

Claremont Graduate University
Economics Department
ECON 337 Far-from-Equilibrium Economics and Finance

Contact Information

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Course Schedule

Semester start/end dates:

Meeting day, time:

Course Location:

Course Description

In this course we will review the history and development of modern portfolio theory, evaluate the empirical evidence on its applicability to real world markets, critically review recent attempts to develop new approaches to financial economics, including behavioral finance and complex systems, and attempt to integrate them into a consistent view of capital markets.

Background Preparations (Prerequisites)

Graduate micro, macro, and a working knowledge of econometrics.

Texts

Required: Montier, (2002). *Behavioral Finance*
Bak (1999), *How Nature Works: The Science of Self-Organized Criticality*
Sornette (2003). *Why Stock Markets Crash*

Optional: Bodie, Kane, and Marcus (2013). *Investments*
Mitchell (2010), *Complexity: A Guided Tour*

Student Learning Outcomes:

By the end of this course, students will be able to:

1. Have a working familiarity with the history of economic thought and current research in financial economics.
2. Understand the use of Intrinsic Value, or Fundamental Analysis, in estimating the value of uncertain cash flow streams in both liquid (public equities) and illiquid (private equity and real estate markets).

3. Understand and have a working knowledge of the main approaches used to analyze capital markets in a state of equilibrium known as Modern Portfolio Theory (MPT) including Mean-Variance Analysis, Optimum Portfolios, Efficient Frontiers, Tobin's Two-Fund Separation Theorem, the Capital Asset Pricing Model (CAPM), Arbitrage Pricing Theory (APT), Multi-Factor Models, the Inter-temporal Capital Asset Pricing Model (ICAPM), The Black-Scholes model, and Real Options Theory.
4. Be aware of the key results from the extensive empirical literature that have led many to question the applicability of Modern Portfolio Theory to real world markets. These results come in two forms: 1) statistical anomalies that are inconsistent with arbitrage-free equilibrium in a market of rational investors, and 2) the frequency of financial crises that challenge the notion that capital markets are in equilibrium at all times.
5. Understand the key arguments in new areas of microeconomics, including behavioral finance, experimental economics, and neuro-economics, that have been recently developed to explain the anomalous behavior of markets.
6. Understand recent developments in complex adaptive systems that shed light on financial crises, credit crises, and financial panics viewed as cascading network failures; the statistical properties of phase transitions.
7. Integrate the ideas of Modern Portfolio Theory, Behavioral Finance, and Complex Adaptive Systems to arrive at an understanding of the financial markets, which is both logical and systematic and able to embrace the complexities of real-world markets.
8. Apply the ideas in empirical work in finance and portfolio management.

Topics Covered in the Course:

1. Overview: History of Finance and the State of Economics and Finance Today

- Economist (2009). "Briefing, the State of Economics and Finance"
- Krugman (2009). "How Did Economists Get It So Wrong"
- Cochrane (2009). "How Did Krugman Get it So Wrong"
- Financial Times (2009). "Lessons and Limits of Behavioral Finance Unpicked"
- Economist (2010). "Agents of change: Agent-Based Modeling"

2. Intrinsic Value

Discounted Free Cash Flow; Private Equity Valuation Methods; Real Estate Valuation Methods; Intrinsic Risk. I will bring material to the class to review. For those wanting to dig more deeply into Intrinsic Value analysis the following are standard references on the subject although you will not be expected to know them for the class.

- McTaggart (1994). *Value Imperative: Managing for Superior Shareholder Returns*.
- Stewart (1991), *Value Imperative: Managing for Superior Shareholder Returns*.
- Pratt (2007). *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*.

3. Modern Portfolio Theory

Markowitz Mean-Variance Analysis; Capital Asset Pricing Model; Arbitrage Pricing Theory; Multi-Factor Models; Inter-temporal Capital Asset Pricing Theory; Black-Scholes; Real Option Theory

- Fama (1970). "Efficient capital markets: A Review of Theory and Empirical Work."
- Fama (1991). "Efficient markets II"
- Fama (1998). "Market Efficiency, Long-Term Returns and Behavioral Finance."
- Fama (2011). "My Life in Finance."
- Fama, Eugene and Kenneth French. 2004. "The Capital Asset Pricing Model: Theory and Evidence."
- Markowitz, Harry (1952). "Portfolio Selection."
- Merton (1973). "An Inter-temporal Capital Asset Pricing Model."
- Ross (1976). "The Arbitrage Theory of Capital Asset Pricing."
- Roll, Richard (1977). "A Critique of the Asset Pricing Theory's Tests."
- Tobin, James (1958). "Liquidity Preference as Behavior Towards Risk."
- Markowitz (1959). *Portfolio Selection: Efficient Diversification of Investments*.

4. Empirical studies

- Economist (2011). "Momentum in financial markets."
- Shleifer (2000). Inefficient Markets." Ch.1, Ch. 7.
- Fama, French (1993). "Common Risk Factors in the Returns on Stocks and Bonds."
- Fama, French (1992). "The Cross-Section of Expected Stock Returns."
- Fama, French (1996). "Multifactor Explanations of Asset Pricing Anomalies."
- Fama, French (1998). "Value Versus Growth: The International Evidence." The Journal of Finance, 53(6), 1975-99.
- Jegadeesh, Titman. (2001). "Profitability of Momentum Strategies: An Evaluation of Alternative Explanations."
- Jensen (1967). "The Performance of Mutual Funds in the Period 1945-1964."
- Poterba and Summers (1988). "Mean Reversion in Stock Prices."
- Lakonishok, Shleifer, Vishny (1994). "Contrarian Investment, Extrapolation, and Risk."
- Grinblatt, Titman, Wermers (1995), "Momentum Investment Strategies, Portfolio Performance, and Herding."
- La Spada, Farmer, Lillo (2007) "The Non-Trivial Random Walk of Stock Prices."
- Lee, Swaminathan (2001). "Price Momentum and Trading Volume"

5. Behavioral Finance

- Barber, Odean (2001). "Gender, Overconfidence, and Common Stock Investment."
- Sewell (2007). "Behavioral Finance Introduction"
- Kahneman, Tversky (1974). "Judgment Under Uncertainty: Heuristics and Biases."
- Kahneman, Tversky (1981). "The Framing of Decisions and the Psychology of Choice."
- Kahneman Tversky (1992). "Cumulative Prospect Theory."
- Barberis, Thaler (1993). "A Survey of Behavioral Finance."
- Barberis, Thaler (2002). "A Survey of Behavioral Finance."
- Barberis (2001). "Prospect Theory and Asset Prices."
- Barberis, Shleifer, Vishney (1998), "A Model of Investor Sentiment."
- De Bondt, Thaler (1987). "Further Evidence on Investor Overreaction."
- Hong, Stein (1999), A Unified Theory of Underreaction, Momentum Trading, and Overreaction in Asset Markets
- Willett (2009). "The Role of Mental Models in Generating the Current Financial Crisis."
- Chung (2010), "When does sentiment predict stock prices?"
- Yu, Yuan (2011). "Investor Sentiment and the Mean Variance Relation."
- Odean (1999), Do investors trade too much?

- Montier (2002). *Behavioral Finance*.
- Kahneman, Slovic, Tversky (1982). *Judgment Under Uncertainty*.
- Kahneman, Tversky (2000). *Choices, Values, and Frames*.
- Gilovich, Griffin, Kahneman (2002). *Heuristics and Biases: The Psychology of Intuitive Judgment*.
- Shleifer (2000). *Inefficient Markets: An Introduction to Behavioral Finance*.
- Thaler (1993). *Advances in Behavioral Finance*.
- Thaler (2005). *Advances in Behavioral Finance Vol. II*.

6. Complex Adaptive Systems

- Mitchell (2010), *Complexity: A Guided Tour*
- Prigogine (2005). "The Rediscovery of Value and the Opening of Economics."
- Schneider, Sagan (2005), "Appendix: Principles of Open Thermodynamic Systems."
- Gabaix (2010). "Power Laws in Economics and Finance."
- Ehrenberg (2011). "Beware the Long Tail."
- Farmer, Geanakoplos (2009). "The Virtues and Vices of Equilibrium."
- Brunnermeier, Oehmke, (2009). "Complexity in Financial Markets."
- Beinhocker (2006), *The Origin of Wealth*. Ch. 1-3.
- Prigogine (1996). *The End of Certainty*.
- Schneider, Sagan (2005). *Into the Cool: Energy Flow, Thermodynamics, and Life*.
- Schrodinger (1946). *What is Life? The Physical Aspect of the Living Cell*.

7. Network Theory, Cascading Network Failures, Phase Transitions

- Barabasi (1999). "Emergence of Scaling in Random Networks."
- Schweitzer (2009). "Economic Networks: The New Challenges."
- Schweitzer (2009). "Economic Networks, What do we know and what do we need to know?"
- Allen and Brabus (2009). "Networks in Finance."
- Cont (2010). "Network Structure and Systemic Risk in Banking Systems, Brazil."
- Cruz (2012). "The dynamics of financial stability in complex networks."
- Chinazzi (2012). "Post-Mortem Examination of the International Financial Network."
- Schiavo (2008). "International trade and financial integration, a weighted network analysis."
- Barabasi (2002). *Linked: How Everything is Connected to Everything Else and What it Means*.
- Watts (2003). *Six Degrees: The Science of a Connected Age*.

- Newman, Barabasi, Watts (2006). *The Structure and Dynamics of Networks*.
- Sole (2011). *Phase Transitions*.

8. Financial Crises and Asset Markets

- Bak, Chen, Scheinkman, Woodford (1993). "Aggregate Fluctuations from Independent Sectoral Shocks: Self-Organized Criticality in a Model of Production and Inventory Dynamics."
- Bak, Paczuski (1995). "Complexity, Contingency, and Criticality."
- Sornette, Woodard (2009). "Financial Bubbles, Real Estate Bubbles, Derivative Bubbles, and the Financial and Economic Crisis."
- Chinazzi, Fagiolo (2013). "Systemic Risk, Contagion, and Financial Networks: A Survey."
- Ahern (2012). "Network Centrality and the Cross Section of Stock Returns."
- Battiston, Delli Gatti, Gallegati, Greenwald Stiglitz (2012). "Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk."
- Gorban, Smirnova, Tyukina (2010). "Correlations, Risk and Crisis: From Physiology to Finance."
- Gulden (2013). "Agent-Based Modeling as a Tool for Trade and Development Theory."
- Luo (2013). "The Power-of-Pull of Economic Sectors: A Complex Network Analysis."
- Kaizoji, (2006). "A Precursor of Market Crashes: Empirical Laws of Japan's Internet Bubble,"
- Allen, Gale (2000). "Financial Contagion."
- Reinhart, Rogoff (2009). "This Time is Different, Preface, ch1, ch17."
- Laeven (2011). "Banking Crisis A Review."
- Elliott (2012). "Financial Networks and Contagion."
- Barwell, Burrows (2011). "Growing Fragilities: Balance Sheets in the Great Moderation."
- Khandani, Lo (2008). "What Happened to the Quants in August 2007?"
- Chen, Ghate (2011). "Financial Contagion on Power Law Networks."
- Gai, Kapadia (2010). "Contagion in financial networks."
- Kelly (2012). "Tail Risk and Asset Prices."
- Willett (2005). *The Asian Crises Reexamined*
- Claessens, Kose (2013). "Financial Crises: Explanations, Types, and Implications."
- Reinhart, Rogoff (2009). *This Time Is Different: Eight Centuries of Financial Folly*.
- Mandelbrot (1997). *Fractals and Scaling in Finance*.
- Mandelbrot (2004). *The (Mis)Behavior of Markets*.

- Sornette (2003). *Why Stock Markets Crash: Critical Events in Complex Financial Systems*.
- Taleb (2010). *The Black Swan*.
- Mackay (1841). *Extraordinary Popular Delusions and the Madness of Crowds*
- Kindleberger, Aliber (2005). “*Manias, Panics, and Crashes*.”

8. Integrating the differing perspectives into a consistent view

- Rutledge (2012). “Financial Weather Map.”
- Rutledge (2010). “On the Optimality of Non-optimal portfolios.”
- Rutledge (2009). *Road Warrior*.

Grading

Your grade will be calculated using the following scale. Grades with plus or minus designations are at the professor’s discretion.

<i>Letter Grade</i>	<i>Grade Point</i>	<i>Description</i>	<i>Learning Outcome</i>
<i>A</i>	<i>4.0</i>	<i>Complete mastery of course material and additional insight beyond course material</i>	<i>Insightful</i>
<i>B</i>	<i>3.0</i>	<i>Complete mastery of course material</i>	<i>Proficient</i>
<i>C</i>	<i>2.0</i>	<i>Gaps in mastery of course material; not at level expected by the program</i>	<i>Developing</i>
<i>U</i>	<i>0</i>	<i>Unsatisfactory</i>	<i>Ineffective</i>

Continual matriculation at CGU requires a minimum grade point average (GPA) of 3.0 in all coursework taken at CGU. Students may not have more than two incompletes. Details of the policy are found on the Student Services webpage (<http://www.cgu.edu/pages/5081.asp>).

Selected References

The following is a list of my personal references to the topics we will cover in the course. We won't cover all of them in this course but I hope the list may be of help to students in finding research topics in the area. I will have copies of all of the books and many of the articles available for students who want to make copies to help with research topics. I will upload a large number of them to the Files section of the Canvas site.

2010. "Agents of Change: Conventional Economic Models Failed to Foresee the Financial Crisis. Could Agent-Based Modeling Do Better?," *The Economist*. London: The Economist,

2011. "Momentum in Financial Markets," *The Economist*. London: The Economist,

Ahern, Kenneth. 2012. "Network Centrality and the Cross Section of Stock Returns,"

Akerlof, George A. 2003. "Behavioral Macroeconomics and Macroeconomic Behavior." *American Economist*, 47(1), 25-48.

Allen, Franklin and Ana Brabus. 2009. "Networks in Finance," P. Kleindorfer and J. Wind, *Network-Based Strategies and Competencies*. Philadelphia: Wharton School Publishing,

Allen, Franklin and Douglas M. Gale. 2000. "Financial Contagion." *Journal of Political Economy*, 108(1), 1-33.

_____. 2007. "An Introduction to Financial Crises," M. Blaug, Edward Elgar,

Anand, Kartik; Simon Brennan; Prasanna Gai and Matthew Willison. 2011. "A Network Model of Financial System Resilience,"

Anderson, Philip; Kenneth Arrow and David Pines. 1988. *The Economy as an Evolving Complex System*. Boulder: Westview Press.

Andrew W. Lo, Mark T. Mueller. 2010. "Warning: Physics Envy May Be Hazardous to Your Wealth!" *arXiv.org*.

Antonelli, Cristiano and Gianluigi Ferraris. 2011. "Innovation as an Emerging System Property: An Agent Based Simulation Model." *Journal of Artificial Societies and Social Simulation*, 14(2), 1.

Archila, Javier Sandoval. 2010. "“Crashes” De Mercado. Una Aproximación Desde El Estudio De Sistemas Complejos Y Microsimulación." *ODEON, No. 5, 2010*, 293-309.

Ariely, Dan. 2010. *Predictably Irrational*. New York: Harper collins.

Arthur, Brian. 1994. *Increasing Returns and Path Dependence in the Economy*. Ann Arbor: University of Michigan Press.

Arthur, Brian; Steven Durlauf and David Lane. 1997. *The Economy as an Evolving Complex System Ii*. Boulder: Westview Press.

- Arthur, W. Brian. 1999. "Complexity and the Economy." *Science*, 284(5411), 107-09.
- Axelrod, Robert. 1997. *The Complexity of Cooperation: Agent-Based Models of Competition and Collaboration*. Princeton: Princeton University Press.
- Bak, P. 1996. *How Nature Works: The Science of Self-Organized Criticality*. New York: Springer Verlag.
- Bak, P and Maya Paczuski. 1995. "Complexity, Contingency, and Criticality." *Proceedings of the National Academy of Sciences*, 92(15), 6689-96.
- Bak, P; C Tang and K Wiesenfeld. 1987. "Self-Organized Criticality: An Explanation of the 1/F Noise." *Physical Review of Letters*, 59(4), 381-84.
- Bak, Per; Kan Chen; Jose Scheinkman and Michael Woodford. 1993. "Aggregate Fluctuations from Independent Sectoral Shocks: Self-Organized Criticality in a Model of Production and Inventory Dynamics." *Recherche Economique*, 47(1), 3-30.
- Baker, H. Kent and John Nofsinger. 2010. *Behavioral Finance: Investors, Corporations and Markets*. New York: Wiley.
- Barabasi, Albert-Laszlo. 2002. *Linked: How Everything Is Connected to Everything Else and What It Means*. New York: Perseus Publishing.
- Barabási, Albert-László and Réka Albert. 1999. "Emergence of Scaling in Random Networks." *Science*, 286(5439), 509-12.
- Barber, Brad and Terrance Odean. 2001. "Gender, Overconfidence, and Common Stock Investment." *The Quarterly Journal of Economics*, 116(1), 261-92.
- Barberis, Nicholas. 2013. "Thirty Years of Prospect Theory in Economics: A Review and Assessment." *Journal of Economic Perspectives*, 27(1), 173-96.
- Barberis, Nicholas; Ming Huang and Tano Santos. 2001. "Prospect Theory and Asset Prices." *The Quarterly Journal of Economics*, 116(1), 1-53.
- Barberis, Nicholas; Andrei Shleifer and Robert Vishny. 1998. "A Model of Investor Sentiment." *Journal of Financial Economics*, (49), 307-43.
- Barberis, Nicholas and Richard Thaler. 2002. "A Survey of Behavioral Finance," *NBER Working Paper Series*. Cambridge:
- Basu, S. 1977. "Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis." *The Journal of Finance*, 32(3), 663-82.
- Battiston, Stefano; Domenico Delli Gatti; Mauro Gallegati; Bruce Greenwald and Joseph E. Stiglitz. 2012. "Liaisons Dangereuses: Increasing Connectivity, Risk Sharing, and Systemic Risk." *Journal of Economic Dynamics and Control*, 36(8), 1121-41.

- Beinhocker, Eric. 2006. *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*. New York: McKinsey & Co.
- Bernanke, Ben. 1983. "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression." *THE AMERICAN ECONOMIC REVIEW*, 73(3), 257-76.
- Bernanke, Ben; Mark Gertler and Simon Gilchrist. 1996. "The Financial Accelerator and the Flight to Quality." *Review of Economics & Statistics*, 78(1), 1-15.
- Bernstein, Peter. 2007. *Capital Ideas Evolving*. New York: Wiley.
- Bhandari, Laxmi. 1988. "Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence." *The Journal of Finance*, 43(2), 507-28.
- Bieta, Volker; Helmuth Milde and Nadine Weber. 2010. "A Flaw in the Model ... That Defines How the World Works," *The World Bank: Policy Research Working Paper 5498*. Washington, D.C.:
- Black, Fisher; Michael Jensen and Myron Scholes. 1972. "The Capital Asset Pricing Model: Some Empirical Tests," M. Jensen, *Studies in the Theory of Capital Markets*. New York: Praeger, 79-121.
- Black, Fisher and Myron Scholes. 1973. "The Pricing of Options and Corporate Liabilities." *Journal of Political Economy*, 81, 638-54.
- Blinder, Alan. 1987. "Credit Rationing and Effective Supply Failures." *The Economic Journal*, 97, 327-52.
- Bree, David S., Nathan Lael Joseph. 2010. "Fitting the Log Periodic Power Law to Financial Crashes: A Critical Analysis." *EconoPhysics Forum*.
- Broner, Fernando; Tatiana Didier; Aitor Erce and Sergio Schmukler. 2013. "Gross Capital Flows: Dynamics and Crises." *Journal of Monetary Economics*, 60(1), 113-33.
- Brooks, Chris. 2008. *Introductory Econometrics for Finance*. Cambridge: Cambridge University Press.
- Brunnermeier, Markus and Martin Oehmke. 2009. "Complexity in Financial Markets,"
- Buchanan, Mark. 2002. *Nexus: Small Worlds and the Groundbreaking Science of Networks* New York: W.W. Norton & Company.
- Buiter, Willem. 2003. "James Tobin: An Appreciation of His Contribution to Economics." *European Bank for Reconstruction and Development*.
- Bureau of Economic Analysis. 1998. "Fixed Reproducible Tangible Wealth in the United States: Revised Estimates for 1995-97 and Summary Estimates for 1925-97." *Survey of Current Business*, 36-46.

- Cakici, Nusret; Frank Fabozzi and Sinan Tan. 2013. "Size, Value, and Momentum in Emerging Market Stock Returns." *Emerging Markets Review*.
- Calomiris, Charles; Inessa Love and Maria Soledad Martínez-Pería. 2012. "Stock Returns' Sensitivities to Crisis Shocks: Evidence from Developed and Emerging Markets." *Journal of International Money and Finance*, 31(4), 743-65.
- Calvo, Guillermo. 1998. "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops." *Journal of Applied Economics*, 1(1), 35-54.
- Camerer, Colin. 1989. "Bubbles and Fads in Asset Prices." *Journal of Economic Surveys*, 3(1), 3-41.
- Camerer, Colin; George Loewenstein and Matthew Rabin. 2004. *Advances in Behavioral Economics*. Princeton: Princeton University Press.
- Carhart, Mark. 1977. "On Persistence in Mutual Fund Performance." *The Journal of Finance*, 52(1), 57-82.
- Cetorelli, Nicola and Stavros Peristiani. 2013. "Prestigious Stock Exchanges: A Network Analysis of International Financial Centers." *Journal of Banking & Finance*, 37(5), 1543-51.
- Chan-Lau, Jorge A. 2010. "Balance Sheet Network Analysis of Too-Connected-to-Fail Risk in Global and Domestic Banking Systems." *SSRN eLibrary*.
- _____. 2011. "Fat Tails and Their (Un)Happy Endings: Correlation Bias and Its Implications for Systemic Risk and Prudential Regulation." *IMF Working Paper No. 11/82*, 1-22.
- Chinazzi, Matteo and Giorgio Fagiolo. 2013. "Systemic Risk, Contagion, and Financial Networks: A Survey,"
- Chinazzi, Matteo; Giorgio Fagiolo; Javier Reyes and Stefano Schiavo. 2012. "Post-Mortem Examination of the International Financial Network,"
- Claessens, Stijn and M. Ayhan Kose. 2013. "Financial Crises: Explanations, Types, and Implications," *IMF Working Paper*. Washington, D.C.:
- Cochrane, John. 2005. *Asset Pricing*. Princeton: Princeton University Press.
- _____. 2001. "Book Review: Famous First Bubbles: The Fundamentals of Early Manias. By Peter Garber." *Journal of Political Economy*, 109(5), 1150-54.
- Constantinides, George; Milton Harris and Rene Stulz. 2003a. *Handbook of the Economics of Finance: Volume 1a Corporate Finance*. Amsterdam: North-Holland.
- _____. 2003b. *Handbook of the Economics of Finance: Volume 1b Financial Markets and Asset Pricing*. Amsterdam: North-Holland.
- _____. 2013a. *Handbook of the Economics of Finance: Volume 2a Corporate Finance*. Amsterdam: North-Holland.

- _____. 2013b. *Handbook of the Economics of Finance: Volume 2b Financial Markets and Asset Pricing*. Amsterdam: North-Holland.
- Cook, C. 2013. "Reinhart-Rogoff Recrunch the Numbers," *Financial Times*.
- Cruz, J. P. and P. G. Lind. 2012. "The Dynamics of Financial Stability in Complex Networks." *The European Physical Journal B*, 85(8), 1-9.
- Cumperayot, Phornchanok and Roy Kouwenberg. 2013. "Early Warning Systems for Currency Crises: A Multivariate Extreme Value Approach." *Journal of International Money and Finance*.
- Cuthbertson, Keith and Dirk Nitzsche. 2005. *Quantitative Financial Economics*. New York: Wiley.
- Cutler, David M.; James M. Poterba and Lawrence Summers. 1989. "What Moves Stock Prices?" *Journal of Portfolio Management*, (Spring, 1989), 4-12.
- Dai, Lei; Daan Vorselen; Kirill Korolev and Jeff Gore. 2012a. "Generic Indicators for Loss of Resilience before a Tipping Point Leading to Population Collapse," *Science*.
- _____. 2012b. "Generic Indicators for Loss of Resilience before a Tipping Point Leading to Population Collapse: Materials/Methods, Supplementary Materials," *Science*. 1175-77.
- Dattels, Peter; Rebecca McCaughrin and Jaume Puig. 2010. "Can You Map Financial Stability?," *IMF Working Paper*.
- DeBondt, W. and Richard Thaler. 1987. "Further Evidence on Investor Overreaction and Stock Market Seasonality." *Journal of Finance*, 42, 557-81.
- Derwin, Emanuel. 2011. *Models Behaving Badly*. New York: Free Press.
- Dijkman, Miquel. 2010. *A Framework for Assessing Systemic Risk*. The World Bank.
- Dimson, Elroy; Paul Marsh and Mike Staunton. 2012. *Credit Suisse Global Investment Returns Yearbook*. Zurich: Credit Suisse Research Institute.
- Dobusch, Leonhard and Jakob Kapeller. 2009. "'Why Is Economics Not an Evolutionary Science?' New Answers to Veblen's Old Question." *Journal of Economic Issues (M.E. Sharpe Inc.)*, 43(4), 867-989.
- Dopfer, Kurt. 2005. *The Evolutionary Foundation of Economics*. New York: Cambridge University Press.
- _____. 2011. "The Origins of Meso Economics." *Journal of Evolutionary Economics*, 1-28.
- Duffie, Darrell. 2001. *Dynamic Asset Pricing Theory*. Princeton: Princeton University Press.
- Ehrenberg, Rachel. 2011. "Beware the Long Tail." *Science News*, (November 5, 2011), 22-25.

Eisert, Tim and Christian Eufinger. 2011. "Interbank Network and Bank Bailouts: Insurance Mechanism for Non-Insured Creditors?" *SSRN eLibrary*.

Elliott, Matthew; Benjamin Golub and Matthew Jackson. 2013. "Financial Networks and Contagion." <http://ssrn.com/abstract=2175056>

Epstein, Joshua. 2006. *Generative Social Science*. Princeton: Princeton University Press.

Espinosa-Vega, Marco and Juan Sole. 2011. "Cross-Border Financial Surveillance: A Network Perspective." *Journal of Financial Economic Policy*, 3(3), 182-205.

Fama, Eugene. 1978. "The Effects of a Firm's Investment and Financing Decisions on the Welfare of Its Securityholders." *American Economic Review*.

_____. 1991. "Efficient Capital Markets Ii." *Journal of Finance*, 46, 1575-617.

_____. 1970. "Efficient Capital Markets: A Review of Theory and Empirical Work." *Journal of Finance*, 25, 383-417.

_____. 1998. "Market Efficiency, Long-Term Returns and Behavioral Finance." *Journal of Financial Economics*, 49(3), 283-306.

_____. 2011. "My Life in Finance." *Annual Review of Financial Economics*, 3, 1-15.

_____. 1965. "Random Walks in Stock Market Prices." *Financial Analysts Journal*, (September/October), 55-59.

Fama, Eugene; Lawrence Fisher; James Lorie; Michael Jensen and Richard Roll. 1969. "The Adjustment of Stock Prices to New Information." *International Economic Review*, 10, 1-21.

Fama, Eugene and Kenneth French. 2004. "The Capital Asset Pricing Model: Theory and Evidence." *Journal of Economic Perspectives*, 18(3), 25-46.

_____. 1993. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics*, 33, 3-56.

_____. 1992. "The Cross-Section of Expected Stock Returns." *Journal of Finance*, 47, 427-65.

_____. 1996. "Multifactor Explanations of Asset Pricing Anomalies." *Journal of Finance*, 51(1), 55-84.

_____. 1995. "Size and Book-to-Market Factors in Earnings and Returns." *The Journal of Finance*, 50(1), 131-55.

_____. 1998. "Value Versus Growth: The International Evidence." *The Journal of Finance*, 53(6), 1975-99.

Fama, Eugene and J. Macbeth. 1973. "Risk, Return, and Equilibrium: Empirical Tests." *Journal of Political Economy*, 81, 607-36.

- Farmer, J. Doyne. 2001. "Toward Agent-Based Models for Investment," *AIMR, Benchmarks and Attribution Analysis*. AIMR, 61-70.
- Farmer, J. Doyne and John Geanakoplos. 2009. "The Virtues and Vices of Equilibrium and the Future of Financial Economics," *Cowles Foundation Discussion Paper No. 1647*. New Haven, CT:
- Farmer, J. Doyne; Laszlo Gillemot; Fabrizio Lillo; Szabolcs Mike and Anindya Sen. 2010. "What Really Causes Large Price Changes?,"
- Farmer, J. Doyne; Martin Shubik and Eric Smith. 2005. "Economics: The Next Physical Science?" *Physics Today*, 58(9), 37-42.
- Fisher, Irving. 1933. "The Debt-Deflation Theory of Great Depressions." *Econometrica*, 337-57.
- Fisher, Lawrence and James Lorie. 1968. "Rates of Return on Investments in Common Stock: The Year-by-Year Historical Returns (1926-1965)." *Journal of Business*, 41(3), 291-316.
- Foster, John. 2010. "Energy, Aesthetics and Knowledge in Complex Economic Systems." *School of Economics, University of Queensland, Australia in its series Discussion Papers Series*, 4043.
- _____. 2011. "Evolutionary Macroeconomics: A Research Agenda." *Journal of Evolutionary Economics*, 21(1), 5-28.
- _____. 2004a. "From Simplistic to Complex Systems in Economics." *Cambridge Journal of Economics*, 29, 873-92.
- _____. 2004b. "Why Is Economics Not a Complex Systems Science?" *School of Economics, University of Queensland, Australia, Discussion Papers Series number 336*, 336.
- Foster, John and Stan J. Metcalfe. 2009. "Evolution and Economic Complexity: An Overview." *Economics of Innovation and New Technology*, 18(7), 607-10.
- _____. 2001. *Frontiers of Evolutionary Economics: Competition, Self-Organization and Innovation Policy*. Aldershot: Edward Elgar.
- Foster, John and Jason Potts. 2007. "A Micro-Meso-Macro Perspective on the Methodology of Evolutionary Economics: Integrating History, Simulation and Econometrics." *School of Economics, University of Queensland, Australia, Discussion Papers Series number 343*, 343.
- Frank, Murray. 1988. "Chaotic Dynamics in Economic Time-Series." *Journal of Economic Surveys*, 2(2), 103-33.
- Furceri, David and Aleksandra Zdzienicka. 2012. "How Costly Are Debt Crises?" *Journal of International Money and Finance*, 31(4), 726-42.
- Gabaix, Xavier. 2008. "Power Laws in Economics and Finance," *NBER Working Papers*. Cambridge, MA:

- Gai, Prasanna and Sujit Kapadia. 2010. "Contagion in Financial Networks," *Bank of England Working Paper Series*. London:
- Gale, Douglas M. and Shachar Kariv. 2007. "Financial Networks." *American Economic Review*, 97(2), 99-103.
- Gambacorta, Leonardo and David Marques-Ibanez. 2011. "The Bank Lending Channel: Lessons from the Crisis." *BIS Working Papers, Bank for International Settlements*.
- Garber, Peter M. 2000. *Famous First Bubbles: The Fundamentals of Early Manias*. MIT Press.
- Garcia, Diego. 2010. "Sentiment During Recessions,"
- Geanakoplos, John. 2010. "The Leverage Cycle," *Cowles Foundation Discussion Paper No. 1715R*. New Haven:
- Georges Harras, Claudio J. Tessone, Didier Sornette. 2010. "Title: Disorder-Induced Volatility of Collective Dynamics," *arXiv:1004.2149v1*.
- Gertler, Mark. 1988. "Financial Structure and Aggregate Economic Activity: An Overview." *Journal of Money, Credit, and Banking*, 20(3), 559-88.
- Gertler, Mark and Simon Gilchrist. 1994. "Monetary Policy, Business Cycles, and the Behavior of Small Manufacturing Firms." *Quarterly Journal of Economics*, 109(2), 309-40.
- _____. 1993. "The Role of Credit Market Imperfections in the Monetary Transmission Mechanism: Arguments and Evidence." *Scandinavian Journal of Economics*, 95(1), 43-65.
- Gertler, Mark; Simon Gilchrist and Fabio Natalucci. 2007. "External Constraints on Monetary Policy and the Financial Accelerator." *Journal of Money, Credit & Banking*, 39(2/3).
- Gigerenzer, Gerd and Reinhard Selten. 1999. *Bounded Rationality*. Cambridge: MIT Press.
- Gilbert, Nigel. "Introduction to Special Issue on Agent-Based Modelling." *American Journal of Sociology*, 110(4).
- Gilbert, Nigel and Klaus Troitzsch. 2005. *Simulation for the Social Scientist*. New York: Open University Press.
- Gilovich, Thomas; Dale Griffin and Daniel Kahneman. 2002. *Heuristics and Biases: The Psychology of Intuitive Judgment*. Cambridge: Cambridge University Press.
- Gorban, Alexander; Elena Smirnova and Tatiana Tyukina. 2010. "Correlations, Risk and Crisis: From Physiology to Finance." *Physica A*, 389(16), 3193–217.
- Gordon, Myron and Eli Shapiro. 1956. "Capital Equipment Analysis: The Required Rate of Profit." *Management Science*, 3(1), 102-10.
- Graham, Ben. 1946. *The Intelligent Investor*. New York: Harper.

_____. 1963. "Securities in an Uncertain World," San Francisco: Town Hall,
Graham, Ben and Dodd. 1934. *Security Analysis*. New York: McGraw Hill.

Grigoryev, Ilya and Andrei Borschchev. 2012. *Anylogic 6 in Three Days: A Quick Course in Simulation Modeling* Anylogic North America.

Grinblatt, Mark; Sheridan Titman and Russ Wermers. 1995. "Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior." *The American Economic Review*, 85(5), 1088-105.

Gualdi, Stanislaw; Matus Medo and Yi-Cheng Zhang. 2010. "Self-Organized Models of Cascade Spreading,"

Gulden, Timothy. 2013. "Agent-Based Modeling as a Tool for Trade and Development Theory." *Journal of Artificial Societies and Social Simulation*, 16(2).

Haldane, Andrew G. and Robert M. May. 2011. "Systemic Risk in Banking Ecosystems." *Nature*, 469, 351-55.

Hall, Robert E. 2001. "The Stock Market and Capital Accumulation." *American Economic Review*, 91(5), 1185-202.

Haruvy, Ernan; Yaron Lahav and Charles N. Noussair. 2007. "Traders Expectations in Asset Markets: Experimental Evidence." *American Economic Review*, 97(5), 1901-20.

Hayek, Friedrich A. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.

_____. 1976. *The Sensory Order*. Chicago: University of Chicago Press.

Hens, Thorsten and Marc Oliver Rieger. 2010. *Financial Economics: A Concise Introduction to Classical and Behavioral Finance*. Berlin: Springer.

Herndon, T; M Ash and R Pollin. 2013. "Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhart and Rogoff," *University of Massachusetts Amherst; Political Economy Research Institute Working Paper Series*. Amherst, MA.

Hildebrandt, Stefan and Anthony Tromba. 1996. *The Parsimonious Universe: Shape and Form in the Natural World*. Berlin: Springer.

Holland, John. 1995. *Hidden Order: How Adaptation Builds Complexity*. Perseus.

Hong, Harrison and Jeremy Stein. 1999. "A Unified Theory of Underreaction, Momentum Trading, and Overreaction in Asset Markets." *The Journal of Finance*, 54(6), 2143-84.

Howitt, Peter. 2012. "What Have Central Bankers Learned from Modern Macroeconomic Theory." *Journal of Macroeconomics*, 34(1), 11-22.

Hristov, Nicolay; Oliver Hulsewig and Timo Wollmerhauser. 2012. "Loan Supply Shocks During the Financial Crisis: Evidence for the Euro." *Journal of International Money and Finance*, 31(3), 569-92.

Hubbard, Glenn; Kenneth Kuttner and Darius Palia. 2002. "Are There Bank Effects in Borrowers' Costs of Funds? Evidence from a Matched Sample of Borrowers and Banks?" *Journal of Business*, 75(4), 559-81.

Hubbard, Thomas N. 2003. "Information, Decisions, and Productivity: On-Board Computers and Capacity Utilization in Trucking." *American Economic Review*, 93(4), 1328-53.

Hurst, Erik and Annamaria Lusardi. 2004. "Liquidity Constraints, Household Wealth, and Entrepreneurship." *Journal of Political Economy*, 112(2), 319-47.

Ibbotson, Roger and Rex Sinquefeld. 1976. "Stocks, Bonds, Bills, and Inflation: Year-by-Year Historical Returns (1926-1974)." *The Journal of Business*, 49(1), 11-47.

Ineichen, Alexander. 2007. *Asymmetric Returns*. New York: John Wiley & Sons.

Jain, Sanjay and Sundeep Krishna. 2001a. "Crashes, Recoveries, and 'Core Shifts' in a Model of Evolving Networks,"

_____. 2001b. "Large Extinctions in an Evolutionary Model: The Role of Innovation and Keystone Species,"

James, Cristopher. 2009. "Credit Market Conditions and the Use of Bank Lines of Credit." *FRBSF Letter*, 2009(27), 1-6.

Jegadeesh, Narashimhan and Sheridan Titman. 2001. "Profitability of Momentum Strategies: An Evaluation of Alternative Explanations." *The Journal of Finance*, 56(2), 699-720.

Jegadeesh, Narasimham and Sheridan Titman. 1993. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance*, 48, 65-91.

Jensen, Michael. 1967. "The Performance of Mutual Funds in the Period 1945-1964." *Journal of Finance*, 23(2), 389-416.

Jensen, Michael and W. Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics*, 3, 305-60.

Johnson, Robert. 2009. "Lessons and Limits of Behavioural Finance Unpicked," *Financial Times*. London: Financial Times,

Johnson, Simon; John McMillan and Christopher Woodruff. 2002. "Property Rights and Finance." *American Economic Review*, 92(5), 1335-56.

Johnson, Steven. 2001. *Emergence*. New York: Simon and Schuster.

- Jorra, Markus. 2010. "The Effect of Imf Lending on the Probability of Sovereign Debt Crises." *Journal of International Money and Finance*, 31(4).
- Jotikasthira, Pab, Lundblad, Christian T. and Ramadorai, Tarun. 2009. "Asset Fire Sales and Purchases and the International Transmission of Financial Shocks,"
- Kahneman, Daniel. 1994. "New Challenges to the Rationality Assumption." *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift für die gesamte Staatswissenschaft*, 150(1), 18-36.
- _____. 2003a. "Nobel Lecture - Maps of Bounded Rationality: Psychology for Behavioral Economics." *THE AMERICAN ECONOMIC REVIEW*, 93(5), 1449-75.
- _____. 2003b. "A Psychological Perspective on Economics." *THE AMERICAN ECONOMIC REVIEW*, 93(2), 162-68.
- _____. 2011. *Thinking Fast and Slow*. New York: Farrar, Strauss and Giroux.
- Kahneman, Daniel; James Fowler and Nicholas Christakis. 2010. "Cooperative Behavior Cascades in Human Social Networks." *Proceedings of the National Academy of Sciences of the United States of America*, 107(12), 5334-38.
- Kahneman, Daniel; Jack Knetsch and Richard Thaler. 1991. "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias." *The Journal of Economic Perspectives*, 5(1), 193-206.
- Kahneman, Daniel; Paul Slovic and Amos Tversky. 1982. *Judgment under Uncertainty*. Cambridge: Cambridge University Press.
- Kahneman, Daniel; Richard Thaler; Amos Tversky and Alan Schwartz. 1997. "The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test." *The Quarterly Journal of Economics*, 112(2), 647-61.
- Kahneman, Daniel and Amos Tversky. 1992. "Advances in Prospect Theory: Cumulative Representation of Uncertainty." *Journal of Risk and Uncertainty*, (5), 297-323.
- _____. 2000. *Choices, Values, and Frames*. Cambridge: Cambridge University Press.
- _____. 1979. "Prospect Theory: An Analysis of Decision under Risk." *Econometrica*, 47, 263-91.
- _____. 1986. "Rational Choice and the Framing of Decisions." *The Journal of Business*, 59(4), S251-S78.
- Kaizoji, Taisei. 2006a. "A Precursor of Market Crashes: Empirical Laws of Japan's Internet Bubble," *The European Physical Journal B*, 50, 123-127.
- _____. 2006b. "On Stock-Price Fluctuations in the Periods of Booms and Stagnations," A. Chatterjee and B. Chakrabarti, *Econophysics of Stock and Other Markets*. Springer Milan, 3-12.
- Keen, Steve. 2011. *Debunking Economics*. London: Zed Books.

- _____. 1995. "Finance and Economic Breakdown, Modeling Minsky's "Financial Instability Hypothesis"." *Journal of Post Keynesian Economics*, 17(4), 607-35.
- Kelly, Bryan T. 2012. "Tail Risk and Asset Prices," *Chicago Booth Research Paper No. 11-17; Fama-Miller Working Paper*. University of Chicago:
- Khambu, John; Scott Weidman and Neel Krishnan. 1997. "Introduction: New Directions for Understanding Systematic Risk." *Economic Policy Review. Federal Reserve Bank of New York*, 13(2), 3-14.
- Khandani, Amir E. and Andrew W. Lo. 2007. "What Happened to the Quants in August 2007?,"
- Kindleberger, Charles and Robert M. Solow. 2011. *Manias, Panics, and Crashes*. New York: Wiley.
- Kinsella, Stephen. 2011. "Words to the Wise: Stock Flow Consistent Modeling of Financial Instability." *SSRN eLibrary*.
- Kiyotaki, Nobuhiro and John Moore. 2002. "Balance-Sheet Contagion." *American Economic Review*, 92(2), 46-50.
- _____. 1997. "Credit Cycles." *Journal of Political Economy*, 105(2), 211-48.
- Kostanjcar, Zvonko and Bronko Jeren. 2013. "Emergence of Power-Law and Two-Phase Behavior in Financial Market Fluctuations " *Advances in Complex Systems*, 16(1).
- Krugman, Paul. 2009. "How Did Economists Get It So Wrong," *New York Times*. New York: New York Times
- La Spada, Gabriele; J. Doyne Farmer and Fabrizio Lillo. 2007. "The Non-Trivial Random Walk of Stock Prices,"
- Laeven, Luc A. 2011. "Banking Crises: A Review." *Annual Review of Financial Economics*, Vol. 3, pp. 17-40, 2011.
- Lakonishok, Josef; Andrei Shleifer and Robert Vishny. 1994. "Contrarian Investment, Extrapolation, and Risk." *The Journal of Finance*, 49(5), 1541-78.
- Lee, Charles and Bhaskaran Swaminathan. 2000. "Price Momentum and Trading Volume." *The Journal of Finance*, 55(5), 2017-69.
- Liao, Yin. 2013. "The Benefit of Modeling Jumps in Realized Volatility for Risk Prediction: Evidence from Chinese Mainland Stocks." *Pacific-Basin Finance Journal*, 23, 25-48.
- Lillo, Fabrizio and J. Doyne Farmer. 2005. "The Key Role of Liquidity Fluctuations in Determining Large Price Changes." *Fluctuation and Noise Letters*, 5(2), L209-L16.
- Lim, Kian-Ping. 2011. "The Evolution of Stock Market Efficiency over Time: A Survey of the Empirical Literature." *Journal of Economic Surveys*, 25(1), 69-108.

- Lintner, John. 1965. "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets " *The Review of Economics and Statistics*, 47(1), 13-37.
- Lorenz, Jan; Stefano Battiston and Frank Schweitzer. 2009. "Systemic Risk in a Unifying Framework for Cascading Processes on Networks." *European Physical Journal B*, Vol. 71, No. 4, pp. 441-460, 2009.
- Lown, Cara and Donald Morgan. 2006. "The Credit Cycle and the Business Cycle: New Findings Using the Loan Officer Opinion Survey." *Journal of Money, Credit, and Banking*, 38(6).
- Lucas, Robert. 1978. "Asset Prices in an Exchange Economy." *Econometrica*, 46, 1429-46.
- Luo, Jianxi. 2013. "The Power-of-Pull of Economic Sectors: A Complex Network Analysis." *Complexity*.
- Mackay, Charles. 1841. *Extraordinary Popular Delusions and the Madness of Crowds*. New York: Random House.
- Malkiel, Burton. 2012. *A Random Walk Down Wall Street*. New York: Norton.
- Mandelbrot, Benoit. 1997. *Fractals and Scaling in Finance*. New York: Springer.
- Mandelbrot, Benoit and Richard Hudson. 2004. *The Misbehavior of Markets*. Basic Books.
- Mantegna, Rosario N. and H. Eugene Stanley. 1995. "Scaling Behaviour in the Dynamics of an Economic Index." *Nature*, 376(6535), 46-49.
- Markowitz, Harry. 1952. "Portfolio Selection." *The Journal of Finance*, 7(1), 77-91.
- _____. 1959. *Portfolio Selection: Efficient Diversification of Investments*. New Haven: Wiley.
- Mateut, Simona. 2005. "Trade Credit and Monetary Policy Transmission." *Journal of Economic Surveys*, 19(4), 655-70.
- May, Robert M.; Simon Levin and George Sugihara. 2008. "Complex Systems: Ecology for Bankers." *Nature*, (451), 893-95.
- Mayo, Herbert. 2003. *Investments: An Introduction*. Southwestern.
- McCallum, J. 1991. "Credit Rationing and the Monetary Transmission Mechanism." *American Economic Review*, 81(4), 946-51.
- Mctaggart, James. 1994. *Value Imperative: Managing for Superior Shareholder Returns*. New York: Free Press.
- Merton, Richard. 1973a. "An Intertemporal Capital Asset Pricing Model." *Econometrica*, 41(5), 867-87.

_____. 1973b. "Theory of Rational Options Pricing." *Bell Journal of Economics and Management Science*, 4, 141-83.

Miller, Merton and Franco Modigliani. 1961. "Dividend Policy, Growth, and the Valuation of Shares." *Journal of Business*, 34(4), 411-33.

Minoiu, Camelia and Javier Reyes. 2011. "A Network Analysis of Global Banking:1978-2009." *IMF Working Paper No. 11/74*, 1-41.

Modigliani, Franco and Merton Miller. 1958. "The Cost of Capital, Corporation Finance, and the Theory of Investment." *American Economic Review*, 48, 261-97.

Monferra, Stefano and Gabriele Sampagnaro. 2010. "Relationship Lending, Hierarchical Distance and Credit Tightening: Evidences from the 2007-09 Financial Crisis," *University of Naples "Parthenope", Faculty of Economics*.

Montier, James. 2002. *Behavioral Finance*. New York: Wiley.

Mossin, Jan. 1966. "Equilibrium in a Capital Asset Market " *Econometrica*, 34(4), 768-83.

Nelson, Charles. 1975. "A Review: A Monetarist Model of Inflationary Expectations. By John Rutledge." *Journal of Economic Literature*, 13(4), 1350-53.

Nelson, Richard R. and Sidney G. Winter. 1974. "Neoclassical Vs. Evolutionary Theories of Economic Growth: Critique and Prospectus." *Economic Journal*, 84(336), 886-905.

Newman, M.E.J. 2010. *Networks: An Introduction*. New York: Oxford University Press.

Newman, Mark; Albert-Laszlo Barabasi and Duncan Watts. 2006. *The Structure and Dynamics of Networks*. Princeton: Princeton University Press.

Neyer, Ulrike. 2007. "Asymmetric Information and the Transmission Mechanism of Monetary Policy." *German Economic Review*, 8(3), 428-46.

Nicolis, Gregoire and Ilya Prigogine. 1989. *Exploring Complexity: An Introduction* New York: W.H. Freeman & Company.

Odean, Terrance. 1999. "Do Investors Trade Too Much?" *THE AMERICAN ECONOMIC REVIEW*, 89(5), 1279-98.

Odum, Howard T. 1987. "Living with Complexity." *The Crafoord Prize in the Biosciences 1987, Crafoord Lectures. The Royal Swedish Academy of Scientists*, 19-87.

_____. 1988. "Self-Organization, Transformity, and Information." *Science*, 242, 1132-39.

Patterson, SCott. 2010. *The Quants*. New York: Randon House.

Pennacchi, George. 2008. *Theory of Asset Pricing*. Boston: Addison Wesley.

- Pericoli, Marcello and Massimo Sbracia. 2003. "A Primer on Financial Contagion." *Journal of Economic Surveys*, 17(4), 571-608.
- Pluta, Joseph E. 2010. "Evolutionary Alternatives to Equilibrium Economics." *American Journal of Economics & Sociology*, 69(4), 1155-77.
- _____. 2011. "Was Kenneth Boulding an Evolutionary Economist, a Systems Theorist, or Both?,"
- Pollin, R and M Ash. 2013. "Austerity after Reinhart and Rogoff," *Financial Times*. London:
- Popkin, G. 2013. "Predicting Collapse," *Science*.
- Poterba, James M. 2000. "Stock Market Wealth and Consumption." *Journal of Economic Perspectives*, 14(2), 99-118.
- Potts, Jason. 2003. "Evolutionary Economics: An Introduction to the Foundation of Liberal Economic Philosophy." *School of Economics, University of Queensland, Australia, Discussion Papers Series number 324*.
- Pouvelle, Cyril. 2012. "Bank Credit, Asset Prices and Financial Stability: Evidence from French Banks," *IMF Working Paper*. Washington, DC:
- Pratt, Shannon. 2007. *Valuing a Business: The Analysis and Appraisal of Closely Held Companies*. New York: McGraw Hill.
- Prigogine, Ilya. 1996. *The End of Certainty*. New York: The Free Press.
- _____. 2005. "The Rediscovery of Value and the Opening of Economics,"
- K. Dopfer, *The Evolutionary Foundation of Economics*. New York: Cambridge University Press, 61-69.
- Rachev, S. T. 2003. *Handbook of Heavy Tailed Distributions in Finance*. Amsterdam: Elsevier/North Holland.
- Railsback, Steven and Volker Grimm. 2012. *Agent-Based and Individual-Based Modeling*. Princeton: Princeton University Press.
- Reinhart, Carmen and Kenneth Rogoff. 2010a. "The Forgotten History of Domestic Debt,"
- _____. 2010b. "Growth in a Time of Debt," *NBER Working Papers*. Cambridge, MA:
- _____. 2008. "This Time Is Different: A Panoramic View of Eight Centuries of Financial Crises,"
- _____. 2009. *This Time Is Different: Eight Centuries of Financial Folly*. Princeton: Princeton University Press.
- Roehner, Bertrand M. 2010. "Fifteen Years of Econophysics: Worries, Hopes, and Prospects,"
- Roll, Richard. 1977. "A Critique of the Asset Pricing Theory's Tests." *Journal of Financial Economics*, 4, 129-76.

- Romer, C.D. and D.H. Romer. 1990. "New Evidence on the Monetary Transmission Mechanism." *Brookings Papers on Economic Activity*, (1), 149-213.
- Root, Hilton. 2011. "The Policy Conundrum of Financial Market Complexity," *GMU School of Public Policy Research Paper No. 2011-10*.
- Ross, Steven. 1976. "The Arbitrage Theory of Capital Asset Pricing." *Journal of Economic Theory*, 13, 341-60.
- Rubinstein, Mark. 2006. *A History of the Theory of Investments*. New York: Wiley.
- Rutledge, John. 2007a. "Asia's Energy Security and the Middle East," *BOAO Forum*. Boao, China:
- _____. 2007b. "Energy Model of Economic Activity," Newport Beach, CA:
- _____. 1977. "Irving Fisher and Autoregressive Expectations." *The American Economic Review*, 67(1), 200-05.
- _____. 1974. *A Monetarist Model of Inflationary Expectations*. New York: D. C. Heath.
- _____. 2010. "On the Optimality of Non-Optimal Portfolios," *Safanad working paper*.
- _____. 2009a. "Protectionism, Turbulence, and Growth," *Safanad working paper*.
- _____. 2009b. *Road Warrior*. Newport Beach: Rutledge Capital LLC.
- Rutledge, John and Deborah Allen. 1989. *Rust to Riches*. New York: Harper.
- Salamon, Tomas. 2011. *Design of Agent-Based Models*. Repin, Czech Republic: Tomas Bruckner.
- Sampagnaro, Gabriele and Stefano Monferrat. 2011. "Relationship Lending, Hierarchical Distance and Credit Tightening: Evidences from the 2007-09 Financial Crisis." *SSRN eLibrary*.
- Sandoval, Javier. 2011. "'Crashes' De Mercado: Una Aproximacion Desde El Estudio De Sistemas Complejos Y Microsimulacion (Market Crashes: An Approach from the Study of Complex Systems and Microsimulation)." *ODEON, No. 5, 2010*.
- Satinover, Jeffrey and Didier Sornette. 2010. "Taming Manias: On the Origins, Inevitability, Prediction and Regulation of Bubbles and Crashes," *Swiss Finance Institute Research Paper Series N°10 – 34*.
- Scheffer, Marten; Stephen Carpenter; Timothy Lenton; Jordi Bascompte; William Brock; Vasilis Dakos; Johan van de Kopel; Ingrid van de Leemput; Simon Levin; Egbert van Nes, et al. 2012. "Anticipating Critical Transitions," *Science*.

- Scheinkman, Jose and Michael Woodford. 1994. "Self-Organized Criticality and Economic Fluctuations." *The American Economic Review: Papers and Proceedings of the Hundred and Sixth Annual Meeting of the American Economic Association*, 84(2), 417-21.
- Scherbina, Anna. 2013. "Asset Price Bubbles: A Selective Survey," *IMF Working Paper*. Washington DC:
- Schiavo, Stefano; Javier Reyes and Giorgio Fagiolo. 2008. "International Trade and Financial Integration: A Weighter Network Analysis,"
- Schneider, Eric D. and Dorion Sagan. 2005. *Into the Cool: Energy Flow, Thermodynamics, and Life*. Chicago: University of Chicago Press.
- Scholtes, Ingo; Jean Botev; Markus Esch and Peter Sturm. 2010. "Epidemic Self-Synchronization in Complex Networks of Kuramoto Oscillators." *Advances in Complex Systems*, 13(1), 33-58.
- Schrodinger, Irwin. 1946. "What Is Life? The Physical Aspect of the Living Cell. Based on Lectures Delivered under the Auspices of the Institute at Trinity College, Dublin, in Feb. 1943."
- Schweitzer, Frank. 2007. "Multi-Agent Approach to the Self-Organization of Networks," *arXiv.org*.
- Schweitzer, Frank; Giorgio Fagiolo; Didier Sornette; Fernando Vega-Redondo; Alessandro Vespignani and Douglas R. White. 2009a. "Economic Networks: The New Challenges." *Science*, 325, 422-25.
- Schweitzer, Frank; Giorgio Fagiolo; Didier Sornette; Fernando
- Vega-Redondo and Douglas R. White. 2009b. "Economic Networks: What Do We Know and What Do We Need to Know?" *Advances in Complex Systems*, 12(4-5), 407-22.
- Schweitzer, Frank, Stefano Battiston, Claudio J. Tessone 2010. "Risk, Markets, Games, and Networks." *The European Physical Journal B*, 71(4), 439-40.
- Sewell, Martin. 2007. "Behavioural Finance Introduction," London: 1-14.
- Sharpe, William. 1964. "Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk." *Journal of Finance*, 19, 425-42.
- Sharpe, William; Gordon Alexander and Jeffery Bailey. 1999. *Investments*. New York: Prentice Hall.
- Shefrin, Hersh. 2005. *A Behavioral Approach to Asset Pricing*. Amsterdam: Elsevier.
- Shiller, Robert. 2003. "From Efficient Markets Theory to Behavioral Finance." *Journal of Economic Perspectives*, 17(1), 83-104.
- Shleifer, Andrei. 2000. *Inefficient Markets: An Introduction to Behavioral Finance*. Oxford: Oxford University Press.

- Simon, Herbert. 1962. "The Architecture of Complexity." *Proceedings of the American Philosophical Society*, Vol. 106(No. 6), 467-82.
- _____. 1982. *Models of Bounded Rationality, Volume 1: Economic Analysis and Public Policy*. Cambridge: The MIT Press.
- Simon, Herbert; George Dantzig; Robin Hogarth; Charles Plott;
Howard Raiffa; Thomas Schelling; Kenneth Shepsle; Amos
Tversky and Sidney Winter. 1987. "Making and Problem Solving." *Interfaces*, 17(5).
- Siwei, Cheng. 2002. "Complexity Science and System Engineering," *Chinese Academy of Sciences working paper*.
- Sole, Richard. 2011. *Phase Transitions*. Princeton: Princeton University Press.
- Sornette, Didier. 2003. *Why Stock Markets Crash: Critical Events in Complex Financial Systems*. Princeton: Princeton University Press.
- Sornette, Didier and Ryan Woodard. 2009. "Financial Bubbles, Real Estate Bubbles, Derivative Bubbles, and the Financial and Economic Crisis," *Swiss Finance Institute Research Paper Series N°09 – 15*.
- Stanislao Gualdi, Matus Medo, Yi-Cheng Zhang. 2010. "Self-Organized Model of Cascade Spreading," *Quantitative Finance Papers*.
- Steinbacher, Matjaz; Matej Steinbacher and Mitja Steinbacher.
2010. "Challenging the Efficient Frontier Portfolio." *SSRN eLibrary*.
- Stephen Morris, Hyun Song Shin. 2003. "Liquidity Black Holes,"
- Sterman, John and John D. Sterman. 2000. *Business Dynamics: Systems Thinking and Modeling for a Complex World*. New York: McGraw Hill/Irwin.
- Stewart, Bennett. 1991. *The Quest for Value: A Guide for Senior Managers* New York: Harper Collins.
- Stiglitz, Joseph E. 2003. "Information and the Change in the Paradigm in Economics, Part 1." *American Economist*, 47(2), 6-26.
- _____. 2004. "Information and the Change in the Paradigm in Economics, Part 2." *American Economist*, 48(1), 17-49.
- Stiglitz, Joseph E. and Andrew Weiss. 1981. "Credit Rationing in Markets with Imperfect Information." *American Economic Review*, 71(3), 393-410.
- Strogatz, Steven. 2003. *Sync: The Emerging Science of Spontaneous Order*. New York: Hyperion.

- Taleb, Nassim. 2012. *Antifragile*. New York: Random House.
- _____. 2010. *The Black Swan*. New York: Random House.
- Tesfatsion, Leigh and Kenneth Judd. 2006. *Handbook of Computational Economics: Agent-Based Computational Economics Volume 2*. Amsterdam: Elsevier North Holland.
- Thaler, Richard. 1993. *Advances in Behavioral Finance*. Princeton: Princeton University Press.
- _____. 2005. *Advances in Behavioral Finance: Volume Ii*. Princeton: Princeton University Press.
- _____. 1987a. "Anomalies: The January Effect." *The Journal of Economic Perspectives*, 1(1), 197-201.
- _____. 1999. "The End of Behavioral Finance." *Financial Analysts Journal*, 55(6), 12-17.
- _____. 1997. "Irving Fisher: Modern Behavioral Economist." *THE AMERICAN ECONOMIC REVIEW*, 87(2), 439-41.
- _____. 1985. "Mental Accounting and Consumer Choice." *Marketing Science*, 4(3), 199-214.
- _____. 1987b. "Seasonal Movements in Security Prices Ii: Weekend, Holiday, Turn of the Month, and Intraday Effects." *The Journal of Economic Perspectives*, 1(2), 169-77.
- _____. 1988. "The Winner's Curse." *The Journal of Economic Perspectives*, 2(1), 191-202.
- Thaler, Richard and Owen Lamont. 2003. "Anomalies: The Law of One Price in Financial Markets." *The Journal of Economic Perspectives*, 17(4), 191-202.
- Thaler, Richard; Charles Lee and Andrei Shleifer. 1990. "Anomalies: Closed-End Mutual Funds." *The Journal of Economic Perspectives*, 4(4), 153-64.
- Thaler, Richard and Matthew Rabin. 2001. "Risk Aversion." *The Journal of Economic Perspectives*, 15(1), 219-32.
- Thaler, Richard and Jeremy Siegel. 1997. "Anomalies: The Equity Premium Puzzle." *The Journal of Economic Perspectives*, 11(1), 191-200.
- Thies, Clifford and Bruce Gouldey. 2010. "Direct Measures of Credit Rationing, 2002-2010." *Journal of the Northeastern Association of Business, Economics & Technology*, 16(1), 45-52.
- Turner, Stefan; J. Doyne Farmer and John Geanakoplos. 2010. "Leverage Causes Fat Tails and Clustered Volatility," *Cowles Foundation Discussion Paper No. 1745*. New Haven:
- Tirole, Jean. 2006. *The Theory of Corporate Finance*. Princeton: Princeton University Press.
- Tobin, James. 1969. "A General Equilibrium Approach to Monetary Theory." *Journal of Money, Credit and Banking*, 1(1), 15-29.
- _____. 1958. "Liquidity Preference as Behavior Towards Risk." *Review of Economic Studies*, 67, 65-86.

- Todd, Peter and Gerd Gigerenzer. 2012. *Ecological Rationality*. Oxford: Oxford University Press.
- Trautwein, Hans. 2000. "The Credit View, Old and New." *Journal of Economic Surveys*, 14(2), 155-89.
- Treynor, Jack. 1999. "Toward a Theory of Market Value of Risky Assets (1962)," R. Korajczyk, *Asset Pricing and Portfolio Performance*. London: Risk Publications, 15-22.
- Tsay, Ruey. 2010. *Analysis of Financial Time Series*. New York: Wiley.
- Tversky, Amos. 1975. "A Critique of Expected Utility Theory: Descriptive and Normative Considerations." *Erkenntnis*, 9(2), 163-73.
- Tversky, Amos and Daniel Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice." *Science*, 211(4481), 453-58.
- _____. 1974. "Judgment under Uncertainty: Heuristics and Biases." *Science*, 185(4157), 1124-31.
- Tversky, Amos; Eldar Shafir and Peter Diamond. 1997. "Money Illusion." *The Quarterly Journal of Economics*, 112(2), 341-74.
- Udell, Gregory. 2009. "How Will a Credit Crunch Affect Small Business Finance?" *FRBSF Economic Letter*; 3/6/2009, 2009(9), 1-3.
- Uhlig, Harald. 2012. "Economics and Reality." *Journal of Macroeconomics*, 34(1), 29-41.
- Upper, C. 2011. "Simulation Models to Assess the Danger of Contagion in Interbank Markets." *Journal of Financial Stability*, 1-15.
- Vogel, Harold. 2010. *Financial Market Bubbles and Crashes*. Cambridge, MA: Cambridge University Press.
- Waldrop, Mitchell. 1992. *Complexity*. New York: Simon and Schuster.
- Watts, Duncan. 2002. "A Simple Model of Global Cascades on Random Networks." *Proceedings of the National Academy of Sciences*, 99, 5766-71.
- _____. 2003a. *Six Degrees: The Science of a Connected Age*. New York: W.W. Norton & Company.
- _____. 2003b. *Small Worlds: The Dynamics of Networks between Order and Randomness*. Princeton, NJ: Princeton University Press.
- Weber, Ernst Jeurg. 2010. "The Role of the Real Interest Rate in U.S. Macroeconomic History." *The B.E. Journal of Macroeconomics: Vol. 10 : Iss. 1 (Topics), Article 7*, 10(1).
- Wexler, Bruce. 2006. *Brain and Culture: Neurobiology, Ideology, and Social Change*. Cambridge, MA: MIT Press.

- Williams, John B. 1938. *The Theory of Investment Value*. Cambridge: Harvard University Press.
- Williamson, Oliver. 1998. "Transaction Cost Economics: How It Works; Where It Is Headed." *De Economist*, 146(1).
- Wilmott, Paul. 2001. *Quantitative Finance*. New York: Wiley.
- Witt, Ulrich. 2008. "What Is Specific About Evolutionary Economics?" *Journal of Evolutionary Economics*, 18(5), 547-75.
- Witt, Ulrich and Thomas Brenner. 2008. "Output Dynamics, Flow Equilibria and Structural Change—a Prolegomenon to Evolutionary Macroeconomics." *Journal of Evolutionary Economics*, 18(2), 249-60.
- Woodford, Michael. 2009. "Convergence in Macroeconomics. Elements of the New Synthesis." *American Economic Journal Macroeconomics*, 1(1), 267-79.
- Yu, Jianfeng and Yu Yuan. 2011. "Investor Sentiment and the Mean Variance Relation." *Journal of Financial Economics*, (100), 367-81.
- Zawadowski, Adam. 2011. "Entangled Financial Systems,"
- Zhang, Yuanyan Sophia. 2011. "Credit Market Imperfection and Sectoral Asymmetry of Chinese Business Cycle," *IMF Working Paper*. Washington DC.