

Keynote

A Framework for Risk Management in Supply Chains

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ABSTRACT

In the absence of complete markets for a product, a manufacturer can manage the risk of uncertain demand through a supply chain consisting of a supplier and a wholesaler. The optimal quantity the manufacturer must produce can be stated as an optimization problem.

The supply chain is viable when the contracts contain a premium for the risks of the supplier and the wholesaler. In case a complete market exists for the commodity, these risks and the corresponding premium are readily computed. We propose a ‘fair pricing’ model for incomplete markets. It can be shown that if the processes involved follow a geometric Brownian motion, and the agents have a log utility function, the result reduces to the standard Black-Sholes-Merton formula.

A market for the processes for manufacturing is proposed. The spot price of the good is contingent on the prices of these processes. This leads to an enhancement of the chain.

BIOGRAPHY OF PROF. SAIGAL

Professor Romesh Saigal is Professor of Industrial and Operations Engineering at the University of Michigan, Ann Arbor and has served as the Director of INTERPRO and the Financial Engineering Programs at the university. He has also been on the faculty of the Department of Industrial Engineering and Management Sciences at Northwestern University, Evanston and at the Haas School of Business, University of California at Berkeley. His recent research focuses on Enterprise Risk Management, specifically on risks in Internet Transactions, Global Manufacturing and Supply Chains. His past research has involved General Equilibrium Theory and Computation of Fixed Points, Complementarity Theory, Continuous Optimization, Linear Programming, and Applications of Game Theory. He has over 60 journal publications and two books; and, teaches courses in Operations Modeling, Continuous Optimization and Linear Programming. He has also given lectures on Risk Management in Global Manufacturing at various forums.

Prof. Saigal’s Website: <http://ioe.engin.umich.edu/people/fac/rsaigal.html>

Keynote

Enterprise Risk Management

Kurt Godden
General Motors Research & Development

ABSTRACT

This presentation will focus on GM's activities with respect to Enterprise Risk Management (ERM) and how it relates to supply chain risk. I will provide an overview of ERM and its development within GM, as well as summaries of some lower-level projects that relate to this domain. One theme that will be brought out is how supply chain risk management is becoming ever more complex as multi-national corporations must compete in a global sourcing environment. Not only must a corporation prepare for risk events such as natural disasters and labor disruptions, but in a global supply chain environment, management must also consider the nature of global political and social unrest, the financial risks of currency fluctuations, and the physical risks to components in transit from acts of economic terrorism, piracy and global counterfeiting.

BIOGRAPHY OF DR. GODDEN

Dr. Kurt Godden is a GM Technical Fellow at GM R&D, and currently leads a research program in Business Interruption Risk. He has a Ph.D. in Computational Linguistics from the University of Kansas and an MS in Management of Technology from Rensselaer Polytechnic Institute. Godden has worked most of his career in artificial intelligence and language technologies, most recently as those technologies relate to the automated discovery of threat and risk information from open-source documents. Godden previously worked at Lockheed Martin's Advanced Technology Labs where he was technical director for their work on DARPA's Communicator program. Other positions have included production work for a technology startup in Ann Arbor, as well as a faculty position in computer science at the Illinois Institute of Technology. Godden was first chairman for a task force at the Society of Automotive Engineers and principal author of the SAE's J2450 quality metric, which is now an SAE Standard. Godden has two patents pending at the US Patent Office, and has several other records of invention at various stages of processing.

