Risk Measurement Glossary

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The following glossary, which updates material in Kemp et al. (2000), summarises some of the terms used in risk management in an asset management and pension fund context.

Active management	Portfolio selection process designed to produce higher returns than are purely available from a passive strategy aiming to replicate benchmark performance.
Active risk (or Relative risk)	The risk of performance deviating from the benchmark due to active management.
Absolute risk	The risk of a large fall in capital value (or absolute performance) of an investment portfolio.
Average shortfall	The average level of underperformance relative to the benchmark (or target).
Backward looking risk measure	An approach to measuring portfolio risk based on historical analysis (aka retrospective, ex-post analysis.
Benchmark	A notional portfolio of assets normally comprising three components: (i) Asset class mix (ii) Market indices/peer group average returns within those asset classes (iii) A rebalancing regime Benchmarks can be set by explicitly applying fixed percentage weights to various asset classes and index returns within those asset classes, or indirectly by reference to peer group performance, or by a combination of peer group performance within each asset class and fixed asset class weights. The rebalancing regime defines the rules for re-setting the benchmark asset class weights which change due to relative market movements.
Beta	A measure of the extent to which a portfolio's return moves in line with the market return. A beta of 1 means that each upward or downward movement of 1% in the market should, all other things being equal, generate a 1% upward or downward movement in the portfolio. A beta of less than 1 (or greater than 1) implies that a 1% market movement should, all other things being equal, generate a less than (or greater than) 1% movement in the portfolio
Downside risk	The risk of portfolio performance falling below the benchmark (or target) return.
Downside target	A maximum underperformance level relative to the benchmark return, e.g. -3.0% in any single calendar year.
Duration	The weighted average time to payment of cashflows arising from the securities held within a bond portfolio. Changes in economic conditions usually affect bonds of similar durations in similar ways, and often affect the price of bonds of longer duration more than the price of bonds of shorter duration. Hence, how the average duration of a bond portfolio differs from the duration of its benchmark is a very important component of the risk of such a portfolio.

Expected Worst Loss (in T realisations, say)	This is the expected value of the worst outcome in a sample. As the sample size gets larger, the expected worst outcome usually gets worse. See also Analysis of Expected Worst Loss for Normal random variables
Forward looking risk measure	An approach to measuring portfolio risk based on forecast analysis (aka prospective, ex-ante analysis)
GIPS	Global Investment Performance Standards. Ethical standards for the presentation and calculation of performance. Designed to ensure fair representation and full disclosure of an investment organisation's performance history. A voluntary standard effective from 1 January 2000.
Information ratio	Portfolio return in excess of a benchmark divided by the standard deviation of return relative to the same benchmark. The benchmark is fund specific, e.g. cash, a market index or a peer group average.
Jensen's alpha	Portfolio return in excess of the beta-adjusted benchmark return.
Market risk	The exposure to loss due to market movements.
Normal distribution	A probability distribution commonly used within statistics to represent the likelihood of certain events occurring, with a familiar bell-shape.
Performance attribution	The process of allocating a portfolio's return (absolute or relative to the benchmark) to the various components in the investment decision-making process, e.g. to asset allocation, industry exposures and to individual stock positions.
Performance measurement	The calculation of a portfolio's investment return over a given period to determine the growth in asset values and to facilitate comparison with funds that have similar investment objectives.
Portfolio risk	The risk that a fund's investment objectives are not achieved due to poor performance, excessive volatility etc.
Relative return	The performance of a fund compared to the return on the benchmark
Risk constraints	Formal control ranges or limits on asset mixes, sector or individual stock positions, or on portfolio risk measures such as tracking errors and Value-at-Risk measures, which are intended to act as a limit on the amount of portfolio risk that can be taken.
Risk/reward trade-off	The preferred balance between risk and return, specific to each investor. Determined with reference to the point where incremental risk is justified by increased relative performance.
Risk adjusted performance measurement	The calculation of investment return with explicit allowance for the level of risk incurred. Commonly used measures include: Sharpe ratio, Information ratio, Treynor ratio, Jensen's alpha and Sortino ratio.
Sharpe ratio	Portfolio return in excess of a 'risk-free' rate divided by the standard deviation of return relative to this same 'risk-free' rate. 'Risk-free' is usually taken to mean cash or short-dated treasury bills, even though these may not be 'risk-free' in the context of the investor in question.
Shortfall risk	The probability of failing to achieve the benchmark (or target) return.
Sortino ratio	Portfolio return in excess of a benchmark rate divided by downside standard deviation of returns relative to the same benchmark
Standard deviation	A statistical measure of dispersion or volatility of performance returns (the square root of variance).
Target return	An outperformance level in excess of the benchmark performance, e.g. 2.5%pa over rolling three year periods.
Tracking error	A measure of active risk. The annualised standard deviation of the difference between portfolio return and benchmark return. The measure

	can be used to substantiate past performance or to predict future experience. Forecast tracking errors rely on quantitative modelling techniques; historical tracking errors are based on the observed relative performance. For example, a forecast tracking error of 4.0% implies that there is a c. 67% probability that the portfolio performance will be within 4.0% of the benchmark return (plus or minus) over the following 12 months (as long as relative returns are Normally distributed).
Treynor ratio	Portfolio return in excess of the risk-free rate divided by the portfolio beta.
Value-at-Risk (VaR)	A statistical measure of downside risk. The potential losses on a portfolio over a given future time period with a given confidence. Measured in either absolute terms or relative to a benchmark. See ValueAtRisk for more details. See also Tail VaR (TVaR), Conditional VaR (CVaR) and terms such as Expected Shortfall and Expected Policyholder Deficit that have very similar meanings.
Variance	A statistical measure of dispersion or volatility of performance returns (the square of the standard deviation).
Volatility	A measure of an asset's propensity to rise/fall in value over a specified period of time.
Weight Overlap	A measure of the extent to which the weights of holdings in a portfolio coincide with those in a benchmark. See Weight Overlap for more details.