

MECHANICAL ENGINEERING DEPARTMENT
ME/IE 8773-8774

Optimal Timing of Inventory Decisions Using Options

by

Dr. Sridhar Seshadri
Toyota Motor Term Professor
of Operations Management and Information Systems
Leonard Stern School of Business
New York University
New York, NY 10012

Web site: <http://www.stern.nyu.edu/~sseshadr>

Wednesday, October 25, 2006

3:30-4:30 p.m.

Room 1130 ME

Refreshments will be available at 3:15 p.m. in Room 1130 ME before the seminar

ABSTRACT — A firm faces the decision of optimal timing of inventory investment when its forecasts of demand and/or price improve with time but are correlated with, and hence can be hedged with, prices of portfolios in the financial market. We consider this problem using a single period inventory model where demand is realized at time T and the stocking decision may be made at any time in the interval $[0, T]$. The firm is owned by risk-averse investors. Thus, we use a risk-adjusted valuation approach for incomplete markets to determine the optimal timing strategy.

We provide conditions under which postponement is always optimal and conditions under which early exercise of the inventory option takes place. We show the impact of risk-aversion and the volatilities of price and demand on the optimal timing and stocking decisions. Finally, we show how the procurement cost can be changed over time to induce early exercise or postponement of the stocking decision.

I will briefly describe the work I have been doing in the general area of operations finance interface.

BIO — Sridhar Seshadri is the Toyota Professor of Information, Operations and Management Science, at the Leonard N. Stern School of Business, New York University. He received his Bachelor of Technology degree in 1978 from the Indian Institute of Technology, Madras, India, his Post Graduate Diploma in Management in 1980 from the Indian Institute of Management, Ahmedabad, India, and his Ph.D. degree in Management Science in 1993 from the University of California at Berkeley. He is a Fellow of the Institution of Engineers (India).

His primary area of expertise is Stochastic Modeling and Optimization with applications to distribution system, manufacturing system, and telecommunications system design, database design and finance. His current research interests are in the areas of risk management for supply chains and performance measurement, optimization and control of stochastic service systems.

He serves as an Associate Editor for Naval Research Logistics and Management Science and as a senior editor for the Production and Operations Management Journal. He is the Area Editor for Inventory, Reliability and Control for Operations Research Letters. He is on the editorial board of the International Journal of Productivity and Quality Management.

Informal Faculty Luncheon: Wednesday, October 25, 2006, 12:00 noon. Meet in 1100 ME and walk to lunch with other faculty. Prof. Sridhar Seshadri will be able to attend.