@Risk : Cashflow & Earnings-at-Risk

Cashflow-at-Risk and Earnings-at-Risk provides companies information about potential future losses in their contract and asset portfolio. Both risk metrics rely on Monte Carlo simulations of future prices and calculate a distribution of outcomes.

The CfaR and EaR applications are delivered as one AtRisk model, which also provides recommendations about the optimal hedges to minimize the risk.

✓ Assess distributions of cashflows and earnings

✓ Apply to complete portfolio of contracts and assets

✓ Make optimal hedge decisions on forward markets

✓ Get helicopter view for management, full details for analysts

Benefits

Assess potential future losses over longer horizons

The AtRisk model calculates possible cashflow and earnings distributions over the user defined horizon. It shows the expected cashflows and earnings per month, and also the cumulative results over time. The cashflow projections can be used directly in liquidity forecasts, and help to avoid unexpected losses. The earnings projections especially provide insight into the worst-case scenarios..

### Find hedges that protect during unfavorable market conditions

The AtRisk model helps you to find the optimal hedges. These are the forward trades which offer the best protection in case of adverse market movements. Optimal hedges are calculated over the combination of contracts and assets (power plants, gas storage, etc). The result of the hedge optimization may be directly executed in the market.

Earnings-at-Risk or Value-at-Risk?

KYOS offers Cashflow-at-Risk / Earnings-at-Risk (AtRisk model) in addition to the Value-at-Risk. Value-at-Risk is the standard risk metric for banks and many other financial or trading oriented companies.

It measures the potential loss in market value of their trading book between today and some future day, typically tomorrow. In contrast, the AtRisk models are more common in organizations which are less trading oriented, for example because they are processors, producers, shippers or simply active in less liquid markets. Their horizon is typically longer than a single day and the final cashflows or earnings are more relevant than the day-to-day value changes. KYOS specialists can advise which approach is most suitable for your company.


KYOS

Our analytics
Your advantage
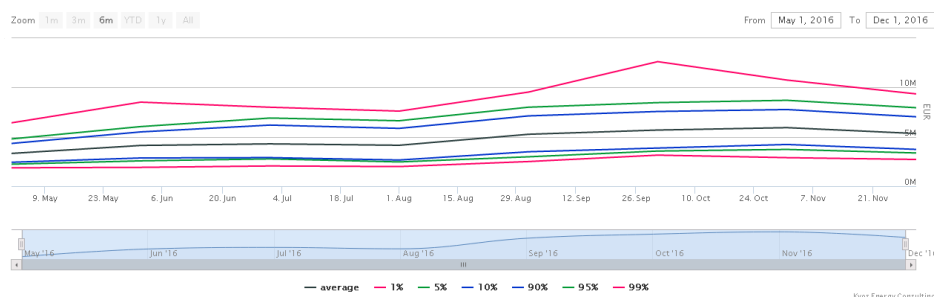
Features

Cashflow-at-Risk and Earnings-at-Risk is calculated over all possible contract structures, including fixed price, spot indexed, and forward indexed.

The AtRisk model and the accompanying simulation model KySim are fully embedded in the KYOS Analytical Platform. This make the application easy to use,and allows results to be disseminated to any person in the organisation.

Histogram graph
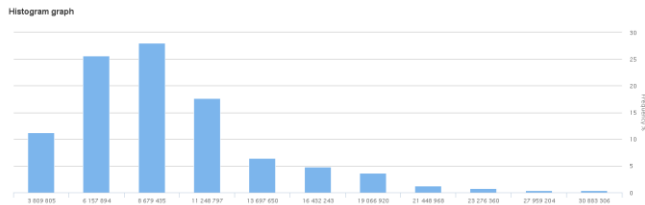
Methodology

The AtRisk model combines a number of inputs to calculate the distributions:

- ✓ Hundreds or thousands of price scenarios from KySim (spot and forward)
- ✓ All parameters of the contracts: volumes, fixed and variable components of the contract price, past settlements, price clicks, etc.
- ✓ For storage, swing, power plant and option contracts: the optimal exercise and corresponding cashflows and earnings. These come from KyPlant, KyStore and KySwing

Cumulative Monthly Earnings Distribution
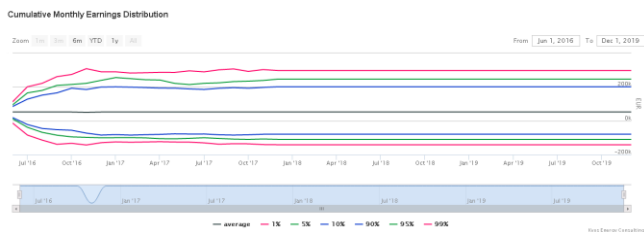
KYOS Analytical Platform

Ky@Risk is fully embedded in the KYOS Analytical Platform. It calculates both Cashflow and Earnings-at-Risk, showing the distribution of future results over longer horizons.

All KYOS Analytical models are developed in Matlab, and part of the KYOS Analytical Platform. Other software modules include:

- **KyPlant:** determine the value of a (portfolio of) power plants by quickly calculating the optimal dispatch,
- **KyStore**: optimize a gas storage and calculate values, delta positions and day-ahead trades
- **KySwing**: helps to generate most income from gas contracts by optimizing the contract flexibility
- **KyCurve**: create detailed hourly price forward curves for power, gas and other commodities
- **KySim**: generate Monte Carlo price simulations, relying on a hybrid approach of statistics and fundamentals
- **KyPF**: generate hourly price forecasts and simulations for one or more power markets.

The KYOS Analytical Platform is developed in PHP. A MySQL or MS SQL database is used for data storage. Compiled Matlab models perform the analytical calculations.

Technical information

The Platform can run on a Windows and on a Linux environment. The platform is delivered by default as cloud solution, and it can also be installed on a local server.

The Platform can operate as a stand-alone software application. Automated price connections are possible and recommended. Connections to other systems for contract data and calculation results can be developed based on customer specifications and the XML protocol.

An installation on a local or cloud server is typically performed in one working day.