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Managerial Economics

FOURTH EDITION

Dominick Salvatore

Managerial Economics in a Global Economy

FOURTH EDITION

Dominick Salvatore
Professor of Economics and Business
Fordham University, New York

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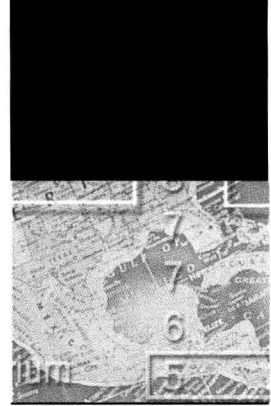
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About the Author

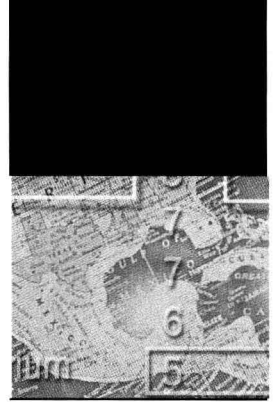
Dominick Salvatore is Professor of Economics and Business at Fordham University. He is chairman of the New York Academy of Sciences and consultant to the Economic Policy Institute in Washington, the United Nations in New York, and various multinational banks and corporations.

Professor Salvatore is the author of 35 books, among which are: *Microeconomics: Theory and Applications* (4th ed., 2001) and *International Economics* (7th ed., 2001), *The Japanese Competitive Challenge and the U.S. Response* (1990), and *Protectionism and World Welfare* (1993). He has also written Schaum's Outlines in *Microeconomics*, *International Economics*, and *Statistics and Econometrics*.

Professor Salvatore is the editor of the *Handbook Series in Economics* for the Greenwood Press. He is the co-editor of the *Journal of Policy Modeling* and *Open Economies Review*, and associate editor of the *American Economist*. His research has been published in more than 100 journal articles in leading business and economics journals and presented at numerous national and international conferences.



INTERNET ADDRESSES



Chapter 1

For the list of the Fortune 500, the Global 500, and America's Most Admired Companies: see:

<http://www.fortune.com/companies>.

For the ranking of the Fortune 500 companies' key industries by revenues, profits, assets, shareholder equity, and return to investors, or any combination of the above factors, see:

<http://www.fortune.com/fortune500>.

For general information and data about the Internet, see:

<http://www.InternetIndicators.com>

Chapter 2

The Internet site addresses for the companies discussed in Chapter 2, see:

AT&T: <http://www.att.com>

Canon: <http://www.usa.canon.com>

Coca-Cola: <http://www.coca-cola.com>

Compaq: <http://www.compaq.com>

Dell: <http://www.dell.com>

DuPont: <http://www.dupont.com>

Ford: <http://www.ford.com>

GE Information Services: <http://www.geis.com>

Hewlett-Packard: <http://www.hp.com>

IBM: <http://www.ibm.com>

Johnson & Johnson: <http://www.jj.com>

McDonald's: <http://www.mcdonalds.com>

Microsoft: <http://www.microsoft.com>

Mobil: <http://www.mobil.com>

Motorola: <http://www.mot.com>

Toyota: <http://www.Toyota.com>

Xerox: <http://www.xerox.com>

Chapter 3

For more information on the companies examined in this chapter, see:

For McDonald's: <http://www.mcdonalds.com>

For Gillette: <http://www.gillette.com>

For Ford: <http://www.ford.com>
For Amazon: <http://www.amazon.com>
For Barnes & Noble: <http://www.barnsandnoble.com>

For more information on e-commerce, see:

The Center for Research in Electronic Commerce at the
University of Texas at Austin at:
<http://cism.bus.utexas.edu>
The Financial Times Web site at: <http://FT.com/ftsurveys>

Chapter 4

For more information on the major commodity exports and imports of the United States and its major trade partners, see the Bureau of Economic Analysis, the Board of Governors of the Federal Reserve System, and the *Economic Report of the President*, respectively, at:

<http://www.bea.doc.gov>
<http://www.federalreserve.gov>
<http://www.gpo.ucop.edu/catalog/erp98.html>

For the top U.S. industrial exporters, see the *Fortune* sites at:

<http://www.fortune.com/fortune500> and <http://www.fortune.com/companies>

See also the Web site for the companies listed in Table 4-10. Following are the Web sites for General Motors, Archer Daniels & Midland, Caterpillar, Philip Morris, Raytheon, United Technologies, and Lockheed Martin:

<http://www.gm.com>
<http://www.admworld.com>
<http://www.caterpillar.com>
<http://www.pmdocs.com>
<http://www.rytheon.com>
<http://www.utc.com>
<http://www.lockheedmartin.com>

Chapter 5

For general conditions of economic activity and forecasts, see the *Survey of Current Business*, the *Federal Reserve Bulletin*, and the *Economic Report of the President* at:

<http://www.bea.doc.gov>
<http://www.federalreserve.gov>
<http://www.gpo.ucop.edu/catalog/erp99.html>

The full business cycle indicators (BCI) database is available at:

<http://www.tcb-indicators.org>
For forecasts of the housing, see:
<http://www.cdpublications.com>
For gasoline consumption, see:

<http://www.techstandards.co.uk/apindex.html>
<http://sciway.net/statistics/scsa98/en/en17.html>
<http://www.eia.doe.gov/historicrgt.html>
For macroeconomic forecasting, see:
<http://fairmodel.econ.yale.edu>
<http://www.mit.edu/people/irons/myjava/ecalc.html>

Chapter 6

For gasoline consumption and substitution, see:

<http://www.techstandards.co.uk/apindex.html>
<http://sciway.net/statistics/scsa98/en/en17.html>
<http://www.eia.doe.gov/historicrgt.html>

For production information on General Motors, Ford, Chrysler, and Toyota, see:

General Motors: <http://www.gm.com>
Ford: <http://www.ford.com>
Chrysler: <http://www.chrysler.com>
Toyota: <http://www.toyota.com>

For competition between Xerox and Canon, see:

Canon: <http://www.usa.canon.com>
Xerox: <http://www.xerox.com>

For the virtual corporation and computer-aided design (CAD) and computer-aided manufacturing (CAM), see:

Microsoft: <http://www.microsoft.com>
Motorola: <http://www.mot.com>
Dell: <http://www.dell.com>
Caterpillar <http://www.caterpillar.com>

For information on the euro and the European Union, see:

For the euro: <http://www.bankofengland.co.uk/piq.htm#euro/index.html>
For the European Central Bank: <http://www.ucb.int>
For the European Commission: <http://www.ispo.cec.be/y2keuro>
Bloomberg: <http://www.bloomberg.co.uk>
Reuters: <http://www.reuters.com>

Chapter 7

For new cost accounting methods for businesses promoted by the Consortium for Advanced Manufacturing - International (CAM-I), visit:

<http://biz.onramp.net/cami/cmsintro.htm>

For economies or diseconomies of scale at General Motors, Ford, and Chrysler, see:

<http://www.gm.com>
<http://www.ford.com>
<http://www.chrysler.com>

For how far afield companies go to reduce costs, see:

Southwest Airlines: <http://www.southwest.com>
Domino Pizza: <http://www.dominos.com>
Federal Express: <http://www.fedex.com>
GE Information Services: <http://www.geis.com>

For learning curves, see:

National Bureau of Economic Research: <http://www.nber.org/papers/w7127>

For business architecture, see;

American Management Association International: <http://www.amanet.org>

For business architecture and its application in the computer industry, see;

Ingram Computers: <http://www.ingrammicro.com>
Apple: <http://www.apple.com>
Compaq: <http://www.compaq.com>
Hewlett-Packard: <http://www.hp.com>
IBM: <http://www.ibm.com>
Dell: <http://www.dell.com>

For competition in industry for commercial aircraft, see:

Lockheed: <http://www.lockheedmartin.com>
Boeing: <http://www.boeing.com>
Airbus: <http://www.airbus.com>

Chapter 8

You can download free versions of the LINDO Systems, Inc. (the leading and most popular supplier of linear programming software for educational instruction and research) at:

<http://www.lindo.com/>

Interesting applications of linear programming are found on the Internet at:

<http://www.lindo.com/library.html>

Anyone can also have a linear programming problem solved on the Internet, free of charge, by a number of different programs, each of which stresses different aspects of the solution, by the Remote Interactive Optimization Testbed (RIOT) at:

<http://riot.ieor.berkeley.edu/riot/index.html>

Chapter 9

For information on the New York Taxis and Limousine Commission, see:

<http://www.ny.com/transportation/taxis>

For information on AT&T, MCI WorldCom, Bell Atlantic, SBC, Ameritech, and Time Warner, see:

<http://www.att.com>
<http://www.wcom.com>
<http://www.bellsouthcorp.com>
<http://www.timewarner.com/corp>

Chapter 10

For the Fortune Global 500 companies, see:

<http://fortune.com/global500>

For the Census of Manufacturers, see:

<http://www.census.gov/mcd/mancen/download/mc92cr.sum>

For OPEC, see:

<http://www.opec.org>

For the Internet site of the companies discussed in this chapter and not discussed before in this text, see:

Procter & Gamble: <http://www.pg.com>
 Nestlé: <http://www.nestle.com>
 Bank of America: <http://www.bankamerica.com>
 Banque Nationale de Paris: <http://www.bnpparibas.com>
 Citigroup: <http://www.citigroup.com>
 Deutsche Bank: <http://www.deutschebank.com>
 Union Bank of Switzerland: <http://www.ubs.com>
 Abbott Laboratories: <http://www.abbott.com>
 Bristol-Meyers Squibb: <http://www.bms.com>
 Johnson & Johnson: <http://www.jj.com>
 Merck: <http://www.merck.com>
 Novartis: <http://www.novartis.com>
 Pfizer: <http://www.pfizer.com>
 American Airlines: <http://www.aa.com>
 America West Airlines: <http://www.americawest.com>
 Continental Airlines: <http://www.continental.com>
 Delta Air Line: <http://www.delta-air.com>
 Trans World Airlines: <http://www.twa.com>
 United Airlines: <http://www.ual.com>

Chapter 11

To read more about pricing strategies, see the article by Gene Koprowski in *Marketing Tools Magazine* at:

http://www.demographics.com/publications/MT/95_mt/9509_mt/mt330.htm

For more on transfer pricing by the Organization for Economic Cooperation and Development (OECD), see:

<http://www.oecd.org/daf/fa/wp6.htm>

More information on value-based pricing, see the article by Kevin Guthrie at:

<http://www.arl.org/scomm/scat/guthrie.html>

For yield management, go to:

<http://mugca.cc.monash.edu.au/~kfarrell/ymrs>

The Internet sites of the companies discussed in this chapter (Gillette, Con Edison, Kodak, Fuji, Continental, GM, and Mercedes-Chrysler) are:

<http://www.gillette.com>

<http://www.conedison.com>

<http://www.kodak.com>

<http://www.fujifilm.co.jp>

<http://www.gm.com>

<http://www.mbusa.com>

For e-commerce at Amazon, e-auctions at eBay, and auction pricing at Priceline, go to:

<http://www.Amazon.com>

<http://www.ebay.com>

<http://www.priceline.com>

Chapter 12

For information on antitrust on the Internet, see:

<http://www.antitrust.org>

Comprehensive antitrust Internet links to the U.S. Department of Justice, the Federal Trade Commission, case summaries, journals, etc. are found in:

<http://www.findlaw.com/01topics/01antitrust/index.html>

For information on the antitrust case against Microsoft and on other pending cases, see:

<http://www.usdoj.gov/atr/index.html>

For the case against antitrust, see the archive of the Fortune Magazine Internet site at:

<http://www.fortune.com>

The Internet site for the Energy Regulatory Commission is:

<http://www.ferc.fed.us>

For information on the companies discussed in this chapter (IBM, AT&T, Con Edison, and Microsoft), see:

<http://www.ibm.com>

<http://www.att.com>

<http://www.conedison.com>

<http://www.microsoft.com>

Information on international trade regulations and rulings is found on the Internet site of the World Trade Organization at:

<http://www.wto.org>

Chapter 13

For a discussion of risk analysis, see the Decision Analysis Society, a subdivision of the Institute of Operations Research and the Management Sciences, at:

<http://faculty.fuqua.duke.edu/daweb>

For DecisionPro, a software package for management decision analysis with a decision tree Component created by the Vanguard Software Corporation, see:

<http://www.vanguardsw.com>

For an analysis of what Coca-Cola is doing to meet its competition, see:

<http://www.coke.com>

The method of measuring risk used by J.P. Morgan is examined at:

<http://www.jpmorgan.com>

For futures trading and hedging, see the Commodity Futures Trading Commission Web site at:

<http://www.cftc.gov>

For the Hedge Fund home page, and Long Term Capital Management, see:

<http://www.hedgefunds.net/lcm.html>

For the testimony before the committee on Banking and Financial Services of the U. S. House of Representatives on the Long Term Capital Management collapse and rescue operation, see:

<http://woodrow.mpls.frb.fed.us/sylloge/tbtf/lcm.html>

Chapter 14

For cost-benefit analysis software provided free by Legacy System Research, see:

<http://www.costbenefit.com/index.htm>

For more information on the supersonic transport plane (SST), see the Internet site for British Airways and Air France, the only two airlines flying the Concorde, at:

<http://www.airfrance.fr>

<http://www.british-airways.com>

Information on the company running the Eurotunnel is found at:

<http://www.eurotunnel.com>

More information on the internal rate of return is found in an article by Ray Martin at:

<http://www.riskworld.com/Nreports/1997/Rmartin/html/nr7aa001.htm>

For more information on Pennzoil's capital budgeting, see:

<http://www.pennzoil.com>

For cost of capital analysis for over 300 industries, see the site of the Ibbotson Associates' *Cost of Capital Review* at:

<http://valuation.ibbotson.com>

For regulation, risk and the cost of international telephone calls, see the Internet site of the world's leading telecom companies (American AT&T, MCI WorldCom and Sprint; Japan's NTT, Deutsche Telekom, France's Alcatel, British Telecom, and Telecom Italia) at:

<http://www.att.com>

<http://www.sprint.com>

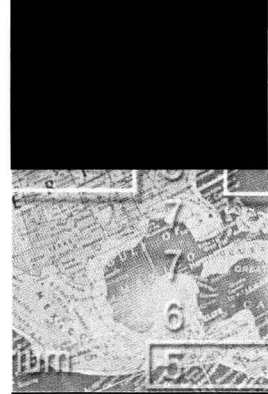
<http://www.ntt.co.jp>

<http://www.dtag.de>

<http://www.alcatel.com>

<http://www.bt.com>

<http://www.telecomitalia.it>



Preface

This is a textbook for the traditional course in managerial economics offered in most business and economics programs. The organization of the text and the topics covered follow the traditional way the course is being taught, but they have been greatly extended in many new and exciting directions to reflect *modern* managerial tools and methods.

The primary aims of this text are:

- *To provide a unifying theme of managerial decision making around the theory of the firm.* This text shows how managerial economics is not the study of unrelated topics but the *synthesis* of economic theory, decision sciences, and the various fields of business administration studies, and it examines how they interact with one another as the firm attempts to reach optimal managerial decisions in the face of constraints.
- *To introduce an international dimension into managerial economics to reflect the globalization of tastes, production, and distribution in today's world.* Other managerial economics texts include only a few examples or an isolated chapter on the international aspects of managerial economics. This text, on the other hand, fully integrates and discusses, in each chapter and for each topic, the international ramifications of managerial economics in today's global economy. This is essential because many of the commodities we consume are imported, and firms today purchase many inputs abroad and sell an increasing share of their outputs overseas. Even more important, domestic firms face more and more competition from foreign producers.
- *To present many new topics and managerial tools not discussed at all or discussed only superficially in other managerial texts.* These include firm architecture, strategic behavior, business ethics, electronic commerce, the economics of information, international risks, the new (international) economies of scale, and learning curves, as well as the virtual corporation, total quality management, reengineering, benchmarking, the learning organization, the new digital factory, bundling, and the business use of the Internet.
- *To show how managerial decisions are actually made in the real world.* The text includes 117 *real-world case studies* (far more than most other texts), as well as 5 longer *integrating case studies* at the end of each of the five parts of the text. Since managerial economics is by nature an applied field, this feature can hardly be overstated. The case studies in this text cover a broad range of topics: benchmarking at Xerox, reengineering at General Electric, Gillette's introduction of the Sensor and Mach3 razors, Ford's world