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Private equity performance measurement dilemma – implications for insurance companies' investments activity at the break of the Volcker rule

Abstract

The purpose of this paper is to examine whether the common belief of superior level of private equity (PE) performance is accurate and what are the implications for insurance companies investing in private equity under Volcker rule regulation.

The design of this paper is as follows. First, the term PE is introduced. Second, the business model of PE is explained in order to provide the necessary foundation for the critical analysis of PE asset class. Thereafter, essential characteristics of PE performance measurement are developed to contrast the theory with general practice. Furthermore, eight comprehensive studies on PE performance are analyzed and explained. Ultimately, implications for insurance companies' investment activity under Volcker rule are derived.

It is found that PE outperforms public equity, however, not to the extent that is commonly believed. In addition, the degree to which this return premium rewards the additional risk of PE remains unknown. The most important force behind the level of performance appears to be a quality of fund management. Moreover, there is a higher dispersion between top-performing funds return and poorly-performing funds return than there is in public equity. Moreover, under Volcker rule, the competition to participate in the best performing funds will increase and, therefore, it is recommended for insurance companies to focus on due diligence of PE firms' management when dealing with capital allocation decisions.

The study contributes to the large body of literature on private equity performance measurement.

Keywords: private equity, performance, insurance companies.

Introduction

PE performance attracts huge media attention from all over the world. A tremendous increase in size and significance over the last decade has placed PE as one of the most observed and commented asset class. Hence, PE evolved into an individual well established asset class, yet little is known about liquidity, correlation with other asset classes and, finally, performance. As a consequence, the ongoing debate has more of an ideological constitution in which some opinions present PE as the perfect organization while others have identified it as a locust¹. Mainstream media tends to draw a picture of PE funds as very mysterious vehicles of superior returns, run by incredibly wealthy people with no mercy for employees, and with a general goal of getting even richer. Such a description includes drama, mystery, blood and money, but does it necessarily include the truth? How, in a given environment with a lack of data, can somebody examine a fund's performance? Is it really superior? And, if so, why?

The intention in this paper is to undergo a comprehensive assessment of the PE performance measurement and clearly indicate the contrast between the data limitations and what may be presented in reality. Moreover, the outcomes of performance measurement analysis will be linked to the insurance companies' investment activity and emphasise the potential impact of Volcker rule on investments in private equity.

1. Insurance companies involvement in private equity

Insurance companies are among the first and the biggest institutional investors in PE asset class. Historically, insurance companies have provided mezzanine debt to finance some of the earliest leveraged buy-outs. However, due to an emergence of PE market in the mid 80's, insurance companies turned more toward to partnership investing. Insurance companies have accompanied the growth of PE industry since its beginning. However, in the early 1990s insurance companies have drastically limited their commitments to PE and other alternative investments with regards to the public concerns about their financial condition. Nevertheless, due to development of the PE industry and the aforementioned belief of superior performance, insurance companies turned back into investing in PE. In 2004 the French finance minister, Nicolas Sarkozy, announced a non-bidding agreement under which insurance companies allocate a fixed percentage of their assets to PE investments. In August 2010, China insurance regulatory commission (CIRM) has allowed the Chinese insurers to invest up to 5 percent of their assets in PE. Such global involvement of insurance companies in PE puts insurance companies as the major source of funds for PE as well as PE, asset class as a substantial force for insurance companies' well-being. With respect to the level of commitment of insurance companies in PE and the public importance of insurance business, it is of large significance to examine the level of PE performance, especially in terms of so little insight in what PE really does and so much exclusive press information floating around the world.

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¹ German politician Franz Müntefering (from the social democratic SPD party) on private equity, November 2004.

2. What private equity really is?

PE can describe an investment in any companies in all sectors of the economy, in any part of the world, in any stage of growth, and using any strategy through a negotiated process. PE is a source of long-term committed share capital to a wide range of enterprises. The PE investment spectrum ranges from financing an early-stage growth, unquoted companies to purchasing large quoted enterprises, and everything in between (Gilligan and Wright, 2010). In fact, the term itself includes three essential characteristics. First, it is dealing with a private market in which ownership is transferred as a result of private, bilateral negotiations, rather than publicly quoted transactions, as happens on stock exchanges across the world. This entails a lack of transparency and regulation for such a market as opposed to public equity, hence, PE is often called an opaque investment (Leeds and Sunderland, 2003). Second, this form of investment is an equity type of asset-class and, as result, provides an insight into expected return and general risks for this product. Third, PE investment is illiquid in relation to other asset-classes in the sense of a lack of an active and developed secondary market for such investments. The PE investment profile covers a long horizon, usually the order of 12 years in total (Kaplan and Schoa, 2004). PE is commonly referred to as an alternative investment. This term represents those investment products which are complimentary to traditional forms, such as stocks and bonds. The main characteristics of alternative investment are a high complexity of asset structure, limited regulation, and a relative lack of transparency. All of these features complement the PE asset-class. However, the size of PE investments has expanded to such extent that it is widely agreed upon by practitioners and academics that it should be defined as a separate asset-class (Maslakovic, 2010).

The growth of PE is a classic example of organizational innovation supported by regulatory and tax changes (Fenn, Liang and Prowse, 1995). PE firms are groups of individuals who come together to pursue PE investments. These firms are usually limited partnerships similar to other private professional services firms, such as law firms. That is, PE firm serves as the general partner (GP) while the limited partners consist largely of institutional investors (pension funds, insurance companies, banks) and wealthy individuals who provide the bulk of capital. The significance of the limited partnership, as the dominant form of intermediary, is a consequence of the extreme information asymmetries and potential incentive problems that take place in the PE industry. The core legal document

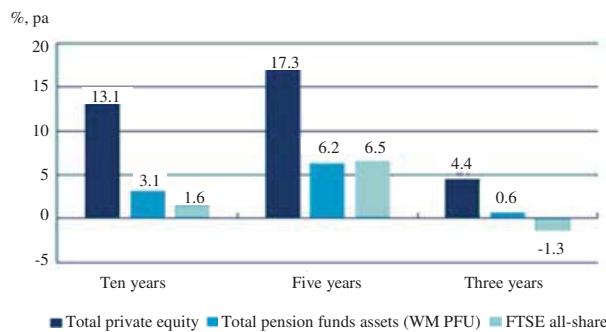
of PE fund set between general partners and limited partners is called a limited partnership agreement (LPA). Investors have little control over how the capital is invested, and limited insight into ongoing investments (Fenn, Liang and Prowse, 1995). Limited partners are protected in various ways. Main protection is the provision of the partnership agreement. Broad terms of general partners' compensation are clearly defined, as well as how management fees and profit shares are computed. It is commonly accepted as an efficient control over the general partners' incentive to engage in excessive or not optimal behavior from the investors' point of interest. Another protection is covenants that address the problem of excessive risk taking. Restrictions on investments are essentially important, for the substantial income of the general partners is in the form of option-like claims on funds. In accordance with option theory, the general partners are exposed to an incentive of taking up on higher risks of the underlying asset, i.e., portfolio companies, to increase the value of their option. However, the "co-operation" or co-investment approach is developed in order to prevent the conflict of interest between principals and agents. This solves the agency problem by aligning the interests of managers and shareholders (Jensen and Meckling, 1976). Moreover, in current economic environment it is a common practice among PE professionals to focus on management liability insurance. Liabilities, such as breach of fiduciary duty, regulatory investigations and security claims, can be covered by the directors and officers insurance (D&O) and by the general partners liability insurance (GPL), whereas the D&O has narrower coverage and applies to portfolio's company level, while the GPL policies are purchased on a fund level and have broaden coverage of liabilities, arising out of failure to provide professional services or fund mismanagement.

Currently, PE is often defined as "smart money" (Sørensen, 2005) for its expertise, which follows the capital into enterprise. The general partners are highly qualified in maintaining information on the entrepreneurship market. Such information is often the subject of auction-like sale processes. However, GPs source opportunities directly with the potential targets. Furthermore, the core activities are the due diligence, and acquisitions of potential portfolio companies, as well as the arrangement of the buyout financing. Rigorous due diligence on the financial health of target investments has a large significance for the future outcome of both general and limited partners. Some aspects of due diligence are often completed by external consultants. Acquiring a target business calls for the financial engineering skills

of GPs. This term refers to the ability for maintaining the most efficient capital-market linked financial solutions to identify the best advantage. The operative management of acquired portfolio companies often consists of operating managers who are experienced executives in a particular industry. PE firms ensure that portfolio companies have the best managers who have developed a wide network of the best operating executives. For instance, Jack Welch, a former chief executive officer of GE, is affiliated with the PE firm Clayton Dubilier. In such an industry of long-term capital commitment and limited transparency, GPs must gain the confidence of many parties. The general partners must convince investors to participate in PE funds, as well as convince the management of potential portfolio companies to the benefits of a valuable investment partnership. Towards the end of the investment, general partners must convince the public markets or the mergers and acquisition markets that portfolio companies are creditable for eminent valuations.

4. Performance of private equity and the involvement of insurance companies

PE firms are united by two major organizations in Europe. The first and the biggest one is the British venture capital association, and the second is the European venture capital association. Both organizations publish member's investment activity each year. As Figure 1 shows, UK PE outperforms both the stock market and pension funds which are the potential investment alternatives for institutional investors such as insurance companies.



Source: PwC's performance measurement, 2009.

Fig. 1. Summary of the UK private performance versus principal comparators

According to the data published by PwC's performance measurement survey, where the data was collected directly from the funds, PE performance is outstanding in the three different time horizons.

However, the current involvement of insurance companies has decreased since 2005, following a year rapid expansion (Table 1). This reflects the post crisis economic environment.

Table 1. The UK PE funds sources of funds

Type of source		Amount raised (£m)			% of amount raised		
		2007	2006	2005	2007	2006	2005
Pension funds	UK	1,132	2,054	1,502	4	6	5
	Overseas	5,560	7,919	7,175	19	23	26
Total		6,692	9,919	8,677	23	29	31
Insurance companies	UK	635	1,080	558	2	3	2
	Overseas	1,777	2,023	3,136	6	6	12
Total		2,412	3,103	3,694	8	9	14
Corporate investors	UK	270	442	423	1	1	2
	Overseas	370	847	928	1	2	3
Total		640	1,289	1,351	2	4	5
Banks	UK	1,188	2,222	822	4	6	3
	Overseas	4,380	1,307	854	15	4	3
Total		5,568	3,529	1,676	19	10	6
Funds of funds	UK	2,067	1,523	1,131	7	4	4
	Overseas	4,065	3,807	3,244	14	11	12
Total		6,132	5,330	4,375	21	16	16
Government agencies	UK	59	470	517	-	1	2
	Overseas	2,988	2,552	3,196	10	7	12
Total		3,047	3,022	3,713	10	9	14

Source: PwC BVCA private and venture capital report on investment activity, 2007.

With respect to the rates of return, collected in the aforementioned survey, PE investments appear to be highly under weighted in insurance companies portfolio allocation strategies.

Therefore, it is crucial to maintain the better understanding of how the PE is measured and what are the difficulties in performance measurement. In the next Section, the deep analysis of performance measurement will be provided and the major issues behind the quantitative approach will be explained to encourage insurance companies to invest more in PE funds.

4. What is wrong with the published data?

PE is commonly believed to outperform public equity. This perception is being cemented by professionals in the industry. However, from an academic point of view, it is a difficult task to define a consistent measure of PE performance. One major restriction is due to the difficulty of obtaining information and to the fact that in difference to other major asset classes, i.e., stocks or bonds, there is no efficient market which would price the value of portfolio's components on a daily basis. Furthermore, most of the available information about the strategies of PE firms, performance of their funds, and the nature of their investments is based on voluntary disclosure which may be subject to bias. Indeed, successful PE firms have a greater incentive to provide more data on their funds than poorly performing ones (Gottschalg, 2007). Such

reports are published on a quarterly basis in the form of aggregate internal rates of returns. This might be the foundation of discrepancies between the belief in high returns of PE investments and documented underperformance due to this high level of expectation (Gottschalg, 2007). Moreover, the PE asset-class is often proclaimed to exhibit a low correlation with public market performance. It does indeed exhibit a lower correlation with public market but due to the widely accepted reporting convention, which values the unrealised investment at the entry cost over the first years. Hence, there is a low correlation¹ with public markets, which are highly volatile. Nevertheless, given the low volatility of PE investment, it is an attractive element to add to an investment portfolio.

In the absence of daily quotations of portfolios components, the problem of valuation arises. Nevertheless, the return and volatility could potentially be estimated in two ways, based on values or cash flows. As we already know, PE firms are not obliged to report their financial activities. Therefore, in the absence of cash flow data available to the public, most measurements are based on values. The value of a PE fund is calculated as net asset value (NAV) which is a sum of market values of portfolios investments. Again, the value of a portfolio company is known only at the events of acquisition or exit transaction. For that particular reason, NAVs provided to either limited partners or publicity are self-reported by the general partners' assessment and, therefore, may be biased towards better performance. It is important to note that valuations are not subject to any generally accepted accounting principles. Therefore, an estimation of intermediate net asset values of portfolio components should only have an internal significance for coherent allocation of capital among portfolio companies. In other words, intermediate NPV of portfolio component has no value to limited investors until the transaction is executed. Potential returns may appear only in an occurrence of cash flow.

The second aspect to be addressed is the measure of return. Much like valuation data, all of the information on fund performance is provided voluntarily and is reported by the general partners to venture economics, the largest PE research database. Moreover, a portion of the information on returns is provided by limited partners. At this point, I find it to be of large significance to note that PE funds practice different accounting valuations. Hence, there are different values appraisals from a different private equity funds on the exact same investment (Blaydon and Horvath, 2002). Such discrepancies are a result of different assessment approaches among PE funds. For example, the so-

called first-time funds may overstate the value of portfolio companies or even neglect to write down the poorly performing ones, while other funds may value investments at cost until it is not realised (Gompers, 1996). Nevertheless, the actual data on cash flows for a particular investment or individual fund is not available. Instead, private equity firms publish the aggregate quarterly performance measures. These statistics are reported net of carried interest and management fees, so they represent actual returns to the limited partners. The PE industry reports performance as a ratio of cash proceeds over cash investments, or as the annualised internal rate of return (IRR) (Gottschalg, 2007). The first standard does not include the "time value of money". Nevertheless, two particular investment multiples are included in such quarterly reports. They are: (1) a total value to paid-in capital ratio (TVPI) which measures the proceeds received from a fund in addition with the valuation of eventual remaining investments divided by the capital committed to the fund: and (2) a distribution to paid-in ratio (DPI) which is defined as the total distributions over the total capital invested. However, information of doubled capital in an unknown time period can be misleading. Second, IRR, as a measure of performance of the PE industry, exhibits weaknesses of a technical nature. The IRR provided by the general partners is an aggregate of different funds managed by PE firms. As we already know, PE funds have various profiles, some funds invest only in early stage companies or in mature enterprises. As a result, funds' cash flows differ substantially and make the aggregation irrelevant. Furthermore, the method by which IRR is calculated, makes the implicit so-called "reinvestment assumption" that intermediate cash procedures are reinvested at IRR rate over the total investment period (Gottschalg, 2007), when in reality it is very unlikely to happen. It is reasonably simple to solve a "reinvestment problem" with a modified IRR (M-IRR) instead of IRR. This measure specifies a fixed rate of return for investing and borrowing instead of reinvestment assumption at the IRR rate, which follows to overstated performance. Finally, IRRs are often compared to IRRs derived from public indexes. However, IRR computed for public equity is based on the "buy and hold" assumption. Meanwhile, the cash flows of PE funds are highly irregular and unknown to investors, which in general makes the comparison inaccurate. However, the problem of incomparability can be solved by using a different approach. A more suitable measure of relative performance of private equity to public markets is the "profitability index" (PI) (Ljungqvist and Richardson, 2003). PI is defined as the present value of the cash flows received by investors, divided by the present value of the capital, paid by investors (Gottschalg, 2007). If the profitability index is greater than one, it directly indicates the outperformance due to comparable public market. To maintain

¹ Measuring risk, using correlation of PE funds portfolio components with the stock market may be misleading due to described reporting convention.

the PI measure, the rate of return of comparable public market is used as the discount rate in the present values calculations (Phalippou and Gottschalg, 2008). In a private equity community it is often referred to as public market equivalent (PME) return.

Another issue related to the accuracy of performance measurement concerns the time horizon of PE investment. During the life of a fund, limited partners experience negative returns in the first 4 years due to draw-downs and yearly management fees (Ljungqvist and Richardson, 2003). This is often referred to as a J-curve effect, when approaching the end of the life of a fund, limited partners start to receive positive cash inflows. Essentially, the limited partners experience three types of cash flows. First, associated with previously mentioned draw-downs – “disbursements” (Ljungqvist and Richardson, 2003) and divestments, as well as dividends paid by portfolio companies, which occur on an occasional basis. The second type of cash flow is related to annual management fees, which oscillate between 1-3 per cent of committed capital (Ljungqvist and Richardson, 2003). Finally, occasional interest payments on capital, which is concentrated in the fund in order to maintain further investments. Thus, funds differ substantially on the timing of cash distribution to limited partners. In order to compare individual funds, PE funds are classified by vintage year, in reference to the year in which the fund was formed. Therefore, it may be misleading to compare different vintage years and judge the performance of recently set funds. The limited disclosure also has an impact for this particular aspect of performance measurement. Thus, those PE funds that are in danger of going bust are not typically included in aggregate performance information with regards to their potential ability to raise further funds by a particular PE firm. This problem is often referred to as the survivor bias.

The next element to be considered is risk. In the area of PE research, there are even less risk measures than return measures. First of all, different risk measurement tools are used for each: private and public equity. Due to modern portfolio theory (Markowitz, 1952) risk is identified as volatility, which is measured on the basis of historical data. In an environment with no time series of market price of portfolio components, it is not possible to evaluate the volatility of a PE fund. In addition, the cash flows which could potentially be used to estimate the volatility are unknown. Therefore, the risk in PE is measured as a standard deviation from the average return. Measuring risk of PE is not an easy task in the absence of standard tools developed for public markets, such as value-at-risk, market risk or credit risk with ratings associated to probability-of-default and loss-given-default (Tom Weidig, and Pierre-Yves Mathonet, 2004). Nevertheless, some research has been done. The general outcome of most

studies is that venture capital funds are more risky than buyout funds and, with respect to such conditionality, venture capital funds may generate higher returns than leveraged buyouts¹.

With regards to a PE fund’s risk profile, Tom Weidig, and Pierre-Yves Mathonet (2004) state that PE is a risky asset-class. However, due to their results PE investment is not necessarily. They conclude that the diversification of PE investment is of utmost importance in order to limit the risk of total loss (Tom Weidig, and Pierre-Yves Mathonet, 2004). Ljunqvist and Richardson (2003) had access to detailed data, including all cash flow records of 73 funds, and they found that beta is higher than one. However, PE funds exhibited excess return of 4%-8% per annum over the aggregate public equity market. Chen, Baierl and Kaplan (2007) based their research on the venture economics database. Their outcomes describe higher risk of PE, however, followed by higher returns and low correlation with S&P 500. Burgel’s (2000) research of 134 funds concludes the IRR of 14 % and a high standard deviation.

PE firms are united in two major organization in Europe. First and the biggest one is British venture capital association, and the second is European venture capital association. Both organization publish each year member’s investment activity.

5. Is private equity a crackerjack or maybe it is not good at all?

Due to aforementioned difficulties in PE performance measurement, the answer to this question is not as simple as one would expect. In order to get closer to the truth, we will provide the reader with eight comprehensive research studies, often done on exclusive dataset, which limits the problem of biased data.

The first study, to be presented, was conducted by Peng in 2001. Peng builds a venture capital index from observed valuations of new financing round, Initial public offring (IPOs), acquisitions and liquidation. Peng addresses the problem of selection bias. Basically, he established two sub-indices, where first applied to shutdowns and second, to successful exits. With regards to the problem of selection bias, Peng assigned weights to these indices, based on the likelihood, that companies will fail or succeed estimated from observable characteristics. This study covers the period from 1987 to 1999, which consists of 12,946 rounds of venture financing with 5,643 venture-backed firms. He finds an average geometric rate of return of 55.18 % per annum with the upper bound 60.93 % and the lower bound 28.28% for the period from 1987 to 1999, with the lowest annual return in 1990 (-5.94%) and the highest in 1999 (681.22%). He estimates that

¹ This outcome is also a subject of vivid discussion due to great returns of top percentile large buyout funds.

beta ranges from 0.8 to 4.7. Peng concludes that the venture capital has an impressive record of performance. However, the venture capital index exhibits higher volatility than S&P500 and national association of securities dealers automated quotation (NASDAQ) and strong correlation with returns of NASDAQ.

The second comprehensive study was written by Cochrane in 2005. His philosophy is based on maximum likelihood approach to estimate returns, standard deviation and correlation with the public equity markets. In his study, Cochrane emphasises the significance of adjustment for survivor bias which, in the environment of high failure rate of PE investments, is likely to exist. His research is based on 16,613 observations on 7,765 start-up firms observed between January 1, 1999 and June 30, 2000. In order to correct the results from bias, he uses logarithmic returns. He found that selection-bias-corrected average logarithmic return is 15% per year for the period of 1987-2000, not 108% as before bias correction and in comparison to 15.9% mean logarithmic return of S&P500. Thus, PE investments exhibit almost the same level of performance in terms of logarithmic returns. Furthermore, the market model in logs gives an alpha at -7.1%, not +92%, as before the survivor bias adjustment. He also finds that returns from PE investments are quite volatile with a standard deviation of 89 percent. However, these statistics are for individual firms, therefore, higher volatility is to be expected in comparison to highly diversified portfolio as most of the public equity indexes. However, capital asset pricing model, and most asset pricing and portfolio theory specifies arithmetic not logarithmic returns and, therefore, the diversification is based on arithmetic returns. With respect to this, Cochrane reports a 59% annual average arithmetic gross return, a corresponding alpha of 32% and standard deviation of 107%. In general, Cochrane concludes that venture capital investments are highly volatile but later stage investments are less risky than venture capital investments. In addition, he suggests that the small stock NASDAQ portfolio provides a better reference returns than S&P500, and reflects a similar phenomena, however, the author outlines that it is a different phenomenon.

The third study was completed by Ludovic Phalippou in 2005. It was based on methodological contributions that consisted of a more economically appealing fund aggregation device and deletion of residual values. Data, used in this study, comes from venture economics database and covers funds raised between 1980 and 2003. Dataset also records the amount and date of all cash flows as well as the aggregate quarterly book value of all unrealized investments for each fund. They find that the PE funds underperform the public index S&P 500 by more than 3% per year and that PE funds

raised between 1980 and 1996 have returned only 73%, and not 105%, as documented in the literature of the invested capital in present value terms.

The fourth study was conducted by Gompers and Lerner in 1997. Their study is widely accepted to be a pioneering work in the field of performance measurement of PE asset class. Gompers and Lerner have an exclusive access to a single private equity firm's¹ internal data, and measure its risk-adjusted performance. The main philosophy is based on marking-to-market each investment, in order to estimate the fund's quarterly market value. The data covers the time horizon of 1972-1997 and includes the failures, thus, eliminating a large source of selection bias. However, this still leaves the problems of survival bias and the self-reported valuation of existing investments. They find an arithmetic average annual return of 30.5% gross of fees. Marking-to-market, they find a beta of 1.4 on the market, whereas beta was previously lower at 1.08. These differences in assessed values result in a lower confidence in the values reported by PE funds. In conclusion, Gompers and Lerner report excess returns of PE in relation to public.

The fifth study was written by Kaplan and Schoar in 2004. This study investigates individual fund returns. Kaplan and Schoar focus on performance persistence and performance flow relationship. Their research is based on a database of individual fund returns collected by venture economics for more than 1000 PE firms since 1970. The first finding is the large heterogeneity among fund returns. They state that such heterogeneity in the skill and quality of general partners potentially can result in more persistence, if new established firms and funds face difficulties in competing effectively with existing funds. Second, funds, which outperformed the industry in the past, are likely to outperform again, while those, which have a poor record of performance, are more likely to repeat it. Finally, Kaplan and Schoar identifies that funds, as well as PE firms, which are established in boom times, are less likely to raise a follow-on fund², which indicates poorer performance of these funds. This study reports a value-weighted profitability index of 1.05 and a value-weighted IRR of 18% for 746 funds. In conclusion, Kaplan and Schoar document a large heterogeneity in performance across funds due to the level of persistence of more mature firms and funds established before the boom times and emphasise the significance of the skill and expertise of general partners. Nevertheless, those excess returns do not account for the timing of the cash flows nor for the risk profiles of the portfolio companies.

¹ Private equity firm analyzed in Gompers, Lerner research is the Warburg Pincus.

² Followon Funds are a subsequent PE funds established after the investment period of a prior fund.

The sixth study was written by Ljungqvist and Richardson in 2003 examines in great detail all the venture fund investments of a single large institutional investor. Indeed, they have an access to the detailed cash flow data for each fund, including exact timing of investments and capital returns to the investor. Moreover, this dataset covers the number and profiles of portfolio companies in which funds invested. Ljungqvist and Richardson report excess returns of PE in the order of 5% to 8% over the aggregate public equity market. However, they also document, that if the beta of the PE fund is higher than 1, then it generates 23.8 % relative to the present value of the invested capital. The suggested interpretation of such a magnitude applies to the potential compensation for holding a 10-year illiquid investment. In conclusion, this study is seen as a breakthrough in understanding risks and measuring the returns of PE due to an exclusive dataset, based on objective cash flows rather than self reported measures. Ljungqvist and Richardson report that private equity outperforms PE by 5% to 8%.

The seventh study was written by Moskowitz and Vissing-Jørgensen in 2000 and focuses on the “return to investing in U.S. non-publicly traded equity”. The dataset came from the survey of consumer finance and the flow of funds accounts and the national income and product accounts. They report that the average return of PE is similar to that of public equity. Moreover, they document a reasonably high correlation between estimated realised returns from private equity and returns from public equity.

The eighth study was written by Manyem in 2002 and examines the principle of diversification which theoretically pushes the investors’ portfolio closer to an efficient frontier. He further proposes the selection of top quartile managers and a hypothesis that industry oriented funds out-perform the diversified funds. The data is based on 1985-1995 vintage years to analyse funds that were fully invested and was sourced from Thomson venture economics. Manyem reports that a specialist manager, who has a particular industry focus, is more capable of being a top quartile performer than a generalist manager who invests in a variety of industries. Furthermore, this study documents that investing in an industry-oriented PE fund is more likely to provide the desired diversification in terms of moving towards an efficient frontier than randomly choosing a PE fund. The general conclusion is that the specific managerial set of skills from a particular industry is the key driver of a fund’s performance.

Those discrepancies, presented in analyzed studies, suggest a need of further research in the field of the performance of PE funds. Nevertheless, with regards to the ongoing public debate on the PE industry, these studies shed some light on the directions and forces

behind the performance of PE funds and give hints to potential investors about the risk and return of PE asset-class. There is a strong evidence of persistence in returns of PE funds and on the importance of management skills of general partners. Therefore, the PE investment can be a crackerjack for institutional investors, but only when PE fund is run by skillful management team.

6. Insurance companies investment activity in private equity at the break of Volcker rule

In January 2010 president Obama has appointed former United States Federal Reserve Chairman Paul Volcker as a Chairman of President’s Economic Recovery Advisory Board, who has proposed a total ban of financial institutions in the issue of proprietary investing: that is, investing in hedge funds and PE. Nevertheless, final version of Volcker rule allows banks to invest in PE, however, only up to the three percent of their capital. Insurance companies have been already heavily regulated by the state restrictions, nevertheless, the Volcker rule will also directly affect the insurance business. In a given conditionality of limited commitments, all PE investors will be forced to adjust their exposure in PE to the aforementioned target of three percent. As we already know, PE is an attractive component to portfolio managers, due to the fact of low correlation and fiscal advantages, which in particular, are very attractive for insurance companies investments (Davidson Herron, Jr.). In result, we can expect higher competition in obtaining the access to the best performing PE firms. Therefore, the PE industry structure will be exposed to potential adjustments due to Volcker rule influence. With respect to academic research on PE performance, insurance companies, in order to compete with other institutional investors in selecting the best investment opportunities, should focus on management due diligence when investing in PE and select managers with specialist skills and industry focus rather than generalist managers who invests in a variety of industries.

Conclusion

It is found that private equity outperforms public equity, however, not to the extent that is commonly believed. In addition, the degree to which this return premium rewards the additional risk of private equity remains unknown. The most important force behind the level of performance appears to be a quality of fund management. Moreover, there is a higher dispersion between top-performing funds return and poorly-performing funds return than there is in public equity. Moreover, under Volcker Rule, the competition to participate in the best performing funds will increase and, therefore it is recommended for insurance companies to focus on due diligence of private equity firms’ management when dealing with capital allocation decisions.

References

1. Blaydon, Colin, and Michael Horvath (2002). What's a company worth? It depends on which GP you ask, *Venture Capital Journal*, May, 40-41.
2. Burgel, O. (2000). UK venture capital and venture capital as an asset-class for institutional investors, Research report for BVCA.
3. Chen Peng, Baierl Gary T., and Kaplan Paul D. (2002). Venture capital and its role in strategic asset allocation, *The Journal of Portfolio Management*, Winter, Vol. 28, No. 2. – pp. 83-89.
4. Cochrane, John H. (2005). The risk and return of venture capital, *Journal of Financial Economics*, 75(1). – pp. 3-52.
5. Fenn, George W., Liang, Nellie and Prowse, Stephen (1995) The economics of the private equity market, Working paper, Board of Governors of the Federal Reserve System.
6. Gilligan J. and Wright M. (2010). Private equity demystified: an explanatory guide, Corporatefinance faculty, ICAEW.
7. Gompers, Paul A., and Josh Lerner (1996). The use of covenants: an analysis of venture partnership agreements, *Journal of Law and Economics*, 39, pp. 463-498.
8. Gompers, P. (1996). Grandstanding in the venture capital industry, *Journal of Financial Economics*. 42, pp. 133-56.
9. Gompers, Paul A., and Josh Lerner (1997). Risk and reward in private equity investments: the challenge of performance assessment, *Journal of Private Equity*, pp. 5-12.
10. Gottschalg, O. (2007). Private equity and leveraged buyouts, study IP/A/ECON/IC/2007-25, European Parliament, Policy Department: Economic and Scientific Policy.
11. Gottschalg, O. and Phalippou, L. (2008). The performance of private equity funds, *Review of Financial Studies*, 22, pp. 1747-1776.
12. Jensen, M. and Meckling, W. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*, United States, Vol. 3, No. 4, pp. 306-360.
13. Kaplan, S. and Schoar, A. (2004). Private equity performance: returns, persistence, and capital flows, *The Journal of Finance*, Manuscript 1040, United States.
14. Leeds, R. and Sunderland, J. (2003). Private equity investing in emerging markets, *Accenture Journal of Applied Corporate Finance*, 15 (4). pp. 111-119.
15. Ljungqvist, A. and Richardson, M. (2003). The cash flow, return and risk characteristics of private equity, Mimeo 30.
16. Manyem, S. (2002). Effect of investment focus and manager selection in private.
17. Markowitz, H. (1952). Portfolio selection, *Journal of Finance*, United States, Vol. 7, pp. 77-91.
18. Maslakovic Marko (2010). Private equity 2010, The City UK, London.
19. Moskowitz, Tobias J. and Annette Vissing-Jorgenson (2000). The private equity premium puzzle, Manuscript, University of Chicago.
20. Peng, Liang (2001). Building a venture capital index, Working paper, Department of Economics, Yale University.
21. Phalippou, Ludovic and Zollo, Maurizio (2005). What drives private equity fund performance?, SSRN Working paper.
22. Sorensen, Morten (2005). How smart is smart money? An empirical two-sided matching model of venture capital, Working paper, University of Chicago.
23. Weidig, T. and P.Y. Mathonet (2004). The risk profiles of private equity, SSRN, Working Paper, (January), <http://ssrn.com/abstract=495482>.