1 Introduction

Queen Isabella of Castile essentially did a private equity financing exercise when she purchased an interest in Christopher Columbus' voyage of discovery. '*Lacking the necessary resources, Columbus asked King John II of Portugal in 1484 to back his voyage but was refused. The next year he went to Spain to seek aid of Queen Isabella and King Ferdinand. [. . .] Isabella not only furnished financial support, but also provided management and recruitment assistance. She went even one step further; she allowed Columbus to share in the profits.*'[1] Adding to this analogy: in fact, King John II did the far better due diligence and asked for an independent opinion on this proposal. His experts, correctly, did not agree with Columbus' estimate of the distance to the Indies. Indeed, Columbus erred on the circumference of the Earth and believed that the distance from the Canary Islands to Japan would only be some 3700 kilometers. This is approximately just one-third of the true distance, and Columbus and his crew would have certainly died of thirst and hunger long before reaching the mythical 'Cipangu' mentioned in Marco Polo's travel stories. On the other hand, John's experts were wrong in thinking that the aquatic expanse between Europe and Asia was uninterrupted – clearly showing the limits of experience and historical data in a situation of high uncertainty.

1.1 BARBARIANS, PIRATES AND PRIVATEERS

Not too long ago, private equity investors were vilified as 'Barbarians at the Gate', but this has changed. *The Economist* (2006b) found KKR's Henry Kravis a 'Barbarian no more'. Like the conquistadors following Columbus, such as Hernan Cortés who in later life was appointed Governor and Captain General of the newly conquered territory, private equity firms like KKR, Carlyle or Permira have become respectable, admired and often envied. They create empires of $10 billion or possibly even $100 billion funds, get courted by institutional investors, and recruit the best and the brightest. In the times of Sarbanes-Oxley it is not desirable any more to be CEO of a publicly quoted company – high flyers rather desire heading a private company and becoming a member of this elitist club of the truly rich and powerful. *The Economist* observes that in '*the 1980s private equity was a place for mavericks and outsiders; these days it attracts the most talented members of the business, political and cultural establishment, including many of the world's top managers. Jack Welch, the legendary former boss of GE, is now at Clayton, Dubilier & Rice. Lou Gerstner, who revived IBM, is chairman of Carlyle. Even Bono, the saintly lead singer of rock band U2, is now in the business.*'

[1] Quoted from Haemmig (2003).

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To some degree over recent years venture capital has remained a poor cousin in this glittering world of private equity. Institutional investors overwhelmingly continue to be skeptical regarding venture capital's prospects and largely ignorant about its business model. To stay with the age of discovery analogy, venture capitalists are still the 'pirates of the carried interest' cruising very different waters – innovation and intangible-based companies in their early stage requiring technical expertise and hands-on involvement rather than the financial engineering typical for targeting large companies with tangible assets. Occasionally they are sent out with government support – a letter of marque – as privateers to battle for the markets of the future. Some succeed and find a treasure or – like Sir Henry Morgan in the 17th century – even build their own little empire, but many go to the gallows (mercifully at least here the analogy does not fully apply).

1.2 A DIFFICULT WORLD TO CONQUER

The focus of this book is institutional investing in private equity, which is mainly through limited partnerships. In his book *The Origins of Western Economic Success*, Meir Kohn explains this structure's medieval roots, where Italian merchant families were financing trade voyages through 'commendas'. In these asymmetric partnerships the 'sleeping partners' were not liable for debt and stayed at home while 'traveling partner' controlled the venture and set sails to search for profitable business. Traveling partners had a lot in common with today's venture capitalist, in the sense that both have, at least initially, little more to offer than their skills and their risk-taking attitude. One may suspect that limited partnerships and similar structures belong to the best ways for skilled and daring professionals to pool funding from wealthy and relatively risk-averse parties for investments in an environment of extreme uncertainty. At the height of Venetian trading power, the sleeping partners made small investments in a large number of commendas to spread the risk, thus resembling today's diversified portfolios of private equity funds held by funds-of-funds and other institutional investors.

1.2.1 Get rich quick?

Private equity firms have moved from the outer fringe to the center of the capitalist system and for institutional investors private equity is becoming an increasingly accepted – although often not wholeheartedly embraced – standard component of their asset allocation. Nevertheless, and despite this kind of investment's long tradition, few publications address the needs of institutions interested in this alternative asset class. Usually start-ups and entrepreneurs and occasionally their financers catch the limelight, but the 'financers of the financers', i.e. the limited partners, are generally forgotten. Most institutions themselves believe that this kind of investing is 'just like any other asset' and do not pay too much attention to this – typically immaterial – part of their activities. However, private equity is a difficult asset class and definitely not a 'get rich quick scheme'. The general claim that private equity historically offered higher returns than the stock markets has to be called into question. The main rationale for investing in this asset class – achieving superior performance through investing into a group of elite funds – is too simplistic.

There is the perception that private equity is an access industry to top-quartile funds. To some degree this is the case, as there is certainly a network of established players, and some

industry insiders even predict that the industry will develop into a market where a limited number of proven fund managers are investing on behalf of a few expert investors in their funds. However, the top-quartile promise has to be taken with a huge pinch of salt; in fact, consistently picking above average funds resembles an evolutionary arms race. For simplified illustration: during 2002 and 2003 basically no team that was not a 'proven top-quartile' performer was able to find investors and close their fund. Well, as these vintage years will also by definition have four quartiles, these top performers obviously cannot all be in the first one, essentially rendering meaningless the back-of-the-envelope calculations that aim to support a 'great return potential' usually presented at private equity conferences. Moreover, particularly the experienced investors understand that some degree of experimentation with niche strategies and refreshing with emerging fund managers are an important component of a sustainable private equity investment program.

> *The most important challenge going forward is hence to refine our understanding of what works and what does not work in private equity [. . .] Giving up the illusion of genuinely high private equity returns across the board may be a first step in the process.*
>
> Gottschalg (2007)

We would argue that you either decide to make a long-term commitment to the asset class and follow a systematic approach or you had better stay out entirely. Industry practitioners believe that investing consistently and continuously probably works best. Private equity is not a sea cruise but a long voyage, such as the ones of Christopher Columbus or Marco Polo.

1.2.2 Chartering a course

The business process underlying a private equity funds investment program is still poorly understood. In addition, 'private equity' as a term spans a very wide range. To discuss all its aspects is not realistic, as it would essentially mean explaining the entire world of modern finance, and instead we therefore focus on venture capital that could arguably be seen as the purest form of private equity. In fact these two terms are often used interchangeably. As this is by definition venturing out into the unknown, we cannot provide a clear map but rather have to reflect on tools that help us to navigate these largely unchartered oceans. Like under a magnifying glass, the problems of institutional investing in venture capital funds provide a case study for analyzing and explaining the essential nuts and bolts of private equity in general. We approach the definition of institutional investing in venture capital funds through defining the boundaries to other segments of the private equity market. Later stage investing, with its increasingly blurred delineation between buyouts and hedge funds, could be seen as one boundary. On the other extreme lies another fuzzy boundary to the informal venture capital market, for example business angels or the famous 'three F's', i.e. family, friends and fools.

Venture capital is about exploration, innovation and discovery. Historically, exploration is often political and associated with development objectives. It is said that in the 15th century Portugal's Henry the Navigator launched the first successful, large-scale research and development organization. These exploration efforts were to some degree also caused by Constantinople having fallen to the Turks and thus had an expressly development purpose. As the Islamic Ottoman Empire for reasons such as religion and politics restricted the flow of commerce to the Christian West, there was a need to find an alternate route to trade

valuable commodities such as spices. Consequently, and being aware of the numerous public initiatives, we feel that any discussion of venture capital without acknowledging the role of the government in this market would be incomplete.

1.2.3 Storms and barrier-reefs

In situations where managers cannot rely on quantitative tools, they often tend to base their decisions on gut instinct. Unfortunately, this phenomenon appears to be all too common in venture capital investing. For example, due diligence – or the lack of it – immediately springs to mind. As one of the authors witnessed in 2000, due diligence was often little more than a combination of a job interview with an extended lunch. This has certainly changed, but indiscriminately adding new due diligence criteria does not help if you do not know what you are looking for. In reality, the various limited partners' screening and due diligence processes appear to be very similar. As there is a strong belief that in venture capital 'it's the team', investments are often made on little more than the feel-good factor based on the past performance of individual fund managers. These fund managers tend to be great salespeople and, not just for the inexperienced investors, it is easy to succumb to their charisma.

Another area is inefficient management and monitoring through the private equity fund investment program's lifetime. For a limited partner the problem is to get a sufficient 'real' allocation to private equity – not everything that is committed to a fund is put to work right away. If this does not cause headaches, the institution probably has not allocated enough resources to private equity. To have an impact, the weight of private equity in the portfolio has to be significant. Endowments are known that allocate up to 30% of their assets to buyout and venture capital funds. This creates liquidity risks, as a documented case of a listed private equity fund-of-funds that experienced a 'perfect storm' and was apparently brought to the verge of bankruptcy demonstrates. This case allows us to identify a number of problems and to illustrate the technical questions around the management of a successful private equity funds investment program. Issues surrounding valuation, liquidity management, or investment guidelines provide the relevant questions to be tackled in this book.

1.2.4 Drawing a map

Lack of clarity regarding its business model, the high degree of required judgment and 'rules of thumb' instead of mathematical precision may contribute to the perception that particularly venture capital is highly 'speculative'. The main factors that appear to make institutions shy away from this asset class are an unclear track record of the industry, valuations and risks that are difficult to understand, coupled with a perceived intransparency in the industry, and the significant entry barriers to overcome before tangible results show. There is an increasing recognition that in private equity to date, data of sufficient depth and breadth to 'conduct an accurate, unbiased and comprehensive performance analysis is simply unavailable'.[2]

Indeed, as fund valuations have in many cases little relation to economic reality, frustrated investors feel that there is a lack of transparency. We believe that, for private equity, precise quantification is out of reach in principle. Calls for more data do not necessarily make an appraised asset class more transparent. In fact, many industry experts argue that private equity fund managers are already far more open and responsive vis-à-vis their investors

[2] See Gottschalg (2007).

than any publicly listed company. However, the value in venture capital is driven by intangibles such as intellectual property; therefore, assessments tend to extremes between deepest pessimism and unjustified excitement. Because of the long time horizons and due to the nature of investing in innovative technologies, the traditional risk measures fail at capturing the 'unknowns' of an uncertain environment that characterizes this alternative asset class. For venture capital, which is by definition mostly innovation, the environment is continuously evolving and the absence of data restricts the application of a quantitative toolset significantly.

Although it is neither safe nor predictable, there are nevertheless proper management tools for analysis and for managing in uncertain environments. We present approaches for valuation and structuring, and for conducting track record analysis of private equity funds.

1.2.5 Setting out ships and navigating the oceans

Venture capital is not for the 'here and now', it is sowing the seeds for the future and therefore in many ways appeals to dreams. People tend to see the future through 'rose-colored glasses'. There is a demonstrated systematic tendency to be over-optimistic about the outcome of planned actions. One could argue that this uncertainty to a large degree stimulates venture capital. As Columbus demonstrated, not knowing that success is unlikely can in fact help people to embark on journeys that lead to new discoveries.

> *If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea.*
>
> Antoine de Saint-Exupery

This, however, leads to common errors and biases and it is important to understand the fallacies of decision-making under uncertainty. The tendency to follow moods and fashions, and try to time the market, appears to be ineradicable, but is bound to lead to frustrations. But even if institutions are serious about their venture capital investment programs, these programs tend to follow their own dynamics. In private equity it is difficult to access good funds and to put money to work. Consequently, programs usually need to start on an opportunistic basis. However, over time getting the big picture of the portfolio of funds is becoming increasingly important. The transition from a deal-driven and opportunistic investment style to a portfolio management culture is a challenge, as often evidenced by the lack of structured decision processes, inefficient management of commitments, or over-diversification.

Those that expect a sophisticated portfolio management approach to private equity will usually be disappointed. Very few limited partners use a quantitative approach for their asset allocation strategy, and it is likely that in private equity the response will be the same as not all too long ago was found in a funds-of-hedge-funds survey: that many respondents admitted to having no asset allocation strategy at all.

We draw upon analogies from evolution theory to explain portfolio strategy consideration for a private equity fund investment program and suggest viewing portfolios of funds as evolutionary systems. Indeed, phenomena common for venture capital markets, such as bubbles or general patterns following power laws, characterize economic systems as intrinsically evolutionary. Within such a so-called 'fitness landscape' the simple recipe

for creating growth is differentiation, selection, and amplification. We believe that limited partners need checks and balances and for this purpose developed a method for grading – i.e. comparing – funds on a qualitative and quantitative basis pre-investment and throughout their lifetime as a tool to navigate the 'fitness landscape' of the private equity market. Additionally, we look at the real options limited partners have – or could design – to amplify the impact of 'winners' in their portfolios.

1.2.6 Staying on course and moving into calmer waters

Uncertainty in the case of private equity funds also relates to a wide range of possible outcomes, that makes statistical analysis on the individual fund level meaningless. However, after a build-up phase, there is a virtuous circle of well-spread, but not overly diversified, portfolio that allows reasonably continuous and predictable aggregated cash in- and outflows. Few new annual additions to the portfolio allow you to be selective. A reasonable number of relationships or funds in the overall portfolio give a more or less predictable and steady deal flow and allow an efficient allocation. When looking at a larger population of funds one can again speak about risks that can be managed. We look how this can be done for a portfolio of private equity funds, and how this can be turned into practice through a securitization structure.

There are certainly significant entry barriers to the private equity industry, e.g. a long learning curve and the time before a portfolio of private equity funds has the necessary cruising speed. Limited partners need to build up expertise in portfolio design, due diligence and evaluation, legal structuring, monitoring, liquidity management, workouts, etc. But private equity as a club is not as exclusive as it seems. Launching a funds investment program requires taking a long-term perspective. One cannot get around judgment, expertise and relationships. Institutions that want to become successful players in this exciting market need to build this up – but it is not an insurmountable obstacle.

> *Consequently, practitioners' models rely entirely on intuition, are not validated by any type of established theory and are frequently changed in line with the reality of the market. Academics, in contrast, seek to understand how and why things work, and the only way to explain how things work is often to look back. Consequently, academics' models may be very good at explaining but they are usually very poor at forecasting, with the result that little value is attached to them by practitioners.*
>
> Lhabitant (2004)

In this book we are taking the practitioner's point of view and are targeting commercially oriented institutions that are either already managing or considering setting up a private equity funds investment program. Rather than proposing an 'ideal' program, we are discussing various methods and trade-offs. The techniques we propose here for venture capital can also be used for private equity in general, although for later stage investments other tools could be more meaningful. For the purpose of this book we use the term 'private equity' whenever data, observations or concepts are applicable in general, while we use the term 'venture capital' when we discuss the specific challenges.

Private equity firms whose names are mentioned explicitly in this book were taken as representative examples, but are not positively or negatively recommended. Many of the

concepts presented here have been researched and developed in the course of our work with the European Investment Fund. However, for this book we have researched private equity market practices and discussed different approaches with industry practitioners. The statement made in this book represents the personal opinion of the authors and does not necessarily reflect the views of the European Investment Fund.