

The Hong Kong University of Science and Technology

Department of Information Systems,  
Business Statistics and Operations Management

Seminar Announcement

***Supply Side Story: Risks, Guarantees, Competition and  
Information Asymmetry***

by

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**Date: Friday, 25 November 2011**  
**Time: 1:45 pm – 2:45 pm**  
**Venue: Room 3315 (Lift 17/18)**

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**Abstract:**

The risk of supply disruption increases as firms seek to procure from cheaper, but unproven, suppliers. We model a supply chain consisting of a single buyer and two suppliers, both of whom compete for the buyer's order and face risk of supply disruption. One supplier is comparatively more reliable but also more expensive, while the other unreliable one is cheaper and faces higher risk of disruption. Moreover, the risk level of the unreliable supplier may be private information, and this lack of visibility increases buyer's purchasing risk. In such settings, the unreliable supplier often provides a price and quantity (P&Q) guarantee to the buyer. Our objective is to study the underlying motivation for the guarantee offer and its effects on the competitive intensity and the performance of the chain partners. Our model also includes a spot market that can be utilized by any party to buy or to sell. The spot market price is random, partially depends on the available capacity of the two suppliers and has a positive spread between buying and selling prices. We analytically characterize the equilibrium contracts for the two suppliers, and the buyer's optimal procurement strategy. First of all, our analysis shows that P&Q guarantee allows the unreliable supplier to better compete against the more reliable one by providing supply assurance to the buyer. More importantly, when information asymmetry risk is high, use of guarantee may enable the unreliable supplier to credibly signal her true risk, thereby improving visibility into the chain. This signal can also be used by the buyer to infer the expected spot market price. In spite of the above

benefits, a guarantee offer in an asymmetric setting may not be always desirable for the buyer. Rather, it can reduce competition between the suppliers resulting in higher costs for the buyer.

### **Bio:**

Haresh Gurnani is Department Chair and Professor of Management at the University of Miami, Coral Gables. He also holds the Leslie O. Barnes Professorship in Logistics at the University of Miami. Prior to joining the University of Miami, he was Assistant Professor of Information and Systems Management in the School of Business and Management at the Hong Kong University of Science and Technology. He received the bachelor's degree in Mechanical Engineering from the Indian Institute of Technology, New Delhi, the M.S. in Operations Research and the Ph.D. in Operations Management from Carnegie Mellon University, Pittsburgh, USA. His primary research interests are in supply chain inventory management, bargaining and game theory applications in supply chains, and interface issues with marketing, economics, and information systems. He serves as Senior Editor at Production and Operations Management Journal (where he is co-editing a special issue on Global Supply Risk Management), and Associate Editor for Decision Sciences Journal. He has previously served as Senior Editor for the Journal of Flexible Services and Manufacturing, and Area/Associate Editor at IIE Transactions (Supply Chain Management Department). His articles have been accepted in journals such as Management Science, Journal of International Business Studies, Marketing Science, Naval Research Logistics, Production and Operations Management, IIE Transactions, Journal of Retailing, IEEE Transactions on Semiconductor Manufacturing, European Journal of Operational Research, and other technical journals. He has interacted extensively with industries, including those corporations such as IBM, AT&T, General Motors, and Texas Instruments, along with various Asian companies. He has co-edited a book on Supply Chain Disruptions: Theory and Practice of Managing Risk, to be published by Springer-Verlag in October 2011. Dr. Gurnani is a member of INFORMS, Production and Operations Management Society, and the Manufacturing & Service Operations Management Society.