



The APT Model

APT (Advanced Portfolio Technology) is a risk analysis tool based on the arbitrage pricing theory (Ross, 1976). It is used to measure the ex-ante risk of a portfolio, the absolute risk or relative risk against a benchmark, and decompose this risk based on a number of explanatory variables.

Compared with other multi-factor models, APT has two unique features:

- Risk factors are not based on ad hoc suppositions but are built on a factor-based analysis of historical data (more than 65,000 securities analysed over rolling 180-week periods)
- The risk profile of each asset comprises a “systematic” portion (variance driven by market-related risk factors) and a “security-specific” part (independent of the market).

APT decomposes the risk of the financial assets based on around twenty systematic and independent factors (orthonormal basis) to simplify the practical applications.

These include:

- Measurement of ex-ante risk of portfolios
- Attribution of this risk to explanatory variables (geographical, sectoral, economic)
- Construction and/or optimisation of the allocation of a portfolio based on constraints (risk limits, regulatory or ad hoc constraints, selection of securities) and preferences
- Simulation of the impact of changes to the composition of a portfolio on its risk profile