

Objectives of Modelling

Effective modelling aims to:

1. Forecast future commodity prices
2. Assess and manage risk exposure
3. Determine fair value of derivatives
4. Optimize trading strategies and portfolio holdings

Challenges in Modelling Commodities

Modeling commodities presents unique challenges:

1. High volatility due to geopolitical and weather factors
2. Seasonality effects, especially in agricultural commodities
3. Mean reversion tendencies in prices
4. Storage costs and convenience yields impacting futures prices
5. Market illiquidity and data limitations

Core Models in Commodities and Derivatives Modelling

Price Dynamics Models

Understanding how commodity prices evolve over time is fundamental. Common models include:

1. Geometric Brownian Motion (GBM)

- Assumes prices follow a stochastic process with constant drift and volatility. - Suitable for modeling financial assets but limited for commodities due to their mean-reversion characteristics.

2. Mean-Reverting Models

