

**SEMINAR SERIES**  
**Department of Quantitative Analysis and Operations Management**  
**University of Cincinnati**

**Robustness and Regulatory Risk in Supply Chains**

**Eleni Pratsini**

**Business Optimization Group**  
**IBM Zurich Research Lab, Switzerland**

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**12:30 PM**  
**537 Lindner Hall**

In today's fast changing environment, companies find themselves exposed to great risks. In dealing with ever increasing requirements in regulated industries, companies must develop supply chain strategies that consider those elements of risk that affect the reliability of their products. For their strategic planning they need to take into consideration the business risk exposure and all possible remediation actions. In this study we will present a model with the objective of minimizing a company's exposure to risk while maximizing profit, given a set of available actions, physical as well as financial constraints and a defined rate of change. The risk indices are obtained from a statistical analysis and their expected values are used in the model. However, results from a pilot study indicate that small changes in their values can result in different physical configurations of the supply chain. To deal with this uncertainty in input parameters, various techniques from the field of robust optimization as well as financial optimization were tested.

In this talk, the optimization model will be introduced followed by a real application indicating the effect of parameter uncertainty. Two approaches dealing with parameter uncertainty will then be shown and applied to the problem at hand. The results and limitations of these approaches will be discussed.

Eleni Pratsini leads the Business Optimization Group at the IBM Zurich Research Lab in Switzerland. Her research interests are in the area of modeling and optimization in supply chains. Prior to joining IBM, she was a research scientist at the Swiss Federal Institute of Technology in Zurich (ETHZ), and an Associate Professor at Miami University, Ohio. She holds a B.Sc. in Engineering from Birmingham University, U.K., an MBA from UCLA and a Ph.D. from the University of Cincinnati.

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