	.793	1.244	1.752	2.063	1.204	.305	.311	.241	.142	1.619	.386	.549	.150
	Sig. (Two-Tailed)	.428	.213	.080	.039	.228	.761	.756	.810	.887	.105	.699	.583	.880

Table 7: Descriptive Statistics of the non European and European Sub Samples, and Mann Whitney U Test Results

Table 7 depicts the descriptive statistics if we split the sample into non-European and European funds. N is the number of LPs in the particular geographic region who responded to the question. Further, the mean and the standard deviation of the importance nominations are presented. The panel below contains the Mann-Whitney U Test-values, the z-scores, and the resulting two-tailed significance levels. The tests reveal that the null-hypothesis must be only rejected for the criterion *Reputation of Team or Individuals*. European LPs pay more attention on that determinant than LPs in the rest of the world. This signals that our findings regarding the importance of that criterion are biased towards a high ranking because European funds are over-represented in our sample of respondents, as compared to our repository of LPs world-wide. If we reweigh the mean importance nominations of both sub-groups according to their representation in our overall database of the 1,079 funds addressed, we gain a mean importance of 6.07 ($=17\%*6.42+83\%*6.00$). This method of correction likewise implies that our overall database sufficiently represents the institutional investors' universe. Unfortunately, this is, as discussed above, not guaranteed. However, we

claim that there is no better depository of world-wide LPs' addresses available. As a result, *Reputation of Team or Individuals* does not belong to the first tier group of criteria as reported in Figure 2, but rather is ranked on an equal level with *Alignment of Interest Between LPs and GPs*.

In a next step, we split the sample into Funds of Funds and Others, and present the descriptive statistics of the sub samples and the Mann-Whitney U Tests in Table 8.

Funds of Funds vs. Others		Track Record	Strategic Investment Focus	Match of Team Background and Strategy	Reputation of Team or Individuals	Locals in Team	Local Market Experience of Team	Turnover of Team	Independence of Team	Deal Flow/Access to Transactions	Commitment of Other Well Reputed LPs	Fee Structure	Balanced Incentive Structure Among the Team	Alignment of Interest Between LPs and GPs
Funds of Funds	N	27	27	27	26	27	27	27	27	27	27	27	27	26
	Mean	6.48	5.89	6.44	6.23	6.15	6.56	6.07	5.41	6.56	4.26	4.85	6.00	6.54
	Std. Deviation	.802	.847	.577	.908	.864	.751	.829	1.118	.506	1.701	.989	.784	.508
Others	N	41	41	41	41	41	40	41	41	40	41	41	41	40
	Mean	6.32	5.95	6.12	6.24	5.71	6.23	5.66	5.34	6.28	4.39	4.61	5.32	5.98
	Std. Deviation	.820	.893	.781	.799	1.167	1.121	1.109	1.109	.784	1.394	1.243	.934	1.165
	Mann-Whitney U	485.5	528.0	433.0	524.0	424.0	434.5	439.0	535.0	448.5	545.0	502.0	346.5	382.0
	Z	.954	.343	1.656	.125	1.721	1.517	1.510	.240	1.295	.109	.672	2.754	1.964
	Sig. (Two-Tailed)	.340	.732	.098	.900	.085	.129	.131	.810	.195	.913	.502	.006	.050

Table 8: Descriptive Statistics of the non Funds of Funds and Others Sub Samples, and Mann Whitney U Test Results

Analogue to Table 7, Table 8 reveals that Funds of Funds pay more attention to the principle of interest alignment than other institutional investors. The null-hypotheses have to be rejected for the criteria *Balanced Incentive Structure Among the Team* and *Alignment of Interest Between LPs and GPs*. Funds of Funds are on a higher level of the intermediary relationship and cannot (must not, according to their fund indentures) directly invest in any assets, but have to diversify among other funds. Hence, they focus on the self-regulating mechanisms resulting from the alignment of interest of the involved parties. The interest alignment along the chains of subsequent agents saves the investors cost for monitoring and bonding. Unfortunately, we cannot assess the magnitude of a bias caused by this different

response behavior because we are unable to control for the over-/under representation of Funds of Funds in our sample. We gain the precise information on the type of the institutional investor from our survey only. There is no qualitatively satisfying classification available from the data sources we used to create our repository of addressees. Since we don't know about the proportion of Funds of Funds within the universe of institutional investors, it is impossible to detect if our results are exposed by a bias resulting from a different response behavior of Funds of Funds.

In the next robustness check, we split our sample into smaller and larger institutions at the median fund volume. We present the number of responses according to the resulting sub samples, the mean importance nominations for the individual criteria, the standard deviations, the Mann-Whitney U Test values, and the resulting two-tailed significance levels for the hypotheses that the mean importance nominations for the two sub-samples are equal, $H_0: \mu_i = \mu_k$ and $H_1: \mu_i \neq \mu_k$ in Table 9.

Smaller Funds vs. Larger Funds		Track Record	Strategic Investment Focus	Match of Team Background and Strategy	Reputation of Team or Individuals	Locals in Team	Local Market Experience of Team	Turnover of Team	Independence of Team	Deal Flow/Access to Transactions	Commitment of Other Well Reputed LPs	Fee Structure	Balanced Incentive Structure Among the Team	Alignment of Interest Between LPs and GPs
Sample Descriptive Statistics, Test Values and Results														
Smaller Funds	N	26	26	26	26	26	25	26	26	25	26	26	26	26
	Mean	6.54	6.12	6.08	6.19	5.88	6.16	5.69	5.27	6.36	5.15	4.88	5.54	5.88
	Std. Deviation	.761	.711	.688	.849	1.211	1.313	1.225	1.151	.757	1.347	1.107	.989	1.275
Larger Funds	N	29	29	29	28	29	29	29	29	29	29	29	29	27
	Mean	6.34	5.90	6.38	6.32	6.03	6.62	5.90	5.55	6.41	3.72	4.66	5.76	6.48
	Std. Deviation	.857	.900	.677	.772	.981	.622	.817	.985	.682	1.412	1.143	.830	.643
	Mann-Whitney U	328.0	331.5	288.0	336.0	352.0	289.5	363.5	330.5	353.5	177.5	351.5	339.5	255.5
	Z	.953	.822	1.672	.525	.450	1.459	.241	.816	.173	3.435	.449	.681	1.849
	Sig. (Two-Tailed)	.340	.411	.094	.600	.653	.145	.810	.414	.863	.001	.653	.496	.064

Table 9: Descriptive Statistics of the Larger and Smaller Funds Sub Samples, and Mann Whitney U Test Results

Table 9 reveals that the null hypothesis must be rejected for the criterion *Commitment of Other Well Reputed LPs*. Smaller funds pay a higher attention to their co-investors than

larger funds. This characteristic could establish some kind of herding behavior in the selection process. Consequently, the importance of this criterion is biased downward in our analyses if our sample does not sufficiently cover smaller institutional investors. As mentioned before, it is more likely that we miss smaller players than large players in our sample due to the efforts and crosschecks during the collection of the survey addressees. However, the mean importance nomination of the smaller players of 5.15 is still low, and only higher than the mean importance nomination of the *General Level of Fees*. As a result, it is only the latter criterion that *Commitment of Other Well Reputed LPs* could exchange its rank with, and the reputation of co-investors finally never receives a high importance. Hence, our overall results are hardly affected by a potential selection bias towards larger Limited Partners.

In a final robustness check, we split the sample at the median VC percentage exposure level to analyze if there is a different response behavior between those LPs that exclusively focus on VC investments and the others. Analogue to the proceeding robustness checks, we present the number of responses from the resulting sub samples, the mean importance nominations, their standard deviations, the Mann-Whitney U Test values, and the resulting two-tailed significance levels for the test hypotheses $H_0: \mu_i = \mu_k$ and $H_1: \mu_i \neq \mu_k$ in Table 10.

VC Specialized vs. Others		Track Record	Strategic Investment Focus	Match of Team Background and Strategy	Reputation of Team or Individuals	Locals in Team	Local Market Experience of Team	Turnover of Team	Independence of Team	Deal Flow/Access to Transactions	Commitment of Other Well Reputed LPs	Fee Structure	Balanced Incentive Structure Among the Team	Alignment of Interest Between LPs and GPs
VC Specialized	N	27	27	27	26	27	27	27	27	26	27	27	27	27
	Mean	6.44	6.04	6.44	6.23	5.89	6.37	5.96	5.41	6.54	4.59	4.81	5.93	6.44
	Std. Deviation	.751	.808	.577	.908	1.281	1.305	1.018	1.185	.508	1.575	1.039	.829	1.013
Others	N	36	36	36	36	36	35	36	36	36	36	36	36	34
	Mean	6.31	5.92	6.11	6.22	5.92	6.40	5.69	5.31	6.31	4.11	4.64	5.47	6.06
	Std. Deviation	.889	.841	.747	.797	.906	.651	1.037	1.064	.786	1.508	1.246	.941	.952
	Mann-Whitney U	451.5	448.5	370.5	452.0	453.0	404.0	407.0	463.0	408.0	395.0	464.5	365.5	325.0
	Z	.535	.560	1.779	.246	.487	1.102	1.156	.331	.951	1.292	.311	1.793	2.130
	Sig. (Two-Tailed)	.593	.575	.075	.805	.626	.270	.248	.741	.342	.197	.756	.073	.033

Table 10: Descriptive Statistics of the VC Specialized and Other Investors Sub Samples, and Mann Whitney U Test Results

Table 10 shows, once more, that only for the *Alignment of Interest Between LPs and GPs* the null hypothesis must be rejected. The result is similar to the robustness check presented in Table 8, and a closer look on the sub-group with the larger VC percentage exposure reveals that these funds likewise classify themselves Funds of Funds almost exclusively. Hence, we can label them VC Funds of Funds. This underscores the finding about the importance of interest alignment in the VC agency relationships. The institutions that rely more on their subsequent agents and those that do not diversify among other asset classes pay more attention to the mechanisms to align the interests of all participants.

Summarizing the analyses on a selection bias in our sample, we find that our results might be biased regarding the importance of the criteria to mitigate agency conflicts through the alignment of interest in the VC intermediary relationship. This bias might be caused by an over-/under-representation of Funds of Funds in our sample of respondents. However, since we do not know if there is an over-/under-representation of this type of investor, we are unfortunately unable to correct for this potential bias. Similarly, our finding regarding the

selection criterion that establishes a herding behavior in the allocation process might be biased towards a too low importance. In fact, LPs could pay more attention on their competitors than we detect. This bias results from the possibility that our sample does not sufficiently cover small institutions. Our repository of potential Limited Partners rather misses out some smaller players than larger ones. Additionally, smaller players might be less willing to respond to a survey like ours because they might have fewer staff to share the workload. On the other side, in terms of their market weight, smaller players are less meaningful than the larger ones. However, the importance of the criterion *Commitment of Other Well Reputed LPs* might be underestimated and we cannot control for that for the same reason as mentioned above. But, if the importance of this criterion is underestimated, the effect is not large as the smaller investors likewise rank the importance of the criterion at 5.15 on average. Hence, the importance only passes the level of the second least important ranked criterion *Fee Structure*, and never receives a higher rank. A third bias, caused by an over-representation of European institutions in our sample can be corrected. If we are confident that our database of addressees sufficiently represents the geographic distribution of LPs we can adjust the weight in our sample and determine a slightly lower importance of the criterion *Reputation of Team or Individuals*. This effect drops the criterion from the top tier group of criteria to the second tier group.

As a result, we prove with these robustness checks that potential sample selection biases in our sample are rather negligible and do not affect our overall findings to a meaningful extent.

6. Conclusion

In this paper, we contribute to the knowledge about the mechanisms of the flow of capital from institutional investors via Venture Capital funds as intermediaries to their final destination, entrepreneurial ventures. Literature so far focuses on the final allocation step

only, on the selection of investees by the VC funds. We focus on the first step of this process, on the sources of Venture Capital which is provided by institutional investors, and determine their criteria when they sort their agents. Therefore, we design a questionnaire to ask about the importance of several GP selection criteria, and address it electronically to 1,079 Limited Partners world-wide. The findings are: The expected deal flow, and access to transactions, a GP's historic track record, his local market experience, the match of the abilities and the experience of team members with the proposed investment strategy, the team's reputation, and the mechanisms proposed to align interest between the institutional investors and the VC funds are the top criteria for LPs when they select GPs. While several other criteria are of minor importance for the institutional investors' allocation processes, we also find that the structure of fees is not an important GP selection criterion. This signals that LPs regard Venture Capital as an asset class based on a complex structure of principals and agents which is functionally only, if the interests of all principals and agents are aligned, and the fee structure is a primary element of this incentive structure. Fee structures and levels are usually market oriented at the time of a fund closing. Hence, the decision about paying the fees is made with the decision to allocate in the VC asset class. This interpretation is in line with the information we gained from interviews with LPs: "The fee structures are very similar among the GPs, and the high level of fees in general, is not important as long as a GP returns us a satisfying multiple on our investment. We are prepared to share a part of the profit, because profit sharing is an essential part of the asset class. However, there is nothing worse than saving fees but to lose on our investment."

Many of the criteria we detect as important are interrelated. For example, deal flow and access to transactions are considered decisive, as well as a team's track record and its reputation. It is evident, that reputation increases with a successful track record, and a prerequisite for a good track record is a sufficient deal flow. Therefore, we expand our analyses and search for a common structure within the responses obtained. With principal

component analysis we detect such a structure, and finally determine three latent allocation drivers for institutional investments in the VC asset class: *Local Expertise and Incentive Structure, Investment Strategy and Expected Implementation, and Prestige/Standing vs. Cost.*

These allocation criteria are familiar. They are, in fact, not different from what we know about the selection criteria applied by VCs when sorting entrepreneurial ventures. Indeed, and this is what our paper shows, the Limited Partners' and the VCs' selection processes are identical with respect to the evaluation of a team and its expected capability to implement a proposed strategy, in relation to the expected return. A Limited Partner reads an offering memorandum edited by a VC like a VC reads a business plan of an entrepreneur. The identity is caused by the necessity to mitigate the same type of agency conflicts that VC funds and entrepreneurs are exposed to.

References

- Akerlof, G., 1970. The Market for Lemons: Qualitative Uncertainty and the Market Mechanism. *Quarterly Journal of Economics* 84 (August), 488 – 500.
- Armour, J., Cumming, D., 2006. The Legislative Road to Silicon Valley. *Oxford Economic Papers* 58, 596-635.
- Balboa, M., Martí, J., 2003. An Integrative Approach to the Determinants of Private Equity Fundraising. SSRN Working Paper no. 493344.
- Barnes, S., Menzies, V., 2005. Investment into Venture Capital Funds in Europe: An Exploratory Study. *Venture Capital* 7 (3), 209 – 226.
- Barnett, V., 1991. *Sample Survey Principles and Methods*. Hodder Publisher.
- Baughn, C. C., Neupert, K. E., 2003. Culture and National Conditions Facilitating Entrepreneurial Start-ups. *Journal of International Entrepreneurship* 1, 313-330.
- Baum, J. A. C., Silverman, B. S., 2004. Picking Winners or Building them? Alliance, Intellectual, and Human Capital as Selection Criteria in Venture Financing and Performance of Biotechnology Startups. *Journal of Business Venturing* 19, 411 – 436.
- Belke, A., Fehn, R., Foster, N., 2003. Does Venture Capital Investment Spur Employment Growth? CESIFO Working Paper no 930.
- Black, B., Gilson, R., 1998. Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets. *Journal of Financial Economics* 47 (3), 243-277.
- Blanchard, O. J., 1997. The Medium Run. *Brookings Papers on Economic Activity* 1997 (2), 89-158.
- Bruce, D., 2000. Effects of the United States' Tax System on Transition into Self-Employment. *Labour Economics* 7 (5), 545–574.
- Bruce, D., 2002. Taxes and Entrepreneurial Endurance: Evidence from the Self-Employed. *National Tax Journal* 55 (1), 5-24.
- Bruce, D., Gurley, T., 2005. Taxes and Entrepreneurial Activity: An Empirical Investigation Using Longitudinal Tax Return Data. *Small Business Research Summary* (252).
- Bygrave, W. D., Timmons, J. A., 1985. An Empirical Model for the Flows of Venture Capital. *Frontiers of Entrepreneurship Research* 1985, 105 – 125.
- Bygrave, W. D., Fast, N., Khoylian, R., Vincent, L., Yue, W., 1985. Early Rates of Return of 131 Venture Capital Funds Started 1978 – 1984. *Journal of Business Venturing* 4, 93 – 105.
- Cetorelli, N., Gamera, M., 2001. Banking Market Structure, Financial Dependence and Growth: International Evidence from Industry Data. *Journal of Finance* 56 (2), 617-648.

- Chemla, G., 2005. The Determinants of Investment in Private Equity and Venture Capital: Evidence from American and Canadian Pension Funds. SSRN Working Paper no. 556421.
- Cullen, J. B., Gordon, R. H., 2002. Taxes and Entrepreneurial Activity: Theory and Evidence for the U.S. NBER Working Paper no. 9015.
- Cumming, D., 2006. Adverse Selection and Capital Structure: Evidence from Venture Capital. *Entrepreneurship Theory and Practice* 30, 155 – 183.
- Cumming, D., Fleming, G., Schwienbacher, A., 2006. Legality and Venture Capital Exits. *Journal of Corporate Finance* 12, 214–245.
- Cumming, D., Johan, S., 2007. Regulatory Harmonization and the Development of Private Equity Markets. *Journal of Banking and Finance* 31 (10), 3218-3250.
- Cumming, D., Schmidt, D., Walz, U., 2010. Legality and Venture Capital Governance around the World. *Journal of Business Venturing* 25 (1), 54 - 72.
- Da Rin, M., Nicodano, G., Sembelli, A., 2005. Public Policy and the Creation of Active Venture Capital Markets. European Central Bank Working Paper no. 430.
- Desai, M., Gompers, P., Lerner, J., 2006. Institutions and Entrepreneurial Firm Dynamics: Evidence from Europe. Harvard NOM Research Paper no. 03-59.
- Djankov, S., Ganser, T., McLiesh, C., Ramalho, R., Shleifer, A., 2008. The Effect of Corporate Taxes on Investment and Entrepreneurship. NBER Working Paper no. 13756.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2002. The Regulation of Entry. *Quarterly Journal of Economics* 117 (1), 1-37.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2003. Courts. *Quarterly Journal of Economics* 118 (2), 453-517.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2005. The Law and Economics of Self-Dealing. NBER working paper no. 11883.
- Dunteman, G. H., 1989. *Principal Components Analysis*. Sage, Newbury Park, CA.
- EBRD, 2005. *Transition Report 2005: Business in Transition*. EBRD, London.
- EBRD, 2006. *Transition Report 2006: Finance in Transition*. EBRD, London.
- EBRD, 2007. *Transition Report 2007: People in Transition*. EBRD, London.
- EVCA, 2003. *EVCA Yearbook 2004 – Annual Survey of Pan-European Private Equity & Venture Capital Activity*. EVCA European Venture Capital Association, Zaventem.
- EVCA, 2004. *EVCA Yearbook 2004 – Annual Survey of Pan-European Private Equity & Venture Capital Activity*. EVCA European Venture Capital Association, Zaventem.
- EVCA, 2005. *EVCA Yearbook 2005 – Annual Survey of Pan-European Private Equity & Venture Capital Activity*. EVCA European Venture Capital Association, Zaventem.

- EVCA, 2006. EVCA Yearbook 2006 – Annual Survey of Pan-European Private Equity & Venture Capital Activity. EVCA European Venture Capital Association, Zaventem.
- Fehn, R., Fuchs, T., 2003. Capital Market Institutions and Venture Capital: Do they Affect Unemployment and Labour Demand? CESIFO Working Paper no. 898.
- Freudenberg, M., 2003. Composite Indicators of Country Performance: A Critical Assessment. OECD Economics Department Working Paper no. JT00139910.
- Fried, V. H., Hisrich, R. D., 1989. Venture Capital from the Investor's Perspective. *Frontiers of Entrepreneurship Research* 1989, pp. 258 – 273.
- Fried, V. H., Hisrich, R. D., 1994. Toward a Model of Venture Capital Investment Decision Making. *Financial Management* 23 (3), 28 – 37.
- Glaeser, E. L., Johnson, S., Shleifer, A., 2001. Coase vs. the Coasians. *Quarterly Journal of Economics* 116, 853-899.
- Gompers, P. A., Lerner, J., 1998. What Drives Venture Fundraising? *Brooking Papers on Economic Activity, Microeconomics*, 149-192.
- Gompers, P. A., Lerner, J. 1999a. *The Venture Capital Cycle*. Cambridge.
- Gompers, P. A., Lerner, J. 1999b. An Analysis of Compensation in the U.S. Venture Capital Partnership. *Journal of Financial Economics* 51, 3 – 44.
- Gompers, P., Lerner, J., 2000. Money Chasing Deals? The Impact of Funds Inflows on the Valuation of Private Equity Investments. *Journal of Financial Economics* 55 (2), 281-325.
- Greene, P.G., 1998. Dimensions of Perceived Entrepreneurial Obstacles. In: Reynolds, P. (Ed.), *Frontiers of Entrepreneurship Research*. Babson Park: Center for Entrepreneurial Studies, Babson College, pp. 48-49.
- Grinblatt, M., Titman, S., Wermers, R., 1995. Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior. *American Economic Review* 85 (December), 1088 – 1105.
- Groh, A. P., Liechtenstein, H., 2008. International Allocation Determinants of Institutional Investments in Venture Capital and Private Equity Limited Partnerships. IESE Business School Working Paper no. 726.
- Hair, J. F., Anderson, R. E., Tatham, R. L., Black, W. C., 1998. *Multivariate Data Analysis*, 5th ed., Prentice Hall, Englewood Cliffs, NJ.
- Hall, J., Hofer, C. W. (1993). Venture Capitalists Decision Criteria in New Venture Evaluation. *Journal of Business Venturing* 8, 25 – 42.
- Hellmann, T., Puri, M., 2000. The Interaction between Product Market and Financing Strategy: The Role of Venture Capital. *Review of Financial Studies* 13 (4), 959-984.

- Hellmann, T., Lindsey, L., Puri, M., 2004. Building Relationship Early: Banks in Venture Capital. NBER Working Paper no. 10535.
- Jacobs, R., Smith, P., Goddard, M., 2004. Measuring Performance: An Examination of Composite Performance Indicators. Centre for Health Economics, Technical Paper Series no. 29.
- Jeng, L. A., Wells, Ph. C., 2000. The Determinants of Venture Capital Funding: Evidence across Countries. *Journal of Corporate Finance* 6 (3), 241-289.
- Jensen, M. C., 1989a. Eclipse of the Public Corporation. *Harvard Business Review* (September – October), 61 – 74.
- Jensen, M. C., 1989b. Active Investors, LBOs, and the Privatization of Bankruptcy. *Journal of Applied Corporate Finance* 2 (1), 35 – 44.
- Johnson, S. H., McMillan, J., Woodruff, C. M., 1999. Property Rights, Finance and Entrepreneurship. SSRN Working Paper no. 198409.
- Kaiser, H.F., 1958. The Varimax Criterion for Analytic Rotation in Factor Analysis. *Psychometrika* 23, 187-200.
- Kaplan, S. N., Schoar, A., 2005. Private Equity Performance: Returns, Persistence, and Capital Flows. *Journal of Finance* 60 (4), 1791-1823.
- Kline, R. B., 1998. *Principles and Practice of Structural Equation Modeling*. New York.
- Knack, S., Keefer, P., 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics* 7 (3), 207-228.
- Köke, F. J., 1999. Institutional Investment in Central and Eastern Europe: Investment Criteria of Western Portfolio Managers. ZEW Discussion Paper no. 99-37.
- Kolodko, G. W., 2000. Globalisation and Catching-Up: From Recession to Growth in Transition Economies. IMF Working Paper no. 00/100.
- Kortum, S., Lerner, J., 2000. Assessing the Contribution of Venture Capital to Innovation. *Rand Journal of Economics* 31 (4), 674-692.
- Kryzanowski, L., Giraldeau, R., 2001. Venture Capital Management: A Survey of Attitudes Towards Selection Criteria. *American Journal of Small Business* 2 (1), 29 – 37.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal Determinants of External Finance. *Journal of Finance* 52 (3), 1131-1150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and Finance. *Journal of Political Economy* 106 (6), 1113-1155.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor Protection and Corporate Valuation. *Journal of Finance* 57 (3), 1147-1170.

- Lazear, E. P., 1990. Job Security Provisions and Employment. *Quarterly Journal of Economics* 105, 699-726.
- Lee, S. M., Peterson, S. J., 2000. Culture, Entrepreneurial Orientation and Global Competitiveness. *Journal of World Business* 35 (4), 401-416.
- Lerner, J., Schoar, A., 2005. Does Legal Enforcement Affect Financial Transactions? The Contractual Channel in Private Equity. *Quarterly Journal of Economics* 120 (1), 223-246.
- Levine, R., 1997. Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature* 35, 688-726.
- Macmillan, I. C., Siegel, R., Narasimha, P. N. S., 1985. Criteria Used by Venture Capitalists to Evaluate New Venture Proposals. *Journal of Business Venturing* 1 (1), 119 – 128.
- Macmillan, I. C., Zeman, L., Subbanarasimha, P. N., (1987). Criteria Distinguishing Successful from Unsuccessful Ventures in the Venture Screening Process. *Journal of Business Venturing* 2, 123 – 137.
- Mauro, P., 1995. Corruption and Growth. *Quarterly Journal of Economics* 110, 681–712.
- Megginson, W., 2004. Toward a Global Model of Venture Capital? *Journal of Applied Corporate Finance* 16 (1), 89-107.
- Metrick, A. 2006. *Venture Capital and the Finance of Innovation*. John Wiley & Sons, Hoboken, NJ.
- Metrick, A., Yasuda, A. 2008. *The Economics of Private Equity Funds*. SSRN Working Paper 996334.
- Murray, G. C., Marriott, R. 1998. Why has the Investment Performance of Technology-Specialist, European Venture Capital Funds Been so Poor? *Research Policy* 27, 947 – 976.
- Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffman, A., Giovannini, E., 2005. *Handbook on Constructing Composite Indicators: Methodology and User Guide*. OECD Statistics Working Paper no. STD/DOC(2005)3.
- Nicoletti, G., Scarpetta, S., Boylaud, O., 2000. Summary Indicators of Product Market Regulation with an Extension to Employment Protection Legislation. OECD, Economics Department Working Paper no. 226, ECO/WKP(99)18.
- Norton, E., 1995. Venture Capital as an Alternative Means to Allocate Capital: An Agency-Theoretic View. *Entrepreneurship Theory and Practice* 20 (4), 19 – 29.
- Phalippou, L. 2009. Beware when Venturing into Private Equity. *Journal of Economic Perspectives* (forthcoming).
- Poterba, J., 1998. Venture Capital and Capital Gains Taxation. In: Summers, L. H. (ed.): *Tax Policy and the Economy*. MIT Press, Cambridge, MA, pp. 47-67.

- Robinson, Jr., R. B., (1987). Emerging Strategies in the Venture Capital Industry. *Journal of Business Venturing* 2, 53 – 77.
- Romain, A., van Pottelsberghe de la Potterie, B., 2004. The Determinants of Venture Capital: A Panel Analysis of 16 OECD Countries. Université Libre de Bruxelles Working Paper no. WP-CEB 04/015.
- Roure, J. B., Keeley, R. H., 1990. Predictors of Success in New Technology Based Ventures. *Journal of Business Venturing* 5, 201 – 220.
- Sahlman, W. A., 1990. The Structure and Governance of Venture-Capital Organizations. *Journal of Financial Economics* 27, 473 – 521.
- Sapienza, H, Manigart, S., Vermeir, W., 1996. Venture Capitalist Governance and Value Added in Four Countries. *Journal of Business Venturing* 11 (6), 439-469.
- Schertler, A., 2003. Driving Forces of Venture Capital Investments in Europe: A Dynamic Panel Data Analysis. European Integration, Financial Systems and Corporate Performance (EIFC) Working Paper no. 03-27, United Nations University.
- Sirri, E. R., Tufano, P., 1998. Costly Search and Mutual Fund Flows. *Journal of Finance* 53 (4), 1589 – 1622.
- Süppel, R., 2003. Comparing Economic Dynamics in the EU and CEE Accession Countries. European Central Bank Working Paper no. 267.
- Svensson, J., 1998. Investment, Property Rights and Political Instability: Theory and Evidence. *European Economic Review* 42 (7), 1317-1341.
- United Nations, 2004. Economic Survey of Europe 2004 no.1. United Nations Publication no. E.04.II.E.7.
- Van Osnabrugge, M., Robinson, R. J., 2001. The Influence of a Venture Capitalist's Source of Funds. *Venture Capital* 3 (1), 25 – 39.
- Wagner, M., Hlouskova, J., 2005. CEEC Growth Projections: Certainly Necessary and Necessarily Uncertain. *Economics of Transition* 13 (3), 341-372.
- Wilken, P. H., 1979. *Entrepreneurship: A Comparative and Historical Study*, Ablex Publishing, Norwood, NJ.
- Wright, M., Robbie, K., 1996. Venture Capitalists, Unquoted Equity Investment Appraisal and the Role of Accounting Information. *Accounting and Business Research* 26 (2), 153 – 168.
- Zacharakis, A. L., Meyer, G. D., (2000). The Potential of Actuarial Decision Models : Can they Improve the Venture Capital Investment Decision ? *Journal of Business Venturing* 15, 323 – 346.

The Questionnaire

A: General Part

1. How would you characterize your type of institution? We are a

- Corporate Investor Government Agency Bank Pension Fund
 Insurance Company Fund of Fund Endowment Other

2. What is the total amount (and currency) of Funds under Management of your institution?

_____ US\$ €

3. What percentage of your funds under management is worldwide committed to Venture Capital?

_____%

4. If you are planning to increase/decrease the weight of Venture Capital in your total portfolio within the next twelve months, please provide the targeted percentage.

_____%

5. What IRR do you demand from your Venture Capital exposure?

_____%

6. What is the minimum amount you tend to invest in a single Venture Capital fund according to the policy of your institution?

_____ US\$ €

7. What is the maximum percentage you would hold in a single Venture Capital Fund?

_____%

8. What are the most important factors when you select a Venture Capital fund for a commitment? Please name three keywords in the order of their importance.

Most important:_____ second most important:_____

third most important:_____

B: Questions regarding your selection of General Partners

9. Please rate the importance of each of the following criteria when selecting a General Partner for a commitment.

	very important					not at all important	
Track Record	7	6	5	4	3	2	1
Strategic investment focus	7	6	5	4	3	2	1
Match of team background and strategy	7	6	5	4	3	2	1
Reputation of the team or individuals	7	6	5	4	3	2	1
Locals in team	7	6	5	4	3	2	1
Local market experience of team	7	6	5	4	3	2	1
Turnover of team	7	6	5	4	3	2	1
Independence of team	7	6	5	4	3	2	1
Deal Flow/Access to transactions	7	6	5	4	3	2	1
Commitment of other well reputed LPs	7	6	5	4	3	2	1
Fee Structure	7	6	5	4	3	2	1
Balanced incentive structure among the team	7	6	5	4	3	2	1
Alignment of interest between LPs and GPs	7	6	5	4	3	2	1

10. Would you invest in a first time fund?

- Yes
 No

11. Approximately what percentage of your Venture Capital allocations goes to GPs you have previously invested in?

_____ %

12. Would you like to make any comments regarding this survey or would you like to add an important issue?

13. Would you like to receive the results of this survey?

- Yes
 No

14. If "Yes", please enter your name and your email address:

First name: _____ last name: _____ email: _____