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REFLECTIONS ON THE NATURE OF RISK-ADJUSTED RETURNS IN PRIVATE EQUITY

ABSTRACT

The traditional definition of risk, associated with volatility in the traditional assets, does not easily apply to private equity. Any calculation of volatility figures should be based on time-weighted returns on the highest possible data frequency and number of observations.

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Reflections on the nature of risk-adjusted returns in PE

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The special case of private equity

The issue with private equity risk measurement is twofold: first of all, volatility can be calculated only on a relatively limited number of observations, which are reported NAVs and not traded prices; secondly, the calculated returns are expressed in money-weighted terms.

In addition, despite the various attempts to make the notion of volatility more meaningful, many solutions to unsmooth returns by means of daily NAVs estimation only magnify the potential issue of serial correlation in illiquid asset returns, by this way leading to an underestimation of systematic risk.

Another fundamental and distinctive element that the traditional volatility calculation would neglect when applied to private equity is the de-risking impact of the distributions. If the focus stays just on the invested capital, as Public Market Equivalent and similar public market related techniques do, the perception of the implied volatility is distorted – because it would not refer to consistent reference notional amounts.

A more coherent take

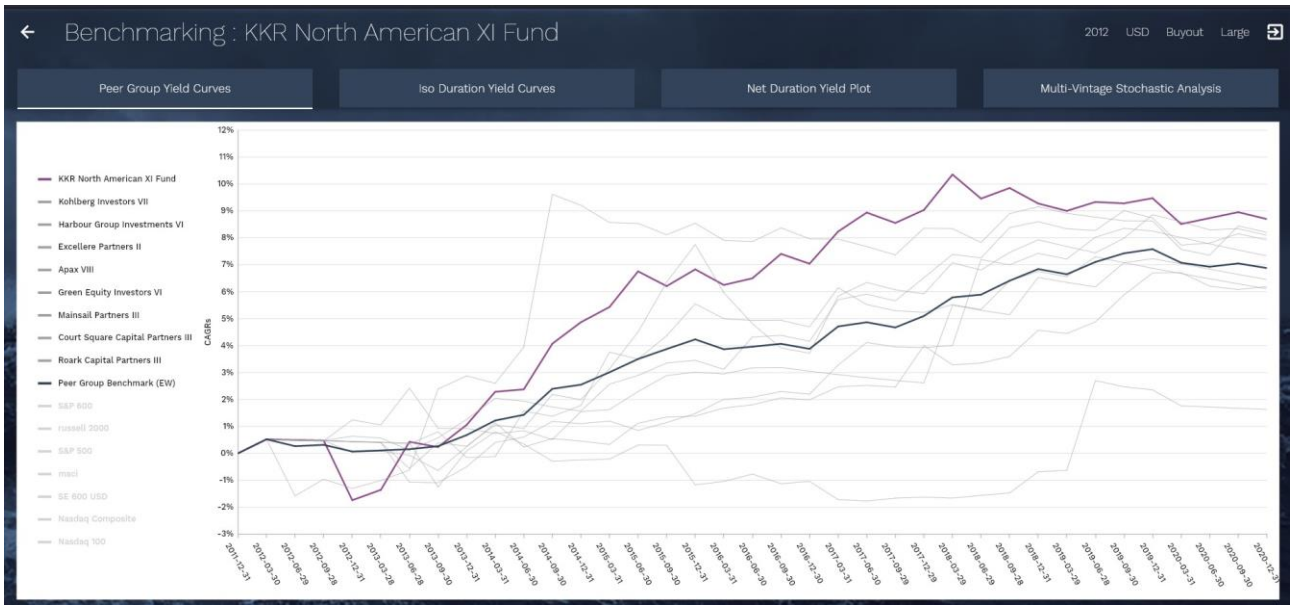
Any risk measure for unlisted PE funds has to consider the self-liquidation feature of their structure and the nature of the incentive (IRR) that dictates, at GPs level, the investment and disinvestment decisions. The problems with IRR are well-known. In this respect, it is clear that IRR does not target relative outperformance (risk premium), rather it favors absolute return and speed of capital turnover.

In this context, the dispersion of total returns and their predictability are more valuable and reliable indicators than the volatility of returns.

The yield curves bell

Time-weighted returns, expressed as since inception horizon CAGRs in the form of yield curves, have powerful informative characteristics.

Let us start analyzing a sample peer group of funds (for illustrative purpose only, US buyout funds of the 2012 vintage, calculated using based on the DARC methodology, and their EW Benchmark).



This form of analysis allows multi-fund, multi-asset and cross-temporal comparability. In addition, it allows, in a quasi-normal probabilistic framework, the simple calculation of the difference in standard deviation terms between the expected mean, as computed on historical returns by vintage periods, and the actual return of the analyzed fund (or funds and combination thereof) that is shown below.

The iso-return curves

Like IRR and PME, traditional quartiles deliver limited information, neglecting the relevance of time and amount of capital (and, possibly, the effect of credit lines).

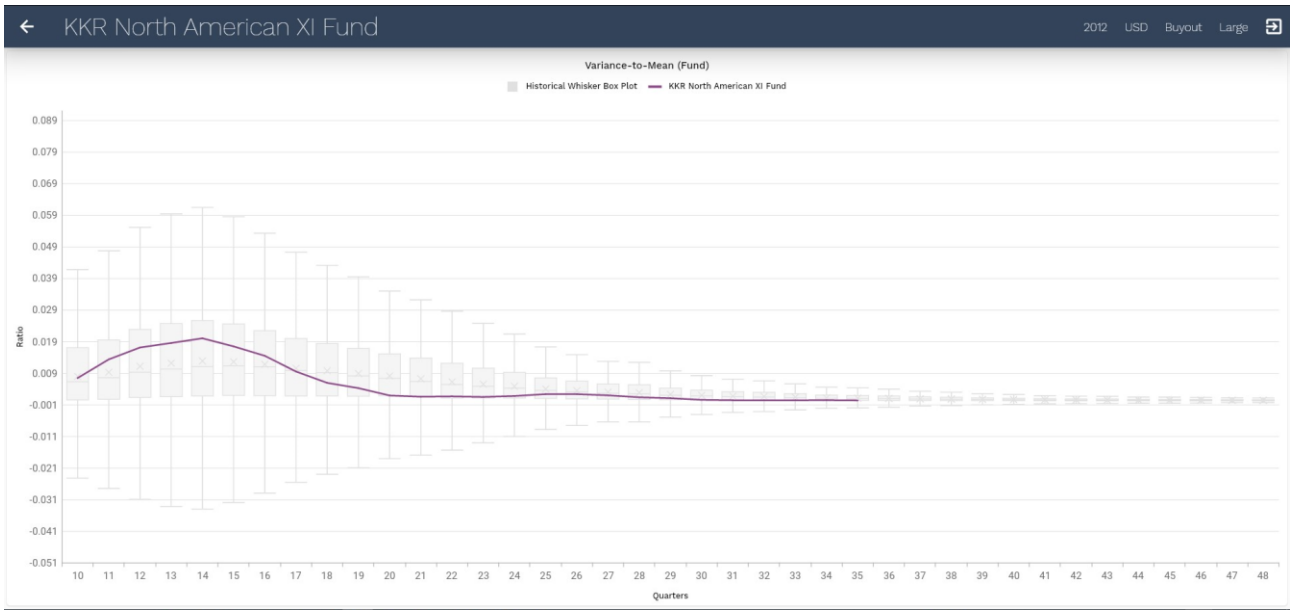
Conversely, the computation of quartiles based on time-weighted returns and duration show the exact performance over time of the notional capital. An equal amount of notional capital is compared over the same time horizon for a peer group of funds – which is a powerful tool for benchmarking.

The ideal theoretical quadrant in which funds fall, assuming the usual duration-return positive trade-off (in a homogeneous cluster of risk), is the top left – the higher the return the better. The iso-duration yield curves refine the analysis and remove all uncertainty, the highest curve representing the diluted wealth creation of

the most attractive fund, all other things equal. This statement holds only if, as in the case of duration-adjusted returns, performance is calculated in time-weighted terms. High IRRs with underlying limited invested capital do not necessarily imply actual wealth creation – which, instead, is the case of time-weighted returns.

The variance-to-mean ratio

The litmus test of both predictability and dispersion, also relative to the public market index, is the variance-to-mean ratio of the selected fund/funds. The variance-to-mean ratios are calculated on multi-periods rolling returns (here 10 quarters). In particular, mean annualized returns since inception are matched to a normalized measure of dispersion, the variance-to-mean ratio, to infer on the degree of dispersion of the return distribution. In statistics, the variance-to-mean ratio is used to measure how dispersed or clustered a set of events are, in a given interval of time or space.



This ratio, when read in the context of the historical vintage range for the funds and for the indices, qualifies performance numbers from a risk perspective (as proxied by the variance of returns) – in other words, the units of return dispersion in terms of units of performance. Generally speaking, variance-to-mean ratios of annualized continuously compounded returns since inception of private equity funds show dispersion readings lower than the public market benchmarks, paving the way for robust forward-looking modelling.

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