

## Risk Measurement

[Nematrian website page: [RiskMeasurementIntro](#), © Nematrian 2015]

Key to effective investment management is an appropriate understanding and management of the risks being run within the portfolio. Portfolio risk measurement is a more mathematical discipline than [performance measurement and attribution](#) but can also be potentially quite data intensive. Nematrian web functions that may be particularly relevant for risk measurement and risk management are listed on the [Risk Management Functions](#) page.

An introduction to the theory (and some of the practice) of risk measurement and management is provided by [Kemp \(2005\)](#) and [Kemp \(2009\)](#). A glossary of terms often used in an asset management and pension fund context is set out in a [Glossary](#). For further details on risk attribution please see the [Risk Attribution Theory](#) pages. The most common axiomatic way of developing risk measurement theory involves the concept of a [Coherent](#) risk measure, even if one of the most common risk measures used in practice, [Value-at-Risk](#), is coherent only for a relatively limited range of probability distributions.

Also of interest to readers of this page may be the Nematrian pages on [Portfolio Optimisation](#), [Random Matrix Theory](#), [Clustering techniques for universe selection](#), [Measuring the Average Correlation of Stocks in a Universe](#) and [Liquidity Risk](#).

Readers of [Kemp \(2009\)](#) will appreciate that for some types of risk measurement (particularly ones that aim to price risk consistently with prices in the market, it is important to calibrate risk models to market data. An elaboration of mathematics that can be arise in such circumstances is set out in [Calibrating probability distributions used for risk measurement purposes to market-implied data](#).

### References

[Kemp, M.H.D. \(2005\)](#). Risk Management in a Fair Valuation World. *British Actuarial Journal*, **11**, No. 4, pp. 595-712

[Kemp, M.H.D. \(2009\)](#). *Market consistency: Model calibration in imperfect markets*. John Wiley & Sons [for further information on this book please see [Market Consistency](#)]