Financial Modeling Mit Press

Boom and Bust
Data Feminism
Designing Our Complex Future with Machines
Mission-Driven Banks and the Future of Finance
Probability Models for Economic Decisions, second edition
Numerical Techniques in Finance
Democratizing Innovation
The Audio Programming Book
Design Structure Matrix Methods and Applications
Financial Modeling, fifth edition
The Mathematics of Financial Modeling and Investment Management
Just Money
Classical and Gibbs-Sampling Approaches with Applications
Fundamentals, Techniques, and Applications
Systems Thinking Applied to Safety
Financial Modeling for Business Owners and Entrepreneurs
Building Financial Models
An Engine, Not a Camera
Knowledge Graphs
A Global History of Financial Bubbles
Financial Innovation and Risk Sharing
Engineering a Safer World
A Nontechnical View
How Financial Models Shape Markets
Economics of Global Business
The Transformation Myth
Resisting Reduction
Taming the Tide of Capital Flows
A Policy Guide
Developing Excel Models to Raise Capital, Increase Cash Flow, Improve Operations, Plan Projects, and Make Decisions
Empirical Asset Pricing
The Economics of Risk and Time
Models and Methods
Financial Modeling, fourth edition
Principles of Financial Modelling
Model Design and Best Practices Using Excel and VBA
Big Ideas in Macroeconomics
Introduction to the Economics and Mathematics of Financial Markets

LI LEVY

Boom and Bust Cambridge University Press
An innovative textbook for use in advanced undergraduate and graduate courses; accessible to students in financial mathematics, financial engineering and economics. Introduction to the Economics and Mathematics of Financial Markets fills the longstanding need for an accessible yet serious textbook treatment of financial economics. The book provides a rigorous overview of the subject, while its flexible presentation makes it suitable for use with different levels of undergraduate and graduate students. Each chapter presents mathematical models of financial problems at three different degrees of sophistication: single-period, multi-period, and continuous-time. The single-period and multi-period models require only basic calculus and an introductory probability/statistics course, while an advanced undergraduate course in probability is helpful in understanding the continuous-time models. In this way, the material is given complete coverage at different levels; the less advanced student can stop before the more sophisticated mathematics and still be able to grasp the general principles of financial economics. The book is divided into three parts. The first part provides an introduction to basic securities and financial market organization, the concept of interest rates, the main mathematical models, and quantitative ways to measure risks and rewards. The second part treats option pricing and hedging; here and throughout the book, the authors emphasize the Martingale or probabilistic approach. Finally, the third part examines equilibrium models—a subject often neglected by other texts in financial mathematics, but included here because of the qualitative insight it offers into the behavior of market participants and pricing.
Data Feminism MIT Press
How companies can adapt in an era of continuous disruption: a guide to responding to such acute crises as COVID-19. When COVID-19 hit, businesses had to respond almost instantaneously--shifting employees to remote work, repairing broken supply chains, keeping pace with dramatically fluctuating customer demand. They were forced to adapt to a confluence of multiple disruptions inextricably linked to a longer-term, ongoing digital disruption. This book shows that companies that use disruption as an opportunity for innovation emerge from it stronger. Companies that merely attempt to "weather the storm" until things go back to normal (or the next normal), on the other hand, miss an opportunity to thrive. The authors, all experts on business and technology strategy, show that transformation is not a one-and-done event, but a continuous process of adapting to a volatile and uncertain environment. Drawing on five years of research into digital disruption--including a series of interviews with business leaders conducted during the COVID-19 crisis--they offer a framework for understanding disruption and tools for navigating it. They outline the leadership traits, business principles, technological infrastructure, and organizational building blocks essential for adapting to disruption, with examples from real-world organizations. Technology, they remind readers, is not an end in itself, but enables the capabilities essential for surviving an uncertain future: nimbleness, scalability, stability, and optionality.
Designing Our Complex Future with Machines MIT Press
A comprehensive reference for financial economics, balancing theoretical explanations, empirical evidence, and the practical relevance of knowledge in the field. This volume offers a comprehensive, integrated treatment of financial economics, tracking the major milestones in the field and providing methodological tools. Doing so, it balances theoretical explanations, empirical evidence, and practical relevance. It illustrates nearly a century of theoretical advances with a vast array of models, showing how real phenomena (and, at times, market practice) have helped economists reformulate existing theories. Throughout, the book offers examples and solved problems that help readers understand the main lessons conveyed by the models analyzed. The book provides a unique and authoritative reference for the field of financial economics. Part I offers the foundations of the field, introducing asset evaluation, information problems in asset markets and corporate finance, and methods of statistical inference. Part II explains the main empirical facts and the challenges these pose for financial economists, which include excess price volatility, market liquidity, market dysfunctionalities, and the countercyclical behavior of market volatility. Part III covers the main instruments that protect institutions against the volatilities and uncertainties of capital markets described in part II. Doing so, it relies on models that have become the market standard, and incorporates practices that emerged from the 2007–2008 financial crisis.
Mission-Driven Banks and the Future of Finance MIT Press
In An Engine, Not a Camera, Donald MacKenzie argues that the emergence of modern economic theories of finance affected financial markets in fundamental ways. These new, Nobel Prize-winning theories, based on elegant mathematical models of markets, were not simply external analyses but intrinsic parts of economic processes. Paraphrasing Milton Friedman, MacKenzie says that economic models are an engine of inquiry rather than a camera to reproduce empirical facts. More than that, the emergence of an authoritative theory of financial markets altered those markets fundamentally. For example, in 1970, there was almost no trading in financial derivatives such as "futures." By June of 2004, derivatives contracts totaling $273 trillion were outstanding worldwide. MacKenzie suggests that this growth could never have happened without the development of theories that gave derivatives legitimacy and explained their complexities. MacKenzie examines the role played by finance theory in the two most serious crises to hit the world's financial markets in recent years: the stock market crash of 1987 and the market turmoil that engulfed the hedge fund Long-Term Capital Management in 1998. He also looks at finance theory that is somewhat beyond the mainstream—chaos theorist Benoit Mandelbrot's model of "wild" randomness. MacKenzie's pioneering work in the social studies of finance will interest anyone who wants to understand how America's financial markets have grown into their current form.
Probability Models for Economic Decisions, second edition Financial Modeling, fourth edition
Both state-space models and Markov switching models have been highly productive paths for empirical research in macroeconomics and finance. This book presents recent advances in econometric methods that make feasible the estimation of models that have both features. One approach, in the classical framework, approximates the likelihood function; the other, in the Bayesian framework, uses Gibbs-sampling to simulate posterior distributions from data. The authors present numerous applications of these approaches in detail: decomposition of time series into trend and cycle, a new index of coincident economic indicators, approaches to modeling monetary policy uncertainty, Friedman's "plucking" model of recessions, the detection of turning points in the

business cycle and the question of whether booms and recessions are duration-dependent, state-space models with heteroskedastic disturbances, fads and crashes in financial markets, long-run real exchange rates, and mean reversion in asset returns.

Numerical Techniques in Finance MIT Press

Financial modeling is essential for determining a company's current value and projecting its future performance, yet few books explain how to build models for accurately interpreting financial statements. Building Financial Models is the first book to correct this oversight, unveiling a step-by-step process for creating a core model and then customizing it for companies in virtually any industry. Covering every aspect of building a financial model, it provides a broad understanding of the actual mechanics of models, as well as their foundational accounting and finance concepts.

Democratizing Innovation John Wiley & Sons

A substantially revised edition of a bestselling text combining explanation and implementation using Excel; for classroom use or as a reference for finance practitioners. Financial Modeling is now the standard text for explaining the implementation of financial models in Excel. This long-awaited fourth edition maintains the “cookbook” features and Excel dependence that have made the previous editions so popular. As in previous editions, basic and advanced models in the areas of corporate finance, portfolio management, options, and bonds are explained with detailed Excel spreadsheets. Sections on technical aspects of Excel and on the use of Visual Basic for Applications (VBA) round out the book to make Financial Modeling a complete guide for the financial modeler. The new edition of Financial Modeling includes a number of innovations. A new section explains the principles of Monte Carlo methods and their application to portfolio management and exotic option valuation. A new chapter discusses term structure modeling, with special emphasis on the Nelson-Siegel model. The discussion of corporate valuation using pro forma models has been rounded out with the introduction of a new, simple model for corporate valuation based on accounting data and a minimal number of valuation parameters. New print copies of this book include a card affixed to the inside back cover with a unique access code. Access codes are required to download Excel worksheets and solutions to end-of-chapter exercises. If you have a used copy of this book, you may purchase a digitally-delivered access code separately via the Supplemental Material link on this page. If you purchased an e-book, you may obtain a unique access code by emailing digitalproducts-cs@mit.edu or calling 617-253-2889 or 800-207-8354 (toll-free in the U.S. and Canada). Praise for earlier editions “Financial Modeling belongs on the desk of every finance professional. Its no-nonsense, hands-on approach makes it an indispensable tool.” —Hal R. Varian, Dean, School of Information Management and Systems, University of California, Berkeley “Financial Modeling is highly recommended to readers who are interested in an introduction to basic, traditional approaches to financial modeling and analysis, as well as to those who want to learn more about applying spreadsheet software to financial analysis." —Edward Weiss, Journal of Computational Intelligence in Finance “Benninga has a clear writing style and uses numerous illustrations, which make this book one of the best texts on using Excel for finance that I've seen.” —Ed McCarthy, Ticker Magazine

The Audio Programming Book MIT Press

Updates and advances the theory of expected utility as applied to risk analysis and financial decision making.

Design Structure Matrix Methods and Applications MIT Press

A new approach to safety, based on systems thinking, that is more effective, less costly, and easier to use than current techniques. Engineering has experienced a technological revolution, but the basic engineering techniques applied in safety and reliability engineering, created in a simpler, analog world, have changed very little over the years. In this groundbreaking book, Nancy Leveson proposes a new approach to safety—more suited to today's complex, sociotechnical, software-intensive world—based on modern systems thinking and systems theory. Revisiting and updating ideas pioneered by 1950s aerospace engineers in their System Safety concept, and testing her new model extensively on real-world examples, Leveson has created a new approach to safety that is more effective, less expensive, and easier to use than current techniques. Arguing that traditional models of causality are inadequate, Leveson presents a new, extended model of causation (Systems-Theoretic Accident Model and Processes, or STAMP), then shows how the new model can be used to create techniques for system safety engineering, including accident analysis, hazard analysis, system design, safety in operations, and management of safety-critical systems. She applies the new techniques to real-world events including the friendly-fire loss of a U.S. Blackhawk helicopter in the first Gulf War; the Vioxx recall; the U.S. Navy SUBSAFE program; and the bacterial contamination of a public water supply in a Canadian town. Leveson's approach is relevant even beyond safety engineering, offering techniques for “reengineering” any large sociotechnical system to improve safety and manage risk.

Financial Modeling, fifth edition Oxford University Press, USA

How a flexible and creative approach to intellectual property can help an organization accomplish goals ranging from building market share to expanding an industry. Most managers leave intellectual property issues to the legal department, unaware that an organization's intellectual property can help accomplish a range of management goals, from accessing new markets to improving existing products to generating new revenue streams. In this book, intellectual property expert and Harvard Law School professor John Palfrey offers a short briefing on intellectual property strategy for corporate managers and nonprofit administrators. Palfrey argues for strategies that go beyond the traditional highly restrictive “sword and shield” approach, suggesting that flexibility and creativity are essential to a profitable long-term intellectual property strategy—especially in an era of changing attitudes about media. Intellectual property, writes Palfrey, should be considered a key strategic asset class. Almost every organization has an intellectual property portfolio of some value and therefore the need for an intellectual property strategy. A brand, for example, is an important form of intellectual property, as is any information managed and produced by an organization. Palfrey identifies the essential areas of intellectual property—patent, copyright, trademark, and trade secret—and describes strategic approaches to each in a variety of organizational contexts, based on four basic steps. The most innovative organizations employ multiple intellectual property approaches, depending on the situation, asking hard, context-specific questions. By doing so, they achieve both short- and long-term benefits while positioning themselves for success in the global information economy.

The Mathematics of Financial Modeling and Investment Management MIT Press

Provocative, hopeful essays imagine a future that is not reduced to algorithms.
Just Money MIT Press
A new way of thinking about data science and data ethics that is informed by the ideas of intersectional feminism. Today, data science is a form of power. It has been used to expose injustice, improve health outcomes, and topple governments. But it has also been used to discriminate, police, and surveil. This potential for good, on the one hand, and harm, on the other, makes it essential to ask: Data science by whom? Data science for whom? Data science with whose interests in mind? The narratives around big data and data science are overwhelmingly white, male, and techno-heroic. In Data Feminism, Catherine D'Ignazio and Lauren Klein present a new way of thinking about data science and data ethics—one that is informed by intersectional feminist thought. Illustrating data feminism in action, D'Ignazio and Klein show how challenges to the male/female binary can help challenge other hierarchical (and empirically wrong) classification systems. They explain how, for example, an understanding of emotion can expand our ideas about effective data visualization, and how the concept of invisible labor can expose the significant human efforts required by our automated systems. And they show why the data never, ever “speak for themselves.” Data Feminism offers strategies for data scientists seeking to learn how feminism can help them work toward justice, and for feminists who want to focus their efforts on the growing field of data science. But Data Feminism is about much more than gender. It is about power, about who has it and who doesn't, and about how those differentials of power can be challenged and changed.
Classical and Gibbs-Sampling Approaches with Applications MIT Press
An introduction to the theory and methods of empirical asset pricing, integrating classical foundations with recent developments. This book offers a comprehensive advanced introduction to asset pricing, the study of models for the prices and returns of various securities. The focus is empirical, emphasizing how the models relate to the data. The book offers a uniquely integrated treatment, combining classical foundations with more recent developments in the literature and relating some of the material to applications in investment management. It covers the theory of empirical asset pricing, the main empirical methods, and a range of applied topics. The book introduces the theory of empirical asset pricing through three main paradigms: mean variance analysis, stochastic discount factors, and beta pricing models. It describes empirical methods, beginning with the generalized method of moments (GMM) and viewing other methods as special cases of GMM; offers a comprehensive review of fund performance evaluation; and presents selected applied topics, including a substantial chapter on predictability in asset markets that covers predicting the level of returns, volatility and higher moments, and predicting cross-sectional differences in returns. Other chapters cover production-based asset pricing, long-run risk models, the Campbell-Shiller approximation, the debate on covariance versus characteristics, and the relation of volatility to the cross-section of stock returns. An extensive reference section captures the current state of the field. The book is intended for use by graduate students in finance and economics; it can also serve as a reference for professionals.
Fundamentals, Techniques, and Applications Web PR Is US
Franklin Allen and Douglas Gale assemble some of their key papers along with a five-chapter overview that not only synthesizes their work but provides a historical and institutional review and a discussion of alternative approaches as well.
Systems Thinking Applied to Safety MIT Press
How to use finance as a tool to build a more equitable and sustainable society. Money defines our present and will shape our future. Every investment decision we make adds a chapter to the story of what our world will look like. Although the idea of mission-based finance has been around for decades, there is a gap between organizations' stated intention to "do good" and meaningful impact. Still, some are succeeding. In Just Money, Katrin Kaufer and Lillian Steponaitis take readers on a global tour of financial institutions that use finance as a force for good.
Mit Press
An introduction to a powerful and flexible network modeling tool for developing and understanding complex systems, with many examples from a range of industries. Design structure matrix (DSM) is a straightforward and flexible modeling technique that can be used for designing, developing, and managing complex systems. DSM offers network modeling tools that represent the elements of a system and their interactions, thereby highlighting the system's architecture (or designed structure). Its advantages include compact format, visual nature, intuitive representation, powerful analytical capacity, and flexibility. Used primarily so far in the area of engineering management, DSM is increasingly being applied to complex issues in health care management, financial systems, public policy, natural sciences, and social systems. This book offers a clear and concise explanation of DSM methods for practitioners and researchers.
Financial Modeling for Business Owners and Entrepreneurs MIT Press
Why do stock and housing markets sometimes experience amazing booms followed by massive busts and why is this happening more and more frequently? In order to answer these questions, William Quinn and John D. Turner take us on a riveting ride through the history of financial bubbles, visiting, among other places, Paris and London in 1720, Latin America in the 1820s, Melbourne in the 1880s, New York in the 1920s, Tokyo in the 1980s, Silicon Valley in the 1990s and Shanghai in the 2000s. As they do so, they help us understand why bubbles happen, and why some have catastrophic economic, social and political consequences whilst others have actually benefited society. They reveal that bubbles start when investors and speculators react to new technology or political initiatives, showing that our ability to predict future bubbles will ultimately come down to being able to predict these sparks.
Building Financial Models MIT Press
A rigorous and comprehensive textbook covering the major approaches to knowledge graphs, an active and interdisciplinary area within artificial intelligence. The field of knowledge graphs, which allows us to model, process, and derive insights from complex real-world data, has emerged as an active and interdisciplinary area of artificial intelligence over the last decade, drawing on such fields as natural language processing, data mining, and the semantic web. Current projects involve predicting cyberattacks, recommending products, and even gleaning insights from thousands of papers on COVID-19. This textbook offers rigorous and comprehensive coverage of the field. It focuses systematically on the major approaches, both those that have stood the test of time and the latest deep learning methods.
An Engine, Not a Camera MIT Press

An accessible description of modern macroeconomics, and a defense of its policy relevance. Macroeconomists have been caricatured either as credulous savants in love with the beauty of their mathematical models or as free-market fundamentalists who admit no doubt as to the market's wisdom. In this book, Kartik Athreya draws a truer picture, offering a nontechnical description of prominent ideas and models in macroeconomics, and arguing for their value as interpretive tools as well as their policy relevance. Athreya deliberately leaves out the technical machinery, providing an essential guide to the sometimes abstract ideas that drive macroeconomists' research and practical policy advice. Athreya describes the main approach to macroeconomic model construction, the foundational Walrasian general-equilibrium framework, and its modern version, the Arrow-Debreu-McKenzie (ADM) model. In the heart of the book, Athreya shows how the Walrasian approach shapes and unifies much of modern macroeconomics. He details models central to ongoing macroeconomic analyses: the neoclassical and stochastic growth models, the standard incomplete-markets model, the overlapping-generations model, and the standard search model. Athreya's accessible primer traces the links between the views and policy advice of modern macroeconomists and their shared theoretical approach.

Knowledge Graphs MIT Press

The authors argue that the view that market-based systems are best is simplistic; a more nuanced approach is necessary. Financial systems are crucial to the allocation of resources in a modern economy. They channel household savings to the corporate sector and allocate investment funds among firms; they allow intertemporal smoothing of consumption by households and expenditures by firms; and they enable households and firms to share risks. These functions are common to the financial systems of most developed economies. Yet the form of these financial systems varies widely. In the United States and the United Kingdom competitive markets dominate the financial landscape, whereas in France, Germany, and Japan banks have traditionally played the most important role. Why do different countries have such different financial systems? Is one system better than all the others? Do different systems merely represent alternative ways of satisfying similar needs? Is the current trend toward market-based systems desirable? Franklin Allen and Douglas Gale argue that the view that market-based systems are best is simplistic. A more nuanced approach is necessary. For example, financial markets may be bad for risk sharing; competition in banking may be inefficient; financial crises can be good as well as bad; and separation of ownership and control can be optimal. Financial institutions are not simply veils, disguising the allocation mechanism without affecting it, but are crucial to overcoming market imperfections. An optimal financial system relies on both financial markets and financial intermediaries.