

Master Thesis

Cloud Service Offerings for Risk Management

Offered jointly by:
risklab GmbH
&
Lehrstuhl für Informatik X

About us

risklab GmbH is the expert and global competence center for strategic investment and risk solutions of Allianz Global Investors AG, which is one of the world's largest active asset managers.

risklab provides its services to renowned national and international institutional investors such as pension funds, corporate clients, family offices, wealth managers and mutual funds.

We create innovative and sustainable investment and risk solutions together with our clients in a true partnership approach.

Background

Risk management is a realm of increasing importance for all types of firms, especially after the still ongoing financial crisis. The underlying mathematical models and optimizations required for doing risk analysis are inherently computation-intensive. Hence, computation time reduction opens new horizons of analysis possibilities and is of paramount importance.

A typical problem in finance is the minimization/maximization of expected utility over time. This leads to optimized investment rules with respect to certain goal functions and is usually accomplished by applying stochastic dynamic programming approaches. Within that scope we have to solve the corresponding Hamilton-Jacobi-Bellman partial differential equation backwards in time. Depending on the dimensionality of the underlying problem the numerical approximation of the solution to the PDE on different grids can be very time-consuming. Therefore, we look for an efficient implementation of complex dynamic financial problems that are part of investment management decisions.

Goal

Investigate the requirements, design and implementation of a Cloud Service run by a public HPC center for tackling the specified problem.

Advisor

Advisor from risklab GmbH: Julia Kraus, Fayssal El Moufatic
Advisor from TU München: Prof. Dr. Michael Gerndt

Contact

If you have what it takes to join our cutting-edge organization, please send your CV and letter of motivation to students2011@risklab.com. We look forward to hearing from you.

For more information about risklab GmbH please visit www.risklab.com