

Open Source Risk Engine: Update and Outlook

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Agenda

ORE Update

ORE Outlook





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Recall

The *Open Source Risk Project* aims at establishing a transparent peer-reviewed framework for **pricing and risk analysis** that can serve as

- a benchmarking, validation, training, teaching reference
- an extensible foundation for in-house and vendor solutions
- ... based on QuantLib



Recall

First release in October 2016

Covering IR/FX derivatives, exposure simulation, XVA

Web site, FAQ, Forum:

http://www.opensourcerisk.org

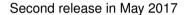
Code base:

https://github.com/OpenSourceRisk/Engine





Recall



Adding

- Bonds
- Inflation Swaps
- Equity Derivatives
- Simulation framework for IR, FX and EQ
- Simulation namework for int, i x and EQ
- Sensitivity analysis and stress testing (for IR and FX products)





Use Cases



A use case we are allowed to quote: Aareal-Bank

Successfully completed a PoC between May and September this year

Now implementing ORE for Market Risk production



Jung aber mächtig.

- ORE war überraschend schnell am laufen.
- Mitgelieferte Beispiele und Dokumentation erleichtern den Zugang.
- Zugang recht intuitiv und aufgeräumt: Beratungsbudget bei weitem nicht ausgeschöpft
- > Stattdessen Sponsoring von fehlenden Features (z.B. Tilgungsstrukturen), wurde schnell umgesetzt.
- Fast vollständige Produktabdeckung.
- > Bugs waren schnell gefunden und schnell beseitigt, kleinere "Wünsche" schnell selbst umgesetzt.
- Markt- und Simulationsbeschreibung ist m\u00e4chtig; f\u00fchrt zu entspr. Konfigurationsaufwand
- Schnittstellen für Geschäfte und Marktdaten sind auf ORE-Seite recht transparent; überraschend schwierig war der Download aus den Quellsystemen
- Die Community könnte größer sein aber die ORE ist ja noch jung.

Die Folgen:

- Als taktisches Instrument im Risikocontrolling nicht mehr wegzudenken.
- ✓ IT-Projekt zur Ablösung von SEM-RA (SAP) durch ORE gestartet.
- ✓ Weiteres quantitatives Proiekt auf ORE als Kernlösung umgeschwenkt.

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Use Cases

Another use case: Acadia Soft in collaboration with Quaternion and Tullett Prebon

Sensitivity service pilot using extended ORE:

- Client portfolio input in FpML format
- Tullett Prebon market data feed
- Pricing, sensitivity analysis, "par" conversion and CRIF generation

SIMM backtesting pilot using extended ORE:

- SIMM backtesting with full revaluation and sensitivity based P&L
- SIMM benchmarking versus Historical Simulation VaR and Delta Gamma VaR with Saddlepoint Approximation



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Third ORE Release

Third release underway, expected arrival in December (this year)

- CMS products
- Credit Default Swaps
- Amortisation structures
- Extended sensitivity framework (adding inflation, equity and credit)
- Added inflation simulation (Dodgson-Kainth model calibrated to CPI Caps/Flors)
- Added basic parametric VaR
- Extended unit test, examples, documentation





2018 ORE Release(s)



What's next

- Credit Simulation
- Postprocessor refactoring
- Some consolidation of ORE's QuantExt into QuantLib?
- Portfolio Credit Risk integrated Credit/Market Risk, Cash and Derivative products
- Commodities



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