CHARACTERISATION OF THE REPUTATION OF PRIVATE EQUITY MANAGERS: EVIDENCE IN SPAIN

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Abstract

In the light of the Agency and Signalling Theories, the aim of this paper is to analyse the relationship between investors and private equity managers in order to identify the factors that affect the latter's reputation. Since there are no individual references about their past returns, the reputation of such players is thought to be linked to their capacity for obtaining new funds in countries such as Spain. Two groups of variables that might affect reputation are identified: variables in the first group are linked to the private equity cycle, and those in the second are related to the external image of the operator. The analysis focuses on the activity of almost all private equity investors operating in Spain during 1991-2001. The results provide evidence that the size of the funds under management and the belonging to the National Private Equity Association are exogenous characteristics of the highest importance. Evidence of the volume of investments recorded in the past acts as an indicator of the ability to manage larger amounts of capital. Because of the wide variety of private equity firms, the analysis is completed for diverse groups, which may behave in a different manner.

Key words: Fundraising, private equity, reputation,; agency, signalling theory.
JEL Classification: G24, G34.

1. Introduction

Venture capital is a type of business financing provided mainly through the acquisition of a stake in small and medium sized businesses. This investment is made in a temporary, minority fashion, given that the principal aim of venture capitalists is not corporate control, but rather the realisation of capital gains upon divestment. Initially, venture capital was devoted to investment in firms that were newly created or in the early stages of development, since the lack of tangible assets or the high uncertainty inherent in the investment projects of such firms prevented them from obtaining long-term bank funding. Now, however, the concept of private equity has become more extended and encompasses investment in any unlisted firm made with the aim of adding value.

A characteristic element in this type of funding is that the funds invested by private equity operators (henceforth PEOs) are not their own but those of investors,[1] so that PEOs in fact act as intermediaries between suppliers and seekers of funds. The justification for this is that PEOs are specialised financial intermediaries (Chan, 1983), able to reduce the degree of information asymmetry between firms with a high level of uncertainty and their investors (Admati and Pfleiderer, 1994; Amit et al, 1998; Hellmann and Puri, 2001; Repullo and Suárez, 1999; among others). Gompers and Lerner (2001) pointed out that the main cause of a reduction in information asymmetry is the studies carried out by PEOs prior to the funding of firms, and the active participation of PEOs in the running of the firms subsequent to such funding. This reduction in information asymmetry is the main reason why PEO intervention adds value (Black, 1998).

If we accept the necessary intermediary role of the PEOs, the fundamental question then concerns the factors determining why investors commit their funds through certain PEOs rather than others. In a developed market, this question would be answered in part by historical information concerning returns on previous investments, enabling investors to choose those PEOs who appeared able to generate higher return levels, given the risk involved. However, in domestic markets where the private equity market is still developing, such information is not yet available, owing to the limited number of PEOs who have completed the investment and divestment of funds. Therefore, investors in such countries could be expected to make their decisions on the basis of some other criterion, such as PEOs' reputation.

Though this question is naturally an important one, it has received little attention in financial and economic literature. In this sense, the principal aim of the present paper is to determine the characteristics underlying the reputation of PEOs, which will then serve to explain their ability to attract new funds from investors. This relationship is studied from the theoretical support of the Agency and Signalling Theories, given that their content perfectly fits the characteristics of the private equity market and the relationships established between PEOs and investors. The theoretical content of these theories is tested in the Spanish market, which is still in the process of attaining maturity.

The paper is structured as follows. In the following section further details are given of private equity activity and of the agents taking part. A series of hypotheses derived from the

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[1] According to a study of Venture Economics (1987), 61% of the pooled venture capital operators provided 1% of the capital. In the United States pension funds were the main source. In Europe financial organisations are the main suppliers of funds for this activity (EVCA, 2002). This factor is also found in the particular case of Spain (Martí, 2002).

premises of the Agency and Signalling Theories are also presented. Section 3 describes the particularities of the main management models normally found in private equity, which could lead to different signalling patterns on the basis of the type of operator involved. Section 4 describes the data and methodology used. Results are presented in section 5. The final section summarises the main conclusions.

2. Theoretical framework

In this section we aim to describe, first, the activity of private equity, focusing mainly on the investment and divestment stages. Then, on the basis of the private equity process and the Agency and Signalling Theories, a series of basic hypotheses is presented.

2.1 Private equity activity

The private equity process comprises three basic stages, related to the obtaining of funds, their subsequent investment, and their final divestment, generally on a long-term basis. In this process two types of contractual relationship arise: first, the type that links investors and PEOs in the fundraising phase; second, the type that links PEOs and those firms that receive funding. Though this work analyses exclusively the relationship between investors and PEOs, we consider that, in order to understand it, a brief description of some of the characteristics of the investment and divestment process is needed, since it is from these characteristics that the reputation of PEOs is established, and that reputation will be the basis for attracting additional funds.

To begin with, the PEO launches a fund that will attract subscriptions from investors. Once investor participation is completed, the managers of the private equity firm use their skills to attract company projects in which they can acquire a stake. Investment proposals are screened by the firm's analysts, who focus on those proposals that are most interesting and which are also in accordance with the firm's investment policy, as laid down in its investment practices. By way of reference, only three out of ten initial contacts are given further study (Gladstone, 1983). In these cases the PEOs analyse and compare the information provided by the representatives of the firm seeking funds, as stipulated in the *business plan*. This document contains, among other things, a description of the firm, the product and the market, the directors' previous expertise and skills, the funding requested, and the use to which it will be put. Among the main factors usually taken into account by PEOs, of particular importance are those relating to the firm's management team, the market potential and the competitive advantage of the product or service (Gladstone, 1983; Tyebjee and Bruno, 1984: Fried and Hisrich, 1994).

If both parties are interested, and a provisional agreement is achieved as to entry conditions, the management team hands over a letter of intent. In the process of negotiation, not only are the financial instrument in which participation is to take place and its specific conditions included, but also, it is customary to incorporate a contract, known in Spain as a *shareholders' agreement*. This contract records a series of measures to be taken to protect the PEOs' interests and lays down the rules of the game between the parties during the time in which the PEO will be representing the fund providers as a shareholder of the firm. Among other aspects, residual valuation norms are set, in the event of the company being subsequently liquidated; sales options for shares are established, in the event of the original shareholders' withdrawing from the firm; and the need for qualified majorities is established

for certain types of decision on strategic issues. Similarly, the necessary steps are taken to include the participation of a representative of the PEO on the governing board of the firm in which the stake is held, and norms are established for the sending of periodical information on how the firm is getting on.

Having reached this point, the investment proposal is put forward, in accordance with the corresponding type of management structure, to the investment committee or governing board. Before the resources are handed over, however, the management team will have had a detailed study made of the assets, rights and liabilities of the company receiving funding. This action, known as *due diligence*, requires a period of at least a fortnight, and can even take as long as several months. This process is aimed at reducing the agency costs and the high degree of information asymmetry existing between PEOs and funded firms (Norton, 1995), stemming from ignorance of the technology, the market, the industry and the firm, as well as from uncertainty regarding the honesty and capacity of its management team. Finally, the firm's shareholders sign the issue or sale of the shares and agreements that will protect the interests of the new shareholders, who will generally keep a minority of the shares in circulation.

In most cases, the duration of the entry process in new portfolio companies ranges between fourteen and sixteen weeks (Martí, 2002). The time needed to invest is thus much greater than for an ordinary investment fund, where with one phone call the fund manager can allocate significant sums of money to financial instruments quoted in official markets. On the other hand, in many cases the initial commitment may never occur: in fact, some PEOs may not conclude any investment over a long period of time. This might be for a diversity of reasons; among which a very likely one is the fact that the investment may not appear worthwhile once it has been analysed; or because it is impossible to reach agreement on price or entry conditions; or, finally, because another competitor has closed the deal.

As a result of the complexity of the process, it is normal for a PEO to take as long as three years to allocate the funds. From this moment on, the management team will not be able to take part in any further new investments unless it manages to access new funds. At this stage the activities undertaken by the team with regard to the fund invested in consist of adding value to the firms in the portfolio and, from time to time, making a second or third round of funding in the firms, until they can begin to divest their shares.

The investment cycle of private equity ends with the sale of its stake in the firms in its portfolio. Since these are non-liquid investments, exiting is more complicated than for an ordinary investment fund. In the latter case the managers can sell the shares in official markets, whereas the PEO must sell the shares in each firm in an individual and non-immediate way. The returns are expected to begin to occur five years after activities commenced, though the precise moment will depend on the state of the economy and the markets, as well as the stage of development reached by the firm when the initial investment took place.

2.2. Private equity activity from the framework of the Agency and Signalling Theories: basic hypotheses

Owing to the peculiar characteristics arising in the two contractual relationships of private equity, the Agency Theory is a suitable framework for studying them. Jensen and Meckling (1976) defined the agency relationship as the contractual relationship by which one

or more persons (principal(s)) hire another person (agent) to carry out some type of service on his/their behalf, delegating authority and decision-making power to the agent. In this sense, the private equity process allows the PEO to be viewed both as agent, in his relationship with the investor, and as principal, in his relationship with the portfolio company.

Most of the existing literature has focused on the study of the role of the PEO as principal and the entrepreneur as agent (Reid, 1996, 1999; Sahlman, 1990; Smith, 1998; Kaplan and Strömberg, 2001, among others), although authors such as Smith (1998) point out that the omission from the study of the relationship between the PEO as agent and the entrepreneur as principal can lead to an incomplete knowledge of the contracts generated by both parties. The detailed analysis of the PEO's role as an agent of the investor has received, by comparison, much less attention. To our knowledge, the first work was by Sahlman (1990), who, in addition to contributing to insight into the relationships between both parties, identified the procedures used by investors and managers to reduce conflicts stemming from the agency relationship. More recently, Osnabrugge (2000) and Osnabrugge and Robinson (2001) found evidence concerning PEOs' need to highlight how painstaking they were in their work, and included such evidence in the framework of the Signalling Theory. Finally, Bankman and Cole (2001) suggest that PEOs' loss of reputation with investors may be one of the possible reasons why investments take place in a period when companies are overvalued.

When the investor (principal) goes to a PEO (agent) for help in investing funds and a contract is agreed, the investor delegates decision-making to the PEO and it is (tacitly) understood that the agent will act in the best interests of the principal. Nevertheless, given the nature of this relationship, there is certain information that is available to the PEO but not to the investor, thereby giving rise to an information asymmetry problem. This problem may be particularly important when the agent decides to use the information advantage he holds for his own benefit. Information asymmetry may exist in two forms, identified as *hidden action*, giving rise to what is called moral hazard problem, and *hidden information*, causing adverse selection (Amit et al., 1998). Moral hazard refers to the possibility of the agent's deliberately acting in his own interest and against the best interest of the principal. Adverse selection, on the other hand, takes into consideration the agent's inability to act in the best interests of the principal because of his incompetence. The existence of information asymmetry implies agency costs, which are the sum of costs derived from setting up adequate incentives for the agent to act in the principal's interest, plus the residual costs incurred by the principal resulting from the possible suboptimum behaviour of the agent, through either a moral hazard or an adverse selection problem.

Moral hazard arises because investors cannot completely control the actions of operators, who might for example make investments that would not be considered optimal, or incur excessive costs. With the aim of limiting this type of behaviour, the relationship between investors and PEOs is formalised through a contract,[2] containing various clauses aimed at offering incentives to operators to re-direct their behaviour (Megginson, 2002). Specifically, Fama and Jensen (1983) point out that the agent and the principal sign a contract which specifies the agent's rights, the criteria for evaluating the results of his management, and his reward for good performance. Nevertheless, and given that the cost of drawing up such detailed contracts is very high, there are usually loopholes, giving operators leeway to act in their own interests. However, the risk to PEOs of damaging their reputation as a result of bad fund management, with an ensuing decrease in their ability to attract fresh funding,

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[2] According to Sahlman (1990), these contracts are designed to protect investors from the likelihood of PEOs' making decisions against their interests.

helps to keep their opportunism in check. So a positive relationship is expected to exist between reputation and fundraising, in an activity in which most managers have to raise funds periodically.

The problem of adverse selection occurs because the principal cannot completely oversee and verify the PEO's ability and skills. In this case, 'ability' refers to the PEO's skill in making suitable investments, adding value to the investee firms and successfully completing divestments in such a way that the capital gains generated do in fact materialise. The risk arising from adverse selection is high in this activity, owing to the broad range of activities the agent has to perform and to the fact that the final result depends upon the correct choice being made at all stages of the process. The problem of adverse selection may give rise to the well-known *market for lemons* (Akerlof, 1970), whereby the principal, who cannot observe the difference between good PEOs and bad ones, will pay the same for access to the services of both. This spurs the bad managers to flood the market and the good ones to get out of it. There are two ways of alleviating the costs of adverse selection. First, improving the selection process of PEOs; second—and this is the natural reaction of the market to the adverse selection process—the informed party can provide some sign of its quality via *signalling*.

Improvement in the PEOs' selection process can be achieved by increasing the quality of information available, thus enabling investors to distinguish between the different qualities of operators. This improvement in information can be achieved through an information search by investors or via publication by the PEOs of the quality of their investments. The problem arises in economies in which private equity is still in the process of developing, since in those markets there is no previous information on past returns obtained by PEOs. The PEOs must therefore signal their quality to investors—which they can do, according to Osnabrugge (2000) and Osnabrugge and Robinson (2001), through responsible behaviour. According to these authors, PEOs can give evidence of their responsible behaviour by establishing and maintaining a high reputation, which is related to the existence of a management team with suitable professional qualifications, acting under a clear set of rules giving details of investment procedures.

There are three approaches in the signalling literature. In the first, signals are conceived as actions that involve a cost (Spence, 1973), which is supposed to be higher for bad players than for good players. The viability of such a costly signalling or "informational equilibria" is studied by Riley (1979); see also Ross (1977) and Leland and Pyle (1977). The second view, which is related to costless signalling, and is referred to as cheap talk in the literature, is defined by Crawford and Sobel (1982) as a costless, non-binding unverifiable message (see also Brennan and Hughes 1991). Finally, a third approach aims to assess the impact of both costly and costless signals (Austen-Smith and Banks, 2000; Bhattacarya and Dittmar, 2003).

Given the contribution made by the reputation of PEOs in reducing the problems of moral hazard and adverse selection, the main aim in this work is to find evidence of PEOs' sending signals, both costly and costless, that might be taken up by investors seeking to evaluate their reputation. In developed private equity markets, the ability to attract private equity funds depends on the managers' reputation (Norton, 1995). As indicated by Smith (1999) and Schertler (2002), PEOs strive to establish a good reputation in order to attract investors to their funds. We agree with Rosenstein et al. (1990) that reputation can be linked to track record. Nevertheless, in developing markets such as the Spanish one, a fund manager

will have to use other indicators to establish his reputation. The second contribution of this paper is to determine whether costly and costless signals are used by different types of investor. In both cases, the hypotheses are tested in a set of 80 PEOs operating in the Spanish Market over the period 1991–2001.

In the first place, it is very important to be able to demonstrate an ability to attract, negotiate and close a sufficient number of deals. This ability will be highly regarded by investors, bearing in mind the complex nature of the activity and the long period of the investment and divestment processes. For this reason, the volume of investments made in the past by each operator, as a sign of his abilities to bring in new investments for his portfolio, may act as a signal of the PEO's reputation. Moreover, the greater the volume invested, the greater will be the signal of quality given out. In this sense, Bankman and Cole (2001) find that one of the reasons PEOs make investments, even when they know that these investments are overvalued, may be because not making investments could lead to some loss of reputation, a factor that was mentioned by many of the PEOs interviewed. This premise thus constitutes the first hypothesis to be tested. This could be conceived as a costly signal, since good players would have access to a richer flow of deals than bad ones and would enjoy greater credibility among the owners of prospective investee companies. Nevertheless, bad players could react by offering higher prices to the entrepreneurs in order to close a deal; such an action could be perceived by PEOs as a costless signal at the time of the commitment, but in the long term it should be considered as a costly signal, owing to its impact on the fund's return.

Hypothesis 1: *The volume of investments made by private equity operators constitutes a positive signal of their quality and reputation.*

It is interesting nonetheless to observe that there may be an optimum number of firms in a PEO's portfolio (Kanniainen and Keuschnigg, 2002a, 2002b; Cumming, 2001). This could be due to the fact that those PEOs who make a large number of investments may spend less time following up each individual portfolio company.[3] In as much as it has been suggested in the literature that the role of managerial assistance carried out by PEOs helps to boost the firms' value by increasing the likelihood of success in the funded firms (Norton, 1995; Sapienza et al., 1996; Kanniainen and Keuschnigg, 2002a, 2002b; Schmidt, 2002), a falloff in such management assistance could have negative consequences for the final returns obtained by PEOs, and this would negatively affect their reputation and lead to fewer funds being raised in the future. In this sense, one would expect a negative relationship to exist between the number of investments made and the PEO's reputation. Nevertheless, not only the number of investments, but also the number of portfolio companies for each investment manager, must be taken into account. This is because a PEO could increase the number of investments without reducing the degree of managerial assistance if, at the same time, the number of investment managers were increased. All of this may indicate that having a large number of portfolio companies per investment manager leads to lower future returns for PEOs. Therefore, maintaining a low ratio of investments to investment manager is a costless positive signal of the PEO's reputation. This leads us to formulate the following hypothesis:

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[3] According to Martí (2002), a large percentage of the volume invested in Spain in 2001 was concentrated in just five operations, so for large operators a negative coefficient could denote capacity for allocating large amounts of resources to a limited number of operations, and thus devoting more attention to them since they had a smaller number of stakeholdings in their portfolio.

Hypothesis 2: *An increase in the ratio of portfolio companies to investment manager indicates a relative reduction in the managerial assistance of portfolio firms, and this may have a negative effect on PEO quality.*

The ability to divest in a reasonable time period is also of importance. In this sense, Gompers (1996) notes that recently formed PEOs tend to launch IPOs at an earlier stage than more established operators, in an attempt to build a good reputation. Therefore, divestment opportunities have an impact on the operators' reputation. Divestment is important, since it enables the capital gains obtained to be realised and also indicates that the funds are returning to their investors. Nevertheless, not only is divestment itself important, but so is the mechanism used to do so. Ali-Yrkkö et al. (2001) point out that the return obtained in divestments enables higher-quality operators to demonstrate their skills, and this has an important effect on their reputation and hence on their ability to raise funds in the future. The best return is assumed to occur in divestments via initial public offerings (IPOs) or by sale to an industrial or financial investor. Conversely, the most modest returns are obtained via buy-backs from the original owners and from write-offs, since the latter mean the loss of most of the investment made. Therefore, the third hypothesis is:

Hypothesis 3: *The volume of divestments by means of IPOs or third-party sales indicates a better quality of management.*

Caution should be taken in relation with this hypothesis, however. This is because, very often, PEOs do not divest by means of stock market sales, because there is no stock market that can allow growing companies to go public. In any case, divestments through IPOs or trade sales to third parties are perceived as costly signals, because well established PEOs have better access to those markets than newer players, in terms of both opportunities and intermediation costs.

3. Management problems of different types of PEOs

The fact is that there is not just one type of management structure in private equity: rather, there are different forms presenting different problems in the relationship between investors and managers. This variety of investment vehicles is a consequence of the degree of development of private equity markets (Jeng and Wells, 2000). Moreover, the various kinds of vehicles in private equity activity become even more complicated as a result of the differences in the size and contributory potential of funds.[4] In this section it is shown that the signals given out by the different PEOs, both costly and costless, may vary according to the type of management structure involved. Although the basic hypotheses related to investments set out above are expected to hold regardless of the type of manager involved (Hypothesis 3 may not hold for some groups), they may be more or less valid depending on the type of operator.

3.1. Private equity companies and private equity management companies

By 'private equity companies' (PECs) we mean firms that invest their own equity capital. In principle, such a firm has unlimited duration and is run by a team of salaried directors hired for this specific purpose. Conversely, 'private equity management companies'

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[4] In this activity institutional investors (such as pension funds, insurance companies, etc), financial bodies, business groups, private investors and even public investors are involved.

(PEMCs) cover all the different types of investment vehicles where management is entrusted to an independent management team by means of a contract. Under this system, two types of fund can be identified: *closed end funds* and *evergreen* funds. Most of the total pool of capital is in the hands of the PEMCs,[5] particularly in closed end funds, but there are a larger number of PECs in countries such as Spain (Martí 2002**).**

Provided that the type of contract between fund providers and managers is different between PECs and PECMs, it is interesting to test the signalling attitudes of both groups. It should be noted that the relationship between managers and shareholders in a PEC is thought to be unlimited, while the contracts between investors and general partners in PEMCs are enforced for a limited life span, even in the case of funds with unlimited duration. As a result, the asymmetry information risks should be higher in the case of PECs. What is more, investors have the option of abandoning with positive value in the case of PEMCs, a choice that PECs do not have. However, the need to raise funds is more marked in the case of PEMCs than PECs.

In principle, and for the reasons mentioned in Section 2, it would be expected that Hypotheses 1–3 would be satisfied in both types of firm. However, it is worth qualifying this statement with regard to satisfying Hypothesis 2 in the case of the PECs. On the one hand, the managers of a PEC might have incentives to increase the number of investments in his portfolio. This is because often the reward for such management will be based on individual success in a given deal, since it is difficult to establish degrees of success for the fund as a whole as it is not closed down by selling the entire portfolio. Nevertheless, under the assumptions of the Agency Theory, as already mentioned, the carrying out of a large number of investments per operator may lower the PEO's reputation. The manager thus faces a problem of trade-off. It may be that the number of companies in the portfolio will increase if the gains he achieves by enlarging the expected return for each operation are high enough to offset the risk he runs of suffering a loss of reputation, which could lead to his losing his job. The same could also happen in the case of PEMCs managing evergreen funds.

The PEMCs will wish to expand their resources, because they will obtain higher earnings from management fees. On the other hand, the PECs also ought to signal their reputation, because the managers' remuneration is linked to the size of the aggregated funds under their control. Consequently, both will have to signal their reputation.

Investment vehicles with limited life and investment vehicles with unlimited life

From a different point of view, it is worthwhile distinguishing between vehicles with finite or limited life, made up of all the closed end funds managed by PEMCs (henceforth LPEMCs), and vehicles with unlimited life, made up of all the PECs and PEMCs that manage evergreen funds (henceforth UPEMCs).

In addition to the ideas introduced in the previous paragraphs, there are two points that must be considered concerning the duration of the funds under management. Firstly, the need to raise new funds is greater in the case of LPEMCs, which implies a greater need to send signals about their quality. This is due mainly to the fact that this type of fund provides for the progressive handing over of what is obtained to the stakeholders in divestments realised (Wright and Robbie, 1996), so the manager does not have these amounts at his disposal.

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[5] Perhaps as a result of agency problems posed by PECs, especially for those belonging to financial bodies or business corporations.

Therefore, the typical PEO must start a new fund every few years (Gompers and Lerner, 1998b), generally every two or three years. In this sense, LPEMCs would signal their reputation in order to increase the amount of funds under management.

But, secondly, the risks stemming from the existence of information asymmetry are lower in the case of LPEMCs[6] because of the limited duration of the contract, implying an equally limited period of time before the proceeds from divestments are reimbursed. This is not the case with UPEMCs, where the resources recovered are immediately at the manager's disposal for reinvestment. Moreover, investors are committed to providing a maximum amount to the LPEMCs in a particular time period, and systems of incentives directly linked to value creation are established.[7] This would mean that there is a lesser need on the part of LPEMCs to give out signals. As a result it could be argued that both groups would have to signal their reputation.

3.2. Independent and non-independent funds

Given the variety of vehicles that might be under management of a PEMC, a differentiation of PEOs can also be made on the basis of the degree of concentration of fund providers, distinguishing between independent PEOs on the one hand, and captive ones on the other. The former are characterised by having resources from various investors, whereas in the case of captive PEOs resources stem mostly from just one investor. This is a frequent distinction in Anglo-Saxon countries, where there exists a certain identification in the agency problem among independent PEOs and LPEMCs[8].

As pointed out by Schertler (2003), independent PEOs raise funds from investors who have limited information on these managers' experience, so the relationship is subject to problems of adverse selection and moral hazard. Schertler also states that, on the contrary, dependent PEOs (captives) receive funds from a parent firm with which they have a more or less close relationship, so it is to be expected in this case that the relationship between PEOs and investors is less subject to these problems. All in all, it is to be expected that the need to send out signals regarding their reputation is greater in the case of independent PEOs than for non-independent PEOs. Moreover, establishing a reputation in the case of independent PEOs enables them to lower the cost of raising new funds (Schertler 2001).

3.3. Public sector funded PEOs compared with private ones

Another factor to consider when assessing private equity management is the distinction between PEOs with a majority of funds provided by public investors, and those with a majority of private funds. The different approach and focus of the PEO is considered to determine differences in the agency relationship, as well as in the signals sent to increase capital under management. In the case of private investors, the particular elements of the agency relationship will depend on the type of management chosen. Nevertheless, Hypotheses 1-3 are expected to hold for this group.

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[6] Perhaps for this reason most investors channel their contributions through this system.
[7] In addition to the fixed management commission, applied on the whole sum of committed capital, which ranges around 2%–3%, a variable part is added, which consists of a stake in the carried interest, derived from total capital gains earned. This reward usually varies between 20% and 25% of the same total.
[8] In Spain, nevertheless, such classification is less straightforward because there are certain independent investors who, for various reasons, have chosen PECs as a vehicle for channelling their activity.

In public PEOs the directors are hired and have no stake in the firm,[9] regardless of the management model chosen. Therefore, the problem arising is the traditional one between director (agent) and shareholder (principal). Given the character of the firm, raising new funds will be determined by the priorities of the public institutions promoting them. Thus, in this case setting up a reputation is not considered a priority because the need to raise resources in the market is not foreseen. Indeed, the existence of this type of firm can be justified only by the lack of interest shown by private operators in investing in certain regions or sectors. Therefore, it is unclear whether Hypotheses 1-3 will hold, since there might only be some sort of signalling to make it easier for directors to justify an increase in contributions from public promoters.

3.4. Large and small private equity operators

A final distinction could be defined between PEOs managing larger sums of capital and those handling smaller resources. Hypotheses related to the investment activity are supposed to hold in both groups. Hypothesis 3 is also expected to hold in the first group, but smaller funds may experience some problems attaining exits through IPOs and trade sales. On the other hand, since smaller PEOs are less visible, they may need to provide additional signs of reputation, which may rely mainly on costless signals.

4. Data and methodology

The sample analysed covers the period 1991–2001, in which the activity of 100 PEOs was registered in Spain. However, to obtain the final sample the following filters have been applied. (i) Given that in the proposed models it is necessary to include a lag in some of the variables, data have not been included from 13 PEOs created in 2001. (ii) Likewise, data from two small PEOs have been omitted, since they do not provide information on fundraising activity, investment and divestment. (iii) Nor have we used information regarding five of the operators, since these are investors who, despite having an office in Spain, handle pan-European funds; even though there might have been some information about them, excluding it is justified because we are analysing the conditioning factors of fundraising that are valid for Spain, but could differ for the country or countries where these funds were raised. Therefore, the sample finally analysed covers 80 national PEOs of all sizes, with 582 observations considered.

Given the steady increase in the number of PEOs in this field in the period analysed, and the fact that some of them have left this same field, in no year were there observations for all the 80 operators, 64 being the highest number considered in any one year. Table 1 shows the increase in the number of operators in this period. Moreover, their distribution can be noted on the basis of the different categories analysed in Section 3. Looking at this table, one can note the existence of a larger number of PECs, even though PEMCs are the ones that manage most of the resources. Similarly, there is a larger number of UPEMCs[10]. Turning to the distinction between independent and captives, the difference between both types is not clear in Spain, with many semi-captive investors that do not exactly fit in any of the two categories. In fact, many of the captives and semicaptives are PEOs with some type of

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[9] In this sense, three of the public sector funded bodies considered function as PEMCs for operational reasons, and their directors are hired professionals, but not shareholders in the firm.

[10] In fact, there would be just 18 PEOs in the LPEMC's group, thus limiting the possibility of including it in the empirical analysis.

backing from public authorities. Therefore, both groups have been excluded from the empirical analysis based on Spanish data. Finally, and after some initial activity in the private equity sector in which the public sector played the principal role (Martí, 2002), the decreasing weight of public sector funding throughout the period considered can be noted.

Table 1
Number of private equity operators in Spain by management type, type of investors and nature of funds.

Year	Number of PEOs	Management		Nature of funds		Size of funds	
		PECs	PEMCs	Private sector	Public sector	Large	Small
1991	44	72.73%	27.27%	59.09%	40.91%	18.18%	81.82%
1992	45	71.11%	28.89%	60%	40%	17.78%	82.22%
1993	53	75.47%	24.53%	60.38%	39.62%	16.98%	83.02%
1994	53	71.70%	28.30%	60.38%	39.62%	16.98%	83.02%
1995	53	71.70%	28.30%	60.38%	39.62%	18.87%	81.13%
1996	51	70.59%	29.41%	58.82%	41.18%	21.57%	78.43%
1997	49	71.43%	28.57%	59.18%	40.82%	22.45%	77.55%
1998	54	64.81%	35.1%9	64.81%	35.19%	18.52%	81.48%
1999	54	62.96%	37.04%	66.67%	33.33%	20.37%	79.63%
2000	64	64.06%	35.94%	70.31%	29.69%	32.81%	67.19%
2001	62	62.90%	37.10%	70.97%	29.03%	33.87%	66.13%

Note: These data do not include five of the pan European funds and the new PEOs created in 2001.

In Table 2 characteristics of the sample are shown according to the different classifications of PEOs considered in this work. Thus, if we distinguish by type of management structure, 68.73% of the observations belong to operators who adopt the PEC form. On the basis of the nature of resources, 63.23% of observations belong to PEOs handling mainly funds provided by private sources. Finally, large PEOs accounted for 22.16% of the number of observations. The 'Stability' column refers to the changes in category registered in the PEOs in the period considered; the average is presented, calculated among all the PEOs in each group from the percentage of observations of each PEO recorded in the same category. For each of the three types of PEO analysed here, stability shows us what proportion of a particular type of PEO moved to another category or vice versa. With the exception of the groups related to large PEOs, which acknowledges the increase in size over time in a number of investors, stability in all categories is very high, with the corresponding effect on the validity of the findings, when a distinction is made between those groups.

Table 2

Observations for the different types of PEOs and stability for each category

PEOs		Frequency	Stability
Management	**PEMCs**	182 (31.27%)	89.22%
	PECs	400 (68.73%)	97.32%
Nature of funds	**Private sector**	368 (63.23%)	97.10%
	Public sector	214 (36.77%)	89.54%
Size of funds	**Large**	129 (22.16%)	63.55%
	Medium & Small	453 (77.84%)	89.88%

Note: These data do not include five of the pan European funds and the new PEOs created in 2001.

As has already been mentioned, with the aim of explaining the PEO's reputation, returns would be the main referent. However, the lack of data on returns for the whole group of PEOs, both arising from the private nature of the transactions and from the long maturity period of the holdings, is an obstacle for using them in the model. On the other hand, even when performance data are available, they refer to a specific time, and not to the evolution of performance, there are no market value references for unlisted firms obtained on a periodical basis. This circumstance would have made it difficult to use them in a model based on the application of panel data techniques[11], such as the one used in this work.

The agency relationship between investors and PEOs determines the need for establishing a high reputation. As has been suggested in Sections 2 and 3, the proxy for reputation would be the ability for raising new funds. The variable to be explained is, therefore, the annual volume of funds raised by PEOs. In Table 3 some descriptive statistics of the endogenous variable are displayed. The average value of the set of observations was estimated as €6 million annually, thus showing an important amount of dispersion, justified by the distance between the minimum value of 0 and the maximum of €455.9 million. The cyclical nature of private equity markets, described in Section 2, explains that the median has null value, since investors usually activate this process every two or three years. Figure 1 displays the percentage of operators raising private equity funds by year.

But the main reference provided by Table 3 is the considerable distance between the averages of different types of PEO. Distinguishing among the groups considered in this work, it is seen that the average amount of fundraising and the standard deviation is very much higher for PEMCs than for PECs, for private firms than for public ones, and for larger than smaller ones. All the *t*-statistics for a difference in averages between each of the subgroups, given a different variance for each type within each subgroup,[12] reject the equality of means hypothesis.

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[11] It is worth noting that the existence of a limited number of time observations in this field is offset by the consideration of a sample of individuals so as to allow a suitable regression of the model proposed.

[12] Previously a variance equality contrast was made between each type and for each subgroup, with the homoskedasticity hypothesis being rejected.

Table 3

Descriptive statistics of new funds raised, distinguishing by different types of PEOs

Variable	Mean	Median	Standard dev.	Minimum	Maximum
New funds raised (whole sample)	6048.8	0	26708.1	0	455861.6
New funds (PEMCs)	13441.2	0	43938.8	0	455861.6
New funds (PECs)	2685.2	0	11253.3	0	144752
	p-value:[*]				
	(0.0007)				
New funds (Private sector)	8052.9	0	32799.6	0	455861.6
New funds (Public sector)	2602.4	0	8557.3	0	82636.7
	p-value:[*]				
	(0.0014)				
New funds (Large PEOs)	20329.7	0	53065.2	0	455861.6
New funds (Small PEOs)	1982	0	6685.3	0	82636.68
	p-value:[*]				
	(0.0001)				

Note: These data do not include five of the pan-European funds and the new PEO created in 2001. Data on thousands of euros.

[*] Significance based on a t-test unilateral of equality of means.

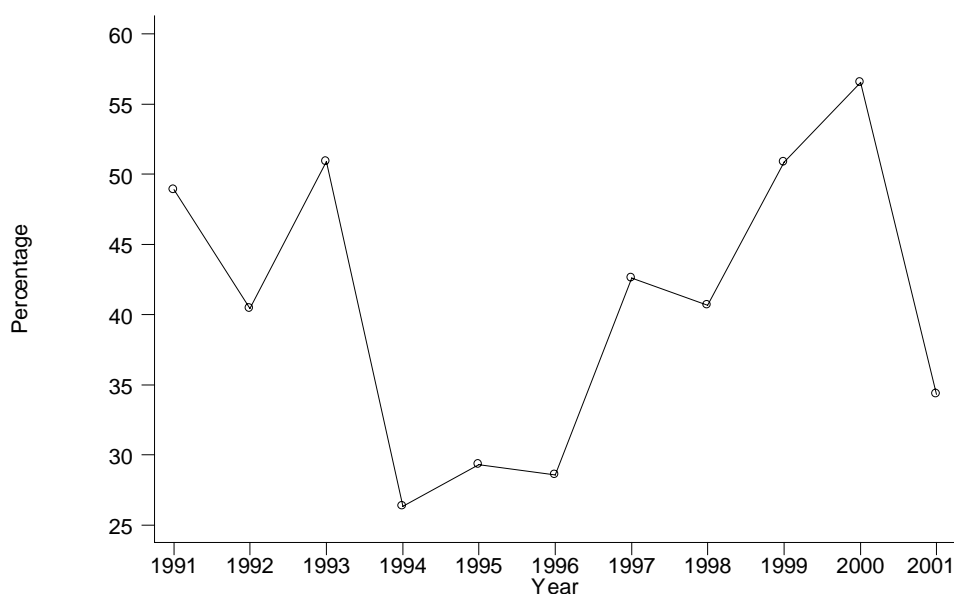Figure 1. Percentage of Private Equity Operators Raising Funds

Thus, the present paper identifies a set of variables that has been divided into two large groups. The first seeks to explain the operator's reputation from references related to the private equity cycle itself, and correspond to Hypotheses 1–3. The second group aims at recording variables that attempt to measure the reputation of PEOs by means of external

signs. Finally, new variables are added to the model which can explain the growth of new funds, regardless of the reputation of the operator involved, such as the simple growth of activity over time, economic growth, and the amount of funds still available for investment.

The first group of variables includes managers' investment activity and divestments made. Related to the investment activity, the first variable included is the amount invested in the previous year by a given PEO. Similarly, another variable is added registering the ratio between the number of portfolio companies in the previous period and the number of investment managers that were part of the PEO's team in that period. Secondly, data on the amounts divested the previous year by the PEOs are considered. These data refer to values at cost instead of the real value of the transaction, as the latter was impossible to obtain. However, we managed to identify the amount divested on the basis of the following mechanisms: placement in the stock market and sale of the stake to third parties.

The second group of variables, which refer to the establishing of a high reputation through external signs, includes references to the size of the institution, to managers' experience, to whether they belong to the National Private Equity Association (ASCRI), to whether they have signed up to the Law of Venture Capital and to whether the institution has its headquarters in the nation's capital (Madrid). In the first place, the size of the institution is included via a dummy variable indicating the operator's funds under management, distinguishing between large size or small, by considering as 'large size' those who manage, at any given time, more than €60 million. This variable was considered a proxy of reputation by Gompers and Lerner (1998a). Secondly, the managers' experience records the number of years' experience of the team directing the private equity firm. This variable was taken, rather than the number of years the institution itself has been in existence, because many of the newly created PEOs have built up their teams from experienced directors coming from other older firms. The third variable in this group is a dummy variable registering whether the PEO belongs to a sector-related association (ASCRI). It can be assumed that being a full member of the National Private Equity Association can constitute a prestigious reference, as this entails the operator's accepting a series of rules regarding the carrying out of his activity.

The fourth variable is another dummy, registering whether the PEO had signed up to the Law of Private Equity currently in force. The first legislation on private equity, published in the *Real Decreto*-ley 1/1986, set up an authorisation process, delegated to the *Dirección General del Tesoro*, for PEOs wishing to carry on their activity under the aegis of the Law. PEOs included in the *Registro Oficial* could take advantage of several fiscal incentives. The enactment of the Ley 1/1999 on January 5 of that year effected a considerable improvement in the legal and fiscal treatment of private equity and venture capital. Under the new legislation, the legal powers for authorising, registering and controlling have been entrusted by the *Ministerio de Economía* in the CNMV (National Stock Market Commission), which at present monitors the activity of registered operators. It is felt that being officially registered with the CNMV can give a positive indication of the honesty and competence of the managers of PEOs. The final variable in the group of exogenous indicators of reputation is that of being based in Madrid. The ever growing number of investors, and particularly the amount of resources being managed in Madrid, may result from the higher reputation accruing from being located in Spain's capital city. This signal would be especially important in the case of PEOs aiming to attract non-resident investors for specific investment opportunities in Spain.

At a first sight, the last four variables in this group could be regarded as costly signals because they entail a given money disbursement. An experienced manager has to be offered a

reward to attract him to a recently established PEO. Similarly, belonging to ASCRI and enrolling the CNMV's programme in order to benefit from the specific legislation imply certain costs. In this same sense, setting up the headquarters in Madrid is more expensive than choosing an alternative location, in terms of taxes and rental rates. Nevertheless, the consideration of costly signals in the literature is associated mostly with costs that are higher to the *bad* player. In this sense, the previous size of the PEO should be regarded as a costly signal, since a larger size is easier for established investors to achieve than for recently created PEOs. Similarly, gathering an experienced team is costlier to newly established PEOs. On the other hand, ASCRI membership[13] and the cost of enrolling the government's private equity programme are similar for both experienced and recently established PEOs. The same applies to the decision to choose Madrid, the nation's capital, as the main office location. Therefore, these three variables should be regarded as costless signals, since they would imply a similar cost to both groups of investors.

Finally, in the analysis other variables not related to the operator's reputation are included, such as available capital, a deterministic time trend, and the growth of gross domestic product (GDP). Firstly, and bearing in mind the cyclical nature of fundraising processes, as explained in Section 2, the amount of capital awaiting investment could be considered relevant in explaining new fundraising. It is presumed that if this figure is high investors will be less inclined to provide additional resources to increase the reserve of funds awaiting allocation, and a negative impact on the volume of funds raised can be expected. Secondly, a time variable (trend) is introduced, to control for growth over time in the volume of new funds raised. The third variable registers GDP growth in Spain between the years $t–1$ and t, and is aimed at testing its incidence, as has been done in previous works (Gompers and Lerner, 1998a; Jeng and Wells ,2000).

Given that available data refer to time series observations (1991–2001) for a sample of individual units (80 PEOs), the technique used in the empirical analysis is based on panel data methodology. The use of this methodology presents several advantages, of which the main one is that it enables us to control individual heterogeneity, which is unobservable if it remains constant over time, by reflecting the coefficients estimated for the real impact of x on y. In general terms, the regression to be estimated is in the form

$$y_{it} = \alpha + x_{it}'\beta + \eta_i + v_{it} \qquad i = 1, 2, ..., N \ ; \ t = 1, 2, ..., T$$

where y_{it} denotes the endogenous variable, which is explained on the basis of x_{it}, an n-dimensional vector of explanatory variables. The index i denotes the individual and t denotes the time period. The term η_i represents the characteristic or intrinsic effect in each individual, assuming that it is constant in time for each individual and possibly different among them, and it is assumed normally distributed with mean zero and variance σ^2_η, $\eta_i : N\left(0, \sigma^2_\eta\right)$. This variable plays a fundamental role in the methodology of panel data, because it allows control of the effect of the variables present in each individual which are not directly quantifiable or observable. Finally, the term v_{it} denotes the random disturbance of the model

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[13] However, since 1999 the Spanish Private Equity Association has changed this policy, and today full members pay a minimum fare plus an additional amount based on the funds held under management.

and it is assumed to be normally distributed with mean zero and variance σ^2_v, $v_{it} : N\left(0, \sigma^2_v\right)$.[14]

Specifically, the most general model for estimation, from which the different variations are made on the basis of different categories of operators (as mentioned in the Section 3), is as follows:

$$
\begin{aligned}
NFOND_{it} = {} & \alpha + \beta_1 INV_{it-1} + \beta_2 RATIOINV_{it} + \beta_3 DIVIPO_{it-1} + \beta_4 DIVLIQ_{it-1} + \\
& \beta_5 DIVTER_{it-1} + \beta_6 DIVREC_{it-1} + \beta_7 LARGE_{it} + \beta_8 EXP_{it} + \\
& \beta_9 ASCRI_{it} + \beta_{10} LAW_{it} + \beta_{11} MADRID_i + \beta_{12} AVCAP_{it-1} + \\
& \beta_{13} TREND_t + \beta_{14} GDPG_t + \eta_i + \varepsilon_{it}
\end{aligned}
$$

In this equation, all variables in the first group and available capital are lagged one period, which is justified by the delay with which this information is made available to the general public; official reports on the year's activity are usually published in June of the following year. On the other hand, all numerical variables referring to fundraising, investments and divestments are expressed in thousands of 1991 euros. A description of each of the variables can be found in the appendix.

From this equation, an econometric difficulty arises because new funds raised are positive for those PEOs raising funds and zero otherwise, i.e., variable new funds raised is censored at zero. To solve this problem, a panel data Tobit model can be used (Tobin, 1958). So a maximum likelihood estimator is employed to estimate the model. Under the assumption of a correctly parameterised individual specific effect and, as in the standard Tobit model, normally distributed error terms, this approach leads to consistent estimations.

Under these assumptions, we have that

$$
\Pr\left(y_i \,\middle|\, x_i\right) = \int_{-\infty}^{+\infty} \frac{e^{\frac{-v^2_i}{2\sigma^2_v}}}{\sqrt{2\pi}\sigma_v} \left\{ \prod_{t=1}^{n_i} F\left(x_{it}\beta + v_i\right) \right\} dv_i
$$

where

$$
F\left(\Delta_{it}\right) = \begin{cases}
\left(-1/\sqrt{2\pi\sigma^2_\varepsilon}\right) e^{-\left(y_{it}-\Delta_{it}\right)^2/\left(2\sigma^2_\varepsilon\right)} & \text{if } y_{it} \in C \\[2ex]
\Phi\left(\dfrac{y_{it}-\Delta_{it}}{\sigma_\varepsilon}\right) & \text{if } y_{it} \in L \\[2ex]
1-\Phi\left(\dfrac{y_{it}-\Delta_{it}}{\sigma_\varepsilon}\right) & \text{if } y_{it} \in R
\end{cases}
$$

---

[14] For a more detailed study on the advantages and other issues related to panel data methodology, see Arellano and Bover (1990) and Baltagi (2001).

where C is the set of noncensored observations, L is the set of left-censored observations, R is the set of right-censored observations and $\Phi(\ )$ is the cumulative normal distribution. The approximation known as Gauss-Hermite quadrature is employed to approximate the integral[15]. In all the models estimated, a likelihood ratio test of $\sigma^2_\nu = 0$ is included. This test formally compares the pooled estimator with the panel estimator.

5. Empirical testing: results for the whole sample of PEOs

Results of the estimation of the model proposed in the previous section are presented in Table 4. The first version incorporates all the above-mentioned variables for the whole sample. The following three specifications add dummy variables corresponding to the different types of PEO that can be identified in Spain. In order, these specifications introduce the incidence of the duration of the investment vehicle (PEC compared with PEMC), the nature of investors (private–public ones) and the previous amount of funds under management (large-small PEOs).

Regarding the set of variables that attempt to explain success in new fundraising as a reference of reputation from the private equity cycle itself, in all the versions evidence is found of the effect of the volume of lagged investments. This verifies Hypothesis 1, justified by the prolonged duration of the private equity cycle of investment and divestment. This variable is significant at the 1% level in all versions, thus reinforcing the importance of this variable as a costly signal, despite the large variety of PEOs considered. Hypothesis 1, which has already been presented for aggregated data to explain overreaction in private equity markets, as shown in the presence of surges in supply when there is a change in demand (Martí and Balboa, 2002b), may be justified from the microeconomic standpoint by the existence of asymmetrical information in the relationship between investors and PEOs.

With regard to the ratio of portfolio companies to each investment manager in the previous period, evidence of a negative relationship is found in all specifications, being all the coefficients significant at 1%. Thus, the negative sign corroborates Hypothesis 2. This evidence is consistent with that presented by Osnabrugge and Robinson (2001), interpreting the follow-up of a smaller number of investments, as indicating that greater diligence in carrying out functions signals a better reputation. Finally, and with respect to the conversion into liquidity of investments, evidence is found only in the case of divestments through initial public offerings that the coefficient is positive and also significant at 1%. However, trade sales do not register a significant impact on new fundraising.

Within the group of variables related to exogenous signals, evidence is found, in all the specifications, of the impact of the dimension of the resources managed on the volume of funds raised. Membership of the ASCRI Association turn out to be significant at 5% or 10%, depending on the version estimated. On the other hand, within this group of variables no evidence is found of the effect exerted by the experience of the private equity managers, or from following the specific legislation on private equity, or from setting up the main office in Madrid. As a result, taking into account the whole set of PEOs, the fourth specification identifies five significant variables relating to PEO reputation. Three of them are classified as

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[15] We have used different numbers of quadrature support points and results don't change significantly, so we can be confident of the quadrature used.

costly signals, whereas the other two are considered to be costless from the literature's standpoint.

The variable representing the amount of money available for investment show a negative coefficient, as expected, significant at 1%. It should be noted that PEOs can not justify new fundraising when they have plenty of money pending allocation. The dummy variable representing private-sector-related PEOs has a negative coefficient that is significant at 10%. This could be explained by the important role that public-sector-related PEOs played in Spain in the past (Martí, 2002).

Finally, there is no evidence of the impact of the time variable or of the impact of GDP growth on new fundraising. The result concerning the GDP not being significant is the same as the one provided by Jeng and Wells (2000), for aggregate data from a set of twenty-one countries, and by Martí and Balboa (2002a), in a work carried out with aggregate data for sixteen Western European countries.

Table 4
Results for the whole sample.

Independent variables	Version 1	Version 2	Version 3	Version 4
	Dependent variable: New funds raised			
(1) INVit-1	1.099*	1.156*	1.110*	1.178*
	(3.25)	(3.39)	(3.28)	(3.45)
(2) RATIOINVit-1	-5084.6*	-5084.2*	-5469.1*	-5514.7*
	(-3.53)	(-3.53)	(-3.68)	(-3.70)
(3) DIVIPOit-1	11.449*	11.403*	11.687*	11.648*
	(5.64)	(5.64)	(5.74)	(5.75)
(4) DIVTERit-1	-1.083	-1.132	-1.014	-1.068
	(-1.23)	(-1.28)	(-1.15)	(-1.21)
(5) LARGEit	30250.9*	27702.9*	30816*	27798.4*
	(4.49)	(3.93)	(4.55)	(3.94)
(6) EXPit	757.05	791.86	466.05	478.43
	(1.51)	(1.58)	(0.88)	(0.91)
(7) ASCRIit	12895.4**	13014.4**	11621.7***	11665.8***
	(2.03)	(2.06)	(1.81)	(1.83)
(8) LAWit	-4130.29	-5401.8	-2072.17	-3456.4
	(-0.74)	(-0.96)	(-0.36)	(-0.60)
(9) MADRIDi	-1340.14	-2996.4	1949.9	241.28
	(-0.23)	(-0.49)	(0.31)	(0.04)
(10) AVCAPit-1	-0.508*	-0.530*	-0.521*	-0.548*
	(-4.31)	(-4.44)	(-4.39)	(-4.56)
(11) TRENDt	-54.02	-97.28	128.57	97.07
	(-0.06)	(-0.10)	(0.13)	(0.10)
(12) GDPGt	-80332.8	-78086.4	-77538.3	-74537.8
	(-0.71)	(-0.69)	(-0.68)	(-0.66)
(13) PEMCit		7268.6		8779.4
		(1.14)		(1.36)
(14) PRIVATEit			-10789.7***	-11797***
			(-1.72)	(-1.87)
(15) CONSTANT	-28699.1*	-29130*	-21214.4**	-21004.6**
	(-3.27)	(-3.34)	(-2.18)	(-2.17)
Log-likelihood[a]	-2163.4	-2162.7	-2161.9	-2161
p-value[b]	(1.000)	(1.000)	(1.000)	(1.000)

* = significant at 1%, ** = significant at 5%, *** = significant at 10%
Random effects Tobit estimation.
Dependent variable is new funds raised by operator "i" in time "t" in 1991 euros. Independent variables: (1) Total volume of investments by operator "i" in "t" in 1991 euros, lagged one period. (2) Ratio number of portfolio companies per investment manager "i" in "t", lagged one period. (3) Total volume of divestments through IPOs by operator "i" in "t" in 1991 euros, lagged one period. (4) Same as 3, but divestments through sales to third parties. (5) Dummy indicating the funds under management of operator "i" in "t". (6). Years of managers' experience of the private equity firm "i" in "t". (7). Dummy indicating ASCRI membership of operator "i" in "t". (8). Dummy indicating operator "i" signing up to the Law of Private Equity in "t". (9). Dummy indicative of operator "i" being based in Madrid. (10). Available capital for investment of operator "i" in "t", in 1991 euros, lagged one period. (11) Deterministic time trend. (12) Gross domestic product growth from "t-1" to "t". (13) Dummy indicative of operator "i" belonging to the PEMC group in "t". (14) Dummy indicative of operator "i" belonging to the private sector group in "t". T-statistics in parenthesis. All variables related to divestments are valued at cost.
[a]Log-likelihood of the full model.
[a]LR-test comparing the random-effects model with the pooled (tobit) model.

6. Results for more homogeneous groups

Since there may be differences, depending on the characteristics of the particular PEO, in this section the population analysed is divided into different subpanels. The purpose of this is to achieve greater homogeneity among the individuals studied, which in turn should facilitate the interpretation of the findings and their applicability to the different types of PEOs. The groups analysed are the ones already indicated: PEMCs compared with PECs, private compared with public-sector-related PEOs, and large compared with small PEOs. First, the regression of the subpanels of the PEMCs compared with PECs is shown in Table 5. In the case of the PEMCs the panel considered incorporates 28 PEOs, and in the PECs it includes 55 PEOs.[16]

With regard to the variables relating to the private equity business, the volume of lagged investment has a significant impact just on PEMCs, thus verifying for this group the importance of investments made as a signal of ability to manage a greater volume of resources (Hypothesis 1). The ratio number of portfolio companies per investment manager is negative, but this is significant only in the case of PECs, thus partially confirming Hypothesis 2 for this group. Specifically, it is found that what is ultimately important is the fact that investors are penalising those PEOs who hold an excessive number of portfolio companies per investment manager. This is completely consistent with the Agency Theory, for reasons already mentioned. In the case of divestments, exits through IPOs show a significant coefficient, verifying Hypothesis 3 in PEMCs. This is not the case for PECs, for which neither IPOs nor sales to third parties prove to be significant.

Regarding the group of variables intended to mark reputation from external signs, it can be seen that, with the exception of the amount of funds under management, these are significant only for the PEC group. In addition to the size of funds, ASCRI membership also prove to be significant, and in the expected sense, for this latter group. This is not the case of the variable LAW, which is related to the impact of following the specific legislation on private equity on the volume of funds raised. Although the negative sign may appear striking, the explanation lies on the smaller fundraising efforts of PECs that are registered at the CNMV. As a result, ASCRI membership appears to offer a positive signal to prospective investors, while the enrolment in the specific programme does not have that impact.

Turning to the group of variables that control the impact on fundraising of items not related to the PEO's reputation, the representative variable of the lagged volume of capital available for investment has a negative impact for both groups, but significant just in PEMCs. In the case of PEMCs the result was expected, since fundraising takes place to the extent that available capital is almost fully committed. The lack of significance in PECs is related to the evolution of interest rates. Many of these PEOs covered their general expenses from financial revenue stemming from temporary investments. When interest rates fell this source of income was reduced, and larger funds came to be needed to obtain the same level of revenue.

Finally, neither the time trend nor the GDP growth turn to be significant. In summary, in the case of PEMCs all significant variables are defined as costly signals, whereas for PECs costless signals seem to have larger impact on fundraising.

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[16] The sum of both does not come to 80 because during the period analysed two PECs became PEMCs and a PEMC became a PEC.

Table 5
Results for PEMCs and PECs

	Dependent variable: New funds raised	
Independent variables	**PEMCs**	**PECs**
(1) INVit-1	2.195*	0.125
	(2.73)	(0.86)
(2) RATIOINVit-1	-7250.6	-1478.8*
	(-1.47)	(-3.26)
(3) DIVIPOit-1	13.232*	4.066
	(3.49)	(0.64)
(4) DIVTERit-1	-1.737	-0.496
	(-0.91)	(-1.09)
(5) LARGEit	37410.4***	12667*
	(1.81)	(4.29)
(6) EXPit	1479.6	56.96
	(0.73)	(0.36)
(7) ASCRIit	34515.5	4649.7**
	(1.36)	(2.36)
(8) LAWit	-5313.6	-4264.3**
	(-0.28)	(-2.23)
(9) MADRIDi	-16423.3	1422.6
	(-0.88)	(0.72)
(10) AVCAPit-1	-0.935*	-0.050
	(-3.61)	(-0.73)
(11) TRENDt	2619.9	-10.44
	(0.80)	(-0.03)
(12) GDPGt	-175148	-11239.6
	(-0.49)	(-0.32)
(13) CONSTANT	-70370.7**	-5310.7***
	(-2.29)	(-1.88)
Log-likelihood[a]	-735.9	-1309
p-value[b]	(1.000)	(1.000)

* = significant at 1%, ** = significant at 5%, *** = significant at 10%
Random effects Tobit estimation.
Dependent variable is new funds raised by operator "i" in time "t" in 1991 euros. Independent variables: (1) Total volume of investments by operator "i" in "t" in 1991 euros, lagged one period. (2) Ratio number of portfolio companies per investment manager "i" in "t", lagged one period. (3) Total volume of divestments through IPOs by operator "i" in "t" in 1991 euros, lagged one period. (4) Same as 3, but divestments through sales to third parties. (5) Dummy indicating the funds under management of operator "i" in "t". (6). Years of managers' experience of the private equity firm "i" in "t". (7). Dummy indicating ASCRI membership of operator "i" in "t". (8). Dummy indicating operator "i" signing up to the Law of Private Equity in "t". (9). Dummy indicative of operator "i" being based in Madrid. (10). Available capital for investment of operator "i" in "t", in 1991 euros, lagged one period. (11) Deterministic time trend. (12) Gross domestic product growth from "t-1" to "t". T-statistics in parenthesis. All variables related to divestments are valued at cost.
[a]Log-likelihood of the full model.
[b]LR-test comparing the random-effects model with the pooled (tobit) model.

As a second form of comparison, a distinction is made between PEOs with a majority of resources provided by private investors and those whose main contributions come from public investors. There are 60 of the former and 23 of the latter.[17] The results are given in Table 6. Concerning the group of variables linking reputation to the private equity activity, evidence is found of the positive, significant impact of the lagged investment volume and

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[17] The total is more than 80 owing to the existence of PEOs who changed groups when private investors were allowed entry throughout the period analysed.

divestment through IPOs but only for private PEOs, thus confirming Hypotheses 1 and 3. In the public PEOs no relevant evidence is found of the effect of any kind of divestment or the lagged investment volume on new fundraising. In relation to Hypothesis 2, the ratio of portfolio companies to investment manager is significant and in the expected sense for both groups. Regarding the results of exogenous signals, in both private and public PEOs, evidence is found of the positive, significant effect of the amount of funds under management. Even though the coefficient representing ASCRI membership shows a positive sign in the case of private PEOs, none of the remaining variables related to external signs seem to have a relevant impact on reputation.

The PEOs for which the majority of resources was provided by private investors are more obliged to account for their performance to their investors, and have to be more concerned about building and maintaining a good reputation, since on that will depend, to a great extent, the volume of funds raised in future. This could be the reason why the number of signals is greater for this group. In the case of public PEOs, who were fundamentally set up to contribute to the development of certain geographical areas or sectors of specific interest, it could be expected that greater importance would be given to economic and social aims than to obtaining higher financial returns. It can be concluded that private-sector-related PEOs rely, basically, on costly signals of reputation, whereas in public-sector ones there is limited evidence on the impact of the proposed variables on reputation.

The representative variable of the lagged volume of capital available for investment has a negative impact for both groups. However, it is significant only in private PEOs, which was to be expected, since fundraising takes place when available capital is almost fully committed. The lack of significance in public PEOs is related to the evolution of interest rates, as in the case of the group PECs. Regarding the time trend, it is not significant in neither of the groups. Finally, the impact of GDP growth deserves comment, as it has a negative and significant impact on fundraising only in the case of public PEOs. That is to say, when the economy is growing, the public PEOs are raising fewer funds. The reason could be due to higher activity of private PEOs in those cases, which in turn would make less necessary the activity of public PEOs, which would thus raise fewer funds.

Table 6
Results for Private and Public-sector-related PEOs

| | Dependent variable: New funds raised | |
Independent variables	Private sector funded	Public sector funded
(1) INVit-1	1.425*	-0.126
	(2.87)	(-0.35)
(2) RATIOINVit-1	-7485.7*	-1324**
	(-2.82)	(-2.28)
(3) DIVIPOit-1	14.108*	-6.714
	(4.65)	(-1.11)
(4) DIVTERit-1	-1.947	-0.548
	(-1.28)	(-0.53)
(5) LARGEit	35690.5*	15282.6*
	(3.08)	(3.78)
(6) EXPit	1373.8	-150.7
	(1.29)	(-0.80)
(7) ASCRIit	19649	1834.4
	(1.64)	(0.69)
(8) LAWit	-5209.8	-1612.7
	(-0.50)	(-0.65)
(9) MADRIDi	-910	4196.4
	(-0.09)	(1.28)
(10) AVCAPit-1	-0.730*	-0.074
	(-3.91)	(-0.92)
(11) TRENDt	-167.1	506.5
	(-0.10)	(1.26)
(12) GDPGt	28707.4	-101678**
	(0.14)	(-2.27)
(13) CONSTANT	-49031.6*	-493.8
	(-3.08)	(-0.14)
Log-likelihood[a]	-1206	-877.8
p-value[b]	(1.000)	(1.000)

* = significant at 1%, ** = significant at 5%, *** = significant at 10%
Random effects Tobit estimation.
Dependent variable is new funds raised by operator "i" in time "t" in 1991 euros. Independent variables: (1) Total volume of investments by operator "i" in "t" in 1991 euros, lagged one period. (2) Ratio number of portfolio companies per investment manager "i" in "t", lagged one period. (3) Total volume of divestments through IPOs by operator "i" in "t" in 1991 euros, lagged one period. (4) Same as 3, but divestments through sales to third parties. (5) Dummy indicating the funds under management of operator "i" in "t". (6). Years of managers' experience of the private equity firm "i" in "t". (7). Dummy indicating ASCRI membership of operator "i" in "t". (8). Dummy indicating operator "i" signing up to the Law of Private Equity in "t". (9). Dummy indicative of operator "i" being based in Madrid. (10). Available capital for investment of operator "i" in "t", in 1991 euros, lagged one period. (11) Deterministic time trend. (12) Gross domestic product growth from "t-1" to "t". T-statistics in parenthesis. All variables related to divestments are valued at cost.
[a]Log-likelihood of the full model.
[b]LR-test comparing the random-effects model with the pooled (tobit) model.

The final group considered in this work is the one referring to large and small PEOs. The results for this group are shown in Table 7. The case of large PEOs includes observations for 24 individuals, being this number 68 for the case of small PEOs. Regarding the variables related to the private equity cycle, evidence of the significant and positive impact of the lagged volume of investments is found for both groups, thus confirming Hypothesis 1. The ratio number of portfolio companies per investment manager is negative and significant also for both groups, confirming Hypothesis 2. Finally, only divestments through IPOs turn out to have a positive impact on fundraising, being significant only for the group of large PEOs,

partially confirming Hypothesis 3. The lack of significance in the case of small PEOs could be due to the little volume of divestments through this mechanism in those PEOs, who can rarely access stock markets. Thus, rather than investors not valuing divestments through IPOs for this group is that they are not high enough.

In relation to the group of exogenous signals, only evidence of managers' experience for large PEOs and of being member of ASCRI Association for small PEOs is found, the impact being positive in both cases. Finally, neither the time trend nor the GDP growth have a significant impact on fundraising.

Table 7
Results for Large and Small PEOs

		Dependent variable: New funds raised	
Independent variables		**Large funds**	**Small funds**
(1)	INVit-1	1.437[**]	0.542[***]
		(2.19)	(1.94)
(2)	RATIOINVit-1	-13542.6[**]	-1097.2[*]
		(-1.99)	(-3.15)
(3)	DIVIPOit-1	14.067[*]	0.935
		(3.76)	(0.24)
(4)	DIVTERit-1	-1.982	-1.064
		(-1.09)	(-0.93)
(5)	EXPit	3924.4[***]	1.996
		(1.84)	(0.02)
(6)	ASCRIit	38665.7	3811.2[**]
		(1.42)	(2.32)
(7)	LAWit	-3416.4	-1263
		(-0.17)	(-0.83)
(8)	MADRIDi	-20660.9	-263.7
		(-0.83)	(-0.16)
(9)	AVCAPit-1	-0.880[*]	0.121[***]
		(-3.54)	(1.95)
(10)	TRENDt	-2537.1	183.4
		(-0.67)	(0.75)
(11)	GDPGt	141714.3	-42553.4
		(0.36)	(-1.46)
(12)	CONSTANT	-10714.5	-6138.5[*]
		(-0.31)	(-2.72)
Log-likelihood[a]		-747.1	-1287.5
p-value[b]		(1.000)	(0.156)

* = significant at 1%, ** = significant at 5%, *** = significant at 10%
Random effects Tobit estimation.
Dependent variable is new funds raised by operator "i" in time "t" in 1991 euros. Independent variables: (1) Total volume of investments by operator "i" in "t" in 1991 euros, lagged one period. (2) Ratio number of portfolio companies per investment manager "i" in "t", lagged one period. (3) Total volume of divestments through IPOs by operator "i" in "t" in 1991 euros, lagged one period. (4) Same as 3, but divestments through sales to third parties. (5) Dummy indicating the funds under management of operator "i" in "t". (6). Years of managers' experience of the private equity firm "i" in "t". (7). Dummy indicating ASCRI membership of operator "i" in "t". (8). Dummy indicating operator "i" signing up to the Law of Private Equity in "t". (9). Dummy indicative of operator "i" being based in Madrid. (10). Available capital for investment of operator "i" in "t", in 1991 euros, lagged one period. (11) Deterministic time trend. (12) Gross domestic product growth from "t-1" to "t". T-statistics in parenthesis. All variables related to divestments are valued at cost.
[a]Log-likelihood of the full model.
[b]LR-test comparing the random-effects model with the pooled (tobit) model.

7. Conclusions

This work analyses the relationship between investors and private equity operators within the framework of the Agency and Signalling Theories. With the aim of reducing problems of moral hazard and adverse selection facing investors (principals), the latter try to choose the best private equity managers, that is, those who offer them the highest expected returns. The problem arises in those economies in which information concerning historical returns is not available because the private equity market is still in the early stages of development. This is the case in the Spanish market, the present object of analysis.

In this context, the aim of our study is to analyse the reputation-building mechanisms used by private equity managers to solve or minimise the problems of information asymmetry between investors and managers and to determine how a good reputation, once established, enables them to raise larger amounts of funds in the future. This work identifies two large groups of variables indicative of a good reputation: one related to the private equity investment–divestment process, and a second aimed at the perception of a good reputation on the basis of external signs. The first group of variables includes investment and divestment activity carried out by the management team in the previous year. The second group encompasses variables such as the amount of funds under management, the experience of its managers, whether they belong to the sector Association, whether they have signed up to the Law of Private Equity in force, and whether they have their headquarters in Madrid. From a different standpoint, all these variables are identified as either costly or costless signals in order to test their relative importance as means of signalling the PEO's reputation. In addition to those two groups of variables, a further group is identified relating to the volume of resources awaiting investment.

The results obtained show that, with regard to the first group of variables, the volume invested has a significant, positive impact on the volume of funds that will be raised by managers the following year. In this sense, the ability to make deals is considered important in establishing a reputation. However, as the ratio of portfolio companies per investment manager increases, management attention to each investment may diminish, which could reduce future returns obtained by PEOs and, consequently, diminish the reputation of the PEO. Consistent with this idea we find that the higher the ratio of portfolio companies to investment managers, the smaller is the amount of funds raised. We also find a significant and positive impact of divestments through initial public offerings on the volume of funds raised, which is consistent with the fact that this mechanism is the most profitable way of exiting. Regarding the second group of variables, the size or volume of resources handled by the PEO and whether they belong to the sector Association ASCRI are found to have a positive impact on fundraising. Finally, the lagged volume of funds awaiting investment shows a negative impact on fundraising, which it was to be expected as PEOs raise funds to the extent that available capital is almost fully committed.

Nonetheless, and given the great dispersion of PEOs existing in Spain, the types of signal emitted are thought to vary according to different characteristics; so from the general case the sample analysed is separated into three subsets: PEMCs compared with PECs, private compared with public-sector-funded PEOs, and large compared to small PEOs. Regarding the first group of variables, in all the subgroups except that of PECs and public-sector-funded PEOs, the impact of the lagged amount invested on funds raised is positive and significant. In addition, a negative impact is found for the ratio of portfolio companies per investment

manager for all the subgroups of PEOs except that of PEMCs. Regarding the different mechanisms of divestment, only divestments through initial public offerings have a positive and significant impact for PEMCs, private-sector-funded PEOs and large PEOs. With regard to external signals, the positive impact of the size of the funds under management is maintained, varying the rest of signals depending on the subgroup considered. In this way, the work provides evidence that managers send signals aimed at establishing their reputation, given their need to go to the capital market when looking for funds.

With regard to the consideration of costly versus costless signals, when the whole set of PEOs is considered three variables classified as costly signals prove to be significant, whereas two variables representing costless signals are also significant. Nevertheless, when different subsets are broken down, this pattern changes substantially. As a result, evidence is found on the impact of costly signals in the case of PEMCs, private-sector-funded PEOs and large PEOs. Converserly, PECs and small PEOs relie more on costless signals. It should also be remarked that, in all groups, the ratio of portfolio companies to investment managers shows the expected negative sign, as inferred from the Agency Theory, being significant in all groups except in the case of PEMCs.

References

Admati, A. and Pfleiderer, P., (1994) "Robust Financial Contracting and the Role of Venture Capitalists". *Journal of Finance*, 49 (2), pp. 371-402.

Akerlof, G. A., (1970) "The Market for "Lemons": Quality Uncertainty and the Market Mechanism". *Quarterly Journal of Economics*, 84 (3), pp. 488-500.

Ali-Yrkkö, J., Hyytinen, A. and Liukkonen, J., (2001) "Exiting Venture Capital Investments: Lessons From Finland". The Research Institute of the Finnish Economy. Keskusteluaiheita--Discussion Papers, nº 781.

Amit, R., Brander, J. and Zott, C., (1998) "Why do Venture Capital Firms Exist? Theory and Canadian Evidence". *Journal of Business Venturing*, 13 (6), pp. 441-466.

Arellano, M., and Bover, O., (1990) "La Econometría de Datos de Panel". *Investigaciones Económicas*, 14 (1), pp. 3-45.

Austen-Smith, D., and Banks, J. S., (2000) "Cheap Talk and Burned Money". *Journal of Economic Theory*, 91, pp. 1-16.

Baltagi, B. H., (2001) *Econometric Analysis of Panel Data*. John Wiley & Sons Ltd, England. 2nd edition.

Bankman, J. and Cole, M., (2001) "The Venture Capital Investment Bust: Did Agency Costs Play a Role? Was it Something Lawyers Helped Structure?". *Chicago-Kent Law Review*, 77 (1), pp. 211-234.

Bhattacharya U., and Dittmar, A., (2003) "Costless versus Costly Signaling: Theory and Evidence from Share Repurchases". SSRN Working Paper Series. http://www.bus.indiana.edu/ubhattac/signaling.pdf

Black, B. S., (1998) "Information Asymmetry, the Internet and Securities Offerings". *Journal of Small and Emerging Business Law*, 2 (1), pp.91-99.

Brennan, M., and Hughes, P., (1991) "Stock Prices and the Supply of Information". *Journal of Finance*, 46 (5), pp. 1665-1691.

Chan, Y. S., (1983) "On the Positive Role of Financial Intermediation in Allocation of Venture Capital in a Market with Imperfect Information". *Journal of Finance*, 38 (5), pp. 1543-1568.

Crawford V. P., and Sobel, J., (1982) "Strategic Information Transmission". *Econometrica*, 50 (6), pp. 1431-1451.

Cumming, D. J., (2001) "The Determinats of Venture Capital Portfolio Size: Empirical Evidence". University of Alberta, Working Paper.

EVCA (2002), 2002 EVCA Yearbook, EVCA, Zavetem (Belgium).

Fama, E. and Jensen, M. C., (1983) "Separation of Ownership and Control". *Journal of Law and Economics*, 26 (2), pp. 301-327.

Fried, V. H., and Hisrich, R. D., (1994) "Toward a Model of Venture Capital Investment Decision Making". *Financial Management*, 23 (3), pp. 28-37.

Gladstone, D., (1983). Venture Capital Handbook, Massachusetts. Editorial

Gompers, P., (1996) "Grandstanding in the Venture Capital Industry". *Journal of Financial Economics*, 42 (1), pp. 133-156.

Gompers, P. A. and Lerner, J., (1998a). "What Drives Venture Capital Fundraising?". *Brookings Papers: Microeconomics* 1998, pp. 149-192.

Gompers, P. and Lerner, L., (1998b) "Venture Capital Distributions: Short-Run and Long-Run Reactions". *Journal of Finance*, 53 (6), pp. 2161-2183.

Gompers, P. and Lerner, J., (2001) "The Venture Capital Revolution". *Journal of Economic Perspectives*, 15 (2), pp. 145-168.

Hellmann, T. and Puri, M., (2001) "Venture Capital and the Professionalization of Start-up Firms: Empirical Evidence". *Journal of Finance*, 57 (1), pp. 169-197.

Jensen, M. C. and W. H. Meckling, (1976) "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics*, 3 (4), pp. 305-360.

Jeng, L.A. and Wells, P.C., (2000) "The Determinants of Venture Capital Funding: Evidence Across Countries". *Journal of Corporate Finance*, 6 (3), pp. 241-289.

Kanniainen, V. and Keuschnigg, C., (2002a) "The Optimal Portfolio of Start-up Firms in Venture Capital Finance". *Journal of Corporate Finance*, forthcoming.

Kanniainen, V. and Keuschnigg, C., (2002b) "Start-up Investment with Scarce Venture Capital Support". CESifo Working Paper, nº 439, revised.

Kaplan, S. N. and Stromberg, P., (2001) "Venture Capitalists As Principals: Contracting, Screening, and Monitoring". NBER Working Paper, nº8202.

Leland, H. E., and D. H. Pyle, (1977) "Informational Asymmetries, Financial Structure, and Financial Intermediation". *Journal of Finance*, 32 (2), pp. 371-387.

Martí, J., (2002) *Oferta y Demanda de Capital Riesgo*. 2001. Civitas, Madrid.

Martí, J. and Balboa, M., (2002a) "Conceptual Model for Private Equity Markets: Proposal and Empirical Test on Fundraising". 2002 Annual Meeting, Londres, European Financial Management Association.

Martí, J. and Balboa, M., (2002b) "Impacto de la Demanda y la Liquidez sobre la Captación de Nuevos Fondos de Capital Riesgo en Europa", mimeo.

Megginson, W. L., (2002) "Towards a Global Model of Venture Capital?". Forthcoming *Journal of Applied Corporate Finance*, fall (2002).

Norton, E., (1995) "Venture Capital as an Alternative Means to Allocate Capital: an Agency-Theoretic View". *Entrepreneurship Theory and Practice*, winter, pp. 19-29.

Osnabrugge, M. van, (2000) "A Comparison of Business Angel and Venture Capitalist Investment Procedures: an Agency Theory-Based Analysis". *Venture Capital*, 2 (2), pp. 91-109.

Osnabrugge, M. van, and Robinson R. J., (2001) "The Influence of a Venture Capitalist's Source of Funds". *Venture Capital*, 3 (1), pp. 25-39.

Reid, G. C., (1996) "Fast Growing Small Entrepreneurial Firms and their Venture Capital Backers: an Applied Principal-Agent Analysis". *Small Business Economics*, 8 (3), pp. 235-248.

Reid, G. C., (1999) "The Application of Principal-Agent Methods to Investor-Investee Relations in the UK Venture Capital Industry". *Venture Capital*, 1 (4), pp. 285-302.

Repullo, R. and Suarez, J., (1999) "Venture Capital Finance: a Security Design Approach". CEMFI, Working Paper nº 9804.

Riley, J. G., (1979) "Informational Equilibrium". *Econometrica*, 47 (2), pp. 331-359.

Rosenstein, J., Bruno, A.V., Bygrave, W.D. and Taylor, N. T., (1990) "How much do CEOs Value the Advice of Venture Capitalists on their Boards?". Frontiers of Entrepreneurship Research, (Wellesley, MA: Babson College).

Ross, S. A., (1977) "The Determination of Financial Structure: the Incentive Signalling Approach". *Bell Journal of Economics*, 8 (1), pp. 23-40.

Sahlman, W. A., (1990) "The Structure and Governance of Venture-Capital Organizations". *Journal of Financial Economics*, 27, pp. 473-521.

Sapienza, H. J., Manigart, S. and Vermeir, W., (1996) "Venture Capitalists Governance and Value Added in Four Countries". *Journal of Business Venturing*, 11 (6), pp. 439-469.

Schertler, A., (2001) "Venture Capital in Europe's Common Market: a Quantitative Description". Kiel Institute of World Economics, Working Paper nº 01-4.

Schertler, A., (2002) "Path Dependencies in Venture Capital Markets". Kiel Institute for World Economics. Kiel Working Paper nº 1120.

Schertler, A., (2003) "Driving Forces of Venture Capital Investments in Europe: A Dynamic Panel Data Analysis". Kiel Institute for World Economics, mimeo.

Schmidt, K. M., (2002) "Convertible Securities and Venture Capital Finance". University of Munich, Cesifo and CEPR, mimeo.

Smith, D. G., (1998) "Venture Capital Contracting in the Information Age". *The Journal of Small & Emerging Business Law*, 2 (1), pp. 133-176.

Smith, D. G., (1999) "Team Production in Venture Capital Investing". *Journal of Corporation Law*, 24 (4), pp. 949-974.

Spence, M., (1973) "Job Market Signalling". *Quarterly Journal of Economics*, 87 (3), 355-374.

Tobin, J., (1958) "Estimation of relationships for limited dependent variables". Econometrica, 26, pp. 24-36.

Tyebjee, T. T. and Bruno, A. V., (1984) "A Model of Venture Capitalist Investment Activity". *Management Science*, 30 (9), pp. 1051-1066.

Venture Economics (1987) "Terms and Conditions of Venture Capital Partnerships". (Venture Economics, Inc., Needham, MA)

Wright, M. and Robbie, K., (1996) "Venture Capitalists, Unquoted Equity Investment Appraisal and the Role of Accounting Information". *Accounting and Business Research*, 26 (2), pp. 153-168.

APPENDIX

Description and source of data

Variable	Description	Source
New funds raised	Total volume of new funds raised by operator each year. In 1991 euros.	Data base of Martí Pellón, J. (1991-2001)
Investments	Total volume of investments by operator each year. In 1991 euros.	
Ratio between number of portfolio companies and number of professionals	Ratio between the number of portfolio companies by operator each year and the number of investments managers in this same year.	
Divestments through IPOs	Value at cost of divestments by operator each year through initial public offerings. In 1991 euros.	
Divestments through write-offs	Value at cost of divestments by operator each year through write-offs. In 1991 euros.	
Divestments through trade sales to a third party	Value at cost of divestments by operator each year through trade sales to a third party. In 1991 euros.	
Divestments through buy-back from original owners of the firm	Value at cost of divestments by operator each year through buy-back from original owners of the investee firm. In 1991 euros.	
Large	Dummy variable indicative of the funds under management by operator and year, distinguishing between large and small operators. An operator is considered large if it manage more than 12 millions of euros.	
Experience	Number of years of experience of managers from the private equity firm, by operator and year.	
Ascri	Dummy variable indicative of belonging to the Spanish Private Equity Association (ASCRI) by operator and year.	
Law	Dummy variable registering whether or not the operator has signed up to the Law Of Private Equity currently in force each year.	
Madrid	Dummy variable indicative of each operator being based in Spain's capital city.	
Available capital	Amount of capital awaiting investment for each operator and year. In 1991 euros.	
Trend	Deterministic time trend.	
GDPG	Gross domestic product growth between years "t-1" and "t".	***National Statistical Institute of Spain.*** **http://www.ine.es**
PEMC	Dummy indicative of the operator belonging to the group of Private Equity Management Companies.	Data base of Martí Pellón, J. (1991-2001)
Private	Dummy indicative of the operator belonging to the group of Private Equity Operators that handle funds provided by a private sector related investors..	