Private Equity Fund Risk Measurement Guidelines

Measuring the value at risk of portfolios of interests in private equity and venture capital funds

Exposure Draft for Consultation - January 2011
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About EVCA

The European Private Equity and Venture Capital Association (EVCA) was established in 1983 and is based in Brussels.

EVCA represents the European private equity sector and promotes the asset class both within Europe and throughout the world. With over 1,300 members throughout Europe, EVCA’s role includes representing the interests of the industry to regulators and standard setters, developing professional standards, providing industry research, organising professional development initiatives and forums, as well as facilitating interaction between its members and key industry participants. These key players include institutional investors, entrepreneurs, policymakers and academics.

EVCA’s activities cover the whole spectrum of private equity: venture capital (from seed and start-up to development capital), buyouts and buyins.

Disclaimer

No member of the Private Equity Risk Measurement Guidelines working group thereof can accept any responsibility or liability (whether in respect of negligence or otherwise) to any party as a result of anything contained in or omitted from the Guidelines nor for the consequences of reliance or otherwise on the provisions of these Guidelines.
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Investors in private equity and venture capital limited partnership investment vehicles have developed various approaches for the risk measurement of their portfolio of holdings. These approaches cover both the determination of the value at risk for their portfolio and operational risks. As for previously developed Professional Standards, EVCA believes that different stakeholders in the asset class will benefit from guidance based on current best practices in the field of private equity and venture capital risk measurement. This guidance will help investors to increase their exposure to the asset class by developing sound risk measurement practices and will also inform discussions on risk measurement with regulators, boards of trustees and other stakeholders.

These Guidelines set out recommendations intended to represent current best practices to measure the value at risk of investing in private equity and venture capital funds. The term “private equity” is used in these Guidelines in a broad sense to include investments in limited partnerships which in turn invest in early stage ventures, management buyouts, management buy-ins and similar transactions and in growth and development capital.

These Guidelines are addressed to investors (banks, insurance companies, pension funds, etc), which act as limited partners in private equity funds. The Guidelines are principle-based, i.e. they aim to provide a conceptual basis instead of a list of detailed rules or parameters to calibrate internal models. Internal models are developed by investors with the aim of determining the value at risk as expressed by the following equation:

\[
\text{Value at risk} = (\text{Exposure at risk}) \times \text{(Risk)}
\]

These Guidelines recognize that each portfolio of holdings in private equity funds has specific characteristics and therefore they do not aim to calibrate the equation above by using one-size-fits-all parameters. The Guidelines aim to help users to solve the equation above in a consistent manner by establishing a framework to determine the exposure at risk, the different risks that need to be taken into consideration and how they should be measured.

The focus of these Guidelines is the measurement of risks for investments through closed-ended funds with a finite life structured as limited partnerships, which is the dominant and most relevant vehicle for institutional investing in private equity. To the extent other structures recreate the major features of limited partnerships these Guidelines are relevant.

The starting point is to define the key objectives of private equity risk measurement (section 1). The variables on the right side of the equation above are addressed in sections 2 and 3. The determination of the exposure at risk is discussed in section 2, followed by guidance on the base models used to measure risk in section 3. The concept of value at risk has been primarily developed for liquid assets. These Guidelines expand this concept to the specificities of the private equity asset class, looking at risk measurement from both the manner in which investors deploy their capital in the asset class and the illiquid nature of their investments. Section 4 presents an overview of the risks that should be reviewed for any private equity portfolio. The illiquid nature of the asset class requires specific attention in relation to funding risk, which is covered in section 5. The impact of diversification on risk measurement is discussed in section 6.
While sections 2 to 6 introduce principles for consistent risk measurement models, section 7 presents recommendations regarding the validation and the verification of these models. Finally, section 8 sets out further practical guidance for specific cases.

With the exception of the last section, all other sections should be read as follows:

- the recommendations themselves are set out in bold encircled by a box;
- explanations, illustrations, background material, context and supporting commentary, which are provided to assist in the interpretation of the recommendations, are set out in normal type.

Adoption of the Guidelines is voluntary. The Guidelines were drafted by a working group of private equity risk measurement practitioners, and document the views and methods that have found market acceptance.
1. Key Objectives of Private Equity Risk Measurement

Understanding and accurately measuring the risks of investments in private equity should be undertaken for effective risk management, investment decisions and internal capital allocation.

Interests in Private Equity funds involve investment in an illiquid asset class and hence have specific characteristics that make measuring value at risk in a way similar to tradable assets difficult. Nevertheless, and despite conceptual challenges, all industry stakeholders increasingly view a proper measurement of private equity risks as necessary.

Historically, the majority of such investors have taken relatively simplistic approaches to measuring and reporting the risks of investing in private equity. However, with growing exposure to private equity, it has become more important to fully understand and correctly quantify the risks of investing in this asset class in order to strengthen risk management capacities.

It is also important that risk measurement as used for investment decisions and internal capital allocation is of a high quality as this reinforces sound corporate governance by which investment policies are implemented in consideration of both their expected returns and their risks.
2. Determining the Exposure at Risk

The appropriate exposure at risk for the purpose of private equity risk measurement is the interest in the private equity fund itself, i.e. the share in the net asset value of the fund and the undrawn commitments. Risk models for private equity investments should account for the specific characteristics of investing in closed ended funds with finite life and appropriately apply the estimated risk to the exposure at risk.

The primary avenue for institutional investing in private equity is the limited partnership of 10-12 years duration, usually a partnership of investors (limited partners) and the fund manager (general partner). Investors become limited partners in a private equity fund by committing a specified amount of capital to the fund, which entitles them to a proportional share of interest in the partnership. The fund manager draws from this capital pool to fund the acquisition of stakes (often controlling) in a number of portfolio companies over the course of the fund’s investment period. Even though fund managers do not call all commitments at once, they are binding for the duration of the partnership.

The fund manager seeks to increase the value of the portfolio companies through long-term active management, and exits these investments at a time deemed appropriate. The proceeds from divestitures are distributed among the limited partners. Therefore the exposure at risk needs to be understood as the undrawn commitments plus the net asset value of the fund that is indicative of the amount that could be distributed to investors. It is a matter of judgment whether the risk applied to the undrawn commitments is similar to that applied to the Net Asset Value of the fund. Differences in treatment could relate, for example, to specific legal clauses or degree of control over the fund manager that would establish a different risk profile for undrawn commitments.

The Net Asset Value of the fund is not the same amount as the amount that the Limited Partner has invested into the fund at any point in time and fluctuations in the Net Asset Value need to be treated with care as they do not necessarily increase the exposure of the investor to potential loss.
3. Base Models to Measure Risk

Limited partners can use a variety of models to assess the risk of their private equity investments. Therefore, it is important to exercise good judgment in selecting the most appropriate methodology for evaluating the risks of particular funds. Investors should consider all material risks including general market risk and specific risk exposure. Inputs should include the fund’s Net Asset Value, its undrawn commitments, the remaining life of the partnerships, future management fees, and suitable discount rates for discounting cash flows. The length of the period of time over which the risk is measured and the level of risk should reflect the investment horizon and other contingencies that are idiosyncratic to a particular investor.

Investors need to bear in mind the following factors when selecting an appropriate methodology for specific portfolios:

- The applicability of the methodology given the nature of the industry and current market conditions
- The ability to reflect all relevant risks to which the fund may be exposed as set out in section 4
- The quality and reliability of the data used in each methodology
- The comparability of funds or transaction data
- The stage of the funds’ development
- The ability of the fund to generate profits or positive cash-flows

The most widely used methodologies to assess the risk of private equity investments are based on Discounted Cash-Flows and on Net Asset Values. For both methodologies, the period of time over which the risk is measured depends on the particular environment in which a particular investor operates (duration of the portfolio, ability to hold the investment, liquidity constraints, etc). This is also true for the level of stress applied to the private equity portfolio. As a matter of example, this could be measured through the risk being calibrated with observed losses for interests in similar funds over a period of one year or longer as relevant at a confidence level of 99.5%.

3.1. Discounted Cash-Flow method

Discounted Cash Flow (DCF)-based methodologies can be used to measure various risks of investing in private equity funds. The method is based on cash flow projections, which are used to derive the Net Present Value (NPV) of investments under different scenarios. Cash flows are discounted using appropriate risk-adjusted rates that quantify the risk inherent in the future cash flows.

Investors use a variety of models based on cash flow forecasts to assess the risks of their private equity investments. The simplest cash flow projections make assumptions about the levels of drawdowns and distributions over the lifetime of an average private equity fund, and apply this to the funds invested in to come up with an aggregate for the portfolio. This approach provides a general idea of the average cash requirement for a private equity portfolio, but does not necessarily factor in the influence of changing market environments, different vintages, separation of different types of fund or other distinctive features of particular funds.
3. Base Models to Measure Risk

The risk of the portfolio can be approximated by applying some sort of stress measurement to the distribution curves, but such models have clear limitations especially during crises in the financial markets. More elaborate projections draw more heavily from historical and market data, and are therefore more reliable than those based on assumptions. These projections incorporate data about particular fund managers, various market environments and differentiate between different types of investment strategies (e.g. venture, buyout).

DCF-based risk measurement approaches are based on such cash flow projections, which are discounted at an appropriate rate to determine the possible NPV of a private equity partnership. This method is particularly useful because it can incorporate information about undrawn commitments and possible reuse of distributions when evaluating the NPV of private equity partnerships. However, the method’s technical complexity can make it too cumbersome for investors with limited allocations to private equity.

DCF-based models can be built using a “bottom-up” approach where the fund’s risk is derived from the risk measurement of the individual investee companies, or through a “top-down” approach where the fund’s risk is determined, for example, by comparing it to other funds. In practice, the “bottom-up” approach is often impractical due to the lack of appropriate information at the limited partner level, the large volume of data that has to be collected for large portfolios, and the complexity of specifying each cash-flow position.

A bottom-up approach is not necessarily superior to a top-down approach. In many cases it is simply not applicable (e.g. for very young funds), conceptually questionable (e.g. for venture capital funds where investee companies held by the fund cannot be assumed to be independent) or misleading.

3.2. Net Asset Value Method

Net Asset Value (NAV)-based methodologies assume that the risks of investments in private equity are mainly represented by the volatility of the fund’s net asset value series. Such methodologies are likely to be appropriate for funds whose value derives mainly from the value of their existing underlying portfolio companies and for investors with a limited allocation to private equity.

NAV-based risk measurement approaches generally look at the volatility of a fund’s NAV to estimate the value at risk of the investment. This method has the advantages of being simple and giving a good approximation of the risks of mature funds and diversified portfolios of funds spread over several vintage years.

The volatility is estimated by measuring the returns reported at different time intervals based on quoted indices or other private equity benchmarks available in the market. The measured volatility over the relevant period is then applied to the fund’s or portfolio’s NAV.
It is important to note this can give an incomplete or even distorted picture of the risk because:

- a fund's NAV fluctuates naturally with the development of the fund's underlying assets and liabilities from investment and divestment and not just because of risk exposure;
- NAV-based models need to reflect the limited partner’s exposure to the fund’s undrawn commitments and the future use of distributions. Both aspects might present a different risk profile than the one applied to the NAV;
- publicly quoted private equity indices are rarely representative of the portfolio held by the investor and the illiquid contractual nature of investments in private equity makes them fundamentally different from the shares of listed private equity funds;
- NAV-based methods may fail for young funds that are still in the early phases of their J-Curve and for portfolios with limited diversification across vintage years, which undermine the representativeness of the indicator used to estimate the volatility of the NAV.
Limited partners face a number of risks that can impact the value of their investments. All the following risks should be considered for effective risk measurement:

I. **Funding risk**: The unpredictable timing of cash flows poses funding risks to investors. Commitments are contractually binding and defaulting on payments results in loss of the private equity partnership interests.

II. **Liquidity risk**: The illiquidity of private equity partnership interests exposes investors to asset liquidity risk associated with selling conditions in the secondary market at a discount on the reported NAV.

III. **Market risk**: The fluctuation of the market has an impact on the value of the investments held in the portfolio.

IV. **Capital risk**: The realisation value of private equity investments can be affected by numerous factors, including (but not limited to) the quality of the fund manager, equity market exposure, interest rates, and foreign exchange.

Limited partners face a number of risks that can impact the value of their investments:

I. **Funding risk**
   The unpredictable timing of cash flows over the life of a fund poses **funding risk** for the limited partner. Fund managers call most or all of the committed capital over the investment period of the fund, and limited partners have to meet their commitments within a fixed short notice period. Because commitments are contractually binding a limited partner who cannot meet his obligations is forced to default on payments and lose a substantial portion of his share in the partnership. In practice negotiations can occur between the limited partner and the fund manager to adapt the size of the fund and/or the capital call requirement.

II. **Liquidity risk**
   Limited partners can sell their stakes in private equity partnerships to fund their open commitments. However, the secondary market for private equity investments is relatively small and highly inefficient. The characteristics of the secondary market expose investors to asset **liquidity risk**. Moreover, secondary market prices are often influenced by factors beyond the fair value of the partnership which often translate in discounted price. For instance, investors selling from a distressed position often have to accept discounts to reported NAV.

III. **Market risk**
   For private equity as an illiquid asset class the treatment of market risk poses conceptual challenges. The key is to define value and how market fluctuation has an impact on it. There are two principal methods for valuing an asset: the first is its current market valuation, or an estimate of what that might be. The second is the present value of the estimated future cash flows from that asset. Normally liquidity and arbitrage in the market force these two alternative methods of valuation into close alignment; lack of liquidity and other market dysfunctions cause these two alternative approaches to diverge, occasionally sharply and this is most clearly observed in secondary Private Equity transactions.
Fair Value estimates in private equity are based on the concept of an “orderly transaction”, which assumes that buyers and sellers are not acting under any compulsion to engage in the transaction, both parties have reasonable knowledge of relevant facts and the ability to perform sufficient due diligence to make an orderly investment decision. Assessing the limited partner’s ability to conduct an orderly transaction is key to ensuring market risk is properly accounted for in a funding test on such an illiquid asset class. Where the limited partner is able to conduct an orderly transaction a sale will be accepted if the price exceeds the present value of the estimated future cash flows. Discounts observed in the secondary markets are rarely caused by deterioration in the fund’s value but often rather reflect the inability of some limited partners to execute an orderly transaction as they lack the necessary liquidity.

IV. Capital risk

In addition to the risk of losing invested capital due to liquidity constraints, private equity investors face the long-term risk of not recovering the value of their invested capital at realization. This long-term capital risk can be affected by a number of factors:

- **Manager quality:** The ability of managers to create value and extract cash from investee companies varies greatly across the industry. Therefore good manager selection is of paramount importance for private equity investors. It is also important for investors to keep track of key personnel changes at the fund manager and other potential developments that can affect quality of management.

- **Equity market exposure:** Low equity valuations make it difficult for managers to exit at high prices. However, managers have full discretion as to the timing of divestments from investee companies within the life time of the fund and can wait for better or acceptable market conditions to exit their investments.

- **Interest rates and refinancing terms:** Private equity investments can be leveraged and private equity managers might need to refinance the maturing liabilities of the investee companies. Substantial changes in interest rates can affect the value of investee companies and the distributed capital to investors.

- **Foreign exchange exposure:** The value of private equity investments can be affected by foreign exchange volatility where there is a mismatch between the reporting currency of the investor and the functional currencies of the fund.
5. The Impact of Funding Risk

Risks related to the liquidity required to fund capital calls can affect the ability to generate realizations from a private equity partnership or to conduct orderly transactions in the secondary market. Therefore monitoring funding risk is central to effective risk management in private equity. Where investors have multiple sources of liquidity to meet their capital calls, they should evaluate the availability of liquidity not only from within the private equity portfolio, but also across business lines, other asset classes and all legal entities of their organization.

Limited partners do not need to reserve all committed capital in cash as distributions from existing investments and other sources of liquidity can be used to partially finance open commitments. However, they do need to monitor funding risk to ensure they will have enough resources to honor capital calls and to allow them to hold their private equity investments to maturity. Monitoring liquidity also allows limited partners to prevent cash shortages due to over commitment and to conduct orderly transactions on the secondary market if they so wish.

a) Preventing liquidity shortfalls

Limited partners have four sources of liquidity to meet capital calls: (1) Distributions from private equity funds, (2) liquidity provided by other assets, (3) liquidity provided by external sources (e.g. borrowing), and (4) proceeds from the sale of private equity interests in the secondary market. In a buoyant economy, proceeds from distributions are generally high and can be used to finance all or part of an investor's open commitments. However, when equity markets contract, private equity managers slow down exit activity significantly (but do not necessarily slow down investment activity), so investors have to find alternative ways to finance open commitments.

Liquidity tests help investors determine if their private equity portfolio will likely receive enough distributions to fund capital calls, and if not, how much is needed to fund short- and medium-term obligations. Liquidity tests are usually based on cash flow projections. These can be done “top down” focusing on the overall fund or “bottom up” by looking at individual projections for investee companies based on underlying company data.

Stress testing cash flow projections can also be useful, particularly considering the relative scarcity of publicly available data about private equity. Typical ways of conducting stress tests include making assumptions about accelerated drawdowns, delayed repayments and lower investment returns compared to historically observed patterns. The stress-testing process is important for prudent investment management, as it looks at the “what if” scenarios necessary to detect vulnerabilities, and can help estimate shifts in the long-term economic environment.

The outcomes of liquidity tests and stress scenarios should be used in liquidity planning and to develop effective contingency plans. To this end, investors also need to consider the relative ease or difficulty with which they can mobilize cash resources from outside their private equity portfolio (for instance, investors with investments in liquid assets can mobilize cash more easily than investors with high proportions of illiquid investments). Contingency plans include slowing commitment activity or selling stakes in the secondary market. Effective liquidity monitoring can help investors arrange orderly sales in the secondary market, particularly if it gives investors time to sell at an acceptable price.
b) **Limited partners facing liquidity shortfalls**

If it is likely that a limited partner will not be able to finance its future capital calls an assessment will be needed of the risk of a distressed sale of a fund stake before its maturity. The limited partner needs to analyze for which funds in the overall portfolio future capital calls can still be honored.

Limited partners need to bear in mind that distressed sales often command steep discounts. From a risk management perspective, liquidity shortfalls should be assessed conservatively, i.e. it should be assumed that exiting individual fund positions will not provide any liquidity in the short term.
6. The Impact of Diversification on Risk

The degree of diversification of an investor’s portfolio influences the risk profile significantly and should be taken into account when measuring long-term risks for portfolios of funds. However, investors should also be aware that short- and medium-term cash-flows can become highly correlated during market downturns.

Limited partners typically hold portfolios comprising several different private equity funds across vintage years as this is recognized as an important diversification factor. As funds invest in underlying companies, portfolios are generally diversified across managers, vintage years, strategies, industries, geographies and currencies.

a) Impact of diversification

Diversification reduces the long-term risk of a private equity portfolio and for large portfolios is expected to increase the median returns (though it also reduces the potential for extraordinary returns). However, experience obtained over several market cycles shows that cash flows tend to become highly correlated during market downturns. Therefore, even funds following different strategies or with exposure to different geographies can in extreme situations become subject to similar degrees of liquidity risk in the short- and medium-term. The impact of diversification also depends on the interaction between the private equity portfolio and other assets that are invested in by a specific investor.

b) Measuring dependence among funds in a portfolio

The use of correlation as a measure of dependence between the funds in a portfolio of funds has significant limitations, including stale pricing and difficulty in measuring the risks of private equity funds as the volatility of a NAV time series. Instead, the relative dependence or independence of funds within a larger portfolio can be assessed through other tools such as cluster analysis (i.e. grouping funds into sub-portfolios of funds with comparable characteristics that can be seen as independent from other sub-portfolios).
Risk measurement models cannot be static and need to be improved continuously. They not only have to incorporate relevant past data but also to evolve with new information and adapt to a changing environment. Models should be regularly validated and verified. It has to be assured that choices of reference data and scenarios do not imply the assumption of above average selection skills for the limited partner.

Scarcity of data on the universe of private equity funds can be a major obstacle to precise risk measurement and to back-testing of models, for example in the case of smaller private equity investment programs with good quality data only on their investee funds, during the early stages of building up portfolios of private equity funds or in the context of venture capital investment in innovation where the past does not always provide a reliable yardstick for the future.

In situations where there are significant difficulties in accessing good quality and representative data, assumptions and modeling choices, well-documented judgment, stress testing and scenario analysis have to play a significant role.

Risk models use a variety of indices related to public markets as well as private equity market specific ones. The mapping of the overall portfolio onto the market indices has to be clearly defined and (sub-)indices used to quantify shocks or volatility must be representative and consistent with the structure (notably diversification, quality, stage in the funds’ development and the investor’s funding liquidity test) of the (sub-)portfolios to be modeled. In the case of private equity market indices, the completeness and quality of the data needs to be taken into consideration.
This section sets out further practical guidance to the application of the principles and methodologies presented in the previous sections to specific cases.

8.1. Monitoring of funding liquidity

Many investors estimate and plan their short-term liquidity needs through continuous dialogue with private equity managers. While this approach helps smooth short-term cash management, it has limitations when estimating cash needs in the medium- to long-term, which is necessary for preventing over-commitment. In addition, this strategy may be suitable for an investor with a handful of private equity investments in its portfolio, but it is more burdensome for investors with hundreds of private equity investments in their portfolios.

8.2. Qualitative risk assessment

For limited partners qualitative risk assessment is mainly based on initial due diligence findings and insights gained from ongoing monitoring. An ex-ante risk assessment can be based on available information regarding similar funds. Similarity is for example assessed on the basis of fund strategy, vintage year, geographic focus or fund quality. Depending on the fund’s track record and perceived access to attractive investment opportunities, unfunded capital commitments associated with the fund interest may have an impact. Knowledge gained from qualitative monitoring of funds should be considered for risk measurement.

8.3. Accessible private equity data

Limited partners primarily rely on data provided from a handful of commercial service providers. These service providers’ coverage, focus, quality, etc. can vary significantly and limited partners often need to fill the gaps with qualitative assessments or conjectures.

8.4. Using the DCF method to allocate capital

Investors employing cash-flow based risk measurement practices have the advantage that they can monitor both liquidity and asset risk, and can therefore allocate capital to both. Capital allocation for liquidity risk should be conservative. In the case of over-commitments investors expecting liquidity shortfalls should assume defaults on their investments.
8.5. Using the NAV method to allocate capital

Investors employing NAV-based methods to quantify the value at risk of their investments, allocate risk capital or budget for risk proportionate to the volatility of their investments’ NAV time series. The proportionality constant can increase or decrease depending on either the risk tolerance of the investor or on the regulatory requirements. The volatility can also be adjusted to account for stress scenarios or to avoid shortcomings stemming from the low frequency of valuation data (commonly known as the stale pricing problem).
**Asset Liquidity Risk**
Asset Liquidity Risk relates to the relative ease and promptness with which a financial instrument may be sold at a fair price when desired.

**Commitment**
A Limited Partner’s obligation to provide a certain amount of capital to a fund when the General Partner asks for capital.

**Discounted Cash-Flow (“DCF”)**
Discounted Cash-Flow is a method of valuing an investment by estimating future cash-flows and taking into consideration the time value of money.

**Distressed or Forced Transaction**
A forced liquidation or Distressed sale (i.e., a Forced Transaction) is not an orderly transaction and is not determinative of Fair Value. An entity applies judgment in determining whether a particular transaction is distressed or forced.

**Distribution**
The amount disbursed to the limited partners in a fund.

**Distribution Waterfall**
During the lifetime of a fund, liquidity events occur and Distributions are made based on a predetermined Distribution Waterfall, whereby Limited Partners typically receive a certain amount of the profit first before the General Partners can receive their share.

**Drawdown**
When investors commit themselves to back a fund, the funding may not all be needed at once. The capital is drawn down only when the General Partner asks for capital. Some of the capital is used later and remains an Undrawn Commitment.

**Fair Value**
The Fair Value is the price at which an orderly transaction would take place between Market Participants at the Reporting Date (measurement date).

**Fund or Private Equity Fund**
The Fund or Private Equity Fund is a generic term used in these Guidelines to refer to any designated pool of investment capital targeted at all stages of private equity investment from start-up to large buyout, including those held by corporate entities, limited partnerships and other investment vehicles.

**Fund-of-Funds**
Fund-of-Funds is a generic term used in these Guidelines to refer to any designated pool of investment capital targeted at investment in underlying Private Equity Funds.

**Funding Risk**
Funding Risk relates to an investor’s ability to meet its funding obligations when they are due without incurring unacceptable losses.
**General Partner**
A management firm or partner in a management firm who has unlimited personal liability for the debts and obligations of the Limited Partnership and the right to participate in its management.

**Investee Company**
The term Investee Company refers to a single business or group of businesses in which a Fund is directly invested.

**J-Curve**
The J-Curve refers to the fact whereby in the initial years of a Private Equity Fund its cash flow and return performance will always be negative as drawdowns for investment and management fees significantly exceed any distributions to limited partners from generated income or capital gain. From the investors perspective this phenomenon results in a temporary accounting loss which when graphed with the profits and positive cash flows in future years produces a curve resembling the letter J. A portfolio with many young funds will have a steep J-Curve, while a more mature portfolio will have a less pronounced J-Curve.

**Limited Partner**
An investor in a limited partnership, i.e. a private equity fund. Such investors have limited liability and are not involved in the day-to-day management of the fund.

**Limited Partnership**
The legal structure used by most Private Equity Funds. For the purpose of these Guidelines the partnership is assumed to be a fixed-life investment vehicle, and consists of a General Partner and one or many Limited Partners. The General Partner receives a management fee and a percentage of the profits. The Limited Partners receive income and capital gains. The General Partner (management firm) manages the partnership in accordance with the policy laid down in a Partnership Agreement.

**Market Participants**
Market Participants are potential or actual willing buyers or willing sellers when neither is under any compulsion to buy or sell, both parties having reasonable knowledge of relevant facts and who have the ability to perform sufficient due diligence in order to be able to make orderly investment decisions related to the transaction.

**Net Asset Value (“NAV”)**
The NAV of a Fund is the amount estimated as being attributable to the investors in that Fund on the basis of the Fair Value of the underlying Investee Companies and other assets and liabilities.

**Net Present Value (“NPV”)**
The NPV of a fund is the discounted current value of the expected future cash inflows and outflows calculated using an appropriate cost of capital.

**Orderly Transaction**
An Orderly Transaction is a transaction that assumes exposure to the market for a period prior to the date of the transaction to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities.
Partnership Agreement
The Partnership Agreement mainly covers terms, fees, structures and other items agreed between the Limited Partners and the General Partner. It also determines the timing of distributions to the Limited Partner and how profits are divided among the Limited Partners and General Partner.

Reporting Date
Is the date for which the risk measurement is being prepared, which equates to the measurement date.

Secondary Transaction
A Secondary Transaction refers to a transaction which takes place when a holder of an interest in unquoted or illiquid Funds trades their interest to another party.

Stale pricing
Stale pricing is caused by the fact that the reported net asset values of the fund do not incorporate all available information. Therefore stale pricing leads to a lag-time between observable market valuations and valuations in private equity portfolios.

Undrawn Commitment
A significant part of a Fund's Commitments will not be needed immediately but only as investment opportunities arise. They remain with the Limited Partners and are called by the General Partner over the agreed investment period as and when investment opportunities are identified. This capital is a Fund's Undrawn Commitment.

Validation
Validation is the process of determining the degree to which a model is an accurate representation of the real world from the perspective of the intended uses of the model and whether the logic followed by the model conforms to economic and mathematical principles.

Verification
Verification refers to the process of determining whether the output from the model conforms to actual experiences in the real world.