

## TAKE THE NEXT STEP

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A Consistent Market Model is a fundamental object in F3 that provides an arbitrage-free view of the financial markets. The Model contains market data quotes, and it manages the fitting of any curves, surfaces and processes to the market data.

### Introduction

The Consistent Market Model object used in a valuation is specific to the market and the models used for the valuation, and not to any one trade or portfolio of trades.

The Consistent Market Model for pricing a given portfolio of trades is typically designed once, and subsequently refreshed with current market data.

Once designed, the Model only requires updating when new modelling capabilities are required.

### Separation of Roles

The separation a Consistent Market Model from the positions under valuation and Valuation Methods is a fundamental part of the architecture of F3. It allows clear separation of tasks between Traders who handle market data, Structurers who construct the positions and Quants who generate the Valuation Methods.

### Lazy Evaluation

No calibration is performed during the construction of a Consistent Market Model.

The instructions on how to perform calibration are stored for later use, and all calibration is deferred until the last moment.

This enables building large Models supporting a large number of valuations, such as the operations of an entire desk, while at any time only having to run the limited number of calibrations required for a given valuation.

### Calibration

Each calibration is run once, and the results are stored in the Consistent Market Model object for subsequent valuations.

Market quotes can be updated in a Model in a maximally efficient manner. This gives an optimal basis for the analysis of market scenarios.

It is computationally cheap to build a large number of Consistent Market Model objects, one for each scenario.

The only calibrations performed are those that are needed for the valuation.

### Consistency

Entire portfolios and trading books are typically evaluated using the same Consistent Market Model.

This ensures that the modelling assumptions, market data and processes do not vary across positions and hedging instruments, and it helps in managing operational and model risk.

### Generality

A calibrated, complex Consistent Market Model can be swapped with any other Consistent Market Model, including simplistic models constructed with rudimentary flat curves and flat volatility surfaces.

The Model is independent from its construction. This simplifies independent testing and validation of modelling assumptions, without modifying the positions or the portfolios under valuation.

### Efficiency

The concept of a Consistent Market Model generates significant computational efficiencies in calculating large portfolios.

Simulation paths are only created once on the level of the Model, and all positions are evaluated on the fly against each path at the same time.

For a large portfolio, this leads to significantly faster calculation times.

### Risk Management

Separation of modelling assumptions contained in the Consistent Market Model from the positions under valuation simplifies the validation process and risk management, and it enables consistent central control of the market data and modelling assumptions across entire desks and divisions.