Building a Risk System Using MATLAB

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Aegon Asset Management
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Key Takeaways

1. Developed in-house risk management system in MATLAB to have flexibility and control over functionality

2. System integrated in existing IT environment for daily execution

3. System integrated with a third party business intelligence tool
Aegon Asset Management at a glance

- Aegon Asset Management is a global asset manager
  - Investing our clients’ money

- We are helping our clients to manage their financial future
  - Long term investments to meet long term obligations
  - Pension funds and other financial institutions

- Expertise in Fixed Income investment strategies
  - Government bonds, corporate bonds, etc.

- Currently managing € 340 billion assets worldwide
Background

- Subprime debt crisis and government debt crisis in Greece increased risk awareness
- New government regulations require more sophisticated risk calculations
- Clients’ focus on risk management increased
- Increase in the operational effort for risk management team
Innovation Challenges and Achievements

before project:
- weekly risk analysis
- 3 days of operational work
- operational risk

after 1st phase:
- daily risk analysis
- no manual effort
- 3 days of work on risk analysis

after 2nd phase:
- more sophisticated risk calculations

after project:
- flexibility from automated tests

time →
sophistication →
System architecture
Demonstration of Risk Vision

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How did we get there and leverage MathWorks

- MATLAB was used as the main calculation engine

- MATLAB was integrated with a data warehouse

- Multiple MATLAB toolboxes were used:
  - Parallel computing toolbox
  - Database toolbox
  - Statistics toolbox
  - Optimization toolbox

- The unit test framework in MATLAB was used for automated testing
Why MATLAB?

- Easy to learn
- Enables focus on risk management
- Flexible!
Concluding Remarks

- complexity
- flexibility
- reliability

- Giving Aegon Asset Management a competitive advantage in the current market
Thank you!

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