Eleventh Annual E. Leonard Arnoff Memorial Lecture
On the Practice of Management Science

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Using Management Science to Reduce Enterprise Risks: Defining the Role of Operational and Financial Hedges
7:30 p.m. Thursday, May 30, 2002
112 Carl H. Lindner Hall
College of Business Administration
University of Cincinnati

Reception following in the Lindner Hall Lobby

Abstract
Typical risk management strategies include financial instruments of various types: insurance contracts, long-term contracts, financial derivatives, etc. In many cases, however, operational hedges may be more effective. For example, production capacity in multiple markets can mitigate the effects of currency exchange rate uncertainty by shifting production to take advantage of favorable rates. This capability may not only reduce risk but also lead to higher overall earnings. In this talk, we will show how to construct management science models that consider both financial and operational methods for reducing overall enterprise risks. We will give illustrative examples that show the advantages of operational hedges and consider the nature of markets where these factors are most appropriate.

Biographical Profile
John R. Birge received his M.S. and Ph.D. degrees from Stanford University in Operations Research. His A.B. is from Princeton University in Mathematics. In September 1999, he became Dean of the McCormick School of Engineering and Applied Science and Professor of Industrial Engineering and Management Sciences at Northwestern University. Previous to this appointment, he was Professor and Chair of Industrial and Operations Engineering at the University of Michigan where he had been since 1980. He also established the University of Michigan Financial Engineering Program and was chair from its inception in 1997 until 1999. He has held visiting appointments at the International Institute for Applied Systems Analysis in Vienna, Austria, the Naval Postgraduate School in Monterey, California, the University of New South Wales in Sydney, Australia, and Dalhousie University in Halifax, Nova Scotia.

Professor Birge's work considers the engineering of practical systems in which some outcomes are not completely known before decisions must be made. He focuses on methods for making decisions that must be implemented sequentially over time. His research concerns the modeling of these systems to obtain robust decisions that are not just optimal for a single criterion but that respond favorably to whatever outcomes occur. In particular, he has developed methods for optimal asset and liability allocations over time, efficient periodic scheduling of workers and machines, productive power and energy distribution, and effective allocation of public services. In finance, his work centers on uses of low discrepancy sequences for option pricing, real options for capacity decisions, and asset/liability management.

Professor Birge has worked for and been a consultant to a number of organizations including Deutsche Bank, General Motors, Chrysler Corporation, Volkswagen, Detroit Edison, Herman Miller, TRW, Schlumberger, the Michigan State Senate, the Michigan State Police Troopers Association, and the Comision de Regulacion de Energia y Gas in Colombia. In addition to these activities, he has held grants from the National Science

Foundation (NSF), the National Institute of Justice, the Electric Power Research Institute (EPRI), the Central Research Institute of Electric Power Industry (CRIEPI) in Japan, and the Office of Naval Research.

Professor Birge is former Editor-in-Chief of ***Mathematical Programming, Series B***. He also serves on the editorial boards of ***Mathematical Programming, Series A***, ***SIAM Journal on Optimization***, ***Computational Optimization and Applications***, ***America Journal of Mathematical and Management Sciences***, and the ***International Journal of Operations Management***. He chaired the Fifth International Conference on Stochastic Programming in 1989 and the XV International Symposium on Mathematical Programming in 1994. In 1986, he was selected as an Office of Naval Research Young Investigator. From 1993-1994, he served as Vice-Chair of the University of Michigan Senate Assembly. He served as Vice President-Subdivisions and President of the Institute for Operations Research and Management Science (INFORMS). He is author of two books and more than sixty refereed publications in a variety of journals.