UnRisk

Use Case

1.47 Billion Monthly Valuations from a Single Embedded Engine

How Moody's Analytics embedded a scalable quantitative engine into their proprietary ALM platform – with flexible gridding, unlimited usage, and cost predictability at enterprise scale.

1.47 bn
Valuations per month

50,000
Valuations per day, within 15 minutes

40,000
Instruments valued per month

All Major
Asset classes covered

INDUSTRY & CLIENT

MOODY'S

Financial Services, Asset Management. Moody's Analytics provides financial intelligence, risk management software, and data services for financial institutions and corporations.

PRODUCT

UnRisk LIBRARY

with .NET interface

CORE GOAL

Embedded ALM Engine

To embed a highly scalable and cost-effective quantitative engine directly into their proprietary analytics software to offer fast, comprehensive risk and valuation services to their clients.

THE CHALLENGE

Architectural Imperative of Embeddability

Moody's Analytics faced a critical scalability dilemma in their Asset Liability Management (ALM) platform. Standard libraries and in house engines did not meet Moody's scale, latency, and licensing requirements in one setup.
The core challenge was finding a library that could deliver **high volume analytics** across multiple asset classes, support **robust risk metrics,** integrate via .NET, and operate under a cost effective, volume agnostic license. Meeting this architectural requirement meant overcoming four simultaneous barriers for an embedded ALM engine: **volume, speed, price,** and **restrictive licensing.**

THE SOLUTION

Embedded Architecture Solution & Flexible Gridding

Moody's Analytics chose the UnRisk LIBRARY because it could be embedded via a **.NET interface** without restrictive dependencies, enabling a **clean, stateless architecture** inside Moody's proprietary software.
This enables consistent models in production and QA and supports timely ALM reporting and risk steering decisions.
UnRisk also supported flexible gridding, distributing calculations across any number of cores to deliver performance at scale.
With an **unlimited usage** model and a **strategic partnership,** Moody's gained cost predictability while continuously customizing and extending the engine for their ALM needs.

INTEGRATION

- Embedded via .NET interface
- Enabling a clean, stateless architecture

PERFORMANCE

- Flexible gridding
- Performance at scale

COMMERCIAL MODEL

- Unlimited usage
- Cost predictability
- Strategic partnership

> The UnRisk software is exactly what we needed to move our ALM platform forward. Performing tons of valuations in short time only works because of the great scalability of the UnRisk engine across our valuation grid.
>
> The cooperation with the UnRisk team works very well - we especially appreciate the quick responsive support. The UnRisk team continues to help us adapt and extend the library as our ALM needs evolve.
>
> **Matthew Watt, Commercial Product Strategy**

QUANTITATIVE RESULTS

Quantitative Results of the Embedded Engine

The transformation of the ALM tool into a high-performance engine is evidenced by the massive monthly throughput (as of Sept. 2025). A valuation run refers to an instrument level pricing run, including the applied risk metrics used in daily workflows.

ASSET CLASS/ CATEGORY	INSTRUMENT (MONTHLY VOLUME)	VOLUME (SEPT. 2025)	APPLIED VALUATIONS & RISK METRICS (EXAMPLES)
Total Valuation Volume	All Instruments	1,477,542,550	Applied valuations and risk metrics support workflows such as regulatory reporting and daily Value at Risk (VaR) across asset classes
Equities	Equities (878,250,760), Equity Index Options (172,890)	878.4M	Precise Pricing, Marginal VaR, and Contribution VaR for strategic allocation
Fixed Income	Fixed Rate Bonds (554,299,400), Inflation Linked Bonds (10,101,500), Floating Rate Notes (2,888,250), Flipper (1,946,200), Loans/Deposits (183,280), Bond Futures (461,920), Interest Rate Futures (130)	569.9M	Valuation of fixed/floating cash flows, calculation of required capital, and exposure analysis.
FX, Derivatives & Credit	FX Forwards (27,700,000), Swaps (1,559,260), Total Return Swaps (10,930), Swaptions (1,230), CDS & CDS Index (650)	29.3M	Counterparty Risk Management including CVA and DVA via precise exposure simulation.
Specialized Assets	Direct Property (4,570)	4,570	Scenario Analysis to evaluate instrument and portfolio behaviour under diverse market conditions.

RELIABILITY

Maximum consistency is achieved by using the same library for both production calculations and validation (QA).

At this scale, the platform simultaneously meets operational cutoff requirements while maintaining predictable cost and licensing.

BUSINESS IMPACT

Powering Enterprise Wide ALM Decisioning

This setup lets Moody's Analytics deliver granular risk analysis and valuations for ALM strategies. UnRisk LIBRARY serves as the scalable risk and valuation engine that underpins these workflows.

The integration has delivered three primary business advantages:

1. Predictable Costs & Timely Reporting
   Moody's can now run daily reporting within internal cutoffs while keeping costs predictable.

2. Scalable, Fixed-Cost Licensing
   The usage-agnostic licensing model ensures that even as volumes scale to billions of calculations, costs remain fixed and predictable.

3. Comprehensive Fund Ratings
   The 1.47 billion monthly valuations serve as input for comprehensive fund ratings, including:
   - Valuation of financial instruments across major asset classes
   - Calculation of risk metrics to determine exposure and required capital.

By embedding the engine directly into their proprietary ALM platform, Moody's Analytics can now offer high-performance, precision analytics at true enterprise scale.

Discuss your analytics architecture and talk to our team.