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Value Creation in the Private Equity
and Venture Capital Industry

Kevin KAISER
Christian WESTARP
2010/19/FIN

Value Creation in the Private Equity and Venture Capital Industry

By

Kevin Kaiser*

And

Christian Westarp**

These notes were prepared by Professor Kevin Kaiser (INSEAD) and Christian Westarp (2006 MBA, INSEAD and former Research Assistant, INSEAD). Several references have been used in the production of these notes and we have tried to provide all references throughout. This note is extremely incomplete and not yet ready for public dissemination. Please do not reproduce or quote without the permission of the author.

* Affiliate Professor of Finance at INSEAD, Boulevard de Constance, 77305 Fontainebleau Cedex, France, Ph : +33 (0)1 60 72 41 31 ; Email : kevin.kaiser@insead.edu

** Senior Consultant at Capgemini Consulting France Area, Paris, France,

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VALUE CREATION IN THE PRIVATE EQUITY AND VENTURE CAPITAL INDUSTRY

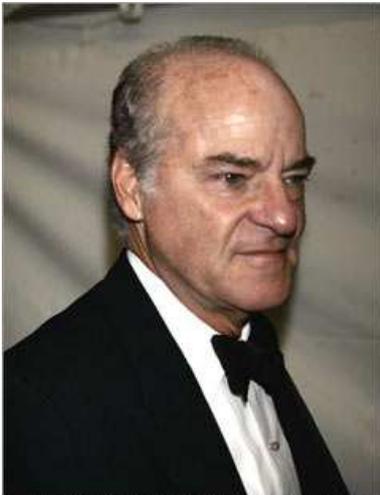


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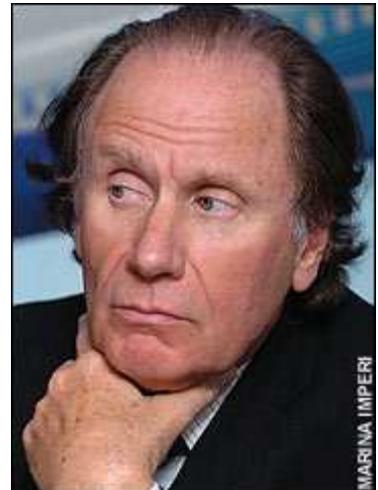


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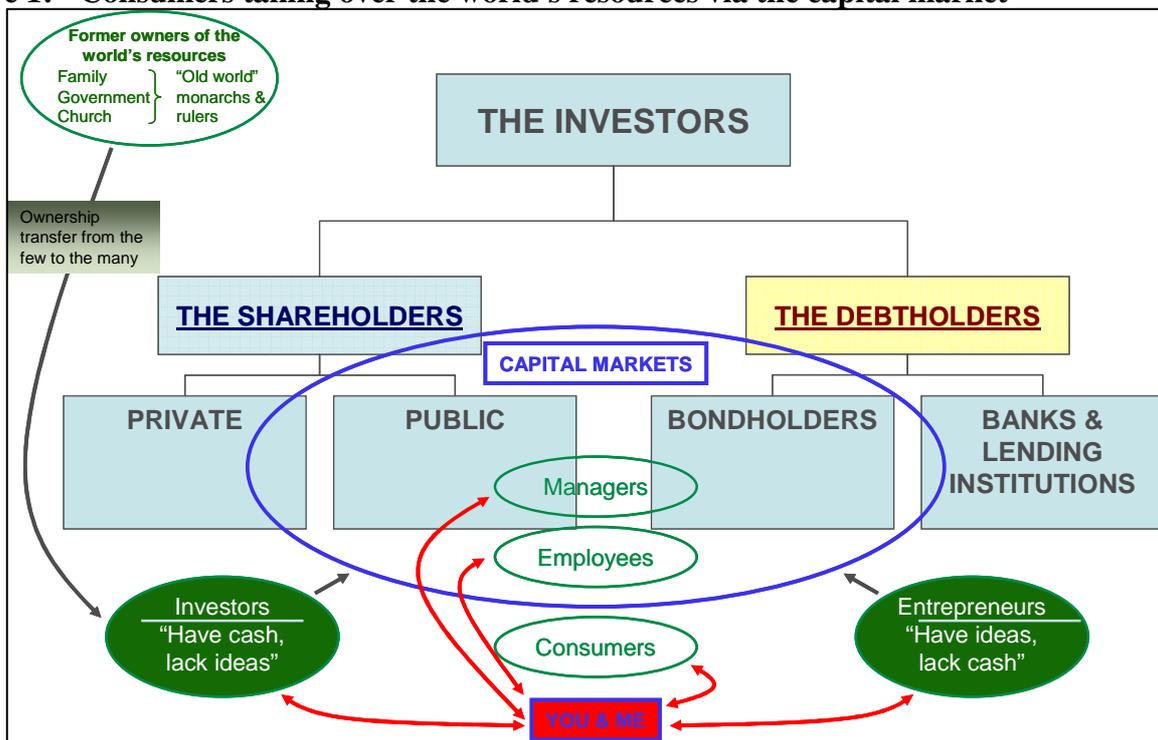
Section 1 The Role of the Private Equity and Venture Capital Industry

Private equity and venture capital firms must master a complex set of skills to obtain healthy returns by successfully selecting, structuring, monitoring, and exiting their investments in companies. Before we discuss how they do that, and how well they have been delivering on the challenge according to the statistical evidence, let's take a brief journey to better understand the position and role of the private equity industry in the global economy.

1.1 The rise of the modern manager and accompanying agency costs

The modern manager is a new breed of human being, unlike anything we've seen before. The transition of the ownership of the world's resources in the last 400 years from a few hundred monarchs and institutions to well over a billion humans via participation in and the development of the capital markets, as shown in Figure 1, has created an acute problem. The problem arises from the separation of ownership and control. The billions of us **own** the world's resources, but we have hired a large 'army' of professional managers to act as our agents and manage and **control** the resources in accordance with our interests. This is known as the agency problem and the resulting underperformance is referred to as *agency costs*.

Figure 1: Consumers taking over the world's resources via the capital market



These agency costs are easy to visualize in the context of any modern corporation. They include the large expense accounts enjoyed by executives, the fact that executives often fly business class when travelling on company time and money, but economy class when on their own time and money, the artwork which graces the walls of the executive suite visible only to the executives but paid for with the shareholders' money, etc.

To appreciate the scale of the problem, consider the recent “retirement” of three different CEOs in the USA, from Pfizer, Home Depot, and Merrill Lynch. In each case, the CEO had delivered underperformance relative to the company’s industry during his tenure, but each fired CEO received in excess of \$160 million (Merrill Lynch’s Stanley O’Neal received over \$160 million after reporting a quarterly loss of over \$8 billion in October 2007, Home Depot’s Bob Nardelli received a total of over \$210 million after being fired for underperformance over his six-year tenure in January 2001 – a period during which HD’s share price fell while the S&P500 rose approximately 20%, and Pfizer’s Hank McKinnell received approximately \$200 million when he left in early 2006).

These visible examples only represent the tip of the iceberg, however. The real ‘cost’ to us shareholders is the underperformance we must bear due to the lack of deliberate and focused effort of the managers we have hired to increase customer value and capture it as revenues, while motivating employees and suppliers to be as efficient and as productive as they can be in delivering that customer value, during each minute those managers are on the job.

1.2 Private Equity: A response to the problem of agency costs

Where does the private equity industry fit in to the global economy?

At its core, the private equity industry has emerged as a tool to reduce agency costs. However, for the private equity industry to function, certain conditions must be present. First, there must be companies that present room for improvement, whether it be due to incompetent management or lack of focus on value creation. In other words, there must be agency costs that can be reduced. Second, there must be a well functioning acquisitions market, either trade buyers or the public stock market directly, so that improved companies can be sold on again and the increase in value can be captured by the private equity firm. Thus, underperforming companies and well developed capital markets are both necessary conditions for the private equity industry to function in its present form. Agency costs present an opportunity for private equity players to realize sizable gains – for as long as managers are underperforming in maximizing the value of the companies they are managing, there will be room for the private equity industry to operate.

1.2.1 The Private Equity Model

Private equity funds create value for the fund investors through a collection of different levers. The most important of these is through significant and sustained improvements in either, or both, operating efficiency and revenue generation. More generally, the levers can be identified by considering the seven alternative ‘activities’ which define both private equity and venture capital fund investing:

1. Acquisition selection criteria, focused on identifying appropriate companies with significant room for operating improvement
2. Acquisition pricing negotiation – focused on purchasing at the lowest price possible with the best non-price terms
3. Acquisition financing & structuring, including incentives for management
4. Superior value-based management of the acquired companies immediately after acquisition
5. Superior value-based management of the acquired companies in the years after acquisition
6. Potential re-financing of the acquisitions to ensure optimal leverage during ownership
7. Sales price negotiation

Many companies in the world are driven primarily by profits, or profit factors such as expenses, margins or market share. These indicators may be helpful in assessing how well a company is

presently being managed, and whether or not past decisions have created sustainable competitive advantage for the company. However, they are not reliable measures of value creation. As a result, profit-driven companies may be destroying considerable amounts of value in their pursuit of profits.

A simple analogy to explain the private equity method of value creation is provided by imagining that you suddenly find yourself behind the wheel of a car about to go over a cliff. What do you do?

Step 1: Stop the car. In private equity this amounts to stopping all cash from flowing out of the business unless it is very clear how the payment directly benefits the short-term survival and the long-term value of the company. Payments which are not clearly delivering on a combination of these two dimensions will be quickly discontinued.

Step 2: Once the car is stopped, get out and check that it is prepared to function properly, tires are fully inflated, there is oil, no mysteries hidden in the trunk, etc.. In the private equity analogy, this amounts to assessing the challenges identified above to be sure they are being addressed. A very popular area of focus is management of the working capital requirement. In the car analogy, this would be similar to finding suitcases of cash in the trunk of the car. When the new management find room for improvement in the working capital requirement, this enables substantial amounts of cash to be extracted very quickly, without significantly negatively impacting the functioning of the company.

Step 3: Turn the car away from the cliff before starting it to roll. For the manager of the LBO company, this means “ensure the management team have a focus on value creation as a prime decision-making perspective rather than other perspectives”. With this perspective, only ideas which generate more expected cash flow in present value terms than the cost of the idea will be accepted. Once this new mindset has taken hold within the company, then new investments and growth can get underway.

Figure 2: Model of Private Equity – Where to look for Value Creation Opportunities

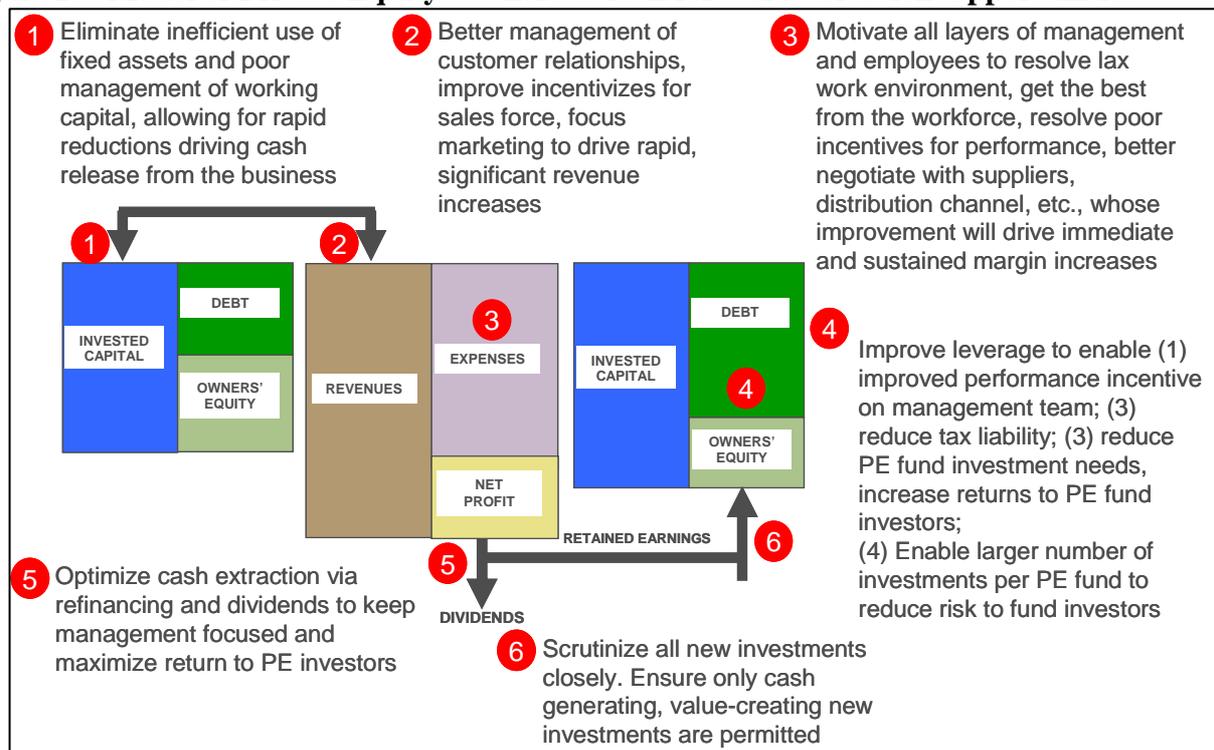


Figure 2 provides a description of the private equity model in terms of the balance sheet and the income statement of the acquired company. The assets, or invested capital, of the company determine the revenues. Net profits are what remain after expenses and can be taken out as dividends. What is left, the retained earnings, is reinvested into the company and grows the balance sheet.

1.3 Venture Capital: A solution to problems of information asymmetry

Private equity and venture capital firms serve as intermediaries between investors and companies. Venture capital firms have developed to overcome the informational asymmetries that exist between investors and companies. These information asymmetries take two forms: hidden information and hidden action.

When evaluating a potential investment, investors suffers from the risk that some hidden information could turn out to radically alter the expected returns of their investment. This problem is especially acute for investments in private and younger companies. Venture capital firms are specialised in performing due diligence and providing incentives to management to reveal hidden information. They can thus uncover such hidden information more effectively than other investors.

Managers of a firm are well placed to undertake actions that benefit themselves at the expense of other investors. Venture capital firms are specialised at reducing such agency costs by the use of incentives, optimised structuring of investment contracts, and good monitoring of managers.

As a result of these skills, VC investors are comfortable paying to accept a much higher and riskier proportion of the forecast cash flows of new and very risky ventures than is the case for other investors, such as public market investors or banks. The result is that a VC investor will price a very risky venture at a higher level than other investors would. This, even though the public market will apply a much lower discount rate than the VC since the public market is fully diversified. The public market, unable to look deeply into the particulars of the venture, and unable to monitor and control the management to the same degree, will use very low expected cash flows, reflecting the lack of confidence in management's ability, trustworthiness, and commitment to deliver. This gives VC investors a competitive advantage over other potential investors in investing in risky ventures operating in particularly uncertain markets, since they can expect to earn economic profits due to their ability to select the best ventures and to monitor and incentivise them effectively.

1.3.1 The Venture Capital Model

A similar analogy as used for private equity may work to explain the venture capital model: In the world of racing, there are new races that get developed every so often (Formula 1, Nascar, Rallye, ...) (or at least imagine it's true). There are many passionate teams of people who love to work on developing cars that will outperform the rest, especially for the newest races. You are someone who's collected a lot of money from others with the aim of backing the most innovative project, you have developed a good knowledge about the racing world and you have a lot of contacts. You find a really talented team that has come up with an idea that they think will really blow away all the other cars. You decide to back this team, in spite of all those successful teams that dominate other races and that are working to dominate this new race. You give these guys money and time (encouragement, advice) and put them in contact with other people who can help them out. All the same, you make sure the team regularly shows that they are on the right track by only giving them a bit of money, enough for them to get a patent (or if they already have it, to build a demo engine). If

they manage that, you'll give them more money and time so they can build a demo car, then win a race, then set up a facility to build more cars, ...

Until one day they're driving towards a cliff!

1.4 The agency costs of private equity and venture capital

Venture capital provides growing firms with the capital and (hopefully) expertise that they need to expand. Private equity funds also often play a role in liberating entrepreneurial potential through the release of divisions from a corporate parent or allowing management to escape from private owners that no longer provide the best environment. However, at the same time that they are solving the agency problems between investors and managers, private equity and venture capital firms create agency problems between themselves and their investors. The solutions used to reduce these agency costs are similar to those used in the companies in which they invest. Private equity and venture capital firms are incentivised to work towards the interests of the investors by the *carried interest* that they receive on capital gains, although this can induce excessive risk-taking by unscrupulous investment managers, as it represents, like equity, a call option whose value increases with higher volatility. The limited life of many funds provides investors with the power to sanction those firms that don't perform well by refusing to invest in subsequent funds. Although the limited partners cannot interfere in the operations of the partnership, they are kept informed through regular updates by the partners.

The rapid growth experienced by private equity firms specialising in buyouts can be understood by considering that they provide a solution to fund managers restricted in their capacity to behave as active investors by regulations designed to protect outside investors. Such regulations are particularly strong in Anglo-Saxon economies. Buyout firms thereby serve as professional intermediaries for fund managers since they can act like active investors to effect change in companies or divisions which have strayed far from value maximisation for shareholders.

Section 2 Development and Structure of Private Equity and Venture Capital

2.1 The development of private equity

2.1.1 Origins of modern venture capital

Venture capital has a very long history. The financing of Christopher Columbus's voyage of exploration by the Spanish monarchs Ferdinand and Isabelle may be seen as one of the most profitable venture capital investments, for the Spanish at least.

The origins of modern venture capital date from the creation of the American Research and Development Corporation (ARD) in 1946, founded by Georges Doriot, a renowned HBS professor and the inspiration behind the creation of INSEAD. ARD was the first venture capital fund to raise money from institutional investors rather than being an investment vehicle of a wealthy family or a corporate parent. It pioneered many of the standard practices of today's venture capital such as focussing on start-ups involved in developing unproven technology, providing professional advice as a complement to financing, using staged financing rounds, and, of course, having the ambition to make money on top of stimulating the emergence of new industries. Structured like a mutual fund, ARD suffered from a critical flaw that its investment managers were not allowed to take equity stakes or receive options in their portfolio companies. For example, one ARD investment manager recalled expending considerable effort to help turn around and then take public the portfolio firm Optical Scanning. He received a \$2000 bonus, while the founder and president ended up worth \$10 million.

2.1.2 The first limited partnerships

The solution to this critical flaw in the ARD model was provided by the limited partnership, which allowed the investment managers to participate in the value created in their portfolio companies. In effect, the limited partnership better aligned the interests of the investment managers with those of the owners and limited partnerships quickly became the dominant organisational form of venture capital firms.

The first venture capital limited partnership was formed in 1959, and the first truly successful one, Davis & Rock, was founded in 1961. The two founding investment managers of Davis & Rock raised \$3 million from various San Francisco entrepreneurs and stipulated that they would retain 20% of all capital gains achieved by the fund. Over its nine year life, the fund went on to disburse \$100 million.

The returns achieved by venture capital funds in the hot IPO market of 1968-69 provided a positive demonstration of the potential of venture investing and in 1969 many new limited partnerships were formed. In that year, new VC partnerships raised \$171 million, with one fund raising \$80 million of that from institutional investors, thereby ushering in the era of institutional investment in venture capital, which has continued to this day. Since then, the funds raised by venture capital firms have grown considerably. By 2007, worldwide annual VC fundraising alone had grown nearly 90 times since 1969 in constant dollar terms.

2.1.3 The emergence of private equity

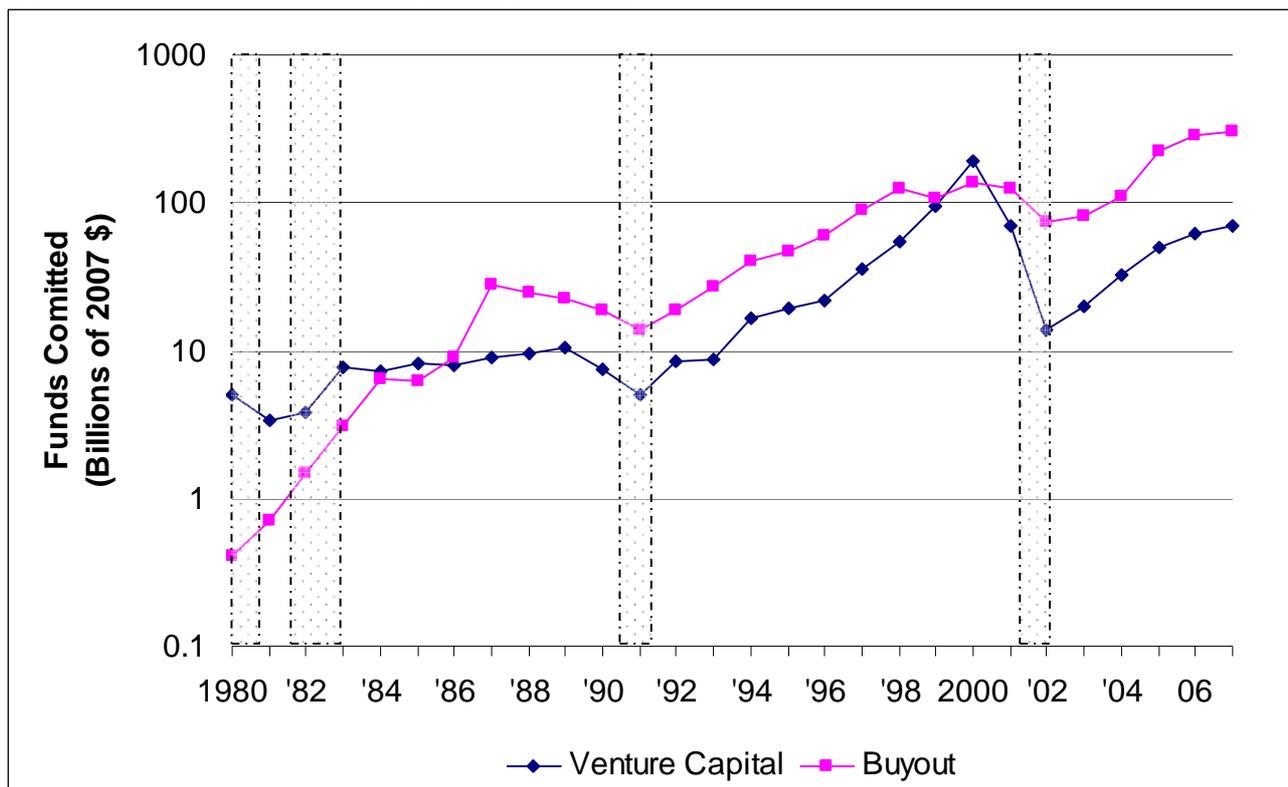
The weak stock market during the recession of the 1970's caused the market for initial public offerings to virtually disappear and froze the mergers and acquisitions market, resulting in a shortage of entrepreneurs willing to start-up new companies. Venture capitalists were forced to develop strategies for non-venture private equity investing. They turned to breaking up and improving poorly diversified conglomerates by staging leveraged buyouts of those companies, an activity that was previously known as bootstrapping, a technique that has been traced back to the methods used in the enclosure of English common land during the industrial revolution. Venture capitalists were able to apply their skills to a whole new set of companies: well established yet underperforming ones. By the late 1970's private equity firms were being founded that were specifically dedicated to performing leveraged buyouts.^a For example, KKR, a very successful private equity buyout firm, was founded in 1976.

2.1.4 The coming of age of the private equity and venture capital industry

Beginning in 1980, the private equity industry entered a phase of accelerated growth which marked its development into maturity. This occurred as various regulatory barriers that had blocked pension funds from investing in private equity partnerships were removed. Additionally, capital gains taxes were lowered down to 20% in 1981 from their level of 49.5% in 1978, thereby increasing the incentive of entrepreneurs and private equity investment managers to take risk. From 1980 to 1982, commitments to private equity partnerships reached \$3.5 billion, two and a half times the commitments over the entire 1970's. Private equity also grew internationally, spreading to Britain, Canada, Australia and continental Europe. Figure 3 shows the worldwide evolution of venture capital and buyout fundraising from 1980 onwards. Note that the amount of funds raised is plotted on a log scale, which allows for direct comparison of the growth in fundraising over different periods of time.

^a We have adopted the more common usage of the term "private equity" to refer specifically to buyout funds, although in its fullest sense the private equity industry encompasses both buyout and venture capital funds (including finer distinctions such as growth funds etc.)

Figure 3: Historical data on global private equity fundraising: 1980-2007



Periods of US Recession: 1/80-7/80, 7/81-11/82, 7/90-3/91, 4/01-12/01.

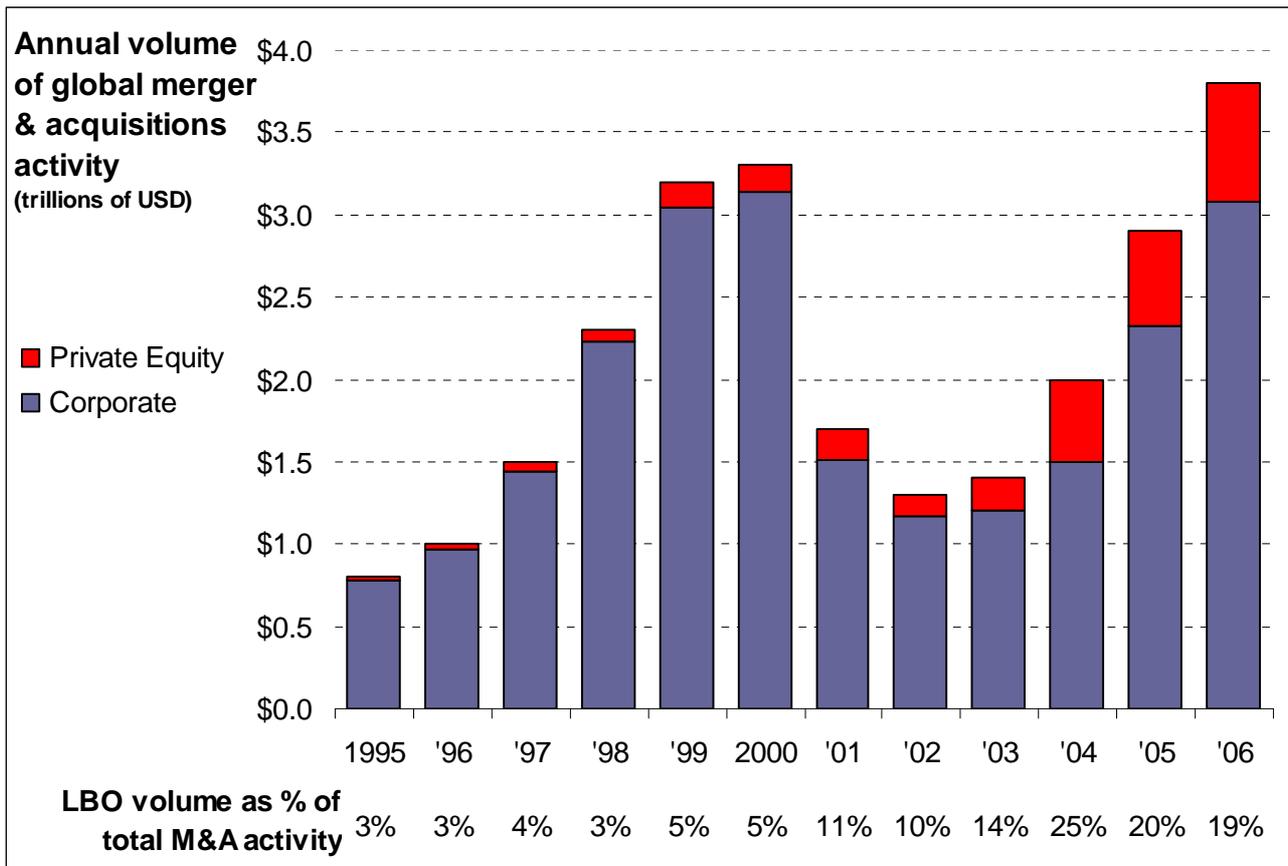
Amounts are expressed in 2007 \$ by correcting for US inflation data provided by the US Bureau of Economic Analysis. Funds committed are plotted on a logarithmic scale to allow for comparison of growth over different periods of time.

Source: Thomson Financial Venture Economics (VentureXpert database).

Since the mid 1980's, fundraising by buyout firms has exceeded that of venture capital firms except in the internet boom year of 2000. This is partly a result of the better returns provided by buyout funds (see Section 3) which exerts a strong attraction on funds. It is also a result of the larger amounts required for buyout investments, as compared to venture capital investments. In fact, simply comparing the funds raised by private equity and venture capital underestimates the difference in financial resources available to them since private equity uses large amounts of debt, typically between two-thirds and seven-eighths of the deal price.

Private equity funds grew tremendously in the 1980's, enabled by the development of the high-yield "junk bond" debt market through which they could lever up the target companies. The recession of 1990-91 and the simultaneous retraction in the high-yield debt market marked the end of the 1980's buyout boom. Once the economy started to grow again, private equity and especially venture capital began to grow rapidly, culminating in the internet boom. After the internet bubble burst, venture capital suffered a severe correction, with VC fundraising in 2002 less than a tenth of the level in 2000. The relay was passed to private equity, which grew strongly on the back of low interest rates and the development of structured finance instruments such as collateralised loan obligations (CLOs) that served to provide ample debt financing. As demonstrated in Figure 4, private equity took an ever larger chunk of the global M&A activity following the recession of 2001.

Figure 4: Evolution of private equity activity as a proportion of overall global M&A activity: 1995-2006

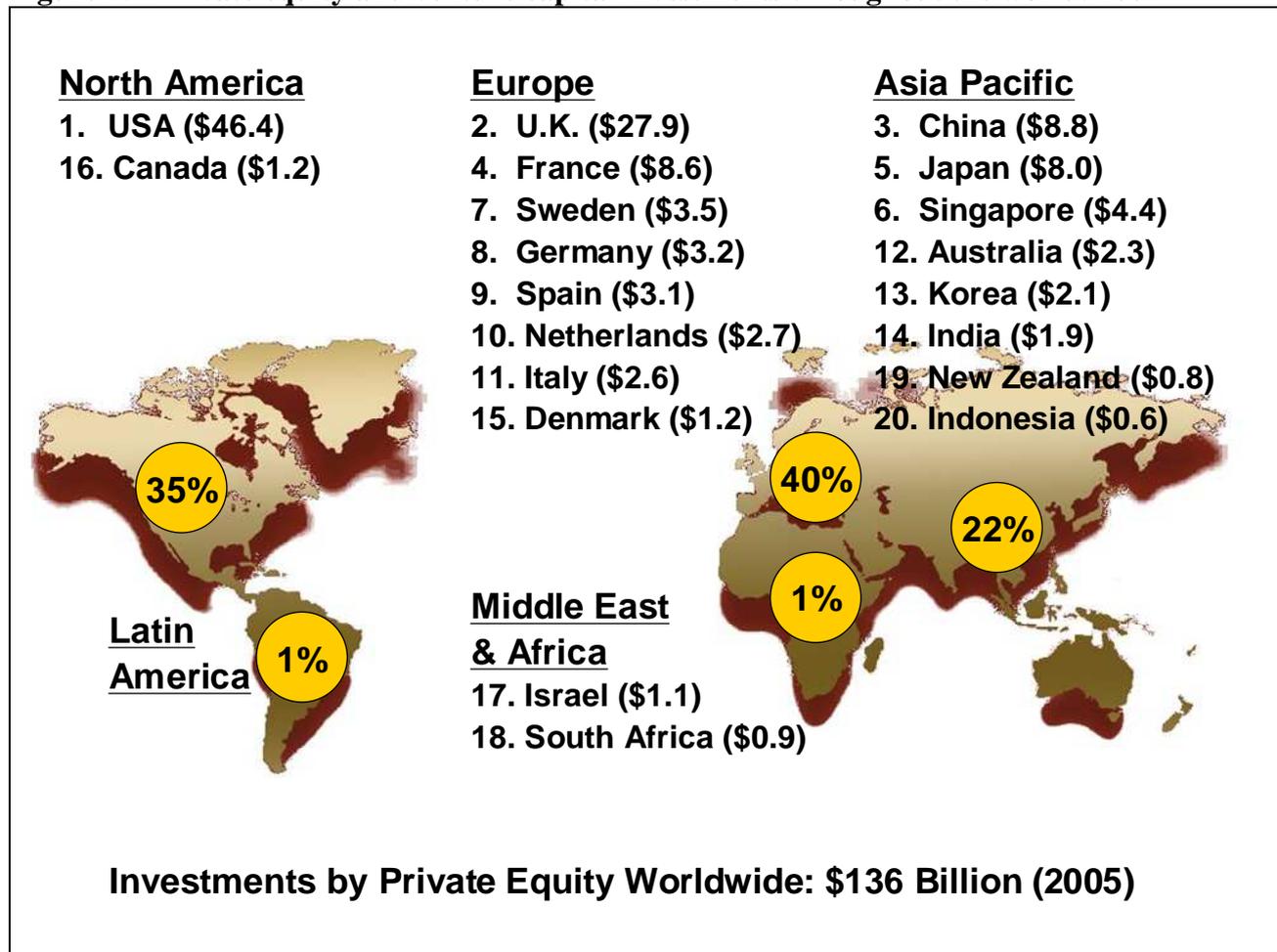


Source: Dobbs, R., Goedhart, M., and Suonio, H., McKinsey on Finance, Winter 2007, page 8. (based on data from Dealogic and McKinsey analysis)

2.1.5 The globalisation of the private equity industry

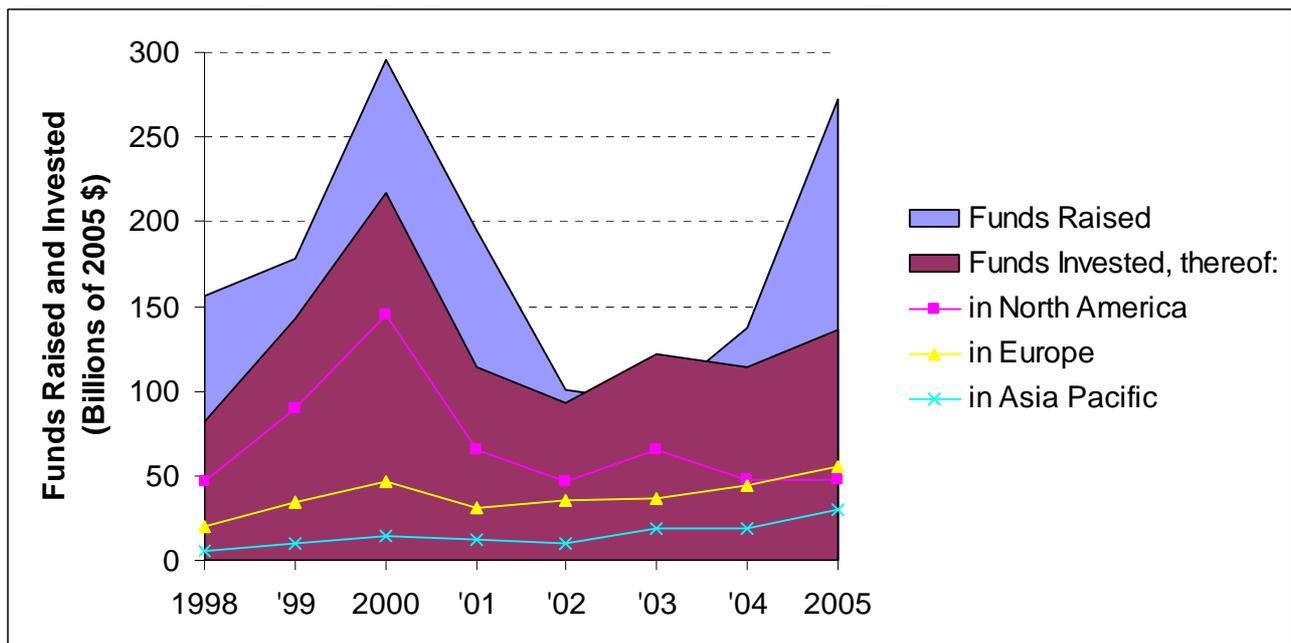
Private equity and venture capital investing has increasingly spread across the world. Figure 5 shows the distribution of private equity and venture capital investment across the world in 2005. The development of private equity and venture capital investment in various regions of the world is plotted in Figure 6. Private equity and venture capital investment in Europe and Asia-Pacific grew steadily in the first years of the 21st century, and investments in Europe exceeded those in North America in 2005. Nevertheless, a large portion of these funds came from the US and were invested internationally.

Figure 5: Private equity and venture capital investments throughout the world: 2005



Source: PriceWaterhouseCoopers Global Private Equity Report 2006.

Figure 6: Global private equity and venture capital fundraising and investment: 1998-2005



Source: PricewaterhouseCoopers Global Private Equity Report 2006.

The Area charts provide a comparison between private equity and venture capital fundraising and investment. The lines provide a breakdown of private equity and venture capital investment by geographical region.

Another way of considering the importance of private equity and venture capital worldwide is to compare their investments to the size of the economy. Table 1 shows the ratio of venture capital investments to GDP for the 20 countries with the largest venture capital investments in 2002. It is a snapshot in time taken just after the bursting of the internet bubble, so subject to vary over time. Venture capital investing is much larger in Israel than any other country in the world in relation to the size of its economy. The table also provides an idea of the influence that the business and legal environment of a country has on the degree of development of venture capital within its borders. Using the legal origin of the commercial code of the country to distinguish between countries, it appears that common law countries have better developed stock markets and rely more on venture capital and less on corporate R&D for innovation than civil law countries.

Table 1: Influence of the economic environment on venture capital investment, the role of stock markets, and the amount of R&D spending in an economy

Legal Origin Family versus Measures and Ranking (among top 20 VC countries) of Venture Capital Investment, Stock Market Capitalisation, and R&D Intensity: 2002

Country	Family of Legal Origin ¹	Venture Capital Investment		Stock Market Capitalisation		R&D Spending	
		As % of GDP	(Ranking)	As % of GDP	(Ranking)	As % of GDP	(Ranking)
Israel	English common law	0.951	(1)	39.59	(17)	2.72	(7)
United Kingdom	English common law	0.616	(2)	115.80	(3)	1.90	(13)
United States	English common law	0.600	(3)	105.84	(5)	2.82	(6)
Sweden	Scandinavian law / Civil	0.584	(4)	75.26	(10)	4.27	(2)
Hong Kong SAR	English common law	0.460	(5)	284.08	(1)	0.21	(20)
Korea	German law / Civil	0.416	(6)	45.98	(15)	2.96	(5)
France	French civil law	0.390	(7)	104.02	(7)	2.20	(9)
Netherlands	French civil law	0.388	(8)	165.87	(2)	1.94	(=11)
South Africa	English common law	0.356	(9)	112.06	(4)	0.70	(17)
Finland	Scandinavian law / Civil	0.326	(10)	105.17	(6)	3.40	(3)
Indonesia	French civil law	0.324	(11)	17.38	(20)	0.65	(18)
Australia	English common law	0.308	(12)	96.71	(8)	1.53	(14)
India	English common law	0.228	(13)	52.79	(13)	0.50	(19)
Canada	English common law	0.215	(14)	78.22	(9)	1.94	(=11)
Italy	French civil law	0.209	(15)	40.23	(16)	1.07	(15)
Spain	French civil law	0.140	(16)	70.57	(12)	0.96	(16)
Belgium	French civil law	0.137	(17)	74.90	(11)	1.96	(10)
Germany	German law / Civil	0.120	(18)	34.53	(19)	2.49	(8)
Japan	German law / Civil	0.060	(19)	52.44	(14)	3.09	(4)
China	German law / Civil	0.028	(20)	37.44	(18)	4.85	(1)
Average, English common law countries		0.467		110.64		1.54	
Average, all civil law countries		0.260		68.65		2.49	

Year 2002 data for GDP (Institute for International Management World Competitiveness), venture capital (PWC Private Equity Report) and stock market capitalisation (World Federation of Exchanges and Euronext). Year 2001 data for R&D expenses (OECD)

1. Family of legal origin refers to the four main legal families upon which the nation's commercial code is based. These legal families are described in Rafael La Porta et al, "Law and Finance," *Journal of Political Economy* 106 (1998), pp. 1113-1150.

Source: Megginson (2004), Table 3

2.2 Structure of a private equity firm

Having discussed the development of the private equity and venture capital industry, let us now look at how a typical private equity or venture capital firm functions.

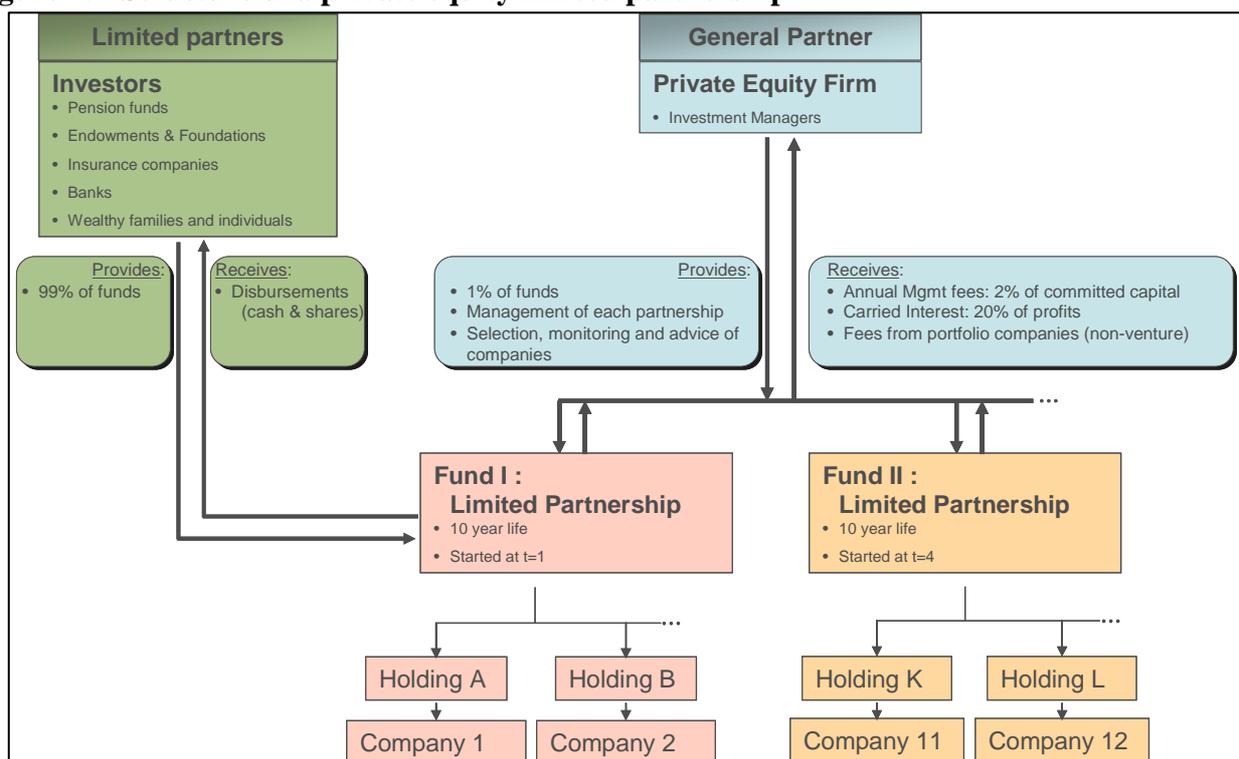
Let us say a group of three people decides to create a private equity or venture capital firm. Their objective is to create wealth by increasing the value of companies in which they invest. They need money to do this and so they create a fund. They convince institutional investors (pension funds, endowments, banks, insurance companies) as well as wealthy families and individuals to invest in the fund.

Most likely they will use a *limited partnership* to manage their private equity or venture capital investing. Figure 7 provides a synopsis of the structure of a private equity or venture capital limited partnership. The investment fund is a limited partnership and a separate entity from the private equity or venture capital firm. Usually, the limited partnership will have a contractually defined lifetime of 10 years, with the possibility to extend it for up to 4 more years. Only the *general partner* of a limited partnership assumes legal liability. The general partner is the private equity firm itself, run by the investment managers. By common convention, the investment managers are called general partners, although strictly speaking this is inaccurate since it is usually the private equity firm itself which serves as the general partner of each fund. The capital is provided by the limited partners and they commit to providing the capital at very short notice (within a few days). The limited partners negotiate with the investment managers about how the partnership will be managed.

In order to align the interests of the investment managers with those of the limited partners, the investment managers will typically claim 20% of the capital gains achieved by the fund. This is known as *carried interest*. There are many variations as to how this is implemented in practice, for example the fund may be required to achieve an annualized return of 8% before any carried interest can be claimed by the investment managers.

Types of private equity and venture capital firms other than limited partnerships include captive firms owned by banks (such as Sprout Group owned by Credit Suisse), insurance companies (such as Axa Private Equity), or industrial corporations (such as Intel Capital), and “evergreens” that are listed on the stock market (such as 3i of the U.K.).

Figure 7: Structure of a private equity limited partnership



As the fundraising nears completion, the investment managers undertake an intensive search for suitable companies in which to invest. The due diligence of potential investments is thorough and includes evaluation of the competitive position, market, financials and management of each company considered. For the first three to five years, the partnership will invest in 10 to 15 companies at a rate of 2 to 15 companies per year.^b Since this is an intensive and costly process, the investment managers charge annual management fees, typically in the order of 2% of committed capital.

This thorough analysis helps the partners to better structure their investments to include strong incentives for the management to perform well. Once an investment has been made, the partners use membership on the Board of Directors to closely monitor and support the management of the company in increasing firm value through an extremely concentrated focus on improving the business.

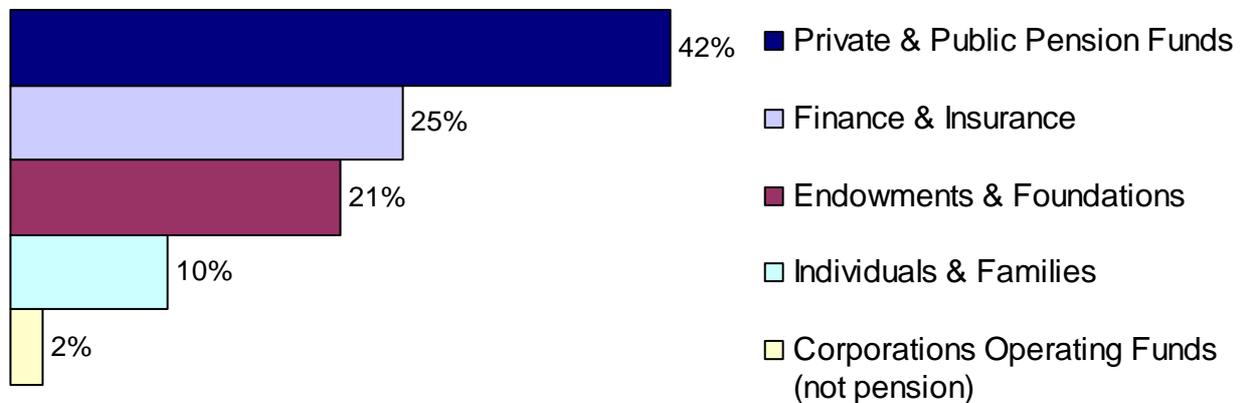
^b Fenn, Liang, and Prowse (1997)

Finally, if the company does well, the private equity firm will seek to recover its gains by “exiting”, generally within two to five years. The proceeds (cash and/or shares) are returned to the investors after the carried interest has been retained.

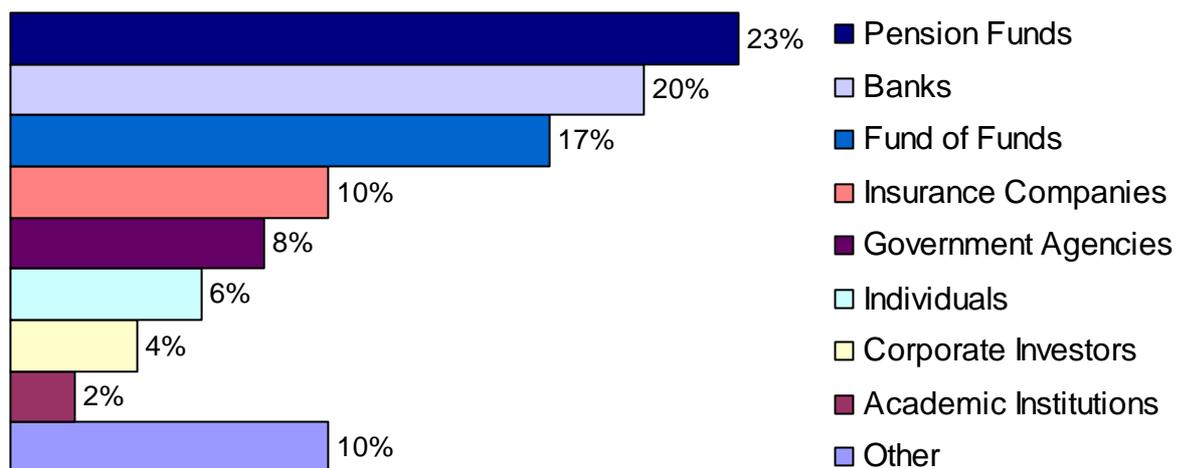
The process of raising money for the next fund starts once the investment phase of the previous fund is complete. Thus, the managers of the private equity firm are fundraising every three to five years and at any given moment are managing several funds at different stages of the fund lifecycle. The distribution of sources of funds for private equity in the US and Europe is provided in Figure 8. Note that pension funds are a much more important contributor to private equity in the US, as are endowments and foundations. This reflects the great reliance in North America on pension funds to finance retirement needs and the existence of large endowments at US universities.

Figure 8: Funding Sources in US and Europe for Private Equity/Venture Capital

a) Funding Sources for US Venture Capital Funds: 2003



b) Funding Sources for European Private Equity Funds: 2001 - 2006



Source: National Venture Capital Association and European Venture Capital Association
 Note that the Fund of Funds category in Panel B represents an amalgamation of other funding sources that has not decomposed into the ultimate sources.

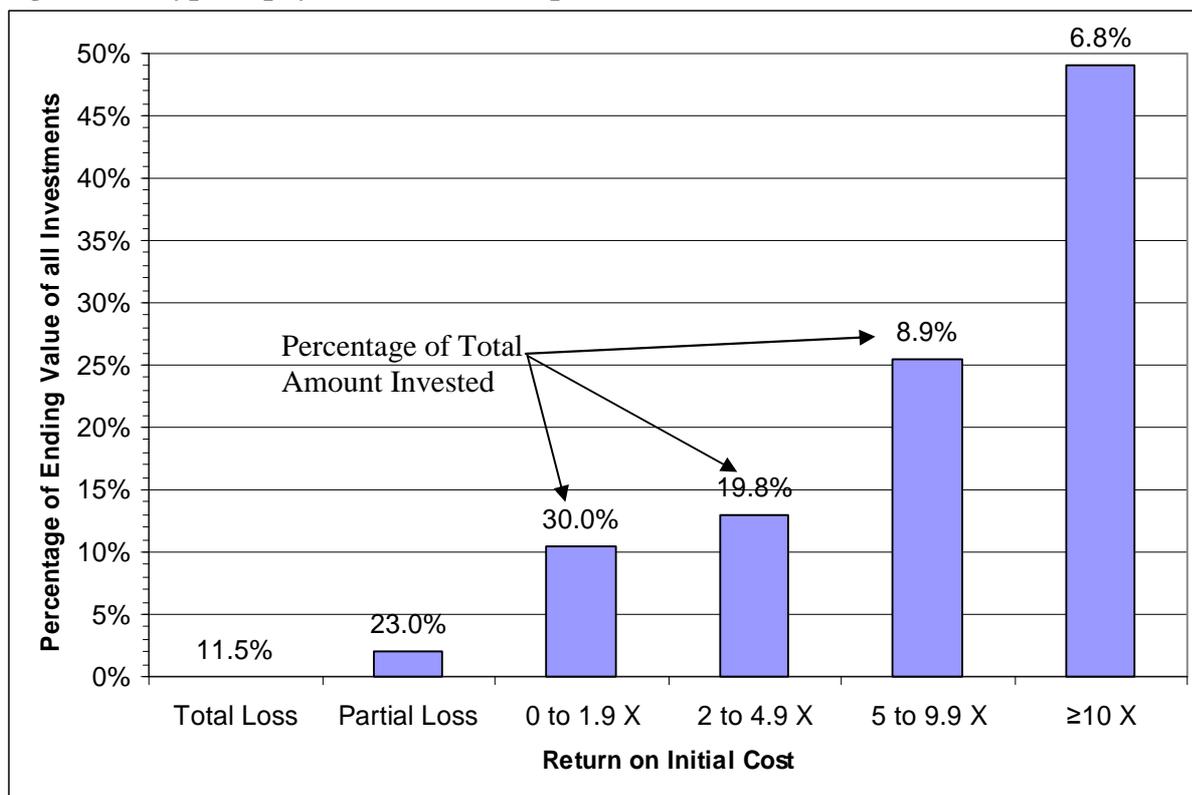
2.2.1 Distinctions between venture capital and private equity firms

Having examined the commonalities between how private equity and venture capital firms function, let us now consider some of their differences.

2.2.1.1 Particularities of venture capital

Venture capital investments are made with the implicit acceptance of a wide dispersion in returns within the portfolio. Figure 9 presents the return on initial cost of 383 venture investments made between 1969 and 1985 by 13 venture capital partnerships in 383 US companies. The overall return on the \$245 million invested was \$1.049 billion, or 4.3 times the amount invested. The vertical axis shows the percentage of total ending value (that is, the \$1.049 billion) resulting from six groups of investments, comprising investments with differing returns on capital invested (from total loss to return of more than 10 times capital invested). At the top of each bar the percentage of total cost represented by each group is shown. Thus, 6.8% of the capital invested resulted in payoffs of more than 10 times and contributed almost 50% of the total ending value. Conversely, 11.5% of the investments resulted in a total loss.

Figure 9: Typical payoffs to venture capital investments



Source: Sahlman (1990), Figure 1.
Investments made by 13 VC partnerships in 383 US companies from 1969 to 1985.

The managers of the venture, beyond their entrepreneurial passion, are motivated by the equity they retain after the VC investment and by the use of “equity ratchets”, which allow them to increase their ownership in the firm if they meet agreed-upon targets. The venture capitalists use staged financing rounds as disciplinary disincentives for poor performance. If the venture fails to meet its development targets (product launch, break-even cash flow, etc.), further funding is unlikely and the venture risks failure. In the highly uncertain sectors in which VCs invest, this allows the amount of money lost in unsuccessful ventures to be managed. Note that this is often not what occurs in a corporate setting.

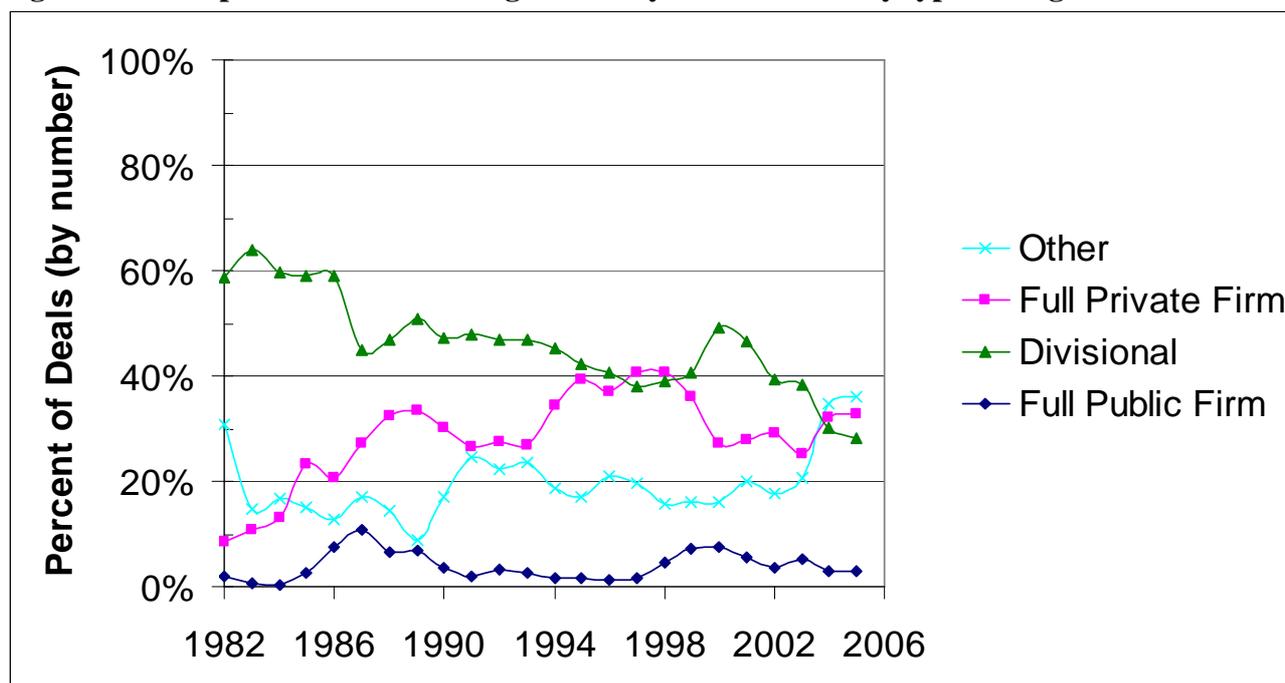
2.2.1.2 Particularities of private equity

Private equity firms, on the other hand, expect to make money with each of their portfolio companies. Management is incentivised by the significant fraction of their wealth that they are typically requested to invest in the buyout, and equity ratchets can also be used to enhance this incentive.

The high leverage and the associated risk of losing their jobs and their equity in case of bankruptcy provide disciplinary disincentives for poor performance. Private equity firms focus on existing companies with a strong turnaround and/or growth potential that can provide strong cash flow to pay off the debt that is used to buy the company and concentrate the equity in the hands of the private equity firm and company management.

A buyout can target the division of a larger firm or an entire firm, either publicly listed or private. Figure 10 provides the changing composition of buyouts by type in the U.K. between 1982 and 2005. Note that those buyouts that are most visible to the general public, the taking private of publicly listed corporations in their entirety, represent only a small number of total buyouts. Note also how in the latest years buyouts categorized as “other” became the most prevalent type of buyout. This occurred as secondary buyout become increasingly common. A secondary (or tertiary or even quaternary) buyout is when a private equity firm sells a company to another private equity firm.

Figure 10: Composition of UK management buyouts classified by type of target: 1982-2005



Source : Cumming, Siegel, and Wright (2007), Table 2.

Notes: The object of a management buyout is classified as a full firm, either listed or private, a division of a firm, or ‘other’. ‘Other’ includes secondary buyouts (a buyout of a firm that itself previously underwent a buyout), buyouts of failed firms, and buyouts from the state sector. Data cover the entire UK buyout market, there being no lower size cut-off, and include both private equity backed and non-private equity backed deals.

2.3 Private equity and venture capital actors

The private equity firms that had raised or were raising the largest funds in 2007 are listed in Table 2. The size of the funds raised by a private equity firms serves as a rough proxy of the quality of the

private equity firm. As discussed in Section 3, the best private equity firms tend to raise the largest funds. Of course, since private equity firms typically have many funds operating at any given time, the actual funds under management are many times the amounts listed in Table 2.

Table 2: The private equity firms with the largest funds

Fund	Year	Size (\$ bn)
1 Goldman Sachs Capital Partners	open	19.0
2 KKR	open	16.6
3 Blackstone	2006	15.6
4 Texas Pacific Group	2006	15.0
5 Carlyle Partners	open	15.0
6 Permira	2006	14.7
7 Providence Equity	2007	12.0
8 Apollo Investment	2006	10.1
9 Thomas H Lee	open	9.0
10 Cinven	2007	8.6

Source: Financial Times, April 24th, 2007 (based on data sourced from Thomson Financial)

The largest private equity buyout deals by geographic region are provided in Table 3. The US boasts the largest completed buyout deals. It is interesting to see that the RJR Nabisco buyout of 1998 still counts among the top 5 private equity buyout deals of all time.

Table 3: Top private equity buyout deals by geographical region

Year	Value (\$ bn)	Target	Acquiror	
USA				
1	2007	44.4	TXU	KKR, TPG
2	2006	37.7	Equity Office Properties	Blackstone
3	2006	32.2	Hospital Corporation of America	Bain Capital, KKR
4	1988	30.2	RJR Nabisco	KKR
5	2006	27.5	Kinder Morgan	Carlyle, Goldman Sachs, AIG
6	2006	27.4	Harrah's Entertainment	Apollo Mgmt, TPG
7	2007	27.0	First Data	KKR
8	2006	26.7	Clear Channel Communication	Bain Capital, Thomas H. Lee
9	2006	17.5	Freescale Semiconductor	Blackstone, Carlyle, Permira, TPG
10	2006	17.4	Albertsons	Cerberus
EUROPE				
1	2007	16.6	Alliance Boots (UK)	KKR
2	2006	11.3	Nielsen (NL)	Alpinvest, Blackstone, Carlyle, Hellman & Friedman, KKR, Thomas H. Lee
3	2005	10.6	TDC (Tele Danmark)	Apax, Blackstone, KKR, Permira, Providence
4	2006	10.4	AWG (Anglia Water)	3i
5	2006	9.5	Phillips Semiconductors (NL)	KKR, Silverlake, Alpinvest
6	2006	6.4	TDF (Telediffusion de France)	TPG, Axa Private Equity
7	2006	6.1	British Ports	Goldman Sachs
8	2005	5.9	Amadeus Reservations (ES)	Cinven, BC Partners
9	2005	5.1	ISS (DK)	Goldman Sachs, Wallenberg family
ASIA PACIFIC				
1	2006	3.4	PBL Media (Aus)	CVC
2	2006	3.2	Skylark Restaurants (Japan)	CVC, Nomura
3	2007	2.9	APN News & Media (Aus)	Providence, Carlyle
4	2003	2.2	Japan Telecom	Ripplewood
5	2006	2.0	DCA (Australia)	CVC
6	2004	2.0	DDI Pocket (Japan)	Carlyle, Kyocera
7	2007	1.6	Telecom Yellow Pages (NZ)	CCMP Capital Advisors
8	2006	1.5	China Network Systems	MBK Partners
9	2006	1.5	Eastern Multimedia (Taiwan)	Carlyle

Source : Financial Times April 24th, and May 4th, 2007 (based on data sourced from Thomson Financial and Dealogic)

A selection of the most successful US and European venture capital firms is provided in Table 4 and Table 5. The US venture capital firms are ranked by the absolute number of serial entrepreneurs they have financed. As discussed in Section 4, Gompers et al. (2006) found that VC's experience better success rate with serial entrepreneurs without having to pay more, thereby providing better returns. Thus, the total number of serial entrepreneurs funded by a VC can be an interesting way of ranking them, although imperfect since some VC firms actively search to finance serial entrepreneurs. As well, other factors such as industry focus and age of the VC firm can affect this number. The list of the most successful European VC firms presented in Table 5 is a result of a reputational survey of various actors in the European VC industry performed by the author.

Table 4: US Venture Capital Firm Ranking by Number of Serial Entrepreneurs Financed

Venture Capital Firm	Serial Entrepreneurs Funded	Total Entrepreneurs Funded	Serial Entrepreneurs as % of Total	Deals Funded in 2007	Headquarters
1 Kleiner Perkins Caufield & Byers	100	666	15.0	56	Menlo Park, CA
2 New Enterprise Associates	80	702	11.4	87	Baltimore, MD
3 Sequoia Capital	69	432	16.0	55	Menlo Park, CA
4 U.S. Venture Partners	68	454	15.0	49	Menlo Park, CA
5 Mayfield	63	459	13.7	32	Menlo Park, CA
6 Accel Partners	61	418	14.6	48	Palo Alta, CA
7 Crosspoint Venture Partners	60	407	14.7		Woodside, CA
8 Institutional Venture Partners	56	385	14.5		Menlo Park, CA
9 Bessemer Venture Partners	49	340	14.4	44	Larchmont, NY
10 Matrix Partners	44	275	16.0		Waltham, MA
11 Menlo Ventures	43	305	14.1	54	Menlo Park, CA
12 Sprout Group (Credit Suisse)	42	315	13.3	0	New York, NY
13 Brentwood Associates	40	265	15.1		Los Angeles, CA
14 Venrock Associates (Rockefeller family)	40	389	10.3	47	New York, NY
15 Mohr Davidow Ventures	38	251	15.1	42	Menlo Park, CA
16 Oak Investment Partners	38	462	8.2	30	Westport, CT
17 Domain Associates	37	210	17.6	43	Princeton, NJ
18 Benchmark Capital	36	264	13.6	38	Menlo Park, CA
19 Greylock Partners	36	374	9.6	27	Waltham, MA
20 Interwest Partners	35	312	11.2	47	Menlo Park, CA
21 Advent International	33	238	13.9		Boston, MA
22 Foundation Capital	31	188	16.5	48	Menlo Park, CA
23 Enterprise Partners Venture Capital	31	215	14.4		La Jolla, CA
24 Canaan Partners	31	252	12.3	50	Westport, CT
25 Delphi Ventures	30	185	16.2		Menlo Park, CA
26 Sigma Partners	30	204	14.7	40	Menlo Park, CA
27 Charles River Ventures	29	192	15.1		Waltham, MA
28 Norwest Venture Partners	27	231	11.7		Palo Alta, CA
29 Austin Ventures	25	270	9.3	40	Austin, TX
30 Morgan Stanley Venture Partners	24	191	12.6		
31 Lightspeed Venture Partners	24	202	11.9	36	Menlo Park, CA
32 Sutter Hill Ventures	24	207	11.6	32	Palo Alta, CA
33 Battery Ventures	24	242	9.9	34	Waltham, MA
34 Sevin Rosen Funds	24	254	9.4	38	Dallas, TX
35 Panorama (JPMorgan)	23	225	10.2		Menlo Park, CA
36 St Paul Venture Capital	23	277	8.3		no longer in operation
37 Alta Partners	22	190	11.6	44	San Francisco, CA
38 Morgenthaler Ventures	20	183	10.9	39	Menlo Park, CA
39 Trinity Ventures	18	214	8.4		Menlo Park, CA
40 Warburg Pincus	16	195	8.2		New York, NY

Note: Classification as a serial entrepreneur is dependent on having been previously backed by a U.S. VC firm between 1975 to 2000.

Source: Gompers, Kovner, Lerner, Scharfstein (2006), Table 3 and the National Venture Capital Association.

Table 5 : Top European venture capital firms

Venture Capital Firm	Head Office	Latest Fund		Capital under Management
		Amount	Date	
Index Ventures	Geneva	610 M\$	2008	2300 M\$
Accel Partners	Palo Alta, London			
Balderton Capital	London			1500 M\$
Atlas Venture	London			2000 M\$
Wellington Partners	Munich	410 M\$	2008	1200 M\$
Amadeus Capital Partners	Cambridge	310 M\$	2007	900 M\$
Partech International	Paris	255 M\$	2007	850 M\$
Advent Venture Partners	London	250 M\$	2004	1000 M\$
Northzone Ventures	Stockholm	270 M\$	2006	
Mangrove Capital Partners	Luxembourg			
Scottish Equity Partners	Glasgow	300 M\$	2006	600 M\$

Source: independent research

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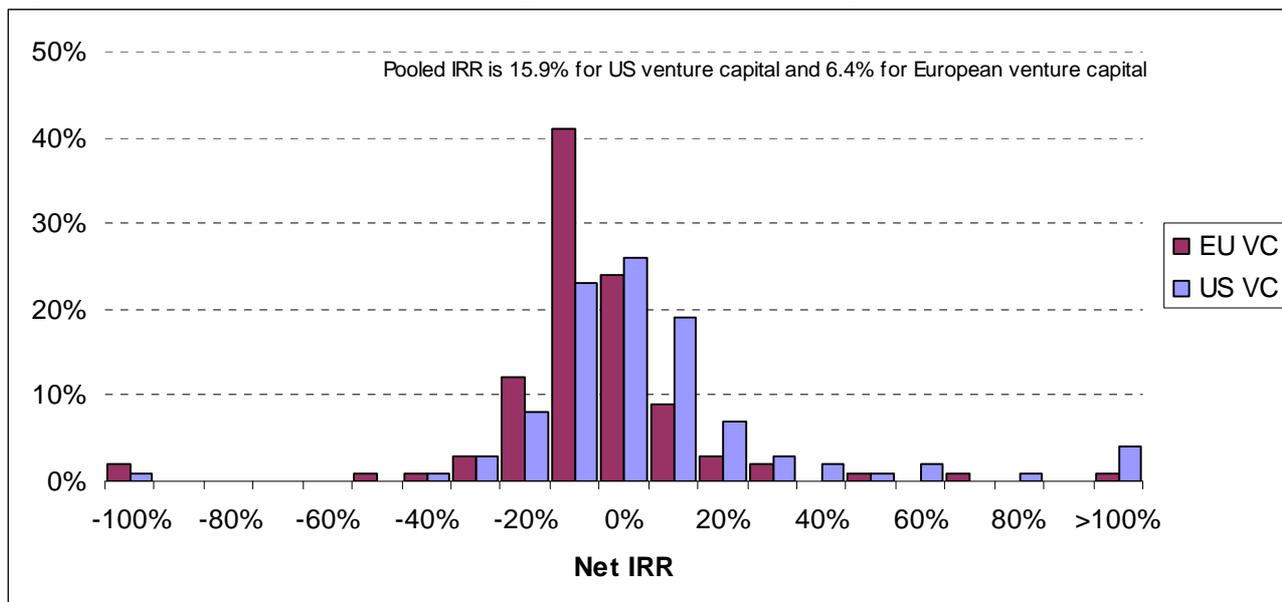
Section 3 Returns to Venture Capital and Private Equity Investors

3.1 The distribution of returns

The difficulty of successfully mastering the private equity and venture capital skillset is shown by the very wide range of returns that funds make for their investors. Figure 11 and Figure 12 chart the historical distribution of net-of-fees returns to private equity and venture capital funds. They show that a large proportion of funds lost money for their investors. Indeed, Figure 13 which provides the net returns achieved at each quartile, shows that fully a quarter of funds lost money for their investors even before considerations of the opportunity cost.

Looking at all three figures, it is apparent that the distribution of returns of European venture capital is shifted much further down than that of US venture capital whereas for European private equity the downward shift is very slight. The pooled average performance, which consists of treating the cash flows from all the funds as if they were from one big fund, provides a weighting of the returns by size and indicates that the larger funds also perform better than smaller ones. However, Phalippou and Gottschalg (2007) found that the unique explanatory variable for fund performance is previous fund performance. Combined with the observation that fundraising is positively and significantly related to past performance by the private equity firms (Kaplan and Schoar, 2005), this means that the best private equity firms will tend to have the biggest funds. This evidence is consistent with the fact that (1) some private equity firms have skills/competencies which provide them with a sustainable competitive advantage (SCA) enabling them to outperform others systematically, and (2) at least some investors are able to distinguish the private equity firms with SCA from the others and provide disproportionate funds to those private equity firms with SCA.

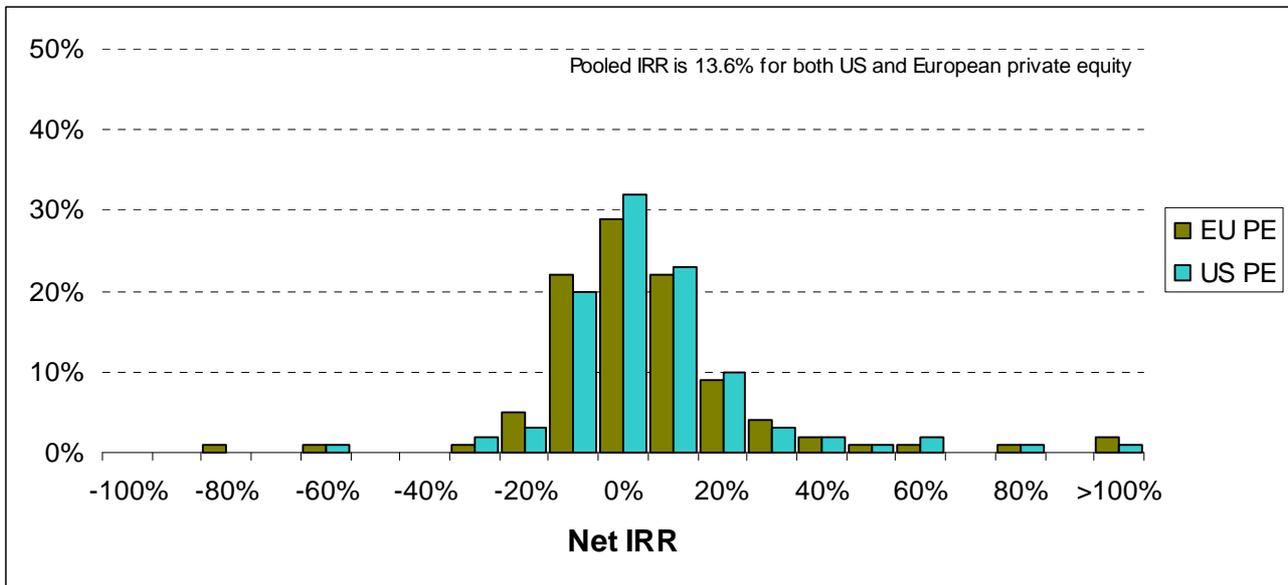
Figure 11: Distribution of Venture Capital Returns since Inception to 2006



Source: Thomson Financial Venture Economics (VentureXpert database).
Based on data self-reported by LPs and GPs current through to the end of 2006. The inception of the database is 1969 for US venture capital and 1980 for European venture capital.
Sample size of 1192 US funds and 669 European funds. IRR calculations treat the book value of any continuing investments in a fund as a final cash flow at the end of 2006.

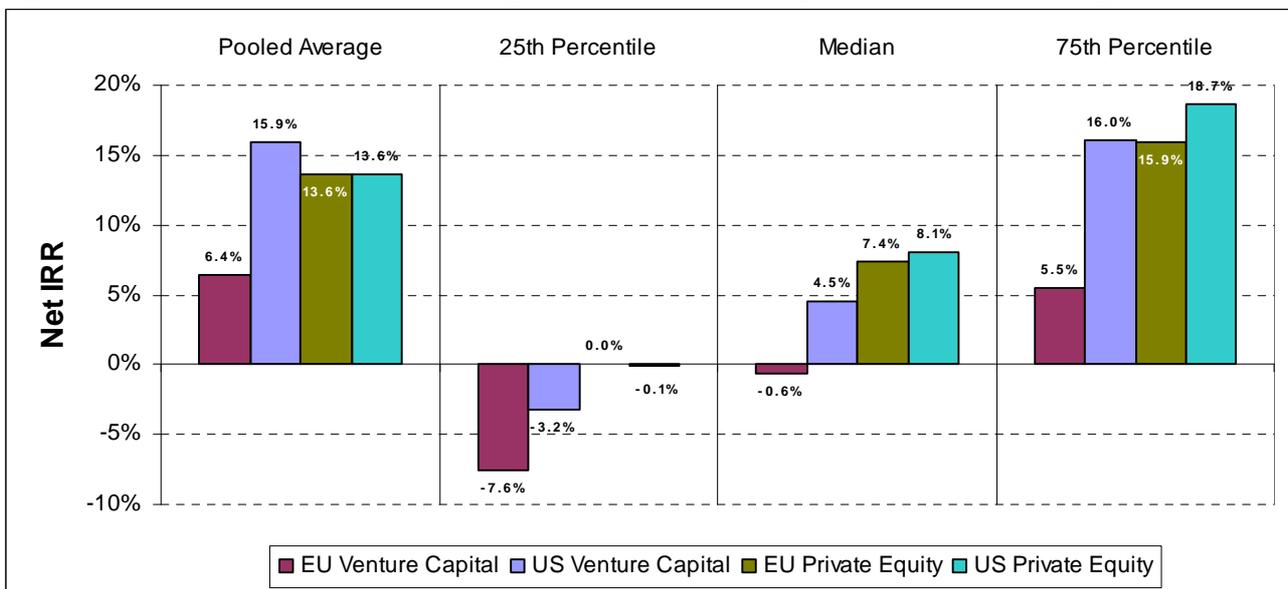
The wide range of returns observed in private equity and venture capital can be compared to the wide range of football teams in a nation. There are teams ranging from very amateur to top-notch. Of course, the performance of all these teams would range very widely indeed if they were compared amongst each other. It is only the premier league teams that draw large crowds of fans.

Figure 12: Distribution of Private Equity Fund Returns since Inception to 2006



Source: Thomson Financial Venture Economics (VentureXpert database). Based on data self-reported by limited partners (LPs) and general partners (GPs, i.e. the private equity firms) current through to the end of 2006. The inception of the database is 1980 for US buyouts and 1984 for European buyouts. Sample size of 634 US funds and 367 European funds. IRR calculations treat the book value of any continuing investments in a fund as a final cash flow at the end of 2006.

Figure 13: Performance of Private Equity and Venture Capital Funds from Inception to 2006

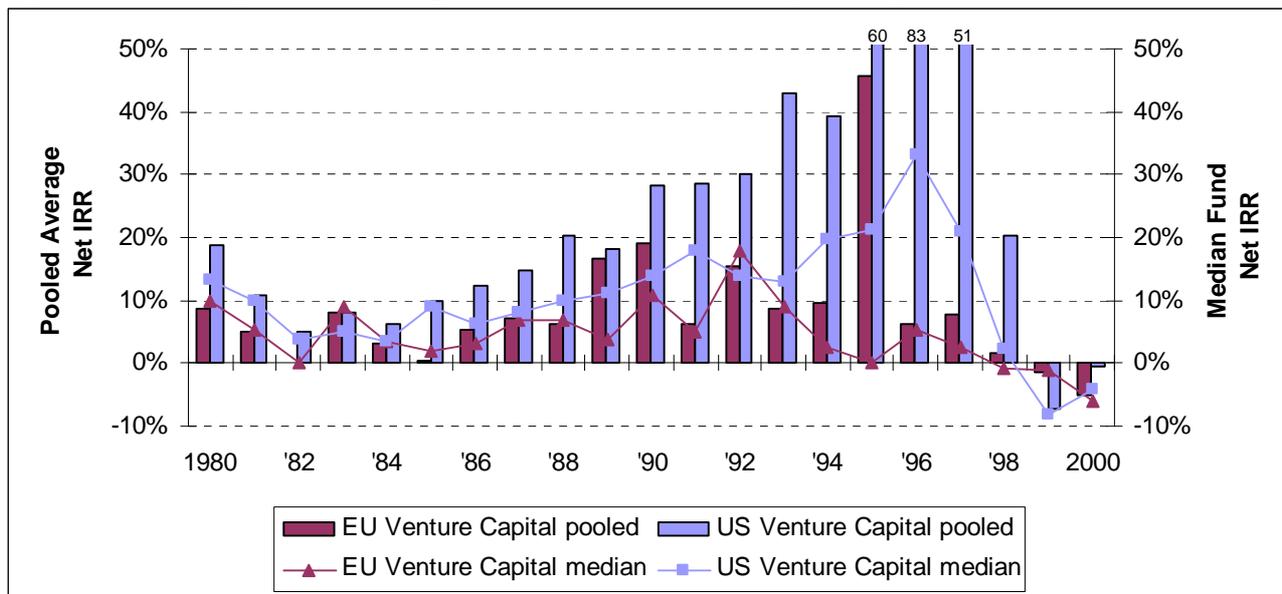


Source: Thomson Financial Venture Economics (VentureXpert database). Pooled average and quartile IRRs for all funds since inception of the database. Based on data self-reported by LPs and GPs current through to the end of 2006. IRR calculations treat the book value of any continuing investments in a fund as a final cash flow at the end of 2006.

A look at the performance of funds based on the year they started investing (the vintage year) shows that private equity and venture capital returns are highly cyclical, as shown in both Figure 14 and Figure 15.

Figure 14 shows how the environment for venture capital funds investing in the US became increasingly favourable throughout the 1990s as the growing stock market provided very attractive opportunities to exit. Returns soared but then crashed for those funds that invested into the height of the market. Average European venture capital fund performance has been quite poor, systematically underperforming the US funds.

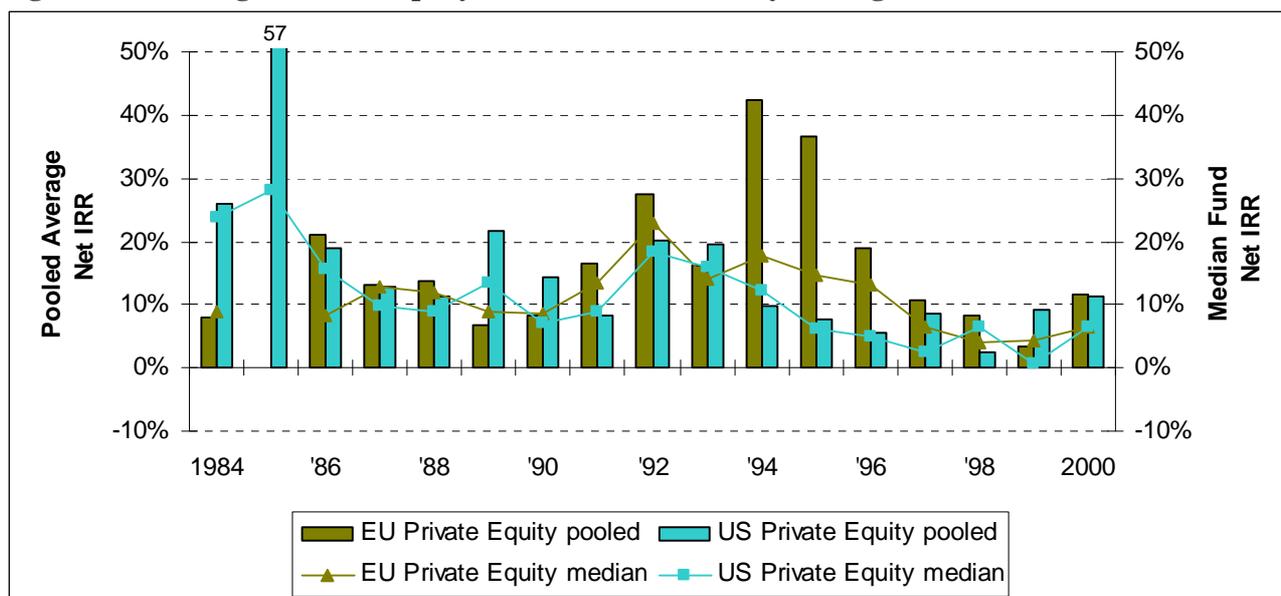
Figure 14: Average Venture Capital Fund Performance by Vintage Year: 1980 - 2000



Source: Thomson Financial Venture Economics (VentureXpert database). Pooled average and 50th percentile (median) IRRs for the year in which the fund started investing (vintage year). Based on data self-reported by LPs and GPs to VentureXpert current through to the end of 2006.

Figure 15 shows that conditions for private equity funds have gone through several cycles. European private equity funds have generally performed as well as, and for some years substantially better, than their American counterparts.

Figure 15: Average Private Equity Fund Performance by Vintage Year: 1984 - 2000



Source: Thomson Financial Venture Economics (VentureXpert database).

Pooled average and 50th percentile (median) IRRs for the year in which the fund started investing (vintage year). Based on data self-reported by LPs and GPs to VentureXpert current through to the end of 2006.

3.2 Comparison of private equity and venture capital returns to the stock market

The private equity and venture capital industry commonly uses multiples of invested capital and net IRR to report performance to its investors. However, these measures are not sufficient to properly assess performance. Multiples do not take into account the time value of money and net IRR's contain an implicit assumption that distributions to LPs over the life of the fund are re-invested at the same rate of return as the fund, thereby artificially boosting the largest IRRs.

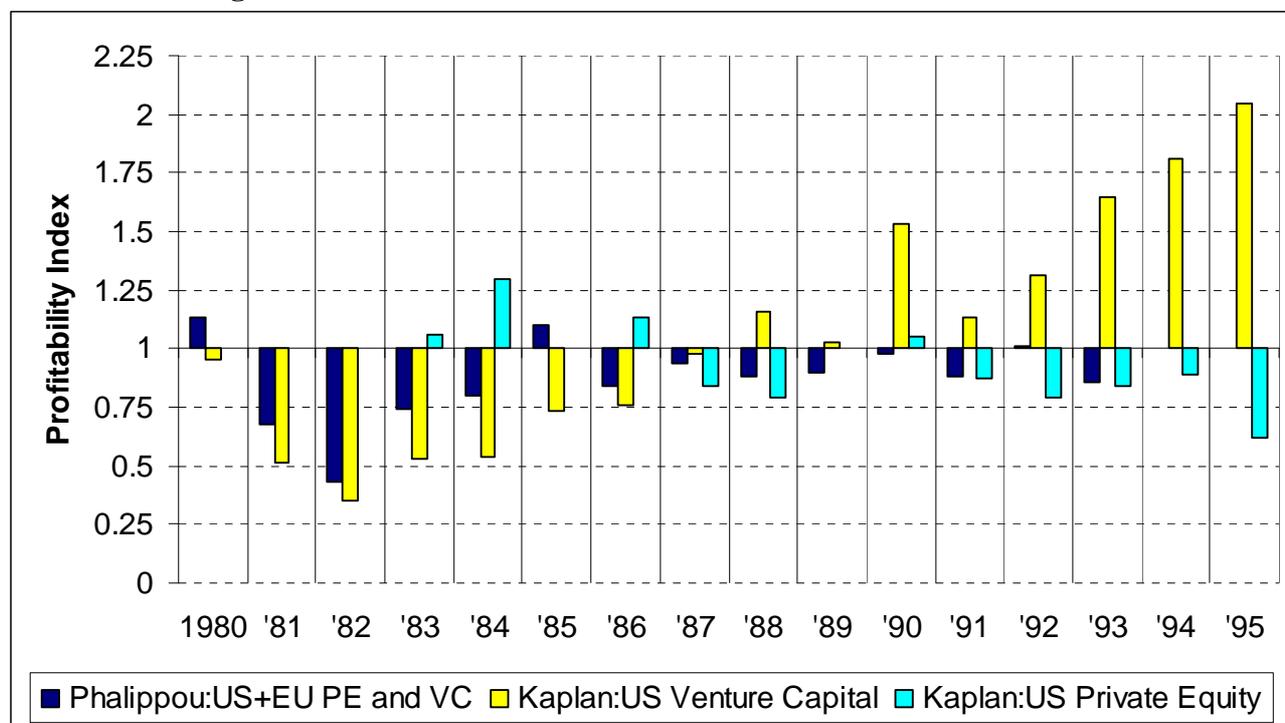
Various academic studies have compared the returns of private equity and venture capital to the public stock market. In a review of these studies, Gottschalg (2007) notes that a lack of available data has prevented an accurate, unbiased and comprehensive comparison of the performance of the private equity and venture capital asset class to the stock market. However, the studies performed so far indicate that private equity and venture capital returns, on average, are not higher than the stock markets.

Two studies have taken a broad look at the returns of private equity and venture capital. The first one (Kaplan and Schoar, 2005) looked at 746 mature US funds started between 1980 and 1995 and found net of fees performance slightly above but not much different from stock market investments. The second study (Phalippou and Gottschalg, 2007) expanded the first study to 1328 mature US and European funds started between 1980 and 1993 and found net of fees performance below that of stock market investment with an average annual alpha of nearly -3%. The lower performance determined by the second study is a result of a correction for a selection bias in the Thomson database and the write-off of the value of the remaining investments in the funds, which are, after all, inactive.

Both studies were able to compare the performance of private equity and venture capital by vintage year (the year in which the fund started investing) and Figure 16 provides the comparison of returns

by vintage year. Unsurprisingly, Phalippou and Gottschalg show underperformance for nearly every vintage year while the earlier study by Kaplan and Schoar shows outperformance by US venture capital funds that started in the early 90's as these funds were able to exit during the good market conditions of the late 90's.

Figure 16: Private Equity and Venture Capital Performance Relative to Stock Market by Vintage Year: 1980 - 1995



Source: Phalippou and Gottschalg (2007), data taken from Table 2, Panel B; Kaplan and Schoar (2005), data taken from Table V. Investment cashflows are discounted by the returns of the S&P500 to calculate a profitability index. At a value above 1, investment in private equity is considered to outperform investment in the stock market. Both studies make the assumption that the systematic risk of private equity is equal to that of the S&P500 (i.e. beta = 1) due to unavailability of data on the underlying investments that would allow for a better estimate.

Both of these studies were unable to adjust for the risk of private equity and venture capital investments, since they did not have information about the investments made by the funds in their sample. They assumed that systematic risk of private equity and venture capital is equal to that of public markets, in other words that beta = 1. It is apparent that investments in startups (by the venture capital segment) and the use of a high degree of financial leverage (by the private equity segment) means that private equity and venture capital is unlikely to present the same risk as an investment in the S&P500.

One study that was able to correct for the systematic risk of private equity investments was performed by Groh and Gottschalg (2006). They were able to examine 122 of the highly confidential private placement memoranda (PPM) used during fundraising efforts. They considered 133 US buyouts executed by 41 different private equity funds over a period ranging from 1984 (the first acquisition) to 2004 (the last exit). From the PPM they had information about the investments made: industry segment, timing and size of cash flows, and the capital structure of the investment vehicles at entry and exit. After correcting for selection bias^c, they calculated that US buyouts outperformed public markets on a risk-adjusted basis over that period of time. They found that this outperformance

^c These funds show a distribution of returns much higher than a representative selection of funds from the Thomson Venture Economics database. The authors correct for this by offsetting the difference in means from their regression results.

could only be detected by properly adjusting for the systematic risk (including both operating and financial leverage risk). When they used the same assumption as Kaplan and Schoar ($\beta = 1$), they reproduced the same result as that study. Groh and Gottschalg found that the private equity outperformance depended on the combination of investing in industries with low operating risk, using debt selectively for leverage, and the fact that debt is risky at the high levels of leverage observed thereby lowering the required return of equity. If any of these three factors were not present, no statistically significant outperformance could be determined.

3.3 Explanations for low observed returns

The broader studies have shown that returns to limited partner investors, on average, underperform those from public stock markets but that gross-of-fees returns outperform. There are several possible explanations that can contribute to this observation:

- Value creation is difficult / Sustainable Competitive Advantage (SCA) is rare
- Limited partners lack enough sophistication and are willing to fund low performing funds.
- Limited partners are performance-insensitive
- Lack of data makes it impossible to properly determine risk-adjusted returns
- Private equity firms charge an excessive rent

3.3.1 Value Creation is difficult

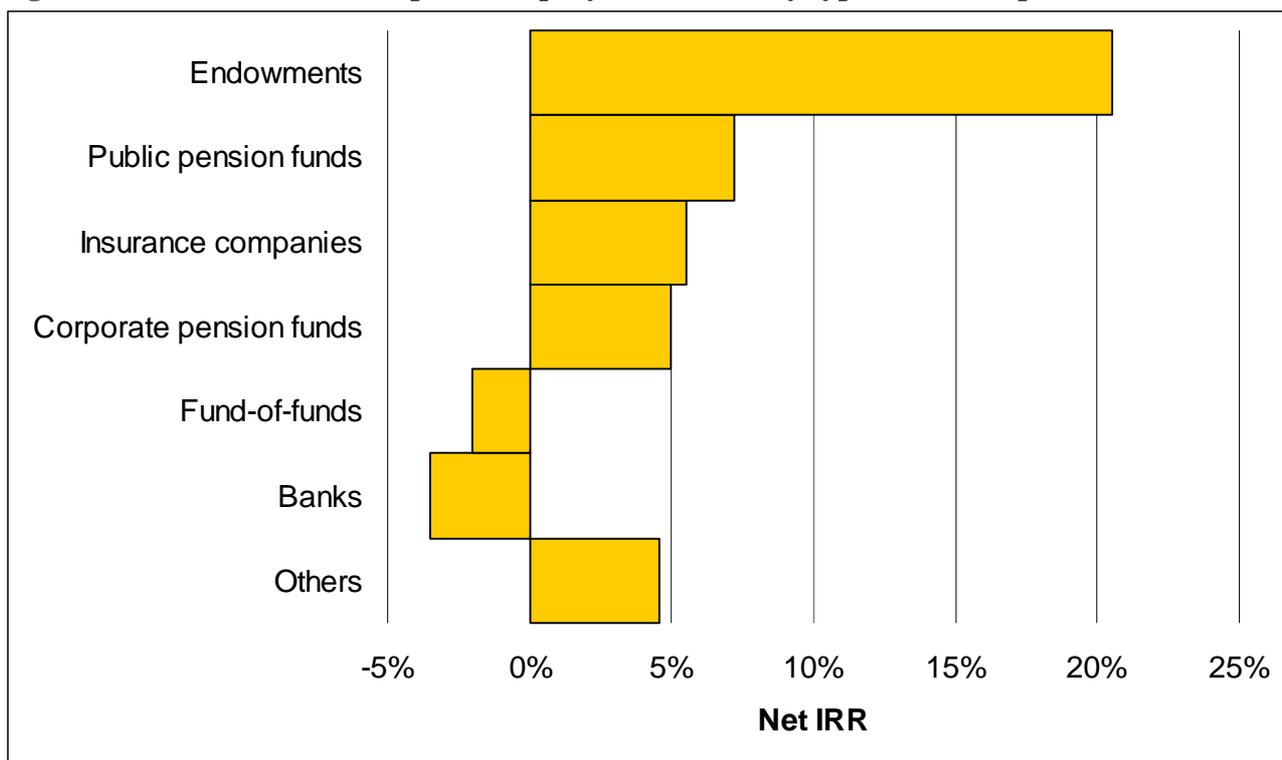
Kaplan and Schoar (2005) found that private equity and venture capital funds showed strong persistence in performance. Those private equity and venture capital firms that do well in one fund are likely to outperform their peers in the next fund and the fund after that. Similarly, private equity firms that underperform in a fund are likely to underperform in following funds. This is in contrast to mutual funds and hedge funds where there is no or little evidence of persistence. The persistence of outperformance by private equity firms seems to be because the top funds voluntarily choose to stay smaller (i.e. they refuse money) to ensure that their performance doesn't get diluted. This is in contrast to what happens in mutual funds, where fund managers with stock picking talent receive fund inflows until their performance is diluted (Berk and Tonks, 2007). The reason why private equity and venture capital firms decide to stay smaller could be that there is only a limited supply of good deals available or it is hard to scale general partner (GP) human capital. The time of GPs is the scarcest resource and hiring new, well-qualified GPs is difficult because they are scarce.

These GPs are able to create value whether it is through helping the creation of a new venture or in the restructuring of an existing business and generate substantial returns in the process. Other GPs, though, destroy value and harm businesses. The question then is why these poorly performing GPs are able to continue to raise new funds.

3.3.2 Limited Partners lack sophistication

Lerner, Schoar and Wong (2007) have shown that there is also a large variation in returns achieved by the type of limited partners (LPs) that invest in private equity and venture capital. Figure 17 shows that endowments are much better at investing in private equity funds than banks. They find that endowments are better able to use the information they gain from previous private equity investing to pick those funds that will go on to become high performers. It is not investments in riskier funds or even privileged access to the best funds due to their long involvement in the asset class that explain their outperformance. This points to varying levels of sophistication among different types of LPs, perhaps because of inappropriate incentives for investment officers in certain LPs. Unsophisticated LPs will provide funds to GPs with poor performance, resulting in a lowering of the average performance of private equity.

Figure 17: Mean return from private equity investment by type of limited partner



Results of 7,587 investments made between 1991 and 2001 by 417 limited partner investors in 1,398 private equity funds
Source: Josh Lerner in the Financial Times of 24/04/2007

3.3.3 Limited Partners are performance insensitive

Another possible explanation for the range of returns achieved by different classes of LP is that some LPs have objectives other than selecting the best performing funds. Investment banks may invest in later stage venture capital funds and buyout funds to get future income from lending to portfolio firms or advising on transactions. Public pension funds may face political pressure to invest in local funds. Lerner et al did find some evidence to support this explanation. Investment banks have slightly lower performance than retail banks, and public pension funds underperform in their in-state investments. However, this wasn't enough to fully explain the underperformance of these LPs.

3.3.4 Insufficient data to properly measure risk-adjusted returns

The study by Groh and Gottschalg found outperformance only because they were able to make risk-adjustments based on actual data obtained from the Private Placement Memoranda. They point out that broader studies don't have access to the data they do and therefore cannot properly distinguish the risks. The determination of outperformance of US private equity funds relies on the ability to accurately determine the risk characteristics of the buyout transactions. The broader studies didn't have access to the investment data that would allow such a proper analysis of the risks. It is unsure what the results of the broader studies would be if they could properly adjust for risk, but it could well be that they would find outperformance.

3.3.5 Excessive rent

The studies cited above all found average outperformance of private equity and venture capital **before** fees. Phalippou and Gottschalg found an average gross-of-fees alpha of 3% a year for

private equity and venture capital between 1980 and 1993 while Groh and Gottschalg found an average gross-of-fees alpha of about 12% a year for buyouts completed between 1980 and 2004. Phalippou and Gottschalg observe that GPs generate substantial value added on average and surmise that the rent captured by the private equity funds is probably excessive. By their calculations, using a typical fee structure, two thirds of GP compensation comes from management fees and only a third comes from incentive fees, due primarily to the use of committed capital rather than invested capital as the basis for fees.

References for Section 3

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Comments

Phalippou and Gottschalg actually did attempt a risk adjustment (i.e. not simply assume $\beta=1$) by using an “industry/size-matched cost of capital” and figured that this dropped the alpha of net IRR to minus 6% (with $\beta=1$ it was minus 3%). (They assumed each portfolio company had the same unlevered beta as the average of the industry, that right after the buyout the debt to asset ratio stood at 0.75 and then decreased to industry average.

Average is the expected value, whereas median is only the probability. It is the expected value that counts (assuming you invest in all funds).

Section 4 Evidence of Value Creation by Private Equity Firms

What is the evidence of value creation by private equity firms? In the last section, we looked to answer this from the perspective of the returns provided to investments in private equity firms. In this section and the next, we shall look at the evidence of value creation by private equity and venture capital firms in what they do: investing in companies.

There are several ways in which private equity and venture capital firms can create value in their investment activities, as discussed in Section 1.2.1.

They can create value through:

- Selection of those companies that will most benefit from their investment in money and, hopefully, expertise,
- Structuring of their investment to maximise the incentives of company management to increase the value of the firm,
- Monitoring, coaching, and contacts and connections they provide company management, and
- Realisation of the highest valuation for the company when they decide to take their investment back out.

Given the differences in the way that private equity and venture capital firms invest in companies, we shall consider private equity firms first in this section and then venture capital firms in the next section.

We shall consider the evidence for value creation by private equity firms by first looking at evidence surrounding companies that have undergone a buyout. We will look at evidence of increases in real productivity, in accounting performance, and the link between changes in incentives and changes in performance of companies that undergo a buyout. However, this isn't sufficient to demonstrate the role, if any, that private equity buyout firms play in creating value in companies that undergo a buyout. To do so, we will look at evidence that more specifically considers the value creation of private equity firms involved in buyout activity.

The evidence of value creation of private equity firms consists in large part of studies that have examined the performance of companies that have undergone buyouts, the majority of which are backed by private equity firms. The first evidence we shall consider is the real performance impact of buyouts, based on measures such as manufacturing plant productivity, R&D spending and employment conditions. We shall then consider evidence based on accounting measures of financial performance of companies that have undergone buyouts, before turning to evidence that shows that buyouts achieve performance improvements through their impact on the motivation and incentives of management.

Having seen that company performance after a buyout does improve, we shall then examine the evidence that private equity firms play a role in achieving these improvements. Studies have used different methods to demonstrate this:

- Comparison of buyouts with backing by private equity firms to those without,
- Comparison of buyouts based on differing characteristics of the private equity firm backing the buyout, such as experience, industry specialisation, or amount of attention that the investment manager can spend on each of her portfolio companies, and
- Comparison of the stock market returns of buyouts that have subsequently been publicly listed with the returns of the IPO's of companies that weren't buyouts.

One thing to keep in mind about the evidence of value creation by private equity firms is that data is often difficult to collect about the buyout companies. In the US, there are no public sources of accounting information on private firms (although in many European countries, including the U.K., the accounting data of private companies is publicly available). Furthermore, as we saw in Figure 10, many buyouts involve the carving out of a division of a company. The accounting records of the division prior to the buyout, if there are any, are certainly not publicly available. Thus, many studies of buyout performance, particularly of US companies, are restricted to companies that were public before the buyout and that continue to publicly report afterwards, often because they still have public debt outstanding. This leads to sampling issues, since buyouts of public companies are only a small number of the total population of buyouts and are different from other types of buyout, by size for example.

4.1 Performance improvements within the buyout company

A great deal of studies have analysed the impact of buyouts on the performance of the companies involved. These studies can be classified according to whether they analyse the impact on “real” measures such as manufacturing plant productivity or whether they analyse the impact on accounting measures of performance such as profits, which must be adjusted for such changes as depreciation levels or asset divestment after the buyout. We shall also examine evidence that the performance improvements observed result from the increased alignment of manager interests with shareholder interests.

4.1.1 Evidence based on real effects on buyouts

The findings of a number of studies on the effect of buyouts on real performance parameters of the company are summarised in Table 6. These real effects include factor productivity in manufacturing plants, employment and employee relations conditions, and corporate entrepreneurship. The impact of the changes are generally all positive for value creation, which reflects well on the impact of private equity given that they are involved in the vast majority of buyouts.

Table 6: Studies of the real effects of leveraged and management buyouts

Authors	Country	Unit of analysis	Nature of transactions	Findings
Lichtenberg and Siegel (1990)	U.S.	Plant	Divisional and full-firm LBOs and MBOs of public and private companies	Plant involved in LBOs and MBOs are more productive than comparable plants before the buyout; LBOs and especially MBO plants experience a substantial increase in productivity after a buyout; employment and wages of non-production workers at plants (but not production workers) declines after an LBO or MBO; no decline in R&D investment
Wright, Thompson and Robbie (1992)	U.K.	Firm	Divisional and full-firm LBOs and MBOs of private companies	MBOs enhance new product development
Long and Ravenscraft (1993)	U.S.	Division	LBOs and MBOs	LBOs result in a reduction in R&D expenditure
Zahra (1995)	U.S.	Firm	MBOs	MBOs result in more effective use of R&D expenditure and new product development
Bruining and Wright (2002)	Netherlands	Firm	Divisional MBOs	MBOs result in more entrepreneurial activities such as new product and market development
Amess (2002)	U.K.	Firm	MBOs	MBOs enhance productivity
Amess (2003)	U.K.	Firm	MBOs	MBOs enhance productivity
Bruining, Boselie, Wright and Bacon (2005)	U.K. and Netherlands	Firm	MBOs	MBOs lead to increases in levels of employment, training, employee empowerment, and wages: these effects were stronger in the U.K. than in the Netherlands
Amess, Brown, and Thompson (2007)	U.K.	Firm	MBOs	Employees in MBO firms have more discretion over their work practices
Harris, Siegel, and Wright (2005)	U.K.	Plant	Divisional and full-firm LBOs and MBOs of public and private companies	Plants involved in MBOs are less productive than comparable plants before the buyout; they experience a substantial increase in productivity after a buyout; plants involved in an MBO experience a substantial reduction in employment
Amess and Wright (2007)	U.K.	Firm	MBOs and MBIs	Employment grows in MBOs but falls in MBIs after buyout

Note: Real effects comprise changes in factor productivity, changes in employment and employee relations conditions, new product development and R&D expenditure.

Buyout types: MBO=initiated by incumbent management; LBO=initiated by private equity firm; MBI=initiated by new management via a buy-in.

Source: Cumming, Siegel, and Wright (2007), Table 3

4.1.1.1 Real Effects: Changes in performance of manufacturing plants after a buyout

Two studies have compared the post-buyout productivity of manufacturing plants with their own pre-buyout productivity and with non-buyout plants. They measured total factor productivity (i.e. output per unit input of capital, labour, and materials) using government production census data. They thereby avoided any difficulties in obtaining accounting data for private firms or of divisions, which often causes sampling problems for studies looking at firm level performance.

Lichtenberg and Siegel (1990) examined the total factor productivity (output per unit of input) of nearly 1000 plants owned by US firms and divisions involved in 131 buyouts between 1981 and

1986. They found that productivity of the plants over the first three years after the buyout rose to 8.3 percent better than non-buyout plants from a pre-buyout level of already 2 percent better. The performance improvement was neither a result of a higher rate of closure of (inefficient) buyout plants, nor from reductions in wages or capital investments, nor from layoffs of production workers. Rather, it was truly an increase in the efficiency of the use of the inputs to achieve higher productivity. Employment of non-production workers went down, indicating that buyouts increased their use of incentives and diminished their use of supervision in their approach to motivating production workers.

Harris, Siegel and Wright (2005) analysed the productivity of all 4,877 UK plants involved in management buyouts from 1994 to 1998. These 979 buyouts made up 63% of all MBOs during the period. Plants involved in MBOs were initially 2% less productive than other plants in the same industry. The MBO plants achieved a substantial increase over the first three years after the MBO, becoming 90% more productive than their peers. This was well spread over the industry, as the average manufacturing plant in 14 of 18 industry sectors experienced a substantial increase in productivity. Table 7 provides additional data from the study, showing that MBO plants decreased their output by 50% from pre-buyout levels but dropped employment levels even more. The result was improved labour productivity, lower capital consumption and higher total factor productivity.

Table 7: Changes in Productivity and Output of UK Plants involved in MBOs from 1994 to 1998

Panel A : Comparison of buyout and non-buyout manufacturing plants (mean values)				
	Real Output (£m, 1990 prices)	Real value of plant and machinery capital stock (£m, 1980 prices)	Plant Employment	Number of Plants
MBO Plants	3.3	0.7	59	4 877
Non-MBO Plants	4.2	1.1	54	30 875
Significant difference? [‡]	Yes	Yes	No	[‡] at 5% level

Panel B : Ratio of post-buyout to pre-buyout levels of output, employment and productivity (mean values*)						
Industry	Real Output	Total Factor Productivity	Labour Productivity	Plant Employment	Capital/Labour Ratio	Materials/Labour Ratio
Total Manufacturing	50.5	108.6	112.0	39.0	84.9	137.9
Metal Manufacturing	49.1	103.3	124.6	47.8	40.0	113.4
Nonmetallic minerals	14.7	167.0	33.4	15.4	60.5	106.8
Chemicals	36.4	93.1	74.4	32.7	68.1	113.2
Metal goods n.e.c.	54.8	102.4	135.2	46.1	84.5	116.4
Mechanical engineering	88.5	101.6	148.7	68.9	75.2	143.8
Office machinery	147.5	107.8	277.9	71.2	50.5	199.0
Electrical and electronics	53.2	100.2	144.6	42.1	66.3	134.3
Motor vehicles	57.0	100.4	101.1	52.2	135.1	120.4
Other transport equipment	29.9	99.2	117.6	26.8	122.4	132.0
Instrumental engineering	61.3	100.9	117.1	51.8	207.8	111.9
Food	76.8	103.5	122.7	69.2	68.9	104.3
Drink and tobacco	48.5	96.9	80.7	48.9	71.9	107.8
Textiles	112.5	99.9	127.3	80.6	95.8	150.2
Footwear and clothing	89.1	100.0	112.4	70.1	73.6	128.7
Timber and wood	60.8	101.8	137.3	52.0	87.8	111.1
Paper and publishing	59.7	107.9	147.4	46.4	76.1	139.3
Rubber and plastics	69.0	102.5	149.3	60.6	84.5	126.5
Other manufacturing	82.6	100.6	107.2	62.9	230.3	122.6

* all figures are weighted percentages.

Source: Harris, Siegel, and Wright (2005), adapted from Tables 2 and 4

4.1.1.2 Real Effects: Changes in Performance at the level of the company

Having seen the evidence about the real effects of buyouts on manufacturing plants, which excludes any performance improvements that may be achieved in corporate overhead functions and completely misses out those companies with no manufacturing facilities, let's look at the evidence provided by studies that have examined the real effects of buyouts at the level of the company.

R&D Expenditures, Corporate Entrepreneurship and Product Development

Research and development plays a critical role in determining productivity growth and long-run firm performance. Critics of buyouts maintain that high levels of debt incurred in a buyout force the firm to cut into its long term prospects by cutting R&D simply to meet the interest payments on the debt.

Long and Ravenscraft (1993) examined the impact of buyouts on R&D expenditures on US whole company buyouts between 1981 and 1987. They compared 72 R&D-performing buyouts (both LBOs and MBOs) with 3329 non-LBO firms and with 126 buyouts that had little or no R&D expenditures. They found that R&D intensity (R&D/sales) declined nearly 40% from the pre-LBO levels, but that this didn't appear to hurt the ability of the firms to generate performance^d gains in the medium term (5 years after the LBO). Buyouts often targeted low technology firms with lower than average R&D intensity. Interestingly, the R&D performing buyouts outperformed both their non-buyout industry peers and buyouts without R&D expenditures. The conclusion is that buyouts cut non-critical R&D with no effect on future profitability.

In a more detailed work, Zahra (1995) studied commitment to corporate entrepreneurship before and after a management buyout by gathering data on and interviewing executives of 47 manufacturing firms in the US, where the top managers owned more than 25% of the buyout. He found that in the three years following the buyout, these companies increased their commitment to entrepreneurial activities without an increase in the R&D spending factor. The companies increased their emphasis on commercialisation and R&D related external alliances, enhanced the quality and capabilities of the R&D function, and intensified their venturing activities. Furthermore, these changes were accompanied by significant improvements in profitability and productivity.

Wright, Thompson and Robbie (1992) performed a survey of UK management buyouts of private companies completed between 1983 and 1986 and found that more than 60% of them enhance new product development after the buyout.

Employment Conditions

A few studies have looked at how buyouts influence the work environment. As reported by Cummings et al. (2007), one study (Amess, Brown, and Thompson, 2007) found that employees in MBO firms have much more discretion over their work practices than comparable workers at non-MBO firms. Skilled employees, in particular, were found to have very low levels of supervision at MBO firms. Another study (Amess and Wright, 2007) that looked at 1350 U.K. buyouts between 1999 and 2004, found that employment growth after the buyout was higher for insider-driven MBOs but lower for outsider-driven MBIs. This indicates that incumbent managers that lead a buyout do so in firms that have growth opportunities while outsiders buy companies that need restructuring.

^d EBITDA/Sales

The evidence shows that the impact of buyouts on real performance is positive. Now let's look at the evidence that has looked at accounting measures of performance to gauge the impact of buyouts.

4.1.2 Evidence based on accounting measures of performance of buyouts

Much of the evidence of value creation by buyout specialists examines the accounting performance of the companies they finance. If a company improves its ability to create and capture value after a buyout, this will show up in sustainable increases in cash flow. Indeed, private equity firms often direct management to focus on cash flow as the most important performance indicator. Most academic studies of buyouts provide an approximation to changes in cash flow by comparing the change in operating income (EBIT or EBITDA) over a few years after the buyout to performance of a variety of benchmarks: the same company before the buyout, a matched peer, the industry average, and even in some cases to expected performance had the buyout not taken place. To ensure comparability, the operating income is scaled to sales (operating profit margin) or to assets (return on assets, provides a control for divestments that are often made after a buyout). Some studies also look at sales growth to evaluate the entrepreneurial motivation of the buyouts.

A large number of studies have examined the performance of buyout firms during the buyout wave of the 1980's in the US and in the UK. Let's look at what these studies have to say about performance improvements before looking at what is driving the changes in performance.

4.1.2.1 Performance Improvement

Kaplan (1989) found that industry-adjusted median operating income per dollar of sales and per dollar of assets improves significantly from the year before the buyout to each of the first three years after the buyout. A subsequent re-analysis of the Kaplan data by Smart and Waldfogel (1994) found that this held even after controlling for improvements that would have happened even without the buyout, by adjusting for pre-transaction expected performance.

Bull (1989) found that industry adjusted mean cash flow per dollar of sales had a highly significant improvement from the 2 year average before to the 2 year average after the buyout. He also found that industry-adjusted sales per dollar of assets improved significantly.

Smith (1990) took the effort to measure operating cash flows of buyout firms and scaled them to operating assets and number of employees for comparability.^e She found that industry-adjusted median operating cash flow per dollar of operating assets and per employee increased significantly from the year before to the year after the buyout, with no evidence of decline in following years.

She found that working capital decreased significantly from one year before to one year after the buyout. This was from significant reductions in the accounts receivable collection period and in the inventory holding period but not an increase in the accounts payable period

Smith (1990) and Kaplan (1989) found no significant change in advertising, R&D, and maintenance expenses from one year before the buyout to one year after, although many firms had

^e Most other studies approximate cash flow with Ebitda (operating income before depreciation), since this is directly available from data providers like Compustat. Smith explains that use of accrual-based profitability ratios disguises increases in cash flows after a buyout due to the write-up of assets as a result of the buyout, which increases the denominator (assets) and reduces the numerator (operating income) through the increase in COGS. Furthermore, any changes in accounting method after the buyout reduces comparability of pre- and post-buyout periods.

very low levels of R&D to start with. However, capital expenditure as a proportion of sales and of assets reduced significantly following the buyout. Kaplan argues that this is a decline in wasteful investments.

Singh (1990) studied buyout firms in the three years prior to their re-listing on the stock market and found that they experienced significant growth in sales, especially firms that were corporate divisions previously. He also found that inventory holding period and accounts receivable collection period decrease significantly.

Muscarella and Vetsuypens (1990) found that reverse buyouts had experienced significant improvements in performance as compared to public firms mainly from efficiency improvements rather than revenue increases or improved asset turnover, but they did not resort to layoffs.

Opler (1992) examined the 20 largest US buyouts of 1985-1990 and found that industry-adjusted median operating profit per dollar of sales and per employee increased significantly from the year before to two years after the buyout. He also found a sharp decline in capital expenditures but little effect on R&D. Indeed, he found that capital expenditure as a proportion of sales declined 50% by year 2 after the buyout.

A study by Desbrieres and Schatt (2002), covering 161 French buyouts between 1988 and 1994 found that firm performance (return on equity, return on investment, and profitability ratios) decreased after the buyout. However, after distinguishing between family-owned firms and corporate subsidiaries, the decline in performance remains significant only for family run firms. Buyouts in France over this period involved mostly transfer of ownership of family-run businesses and divestment of corporate subsidiaries. Public-to-private transactions were almost non-existent. In the first few years after the buyout, performance drops from above average to below average performance, most likely because the former owner-managers take away their firm-specific knowledge.

4.1.3 Sources of observed performance improvements in buyouts

Renneboog and Simons (2005) reviewed the studies of buyout performance to distinguish among competing explanations of the drivers of the observed performance gains, as presented in Table 8. The competing explanations for the sources of observed performance improvements are as follows:

- Performance gains represent a transfer of wealth to the new owners from other stakeholders (government taxation authorities, current employees, debtholders, retired employees) – *represented in Table 8 by the columns entitled “Tax Benefit” and “Wealth Transfer”*
- Performance gains result from entrepreneurial opportunism by the existing management who organise an MBO of the firm when they realise that the firm is undervalued by its current shareholders – *represented in Table 8 by the column entitled “Under-valuation”*
- Performance gains result from the reduction in agency costs which increase incentives to increase firm value. This is due to the increase in the level of firm ownership by management, the improved monitoring of management performed by the private equity owners, and the improved performance measures and incentives implemented by the private equity firm. – *represented in Table 8 by the columns entitled “Incentive Realignment”, “Better Monitoring” and “Free cash flow”*

Table 8: Studies of the causes of post-buyout value creation

Authors	Sample period/ country	N	Transaction type	Tax Benefit	Wealth transfer	Incentive Realignment	Better Monitoring	Free cash flow	Under- valuation
Kaplan (1989)	1980 - 85 US	48	MBO	-	No	Yes	-	-	No
Bull (1989) ¹	1971 - 83 US	25		Yes	-	Yes	-	-	-
Baker and Wruck (1989)	1986 US	1 case	MBO	-	No	Yes	Yes	Yes	No
Smith (1990)	1977 - 86 US	58	MBO	-	No	Yes	-	-	No
Muscarella and Vetsuypens (1990)	1973 - 85 US	72	MBO	-	No	Yes	Yes	-	Yes
Lichtenberg and Siegel (1990)	1981 - 86 US	244	ALL	-	No	-	Yes	-	-
Singh (1990) ¹	1980 - 87 US	65		-	-	Yes	Yes	-	-
Jones (1992)	1984 - 85 US	17	MBO	-	-	Yes	-	-	-
Opler (1992)	1985 - 89 US	45	ALL	Yes	-	Yes	-	-	Inconcl.
Liebeskind, Wiersema and Hansen (1992)	1980 - 84 US	33	ALL	-	-	Yes	-	-	-
Green (1992)	1980 - 84 UK	8 cases	MBO	-	-	No	-	-	-
Long and Ravenscraft (1993)	1978 - 89 US	48	ALL	Yes	-	-	-	Yes	-
Denis (1994)	1986 US	2 cases	LBO	-	-	Yes	Yes	Yes	No
Zahra (1995)	1992 US	47	ALL	-	-	Yes	-	-	-
Robbie and Wright (1995)	1987 - 89 UK	5 cases	MBI	-	-	Yes	Yes	-	Yes
Holthausen and Larcker (1996)	1983 - 88 US	90	ALL	-	-	Yes	-	No	-
Bruton, Keels and Scifres (2002)	1977 - 86 US	39	ALL	-	-	Yes	-	-	-

Buyout types: MBO=initiated by incumbent management; LBO=initiated by private equity firm;
MBI=initiated by new management via a buy-in; ALL=all types of buyout transaction.

Yes = supportive of hypothesis; No = unsupportive of hypothesis; Inconcl. = inconclusive.

Source: Renneboog and Simons (2005), Table 6,

Note 1: Studies by Bull (1989) and by Singh (1990) added by author.

4.1.3.1 Wealth transfer hypothesis of source of gains from buyouts

The wealth transfer hypothesis holds that buyouts achieve their gains through the transfer of wealth rather than through the creation of value. This can take various forms, such as a reduction in taxes (transfer from the government), reduction in employment (transfer from current employees), reduction in value of existing debt in favour of the remaining equity (transfer from prior debtholders), or a reduction in pension security (transfer from retired employees).

Clearly, the tax shield from the increased debt provides value to the firm and is a transfer of wealth from the government. However, the tax benefits of the increased debt are easy to determine and are captured by the pre-buyout shareholders in the premium paid to acquire the company. Indeed, Kaplan (1989b) and Schipper and Smith (1988) found a significant correlation between the buyout premiums and the estimated tax benefits from the buyouts. Furthermore, Jensen, Kaplan, and Stiglin (1989) argued in their study that the net effect of buyouts was to increase the present value

of Treasury tax revenue by 61%. This results from tax revenue increases from (1) taxes on capital gains realised by the pre-buyout shareholders, (2) taxes on operating cash-flow increases from buyouts, (3) taxes on interest income received by buyout lenders, and (4) taxes on capital gains from post-buyout asset sales.

As for transfer of wealth from existing bondholders, Asquith and Wizman (1990) analysed the impact on bondholders of the unexpected increase in leverage of 47 US buyouts between 1980 and 1988. They found that statistically significant wealth losses only accrue to bonds that do not have protective covenants against unexpected leverage increases. Presumably these bonds are priced *ex ante* to compensate the bondholders for the extra risk of the lack of protection. At any rate, they determined that losses to bondholders were only about 3% of the 42% returns to pre-buyout shareholders.

In the discussion of the real effect of buyouts, we saw that employment does decline after a buyout. To the extent that labour productivity improves, it is a question of whether one considers that employees are entitled to the previous inefficiencies.

4.1.3.2 *Undervaluation by previous shareholders hypothesis of source of gains from buyouts*

Another hypothesis of the source of gains observed for buyouts is that buyouts are initiated by the management of those companies who observe that the firm is undervalued by its current shareholders. The managers then organise a management buyout to obtain the firm at a discount. This undervaluation arises because the managers can see more value in the firm. The question is raised why the managers don't perform their duty to extract this value for their shareholders. If it is a result of inefficiencies resulting from the current ownership structure, then this is simply a case of management having recognised some agency costs and being motivated by the entrepreneurial opportunity to benefit from the improvement potential in the firm. This is simply a particular case of the third hypothesis below. If however the hypothesis is that the managers see increased value in the firm that can be achieved even without changing incentive structures, then the managers are able to take advantage of market inefficiencies.

4.1.3.3 *Reduction of agency costs hypothesis of source of gains from buyouts*

An important hypothesis of the source of gains observed for buyouts is that they reduce the agency costs of equity. In Table 8 this is split up into three parts:

- alignment of incentives
- improved governance (monitoring and advice by the private equity firm)
- free cash flow payments to investors (instead of spending them on NPV negative projects)

Renneboog and Simons (2005) conclude that empirical research has confirmed that post-transaction performance improvements that were forecast at the announcement of the buyout transaction are achieved.

The performance and efficiency improvements are a result of the improved governance structure that reduces the agency cost of equity. Almost all the studies find that realignment of incentives leads to value creation after the buyout. The one study that didn't, found that it is the (entrepreneurial) motivation of managers in divisional MBO's that drove ownership concentration, rather than the other way around which is what agency theory predicts. Nevertheless, the managers first undertook the buyout before achieving improved performance.

4.1.4 Evidence of agency theory from the complete buyout cycle

We have seen that the evidence does show that buyouts experience improved performance and that this can be explained to a large part by the reduction in agency costs that accompany a buyout. We shall now consider a study that directly tested how well agency theory explains the observed performance of buyouts.

Bruton, Keels, and Scifres (2002) tested the validity of agency theory to the buyout phenomenon by looking at the performance of buyouts that had gone public again through a *reverse buyout*, also known as a secondary IPO (SIPO). They looked at 39 US buyouts that had occurred between 1977 and 1986. Of the 39 buyouts, 22 of them were full firm buyouts and 17 were divisional buyouts. The buyouts remained private an average of 2.28 years before being listed on a stock exchange.

After the reverse buyout, when management ownership is lowered again, agency theory predicts that performance will decrease. A counter argument is that a reduction of management ownership from high levels will lead to performance increases as (underperforming) management is no longer entrenched (i.e. impossible to force out due to their presumable control of board voting) and is more willing to approve risky NPV positive projects (since less of their wealth is tied up in the company).

In the buyouts studied, management ownership declined significantly after the reverse buyout. Average CEO ownership went from 22% to 16% after the reverse buyout, and average overall insider ownership went from 68% to 49%.^f Clearly, agency increased after the re-introduction of the firms to the public markets.

Bruton et al. compared each buyout firm to historical performance, to a matched firm, and to the industry. The results are summarised in Table 9.

^f The equity stake of senior managers typically rises from 6% to 23% after a buyout (Kaplan, 1989a).

Table 9: Test of Agency Theory

Changes in performance and efficiency for buyout firms over the buyout period and then after introduction to public markets, compared to the industry and to matched firms

Panel A: Over the buyout period

	Buyout Sample (% change)	Matched firms (% change)	Industry (% change)
<i>Performance</i>			
Change in profit margin	51.0	-3.1 **	33.0 **
Change in sales	66.0	49.0	38.0 **
<i>Efficiency</i>			
Change in SG&A/sales	-5.2	9.6 ***	3.0 *

Panel B: In each of the 3 years following the reverse buyout

	Buyout Sample (% change)	Matched firms (% change)	Industry (% change)
<i>Performance</i>			
Change in profit margin:			
Year 1	-7.2	3.0	11.0
Year 2	6.1	-25.0	14.0
Year 3	-64.1	-22.0	13.0
Change in sales:			
Year 1	22.0	18.0	10.0 *
Year 2	18.0	7.6 **	12.0
Year 3	6.5	6.0	10.0
<i>Efficiency</i>			
Change in SG&A/sales:			
Year 1	4.7	-0.4	0.0
Year 2	2.3	-0.2	-1.2
Year 3	10.0	0.1 **	2.0 *

*Statistically significant difference from the buyout sample at the 10% level

**Statistically significant difference from the buyout sample at the 5% level

***Statistically significant difference from the buyout sample at the 1% level

Source: Bruton et al. (2002), adapted from data in Table 2.

As with other studies, there was a performance increase after the buyout. Profit margins increased an average 51%, on average from 10.4% to 13.3%, significantly more than the changes experienced by direct peers and by the industry. Sales also increased significantly, but the observation that this was not significantly different from that of the matched firms suggests that other factors may have contributed to the sales increases over the buyout period. The ratio of SG&A over sales was used to measure efficiency in controlling costs. The significant decline of this ratio indicates an improvement of efficiency in the buyout firms.

The interest of the study lies particularly in the observed performance after the buyout. Given the increase in agency costs after the reverse buyout, the theory predicts an immediate drop in performance. The expected performance decline, however, only occurred in the third year. Profit margins did decrease significantly during the three years after the reverse buyout, from 13.3% to 10.5%. They dropped most dramatically in the third year, although this was not significantly differently from peers and industry. The increase in SG&A/sales indicates that efficiency declined. Although this was not statistically significant over the whole three year period, the decline in the third year was at a significantly greater rate than at matched-firms and industry. Agency theory predicts sales to increase after the reverse buyout. This is because managers gain status, power, income and job security from an increase in firm size via sales growth whether it is profitable or not

(Phan and Hill, 1995). Indeed, sales do grow significantly during the three years after the reverse buyout, although at a declining rate.

The results of the study generally support agency theory in explaining buyout performance. The dramatic changes that occur upon buyout take effect quickly. The reverse buyout sees a more gradual reversal of performance and efficiency gains, perhaps because it takes time for the self-serving choices of managers to accumulate to the extent where they are seen in the performance figures.

However, it may be that the differences in performance were not caused by changes in agency but rather changes in market conditions and good timing. Are the performance changes driven by internal forces (agency reduction) or is it simply a matter of external forces (market conditions) that are exploited by shrewd managers who decide to undertake and then reverse a buyout?

4.2 Contribution of private equity to performance improvements observed in buyout firms

We have seen evidence that buyout companies experience performance improvements and that agency theory provides a good explanation for these observations. Let us now look at evidence of the role that private equity plays in this performance improvement.

Studies of the impact of private equity firms on observed performance improvements in buyout companies have used different methods to demonstrate this:

- Comparison of buyouts with backing by private equity firms to those without,
- Comparison of buyouts based on differing characteristics of the private equity firm backing the buyout, such as experience, industry specialisation, or amount of attention that the investment manager can spend on each of her portfolio companies, and
- Comparison of the stock market returns of buyouts that have subsequently been publicly listed with the returns of the IPO's of companies that weren't buyouts.

4.2.1 Effect on the buyout firm

Several studies have attempted to isolate the influence of private equity by observing the impact on the buyout firm. We shall look at studies by Cotter and Peck (2001), Cressy, Munari, and Malipiero (2007), and Meuleman et al. (2007).

Cotter and Peck (2001)

Cotter and Peck (2001) studied 64 US firms that underwent leveraged buyouts between 1984 and 1989, a period during which there was a boom in buyout transactions leading to "overheating" (Kaplan and Stein, 1993) towards the end of the 1980's. Cotter and Peck looked for evidence whether private equity firms performed better at restructuring buyouts than incumbent management or other investors. They divided their sample based on who controlled the majority of the voting common stock: a private equity firm (Cotter and Peck called them buyout specialists), the incumbent management, or other investors (such as Campeau Corp.) Table 10 provides a summary of the data.

Table 10: Differences in financial and buyout characteristics for different types of investor-controlled buyouts for a sample of 64 buyouts completed in the US from 1984 to 1989

	Private Equity controlled buyouts (n=40)	Management controlled buyouts (n=14)	Other investor controlled buyouts (n=10)
<i>Firm performance</i>			
% Change in EBITDA/total sales from $t-1$ to $t+1$	24.1%	-0.6% *	7.3%
% Change in EBITDA/total assets from $t-1$ to $t+1$	32.0%	35.6%	25.9%
(EBITDA/total assets) $_{t-1}$	0.089	0.097	0.075
(EBITDA/total assets) $_{t+1}$	0.115	0.116	0.092 *
<i>Debt characteristics:</i>			
Average maturity of debt (years)	9.2	7.8 *	6.6 ***
Average seniority of debt ^a	3.5	3.7	3.9
<i>Financial Distress</i>			
Incidence of financial distress ^b percentage of sample	6 15%	4 29%	8 *** 80%
Industry return $_{t+6}$ ^c	1.61	1.71	1.66
<i>CEO incentives</i>			
Proportion of common stock held by CEO	4.7%	18.1% ***	6.3% *
<i>Board composition</i>			
Proportion of board members from private equity firm	37.4%	12.4% ***	3.9% ***
Proportion of board members from management	44.4%	52.2%	51.5%
Proportion of board members from other investors	0	2.1%	19.8% ***
Total number of directors	8.3	8.6	12.1 **

*Statistically significant difference in mean from private equity-controlled buyouts at the 10% level

**Statistically significant difference in mean from private equity-controlled buyouts at the 5% level

***Statistically significant difference in mean from private equity-controlled buyouts at the 1% level

Subscripted time periods are relative to the buyout completion date:

e.g. $t-1$ = first full fiscal pre-buyout year; $t+1$ =first full fiscal post-buyout year.

a. Seniority of debt will be 5 when all senior bank debt is used and 1 when all subordinated debt is used.

b. Incidence of financial distress is the number of buyouts within six years where there was either a bankruptcy filing or a restructuring of the firm's debt where creditors accepted less than full compensation for their original debt position.

c. Average holding period return of all firms in the industry for six years after the buyout.

Source: Cotter and Peck (2001), data selected from Tables 3, 5, and 11.

The data shows that buyouts majority controlled by private equity firms

- performed as well as or better than those controlled by management or other investors (in the year following the buyout), and
- had lower incidence of financial distress.

The private equity controlled buyouts were in industries that didn't perform any differently from those of the other buyouts, as indicated by the measure of industry returns. Thus, the better performance and lower incidence of financial distress of the private equity controlled firms is due to differences in the firms themselves, not external market conditions.

Cotter and Peck performed a regression analysis that showed, unsurprisingly, that use of more short-term and/or senior debt increased the likelihood of default. The data shows that firms controlled by private equity had less restrictive debt terms. But even after adjusting for differences in firm size and leverage, buyouts controlled by private equity were less likely to default. From another regression, they concluded that the burden of more restrictive debt terms increased performance only for buyouts where private equity did not have majority control. From this, and the observation that private equity firms keep board size small and take a large proportion of the seats, they concluded that private equity firms increase firm value by reducing the cost of distress of the firm through actively monitoring the company instead of relying on restrictive debt terms to monitor and motivate the managers.

Thus, PE firms add value by substituting restrictive debt with increased monitoring. Since they do this on a repeated basis they become skilled at monitoring. This, along with the need to frequently return to debt markets for subsequent buyouts means that debtholders are willing to provide less restrictive debt to private equity controlled firms, which ultimately reduces the cost of distress and therefore increases the value of the company.

Cressy, Munari, and Malipiero (2007)

Cressy, Munari, and Malipiero (2007) examined the three year post-buyout performance of 122 UK buyouts from 1995 to 2002. They wanted to determine whether private equity-backed buyouts have higher post-buyout performance than comparable companies due to superior governance from private equity, and whether relative investment specialisation by industry for a private equity firm improves the performance of the buyouts it backs. From the 588 private equity buyouts that occurred in that period they randomly selected 217 of them and were left with 122 for which the necessary data was available. These 122 companies, backed by 39 lead PE firms, were then compared to 122 private companies of the same size and from the same industry. Of the 122 buyouts, 84 (69%) of them were acquired by private equity firms specialised in the industry of the buyout company. A private equity firm was considered to be specialised in an industry if it had a larger proportion of its investments in an industry relative to other private equity firms. Performance measures used were the mean operating profitability (EBIT/Assets) and revenue growth over the three years following the buyout. Table 11 compares the performance of the buyout companies with the matched companies that did not undergo a buyout.

Table 11: Mean profitability and growth for 122 UK buyouts in the 3 years after the buyout as compared to 122 matched private companies: 1995 to 2002

	Operating Profitability		Revenue	
	<i>t</i> =0 (EBIT/Assets)	<i>t</i> =1-3	<i>t</i> =0 (M€)	<i>t</i> =1-3 (growth)
Matched non-buyout companies	6.2%	4.7%	52.2	7.08%
PE-backed buyouts, thereof:	8.5%	9.1%	57.4	14.05%
<i>backed by non-specialised PE</i>		6.6%		13.83%
<i>backed by industry-specialised PE</i>		10.2%		14.15%
Statistically significant differences between:				
a) Non-buyouts and all buyouts?	N.D.	Yes (<i>p</i> <0.01)	Equal by selection	Yes (<i>p</i> <0.05)
b) Non-buyouts, non-specialised PE-backed buyouts, and industry-specialised PE-backed buyouts?	N.D.	Yes (<i>p</i> <0.05)	Equal by selection	No

t=0 refers to the year prior to completion of the buyout; *t*=1-3 refers to the 3 years after the buyout
N.D. = not determined

Source: Cressy, Munari, and Malipiero (2007) data selected from Tables 2, 3, and 4

Table 11 shows that the matched private companies were less profitable than the buyout companies even before the buyout. This difference in performance widened after the buyout. Buyouts backed by private equity firms with specialisation in that industry had significantly better profitability than other buyouts, which indicates that industry specialisation by private equity firms does provide benefits for the buyout company. Although revenue growth for the buyout companies was better overall than for the non-buyouts, there was no advantage for buyouts backed by PE firms specialised in the industry of the buyout relative to those backed by non-specialised PE firms.

The observation that the buyout companies were already more profitable before the buyout than the matched companies raises an important question. Is the subsequent improvement in performance a result of the initial selection of better companies by the private equity firms (an important function, nonetheless) rather than due to skill at improving company performance? To investigate this, the authors performed regression analysis on the post-buyout performance of the companies, the results of which are summarised in Table 12 and Table 13.

Table 12: Impact of private equity: Regression analysis on 3-year post-buyout profitability and growth for 122 UK PE-backed buyouts as compared to 122 matched private companies: 1995 to 2002

Independent Variables	Dependent Variables	
	Operating Profitability (EBIT/Assets)	Revenue Growth
Private equity backed buyout (dummy variable)	4.6 ***	6.4
Intercept	17.2 ***	20.6
Control Variables		
<i>Company characteristics</i>		
Operating profitability in year before buyout	0.4 ***	0.1
Revenues in year before buyout	-3E-05 *	-2E-05
Leverage in year before buyout	-0.001	0.004 ***
Company in IT and Telecom sector (dummy variable)	0.07	-6.9 *
<i>Market Factors</i>		
UK Stock market returns in year of the buyout	-0.009 ***	-0.007
Model Diagnostics		
Number of Observations	174	169
Adjusted R ²	0.33	0.04
F Statistic	15.1 ***	2.1 *

Significance testing. Probability that coefficient is actually equal to zero: * P<0.1, ** P<0.05, *** P<0.01

Note on reasons behind choice of Control Variables: Literature suggests initial values (profits, revenues) are important predictors of future growth. Leverage may have management-disciplining effects. The state of the stock markets will correlate with the amount of funds available for buyouts which may influence subsequent growth and profitability of the buyout.

Source: Cressy, Munari, and Malipiero (2007) data selected from Table 6.

The regression analysis indicates that the effect of receiving private equity backing by being bought out provided a significant improvement in operating profitability over comparable companies. Operating profitability was greater by 4.6% for those companies that were involved in a private-equity backed buyout, holding all other factors constant. The impact on revenue growth however was not significant.

Initial profitability of the company had a highly significant positive impact on post-buyout profitability, indicating that private equity firms were indeed selecting companies that were better performers. Table 13 which provides the results of the regression analysis of the impact of industry specialisation by private equity firms allows us to consider the question of selection versus post-buyout value added a bit more.

Table 13: Impact of private equity firm specialisation: Regression analysis 3-year post-buyout profitability and growth for 122 UK buyouts: 1995 to 2002

Independent Variables	Dependent Variables	
	Operating Profitability (EBIT/Assets)	Revenue Growth
PE firm specialised in industry of the buyout (dummy variable)	8.4 ***	9.0
PE firm specialised in buyouts, as opposed to VC (dummy variable)	-0.4	15.7 ***
PE firm is independent, as opposed to captive (dummy variable)	3.0	19.7 **
Intercept	0.09	22.2
Control Variables		
<i>Company characteristics</i>		
Operating profitability in year before buyout	0.3 ***	-0.4
Revenues in year before buyout	-2E-05 **	-1E-04 **
Age of company upon buyout	0.03	-0.07
Leverage in year before buyout	-0.001	0.003
Company in IT and Telecom sector (dummy variable)	5.0 *	4.1
<i>Market Factors</i>		
UK Stock market returns in year of the buyout	-0.006 *	-0.02
PE investments (value of all UK PE buyouts in the year of the buyout)	0.001	5E-04
<i>Investment Characteristics</i>		
Buyout backed by a syndicate of PE firms (dummy variable)	1.2	3.2
Buyout organised by outsiders, rather than incumbent management (dummy variable)	6.7	-4.4
<i>Private Equity Firm Characteristics</i>		
PE experience (cumulative number of buyouts previously performed by PE firm)	-0.001	0.002
Model Diagnostics		
Number of Observations	80	79
Adjusted R ²	0.21	0.01
F Statistic	2.6 ***	1.7 *

Significance testing. Probability that coefficient is actually equal to zero: * P<0.1, ** P<0.05, *** P<0.01

Note on reasons behind choice of Control Variables: Literature suggests initial values (profits, revenues) are important predictors of future growth and that younger companies tend to grow faster. Leverage may have management-disciplining effects. The state of the stock markets will correlate with the amount of funds available for buyouts which may influence subsequent growth and profitability of the buyout. A strong buyout market (indicated by PE investments) creates competition for buyout opportunities and influences in turn the price and profitability of buyouts. Syndication of a buyout implies better selection of and more financing for the buyout, while more PE experience may improve the selection abilities of the PE firm.

Source: Cressy, Munari, and Malipiero (2007) data selected from Table 7.

Again, the regression analysis of Table 13 shows that initial profitability of the company was a significant and positive influence on post-buyout profitability. In addition, though, the regression analysis determines that being backed by a private equity firm specialised in the industry of the company had a significant impact on operating profitability, increasing it by 8.4% over those companies that were bought out by non-specialised private equity firms. Thus, industry specialisation by the private equity firm does indeed result in improved performance of the buyout company.

Overall, it is evident that skill in investment selection is an important component of the better performance observed for companies that have undergone a private equity backed buyout. This would be inconsistent with the hypothesis that the superior governance structure of private equity investments leads to the better performance.

Meuleman et al (2007)

Meuleman et al (2007) also performed a study of UK buyouts to determine whether differences among private equity providers have an influence on the observed performance of the buyouts. They studied 238 UK buyouts backed by 45 PE firms that occurred between 1993 and 2003. These 238 buyouts represent those for which all necessary information was available from the total population of UK buyouts during the time period. The buyouts thus cover all types of sources: private, public, divestments, secondary buyouts, and receivership.

Regression analysis of the average of the three year post-buyout profitability (EBIT/Assets) and revenue growth was performed for various measures of private equity expertise: investor experience (number of buyouts completed prior to investment), investor specialisation in an industry sector (based on past investments), and number of investments per PE executive. EBIT/Assets was interpreted as a measure of the efficiency of the firm. The authors also looked at the impact of management investment and the level of senior debt/equity on performance, which are associated with the agency theory of buyouts. The results are summarised in Table 14.

Table 14: Results of regression analysis of factors affecting profitability and growth on 238 UK Buyouts: 1993 to 2003

Independent Variables	Dependent Variables	
	Efficiency (EBIT/Assets)	Entrepreneurial Orientation (Revenue Growth)
% shares owned by management 25% - 50% (dummy variable)	-0.19	-0.06
% shares owned by management 50% - 100% (dummy variable)	0.61	-0.17 ***
Management investment (M£)	2.79 ****	0.21 ***
Initial Leverage (Sr Debt/Equity)	0	0
Private Equity firm experience (number of buyouts)	1.73 ***	0.07 ***
Private Equity firm specialisation in the industry	0.29	-0.01
Number of Investments monitored / private equity executive	-0.04	-0.00
Initial Revenues	2.22 **	-0.09
Initial Profitability	17.43 *	-0.27

Significance test. Probability that coefficient is actually equal to zero:
* P<0.10, **P<0.05, ***P<0.01, ****P<0.001

Source: Meuleman et al. (2007), Table 3 (selected data)

Note 1 : Profitability measured as mean value of return on assets (EBIT/Assets) in the 3 year window after the buyout.

Note 2 : Entrepreneurial orientation measured as average revenue growth in the 3 years following the buyout.

The results show that private equity buyout experience has a positive impact on performance of buyout firm both in terms of efficiency gains (i.e. EBIT/assets) and on revenue growth. However, in contrast to the findings of Cressy, private equity industry specialisation had no impact on either the efficiency or the growth of the firm. The authors hypothesize that since buyouts, as opposed to new ventures, occur in a large range of industries private equity firms didn't really develop much industry specific knowledge.

Management investment did have a significant impact on both profitability and growth, but this was only true if management investment was measured by the amount of money they provided rather than the percent ownership of the firm they took. The amount that the managers invested is more motivating to the managers, as it is a better measure of how much of their own wealth they have invested in the venture. The level of debt, however, did not seem to provide an incentive to improve firm performance, contrary to the disciplinary role of debt traditionally assigned to debt in agency theory.

Given that more private equity experience improves performance of the buyout firms, the evidence indicates that private equity plays an important role in achieving this. However, the fact that initial profitability and revenues both are significant factors in the increase in profitability, we are again unable to distinguish between the selection of the best firms by private equity and the advice and monitoring provided by them to improve the firms. Likely, it is a mixture of the two.

4.2.2 Effect on the returns to private equity

Another study has looked at the influence of private equity by measuring the intensity of their activities and the returns they achieve, and measuring if there is a link between the two. The idea behind this is that if indeed certain private equity activities do increase firm value, then by observing many private equity investments we should see the most value creation in situations where there is the most private equity activity.

Cummings and Walz (2004) studied the determinants of realised returns of both venture capital and private equity firms based on an international sample of 221 venture capital and private equity funds controlled by 72 VC and PE firms. These funds invested in 5040 firms (3826 venture capital and 1214 private equity) of which 2420 were fully realised (i.e. exited). The study covered 39 countries from North and South America, Europe and Asia over the period from 1971 to 2003.

The international nature of their data, providing a large variety of conditions, allowed them to make use of four main categories of variables to proxy for value-added activities and risk that explain venture capital and private equity returns: market and legal environment, VC characteristics, entrepreneurial firm characteristics, and the characteristics and structure of the investment. They expected IRR of the PE/VC funds to increase with better monitoring and control devices, as measured by their proxies. Table 15 provides the results of their regression analysis.

Table 15: Regression analyses on determinants of realised venture capital and private equity IRRs for funds from 39 countries

Independent Variables	Dependent Variable Log (1+IRR)
Constant	-15.9 ***
<i>Market and Legal Factors</i>	
Log (MSCI Return)	1.5 ***
Log (Risk Free Rate)	-20.7 ***
Log (Legality Index)	3.3 **
Log (Committed Capital overall market at Inv Date)	0.9 ***
<i>VC Fund Characteristics</i>	
Log (Fund Number in the VC Firm)	-0.0
Log (Portfolio size (# investees)/ GP)	-0.3 **
<i>Entrepreneurial Firm Characteristics</i>	
Seed Stage	-0.5
Start-up Stage	-0.2
Early Stage	-1.3 **
Expansion Stage	0.0
Late Stage	0.8 **
MBO/MBI	-0.2
LBO	0.2
Publicly Listed Company	2.5 ***
Turnaround	0.5
Secondary Trade	-2.0
Log (Industry Market/Book)	-0.0
Industry Dummy Variables?	Yes
Country Dummy Variables?	Yes
Year of Exit Dummy Variables?	Yes
<i>Investment Characteristics</i>	
Lead Investment	0.4
Syndicated Investment	0.6 **
VC Board Seat(s)	-0.8 ***
Convertible Security with actual periodic cash flows	2.2 ***
Standard Deviation of Cash Flows to Entrepreneur	0.0
Log (Amount Invested)	0.0
Heckman Lambda A	-6.4 ***
Heckman Lambda B	-2.0 ***
<i>Model Diagnostics</i>	
Number of Observations	1819
Adjusted R ²	0.32
F Statistic	20 **

Significance testing. Probability that coefficient is actually equal to zero:

* P<0.1, ** P<0.05, *** P<0.01

Source: Cumming and Walz (2004), Table 4, Panel B, Model 4: Heckman corrected estimates of determinants of unrealised IRRs on sample of all (both realised and unrealised) VC and PE investments.

Their results indicate that VC and PE firms do add value to their investments and the market and legal context of the country influences how efficiently they are able to do so.

Private equity involvement in portfolio firms increases the returns to the private equity fund, as indicated by the negative relation between the number of portfolio firms per investment executive and the realised IRR of the fund. Indeed, this is an important result as the advice provided by venture capital and private equity is what distinguishes them from other financial intermediaries. This effect is even larger when the sample is restricted to start-up and expansion stage companies, indicating that venture capital and private equity add more value to earlier stage investments relative to later stage investments. The increase in returns to the fund from more attention to their investments must however be balanced by the increased costs that this incurs. In other words, GP time must be optimised.

Syndication, where VC and PE firms collaborate on an investment, also significantly enhances returns. This is consistent with studies that have found that syndication enables contribution of complementary management skills by the various venture capital firms involved. (Lerner, 1994; Brander et al., 2002)

Convertible securities, mostly used in VC financings, were found to enhance returns when they were used. This is consistent with the theory that convertible securities give incentives to both the private equity firm and the entrepreneur to provide efficient effort to increase the value of the firm. The convertible contract works like debt if the venture is mediocre or a failure (as shown in Figure 9, ventures with less than 5x payback), but is converted into common equity by the VC if the venture is highly successful (as shown in Figure 9, ventures with greater than 5x payback). The convertible contract works because the VC will only invest time and effort in the venture if he sees the venture can become highly successful. Without his time and effort it won't become highly successful. However, unless the entrepreneur provides efficient and effective effort to the venture then the venture will not appear to be of high potential to the VC and he won't invest the necessary time and effort. In this way, convertible contracts induce best effort by both the entrepreneur and the venture capitalist (see Schmidt (2003) for a theoretical discussion).

The effectiveness of venture capital and private equity is strongly dependent on the environment in which it operates. The regression results show that the legal environment and robust public markets strongly influence the IRR achieved by the funds. The study used a legality index consisting of a weighting of civil versus common law systems, efficiency of judicial systems, rule of law, corruption, risk of expropriation, risk of contract repudiation, and shareholder rights. These measures were based on the literature on law and finance that measures the integrity of financial systems among countries. The MSCI index and the risk free rate are used to measure the robustness of the public markets.

Interestingly, the study was also able to investigate over-reporting of returns by venture capitalists (as opposed to private equity firms), based on a comparison of data of returns reported for unrealised investments between 2000 and 2002 with returns predicted using the regression analysis of realised returns. They found that young firms, firms in early stage VC, and those in countries with less stringent accounting rules and weaker legal systems were more likely to be overvalued. Syndication served to reduce this temptation, probably because the risk of being found out is higher. This serves to underscore that VCs also face agency costs towards their investors. Stricter legal and accounting standards can improve communication between VC's and investors (by reducing the possibilities and incentives to lie) likely leading to more capital flowing to the VC industry and thus to entrepreneurial ventures.

4.2.3 Effect of private equity on buyout companies that have gone public: IPO evidence

A further way of measuring the value creation by private equity firms is to look at the long run stock returns of buyouts that have gone public, keeping in mind that these are generally the best buyout firms.

In a study of 496 U.S. private equity backed buyouts that went public in an IPO (reverse LBO) between 1980 and 2002, Cao and Lerner (2006) computed the average of the monthly buy-and-hold abnormal returns (BHAR) over each year for the stocks of buyouts that had gone public in the previous three years. These “reverse buyouts” represented 8% by number of all IPO’s and 13% of buyouts over the period. In addition to computing the average BHAR, they also regressed these results onto the CAPM and Fama-French models to test their robustness. They found that this portfolio strongly outperformed the market over the period tested. Other IPO’s however underperformed the market. They performed a regression analysis on the data to determine the role of the buyout groups in the post-IPO performance and found that the amount of capital under management at the date of IPO (a proxy for buyout group reputation) was a positive and significant explanatory variable. Furthermore, they found that these buyout groups were associated with high performing RLBOs even when they were small. While these results are statistically significant, they do not resolve whether it is luck or skill that enabled these firms to be associated with high performing RLBOs and to grow large.

Jelic, Saadouni, and Wright (2005) performed a similar study of UK MBOs that underwent an IPO on the LSE between 1984 and 1997 (and one in 1964). This included 132 PE-backed and 35 non-PE-backed buyouts which represented 65% of all buyout IPOs and 2.3% of all MBOs over the period. They calculated the monthly BHAR over six years and took into account survivor bias, skewness bias and the selection bias given that private equity firms don’t randomly select their portfolio firms. Table 16 provides a summary of their data. They found that the IPOs did not significantly underperform the market over the six years studied, in contrast to the literature that shows negative long-term excess returns internationally for IPOs (see Loughran et al., 1994). However, this is likely because buyouts have longer operating history by which investors can better evaluate them, especially in the U.K. where even private firms have to publish their accounts.

Table 16: Market performance of 167 U.K. MBOs that underwent an IPO**Panel A: Descriptive statistics on 167 MBOs that IPO'ed on the London Stock Exchange**

Variable	Mean	Median	Min.	Max.
MBO value (£m)	53.1	11.6	0.3	2157
Time from MBO to IPO (months)	47.6	40	2	240
Management stake pre-exit	53%	52%	0%	100%
Management stake post-exit	31%	29%	0%	85%
Market value at exit (£m)	76.1	43.2	3.0	919.5

Panel B: Mean buy and hold market-adjusted percentage returns (BHAR) by month after IPO for 132 PE-backed MBOs and 35 non PE-backed MBOs

Months after IPO	BHAR of PE-backed MBO-IPOs	BHAR of non PE-backed MBO-IPOs
6	0.31	1.35**
12	-0.21	-1.30
18	0.24	0.10
24	-0.41	0.32
30	0.04	0.23
36	-0.16	-0.83

Significance test. Probability that coefficient is equal to zero: ** P<0.05

Source: Jelic, Saadouni and Wright (2005), data from Tables 2 and 9.

Private equity[§] backed MBOs, however, did not perform better than non-PE-backed buyouts. Yet a regression analysis showed that IPOs backed by the 3 firms with the best reputation, as measured by number of buyouts performed (3i, Natwest Equity Partners, and Barclays Private Equity who backed 62% of the buyouts sampled) performed better than those backed by less prestigious PE firms.

Thus, the US and UK studies are similar in that they find that IPOs of buyouts do not underperform the market, unlike other IPOs. The stock performance of buyouts backed by the most reputable private equity firms perform better. The U.K. study, which controlled for any selection effects of PE firms picking the best firms to buyout, would seem to indicate that indeed the best firms can impute at least some of their success to skill rather than luck.

We provide a summary of the results of various academic studies on the influence of private equity firms on buyout performance in Table 17.

[§] In the UK during the period of study, private equity firms were often subsidiaries of banks, insurance companies, and pension funds rather than being independent limited partnerships, as in the U.S.

Table 17: Studies on the impact of private equity firms on value creation in buyout companies

Authors	Sampling period/ country	N	Nature of transactions	Findings
Denis (1994)	1986 - 1992 U.S.	2	Safeway vs Kroger: KKR performed an LBO on Safeway in 1986. Kroger repelled KKR's LBO offer in 1988 and instead performed a leveraged recapitalisation.	Safeway experienced a significant alteration in its organisational form (board and top management team) and its value increased more than that of Kroger. Kroger did not significantly alter its organisational form.
Cotter and Peck (2001)	1984 - 1989 U.S.	64	LBOs backed by private equity firms, by incumbent management or by other investors	Active monitoring by private equity firm serves as a substitute for tighter debt terms to monitor and motivate managers
Jelic, Saadouni, and Wright (2004)	1964 - 1997 U.K.	167	MBOs that subsequently underwent an IPO, of which 132 were backed by a private equity firm	MBO-IPOs did not underperform the market. PE-backed MBO-IPOs did not outperform non-PE-backed MBO-IPOs, although those backed by the most reputable PE firms performed better than those backed by less reputable PE firms
Cummings and Walz (2004)	1971 - 2003 39 countries	5040	Buyouts and new ventures	VC and PE firms do add value. The more portfolio firms that an investment manager has to cover the lower the returns. Return enhancing factors include syndication (signifying involvement by more VC firms), use of convertible securities, better legal environment, and robust public markets.
Cao and Lerner (2006)	1980 - 2002 U.S.	496	Private equity backed buyouts that went public in an IPO (reverse LBO)	RLBOs outperform other IPOs and stock market. Better performance from those backed by PE firm with more capital under management
Nikoskelainen and Wright (2007)	1995 - 2004 U.K.	321	Fully-exited LBOs	Larger LBOs perform better and provide higher returns, likely due to higher bankruptcy risk for small LBOs. Similarly, acquisitions contribute to buyout value increase, likely by lowering risks by increasing scale.
Cressy, Munari, and Malipiero (2007)	1995 - 2002 U.K.	122	Private equity backed buyouts compared to matched private companies	Subsequent operating profitability is better for companies bought out by a PE firm than for matched non-buyout companies. This effect is more pronounced if the PE firm has industry specialisation. There is no such effect for revenue growth.
Meulemann et al. (2007)	1993 - 2003 U.K.	238	All types of buyouts: public and private companies, divestments, secondary buyouts, companies in receivership	PE buyout experience has positive impact on efficiency gains and revenue growth. PE industry specialisation however does not. The level of debt used does not have an impact.

Source: Author analysis

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Section 5 Evidence of Value Creation by Venture Capital Firms

We shall now consider the case of venture capital firms and the evidence that they demonstrate skill in their investing activities. Looking closer, we look at evidence about whether the skill of venture capital firms consists of selecting (scouting out) good investments or in helping out (coaching) new ventures. Then we look at specific evidence of the value building (coaching) that venture capital firms provide and whether the value provided is greater than the costs of venture capital financing.

5.1 The role of skill in achieving high returns

The returns to venture capital (as seen in Section 3) show an extremely wide distribution and recent academic studies have cast doubt on whether the asset class outperforms public markets on a risk adjusted basis. However, these same studies (Kaplan and Schoar, 2005) have found that private equity and venture capital funds show strong persistence in performance. This implies that the investment process of venture capital and private equity partnerships does involve skill and that success is more than a random outcome.

We shall look at evidence concerning the role of skill in venture capital, before looking at whether VC skills are in selecting ventures with good potential or in helping them perform better. We shall then look at evidence concerning the value that VCs can bring their portfolio companies as well as the costs they impose.

A study by Gompers et al. (2006) specifically set out to determine whether VC firm performance is a question of skill or luck. The study examined entrepreneurs that had received VC firm financing in the U.S. between 1986 and 2000. The approach used by the study was to observe whether entrepreneurs backed by more experienced VC firms had a higher expected rate of achieving an IPO. In other words, does a “better” VC, as measured by a higher than average number of past investments, truly have an impact on the success of an entrepreneur? Their answer was that more experienced VC’s do indeed improve the odds of success of an entrepreneur.

For first time entrepreneurs, being backed by a more experienced VC firm increased the chance of succeeding. For serial entrepreneurs, the effect of being financed by more experienced VC’s depended on whether the entrepreneur had previously succeeded. Serial entrepreneurs, identified as any entrepreneur who had previously started a company backed by a VC firm, made up between 5% and 14% of all VC backed entrepreneurs in any given year. For those serial entrepreneurs who had not succeeded in their prior venture, backing by a more experienced VC was associated with a better chance of success. For a previously successful serial entrepreneur, on the other hand, the level of experience of the VC firm had negligible additional impact on her chance of succeeding in her next venture.

These results, summarised in Figure 18, indicate that the more experienced VC’s are skilled at identifying and helping skilled, but unproven, entrepreneurs. This skill does not provide an advantage to the VC firms when financing a previously successful entrepreneur because her previous success clearly signals her ability to all VC’s and the entrepreneur already knows what she’s doing, so the better VC doesn’t help her improve more.

Figure 18: Effect on entrepreneur success rate of backing by more experienced VCs

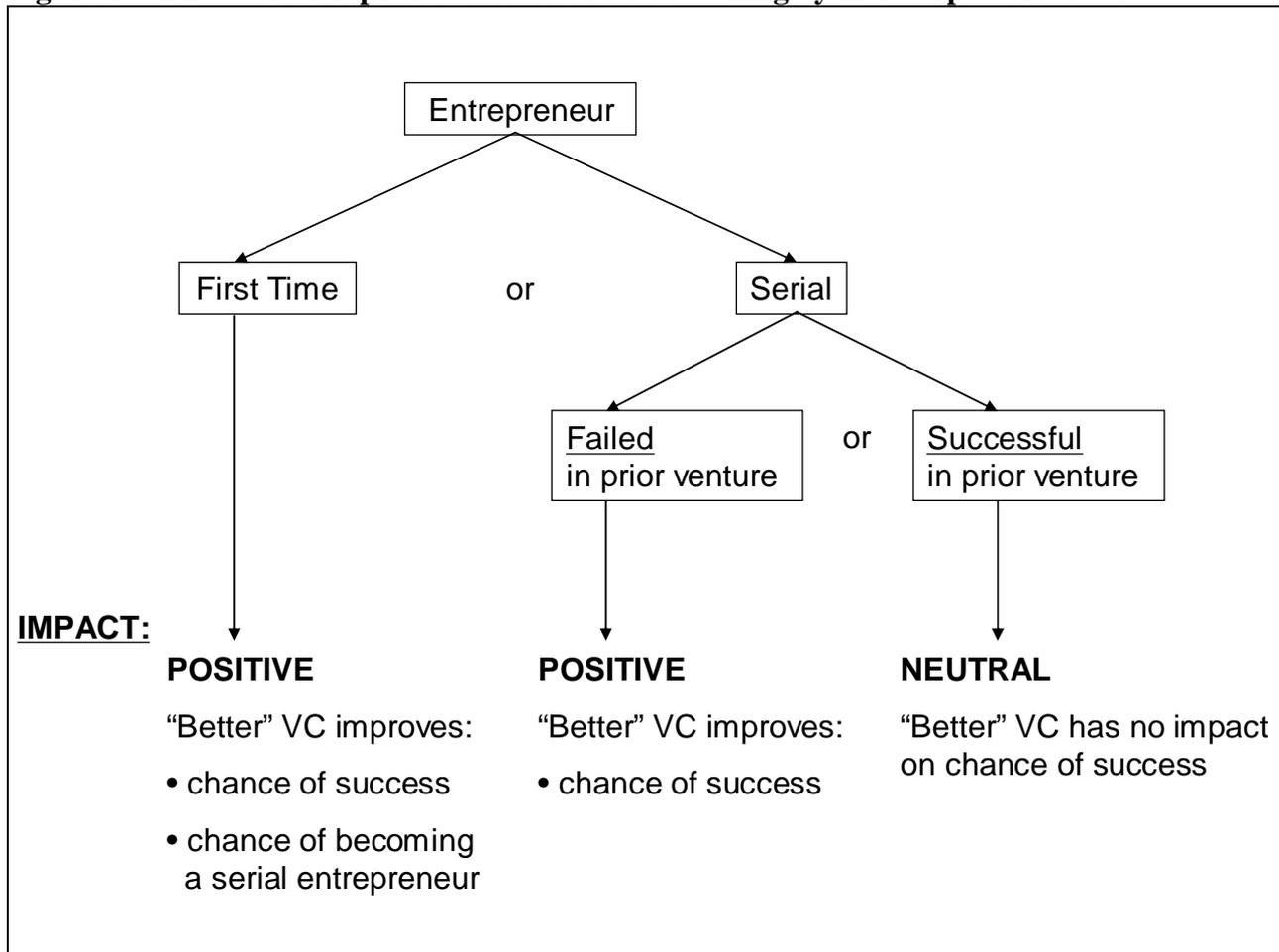


Diagram based on results of a study by Gompers et al. (2006) covering entrepreneurs of companies who received venture capital backing between 1986 and 2000 in the U.S. Success was defined as achieving an IPO, but results were similar if the definition of success was expanded to also include firms that were sold in a trade sale. "Better" VC's means those with more experience than the average, as measured by number of previous venture investments made.

Making an analogy to sports can help explain this result. Every football management team (and fan) knows that Ronaldo is a great football player. Furthermore, he will likely play very well no matter where he goes. However, only the best management teams are able to identify the young players with the most potential and coach them to develop into the next star performer.

Additionally, the results demonstrate the role of skill in entrepreneurship. Serial entrepreneurs who had previously succeeded were more likely to succeed in subsequent ventures than those who hadn't, showing that it is more than simply start-up experience which leads to success. Holding the experience of the VC firm constant, the regression analysis performed by the authors predicted that companies that have a previously successful entrepreneur as a founder have a success rate of 30%, whereas those with entrepreneurs who failed in a prior venture have a 20% success rate, while companies with first time entrepreneurs have an 18% chance of success.^h

^h Note: no confidence intervals are given for these calculated percentages, but presumably they are statistically distinct.

5.2 Role of due diligence and selection versus the role of helping startup firms

Venture capitalists, as theorised by Amit, Brander and Zott (1998), can be seen as specialised investors who have refined skills at performing due diligence on new ventures so as to help them select those projects that have the best odds of succeeding. In addition, they have enhanced monitoring and advice skills, including the ability to draft incentive enhancing contracts, so as to further boost the expected performance of these selected ventures. These skills provide a comparative advantage best exploited in industries which are highly uncertain and require substantial upfront investments, which is why VC is associated with the three sectors of internet and computers, communications and electronics, and biotechnology and healthcare, and more recently with so called clean-tech. Their specialised skills make the expected returns of investing in risky new ventures greater than the costs, and therefore profitable. (VC's focus on new technologies because their extensive due diligence allows them to lower the risks of investment enough that they can expect to earn more there than on other opportunities.)

Venture capitalists are specialised investors who act as both “talent scouts” and as “coaches”. Their skill at performing due diligence on ventures so as to select the ones with the best odds of succeeding gives them the role of “talent scouts”. Their skill at monitoring, advising, incentivising and otherwise helping the manager/owners of their portfolio companies improve performance gives them the role of “coach”.

Baum and Silverman (2004) performed a study to distinguish between the role of VC as “talent scout” and that of “coach”. They looked at all 204 Canadian biotechnology firms started over the 10 year period from 1991 to 2000, including the 69 firms that failed. These firms received 73 VC financings and performed 23 private placements of equity over these 10 years. For each firm, the study measured the impact of three sets of characteristics on the decision of the VCs to finance the startup or not and on the performance of the venture. The three sets of characteristics were known to influence the success of biotechnology startups and consisted of inter-firm alliance, patent, and top management team characteristics. By comparing the impact of these characteristics on the VC financing decision and on the performance of the startups, the study could distinguish between the role of the scouting and coaching functions in venture capital.

Table 18 provides the results of the regression of the firm characteristics onto both VC financing and subsequent performance.

Table 18: Results of regression analysis of Firm Characteristics on both VC Financing and Subsequent Performance for Canadian Biotechnology Start-ups in the 1990s.

Independent Variables Firm Characteristics	Dependent Variables						
	VC Financing	Performance					
		Technological				Commercial	
		R&D expenses	R&D employees	Patent applications	Patents granted	Revenues	Firm failure
<u>Alliances</u>							
Upstream (e.g. universities, hospitals)	0.006	0.010 **	0.010 **	-0.052	0.017	-0.003	0.071 *
Downstream (e.g. chemical firms)	0.065 **	0.007 **	0.014 ***	-0.099 *	-0.109 **	0.018 ***	-0.097 *
Horizontal (e.g. rival biotechnology firms)	0.317 ***	0.023 *	-0.033 **	0.048 *	-0.150 **	-0.047 *	0.147 **
<u>Patents</u>							
Patent applications	0.419 ****	-0.008	-0.004	0.078 ****	0.105 ****	-0.017	-0.573 **
Time since last patent application ¹	0.176 **	0.039 ***	-0.023	0.117	0.042	-0.018	-0.226
Patents granted	0.107 **	0.031 ***	-0.005	0.111 ***	0.177 ****	0.024 *	0.400
Time since last patent granted ²	-0.204 *	-0.032 *	0.010	-0.037	0.327 ***	-0.046 *	0.307
<u>Top management team (TMT)</u>							
TMT size (number of people in TMT)	0.260 ***	0.019	0.013	-0.036	0.129	0.044 *	-0.075
Number of roles in TMT taken by president	0.071 *	0.005	0.010	-0.239 ***	0.011 **	0.008	0.022
President's number of prior start-ups ³	-0.349 **	-0.057 *	-0.018	-0.122	0.232	0.004	-0.023
President's number of concurrent start-ups	1.608 ****	0.045	0.003	0.825 ***	0.216	-0.051	0.457 *

Significance testing. Probability that coefficient is actually equal to zero: * P<0.10, ** P<0.05, *** P<0.01, **** P<0.001

1. Increase in time since last patent application may signal lower market risk as start-up proceeds from innovation towards commercialisation.
2. Increase in time since last patent granted may signal that start-up is falling behind in patent races.
3. Considered an indicator of prior failed start-ups, since successful start-ups are accounted for by the measurement of concurrent start-ups.

Source: Baum and Silverman (2004), Table 1 (selected data, control variables and test statistics omitted)

The first column of Table 18 models the effects on the VC financing decision of the alliance, patents and human capital variables whereas the following columns model the impact of the same variables on subsequent performance of the start-up. The first model shows that alliance, patent, and top management team variables were all significant in attracting VC investment. The largest magnitude effects in dollars terms were associated with the top management team characteristics, or human capital. Start-ups with more complete top management teams, presidents that took on a wider role and presidents who were running other biotechnology start-ups at the same time, obtained significantly more VC financing. VC's thus place a lot of emphasis on the quality of the founding team.

The models of performance gave varied results. The performance of the firm included both technological (ability to invest in R&D and submit patent applications over time) and commercial (revenues and survival) aspects. The alliance and patenting variables generally had a positive impact on performance, although horizontal alliances seem to indicate a tough competitive environment as they are associated with a higher likelihood of firm failure. Top management team characteristics however had limited impact on performance and the effects were split between enhancing and impeding performance. This is surprising given the large impact that human capital has on the VC financing decision. An interpretation of this is that VCs may overestimate the importance of the entrepreneurs and underestimate the influence of the context in which the firm is situated. Alternatively, the VCs may feel confident in their ability to resolve any management weaknesses that they have identified and that could potentially develop later.

By studying the correlations among the models, the authors found that those firm characteristics that attracted VC financing were positively correlated with those that resulted in technological performance of the start-ups, as measured by a continuing ability to invest in R&D and submit patent applications over time. However, those same characteristics that attracted VC financing had a strong negative correlation with the likelihood of failure of the firm. In other words, VC's are attracted to firms with strong technological potential but that are more likely to fail.

These results suggest that VCs “scout” out firms with strong technology and good industry relationships and then “coach” these firms by providing management expertise to help the firm survive. The emphasis they place on good founding teams is not warranted by the effect on performance of the venture. The study didn’t attempt to distinguish between any differences among VC firms, so it could be that there are VC firms that focus on good selection while others primarily aim to help start-ups in a given sector succeed.

5.3 How do VCs help startups?

What is the evidence concerning the “coaching” role of venture capitalists? VCs are considered to be active investors who perform not only a governance role but can take a more active part in the management of the firm.

5.3.1 Monitoring

Venture capitalists monitor their investments through their membership on the board of directors of their companies and the elaboration of well-structured, incentive-enhancing financing contracts. Kaplan and Strömberg (2001, 2003) studied the investment analyses and contracts of 213 investments associated with 14 VC firms in the U.S. They confirmed that VC’s play an important role in the shape of the management team. In half of the investments the VC expected to influence the management team after their investment, and in 14% of them they even did so before investing. Mostly this involves strengthening and broadening the management team by hiring experienced managers, but it may also involve replacing a founding manager. Kaplan and Strömberg (2001, 2003) observe that in the pre-investment screening process the VCs identify where they believe they will add value through monitoring and they ensure this will be possible by allocating decision and control rights to themselves in the financial contracts. The staging of capital payments both over various rounds of fundraising, and between rounds based on milestones, further facilitates the monitoring process of the venture capitalists by keeping the entrepreneurs on a “tight leash”.

Lerner (1995) observed the role of VC monitoring by studying a sample of 271 U.S. biotechnology firms between 1978 and 1989. He found that in the critical period when a CEO had to be replaced, VC’s were more likely to join or be added to the board of directors which shows that VC’s take on a more hands on approach when needed. Geographic proximity of the venture capitalist to the company was an important determinant of board membership to allow the VC’s to better exercise their roles as directors. Over half the venture companies had a VC director with an office within 60 miles (100 km) of the company headquarters.

Venture capitalists also influence managers and critical employees by aligning interests through the use of a substantial fraction of compensation in the form of employee options. Gompers and Lerner (2001) cite a study that found in a comparison of VC backed companies to similar companies without VC financing that the fixed salaries of CEOs were lower and the size of their equity stake was higher. Furthermore, venture capitalists use vesting of stocks and options to ensure the entrepreneur cannot leave with her shares before having contributed to the firm. Likewise, the entrepreneur often faces dilution of her ownership of the firm in following financing rounds if the firm doesn’t meet agreed-upon targets.

Cumming (2006b) explains that the financial contracts between entrepreneurs and venture capitalists allocate cash flow and control rights in a way to provide incentives for both the entrepreneurs and the VCs to create value in the venture. Cash flow rights define who gets paid what fraction of the profits and when, whereas control rights define who makes decisions regarding

the company. Cash flow rights (often provided via convertible securities, options, ratchets etc.) are often based on contingencies such as financial performance (meeting sales or profit targets), non-financial performance (getting a patent or regulatory approval), issuance of equity (failure to achieve an IPO within 5 years giving the right to the VC to put preferred shares back to the company), and certain actions (staying with the firm, filling a key position). Control rights (often provided via covenants) may be active decision rights or passive veto rights and may also be based on contingencies. Active control rights might include the right to replace the CEO, automatic conversion of preferred equity into common equity at exit, drag-along rights, rights of first refusal, co-sale agreements, anti-dilution protection, rights to protect against new issues, redemption rights, information rights, IPO demand registration rights, and piggyback registration rights. Passive veto rights might include the rights to prevent asset sales, asset purchases, changes in control, and issuance of equity.

5.3.2 Active involvement

In a study of 173 Silicon Valley start-ups, Hellmann and Puri (2000, 2002) measured the impact of venture capital on the development of new firms. The study eliminated selection bias issues by considering firms both with and without venture capital backing. They found that innovator, as opposed to imitator, firms were more likely to be financed by venture capitalists and that VC-backed firms tend to bring their products to market more quickly. The expertise of the venture capitalists gives those firms an advantage in identifying promising innovations and bringing them to market.

Venture capitalists also played a substantial role in helping build up the internal organisation of the firm. The firms with VC-backing were more likely and/or faster to professionalise along the lines of human resource policies, specifically the recruitment of professional marketing and sales staff and the implementation of stock option plans.

This was also true for professionalisation of the top leadership of the firm. Venture capital backing significantly increased the chance that the firm would go beyond the original founder and appoint an outsider to the position of CEO. However, this is not necessarily an adversarial event as the founder often remained with the company. Furthermore, the impact of venture capital on the introduction of a professional CEO was dependent on the stage of development of the firm. The effect was strongest for those start-ups that had yet to bring a product to market, still strong for those firms that had not yet gone public, and insignificant for companies that had already undergone an IPO.

5.3.3 Costs

Venture capitalists provide a variety of benefits to entrepreneurial companies that are not normally provided by other financial intermediaries, including quite simply, funding for those in industries with large uncertainty and high upfront costs, such as biotechnology. These benefits, however, come at a cost to the entrepreneurs and their firms. The involvement of the VC is time demanding for the entrepreneur and involves a significant reduction in her decision and controls rights. VC's also demand a high rate of return (up to 70% IRR for the earliest startups) in return for their financing and involvement.

Other costs also arise from the incentive structures of most VC firms. Studies of U.S. IPO's by Gompers (1996) and Lee and Wahal (2004) have found that VC backed IPO's experience larger underpricing, after correcting for the selection bias inherent in VC financing, than comparable non-VC backed IPOs. Underpricing is the difference between the IPO offer price and the closing price

after the first day of trading. It is viewed as an enticement to investors to take the risk of investing in the IPO. Underpricing increases the greater the uncertainty about the quality and future prospects of the firm. Thus, the observation that there is larger underpricing for VC backed IPO's suggests that the VC's are bringing riskier firms to the public market. Let us look closer to see what we should think about this.

Table 19 presents the differences between VC backed IPO's and other IPO's between 1980 and 2000 in the U.S.

Table 19: Characteristics of VC backed and non-VC backed IPOs in the U.S. between 1980 and 2000

	VC backed IPOs		Non-VC backed IPOs		Statistics of Differences	
	Mean	N	Mean	N	T-statistic	Significant?
Age of firm (years)	7.0	1159	14.7	1446	12.13	Y
Book value per share	0.76	1961	6.63	3253	11.28	Y
Revenue per share	19.9	1732	52.1	2759	3.16	
% firms with positive EPS	49.7	806	76.5	1358	12.71	Y
Total assets (M\$)	104.4	1719	543.2	2628	3.97	
Net proceeds of IPO (M\$)	40.5	2286	58.3	3782	5.44	Y
Underwriter rank	7.80	2383	6.79	4030	21.02	Y
Gross spread (%)	7.09	2285	7.36	3781	1.76	N

Source: Lee and Wahal (2004), Table 2, Panel D

It shows that VC's take firms public when they are younger and smaller and that, as a result, they raise less funds, although they use more prestigious investment banks as underwriters. So, VC's impose a cost on their portfolio firms by bringing them to market early when they will raise less money than if they had waited more. However, the reduced funds that are raised as a result of IPO'ing at an earlier date and suffering increased underpricing should be weighed against the benefits for the firm. The IPO raises a large amount of funds that, if wisely spent, will give the firm an advantage over its competitors and allow it to grow along with market demand. Indeed, competitors who haven't yet IPO'ed may be shut out from this source of funding if the public market perceives those firms as having lost to their competitor. As well, the firm gains credibility by becoming a public company, which itself provides many advantages, not least a lower cost of capital from its ability to tap public markets. Thus, whether the cost of an earlier IPO outweighs the benefits is an empirical question that is difficult to answer.

At any rate, it is interesting to consider the incentives of the VC firm to take a firm public earlier. Both Gompers (1996) and Lee and Wahal (2004) observed that young VC firms experience more underpricing than older VC firms because they IPO companies earlier. Gompers (1996) developed an explanation suggesting that this is a result of what he called "grandstanding" by the young VC's. The young VC firms need to demonstrate their ability. By doing so, they can raise capital for their next fund and thereby stay in business. However, since VC's generally raise their subsequent fund within three to six years after having raised the preceding fund, they are not able to demonstrate the final returns of the previous fund since it is still far from the end of its ten year life. The VC's can signal their ability to make good investments by bringing companies public. Gompers (1996) gives an example of a VC firm called Hummer-Winblad that had formed its first fund in 1989. In 1992, it had been trying unsuccessfully to raise a second fund for nearly a half a year. Then they took their first firm public and within a few months they raised \$60 million.

On top of simply being a question of survival, the size of the fund is important for VC's. Gompers and Lerner (1999) determine that the fixed management fee of around 2% of assets under

management is worth about as much as the carried interest on profits in present value terms. This gives a strong incentive to raise large funds. Lee and Wahal (2004) found that greater underpricing was associated with greater future fundraising and that younger VCs with few IPO's to their credit benefited more in terms of future fundraising from this grandstanding behaviour. However, studiesⁱ in the U.K. have found no evidence of "grandstanding" behaviour by British VC firms, perhaps because many of them are subsidiaries of financial companies or are publicly listed, and therefore don't have the fundraising pressures facing independent VC partnerships.

Another way of measuring the value of VC experience is to determine what entrepreneurs are willing to pay for it. Hsu (2004) analysed the competing financing offers for the first professional financing round of start-ups that had been part of a MIT entrepreneurship class for graduate students. He measured VC reputation primarily based on whether the VC had greater than median deal experience in the startup's industry. He found that offers made by VC's with a high reputation were three times more likely to be accepted, and high reputation VC's acquired equity at a 10% discount. Entrepreneurs expected to have more opportunities for growth with VC firms with better reputations and they were willing to pay a premium for this through lower valuations for financing from more experienced VCs. Entrepreneurs expect VCs with better reputations to have better networks, including recruiting resources, contacts with customers and suppliers, and contacts with investment bankers.

5.4 Concluding remarks about venture capital

In summary, there is evidence that venture capitalists are able to help the ventures that they finance. Through their networks, they are able to help firms professionalise faster by helping them improve the management of the firm and providing other important connections. Venture capitalists play an important role in spending the effort to select those ventures operating in very uncertain industries that are most likely to perform well.

ⁱ Jelic, Saadouni, and Wright (2005)

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Europe Campus

Boulevard de Constance

77305 Fontainebleau Cedex, France

Tel: +33 (0)1 60 72 40 00

Fax: +33 (0)1 60 74 55 00/01

Asia Campus

1 Ayer Rajah Avenue, Singapore 138676

Tel: +65 67 99 53 88

Fax: +65 67 99 53 99

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