References

- Akerlof, G.A. (1970), 'The market for "lemons": quality uncertainty and the market mechanism', *Quarterly Journal of Economics*, **84** (3), 488–500.
- Allais, M. (1953), 'Le comportement de l'homme rationnel devant le risque: critique des postulats et axiomes de l'école américaine', *Econometrica*, **21**, 503–46.
- Alpern, S. and D.J. Reyniers (2002), 'Spatial dispersion as a dynamic coordination problem', *Theory and Decision*, **53** (1), 29–59.
- Amemiya, T. (1994), *Introduction to Statistics and Econometrics*, Cambridge, MA: Harvard University Press.
- Antweiler, W. and M.Z. Frank (2004), 'Is all that talk just noise? The information content of internet stock message boards', *Journal of Finance*, **59** (3), 1259–94.
- Armstrong, J.S. (2001), *Principles of Forecasting: A Handbook for Researchers and Practitioners*, Boston, MA: Kluwer Academic Press.
- Arnett, J.J. (2000), 'Optimistic bias in adolescent and adult smokers and nonsmokers', *Addictive Behaviors*, **25** (4), 625–36.
- Arrow, K.J. (1953), 'The role of securities in the optimal allocation of risk-bearing', *Econometrie*, as translated and reprinted in 1964, *Review of Economic Studies*, **31** (2), 91–6.
- Arthur, W.B. (1991), 'Designing economic agents that act like human agents: a behavioral approach to bounded rationality', *American Economic Review*, **81** (2), 353–9.
- Barberis, N., A. Shleifer and R. Vishny (1998), 'A model of investor sentiment', *Journal of Financial Economics*, **49** (3), 307–43.
- Barsalou, L.W. (1992), *Cognitive Psychology: An Overview for Cognitive Scientists*, Hillsdale, NJ: Lawrence Erlbaum.
- Battalio, R., L. Samuelson and J. Van Huyck (2001), 'Optimization incentives and coordination failure in laboratory stag hunt games', *Econometrica*, **69** (3), 749–64.
- Baumol, W.J. (1952), 'The transactions demand for cash: an inventory theoretic approach', *Quarterly Journal of Economics*, **66** (4), 545–56.
- Begg, D.K.H. (1982), *The Rational Expectations Revolution in Macroeconomics*, Oxford: Philip Allen.

- Bernoulli, D. [1738] (1954), 'Exposition of a new theory on the measurement of risk', *Commentarii Academiae Scientiarum Imperialis Petropolitanae*, translated in, *Econometrica*, **22** (1), 23–36.
- Besanko, D., D. Dranocce and M. Shanley (2000), *Economics of Strategy*, New York: John Wiley & Sons.
- Blanchard, O.J. and S. Fischer (1989), *Lectures on Macroeconomics*, Cambridge, MA: MIT Press.
- Bloomfield, R. and J. Hales (2002), 'Predicting the next step of a random walk: experimental evidence of regime-shifting beliefs', *Journal of Financial Economics*, **65**, 397–414.
- Bolle, F. (1988a), 'Testing for rational expectations in experimental predictions', in S. Maital (ed.), *Behavioral Economics*, Amsterdam: North-Holland.
- Bolle, F. (1988b), 'Learning to make good predictions for the following value in a time series', in W. Albers, R. Selten and R. Tietz (eds), *Modeling Bounded Rational Behavior in Experimental Games and Markets*, Springer Lecture Notes 314.
- Bolton, P. and M. Dewatripont (2005), *Contract Theory*, Cambridge, MA: MIT Press.
- Bomfim, A.N. (2001), 'Heterogeneous forecasts and aggregate dynamics', *Journal of Monetary Economics*, **47** (1), 145–61.
- Bonham, C. and R. Cohen (1995), 'Testing the rationality of price forecasts: comment', *American Economic Review*, **85** (1), 284–9.
- Bowman, M.J. (1958), 'Introduction', in M.J. Bowman (ed.), *Expectations, Uncertainty, and Business Behavior*, New York: Social Science Research Council.
- Branch, W.A. (2004), 'The theory of rationally heterogeneous expectations: evidence from survey data on inflation expectations', *Economic Journal*, **114** (497), 592–621.
- Brehmer, B. (1980), 'In one word: not from experience', *Acta Psychologica*, **45**, 223–41.
- Brock, W.A. (1975), 'A simple perfect foresight monetary model', *Journal of Monetary Economics*, **1** (2), 133–50.
- Brock, W.A. and C.H. Hommes (1997), 'A rational route to randomness', *Econometrica*, **65** (5), 1059–95.
- Brown, K.C. and D.J. Brown (1984), 'Heterogeneous expectations and farmland prices', *American Journal of Agricultural Economics*, **66** (2), 164–9.
- Bryant, J. (1983), 'A simple rational expectations Keynes-type model', *Quarterly Journal of Economics*, **98** (3), 525–8.
- Buchanan, N.S. (1939), 'A reconsideration of the cobweb theorem', *Journal of Political Economy*, **47** (1), 67–81.

- Busemeyer, J.R. and A. Rapoport (1988), 'Psychological models of deferred decision making', *Journal of Mathematical Psychology*, **32**, 1–44.
- Byamugisha, F. and W. Zakout (2000), 'World Bank support for land-related projects in developing countries: experiences and implications for international cooperation', mimeo, World Bank.
- Camerer, C.F. (1987), 'Do biases in probability judgment matter in markets? Experimental evidence', *American Economic Review*, **77** (5), 981–97.
- Caplin, A. and J. Leahy (2003), 'Behavioral Policy', in I. Brocas and J.D. Carrillo (eds), *The Psychology of Economic Decisions*, New York: Oxford University Press.
- Caplin, A. and J. Leahy (2004), 'The supply of information by a concerned expert', *Economic Journal*, **114** (497), 487–505.
- Caskey, J. (1985), 'Modeling the formation of price expectations: a Bayesian approach', *American Economic Review*, **75** (4), 768–76.
- Champsaur, P. and J.-C. Milleron (1983), *Advanced Exercises in Microeconomics*, Cambridge, MA: Harvard University Press.
- Cheung, Y.-W., M. Chinn and A. Pascual (2005), 'Empirical exchange rate models of the nineties: are any fit to survive?' *Journal of International Money and Finance*, **24** (7), 1150–75.
- Chow, G.C. (1989), 'Rational versus adaptive expectations in present value models', *Review of Economics and Statistics*, **71** (3), 376–84.
- Ciccone, S.J. (2005), 'Trends in analyst earnings forecast properties', *International Review of Financial Analysis*, **14** (1), 1–22.
- Clower, R.W. (1967), 'A reconsideration of the microfoundations of monetary theory', *Western Economic Journal*, **6** (1), 1–9.
- Cohen, R.B., C. Polk and T. Vuolteenaho (2005), 'Money illusion in the stock market: the Modigliani-Cohn hypothesis', *Quarterly Journal of Economics*, **120** (2), 639–68.
- Conlisk, J. (1996), 'Why bounded rationality?' *Journal of Economic Literature*, **34** (2), 669–700.
- Connolly, T. and B.K. Thorn (1987), 'Predecisional information acquisition: effects of task variables on suboptimal research strategies', *Organizational Behavior and Human Decision Processes*, **39**, 397–416.
- Cooper, A.C., T.B. Folta and C. Woo (2001), 'Entrepreneurial information search', *Journal of Business Venturing*, **10** (2), 107–20.
- Cooper, D.J., S. Garvin and J.H. Kagel (1997), 'Adaptive learning vs. equilibrium refinements in an entry limit pricing game', *Economic Journal*, **107** (442), 553–75.
- Cooper, R.W. (1999), *Coordination Games: Complementarities and Macroeconomics*, Cambridge: Cambridge University Press.

- Cooper, W.W. and H.A. Simon (1955), 'Economic expectations and plans of firms in relation to short-term forecasting', Comment by Modigliani and Sauerlender, *Studies in Income and Wealth*, **17**, 352–9.
- Cothren, R. (1983), 'Job search and implicit contracts', *Journal of Political Economy*, **91** (3), 494–504.
- Cox, J.C. and D.M. Grether (1996), 'The preference reversal phenomenon: response mode, markets and incentives', *Economic Theory*, **7** (3), 381–405.
- Crawford, V.P. (1991), 'An "evolutionary" interpretation of Van Huyck, Battalio and Beil's experimental results on coordination', *Games and Economic Behavior*, **3** (1), 25–59.
- Crawford, V.P. and H. Haller (1990), 'Learning how to cooperate: optimal play in repeated coordination games', *Econometrica*, **58** (3), 571–95.
- Cuthbertson, K. (1996), *Quantitative Financial Economics: Stocks, Bonds and Foreign Exchange*, Chichester: John Wiley & Sons.
- Debreu, G. (1959), *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*, New Haven, CT: Yale University Press.
- De Bondt, W. (1993), 'Betting on trends: intuitive forecasts of financial risk and return', *International Journal of Forecasting*, **9**, 355–71.
- De Bondt, W. and R.H. Thaler (1985), 'Does the stock market overreact?' *Journal of Finance*, **40**, 793–805.
- De Grauwe, P. and H. Dewachter (1993), 'A chaotic model of the exchange rate: the role of fundamentalists and chartists', *Open Economics Review*, **4**, 351–79.
- De Long, J.B., A. Shleifer, L.H. Summers and R.J. Waldmann (1990), 'Noise trader risk in financial markets', *Journal of Political Economy*, **98** (4), 703–38.
- Dixit, A.K. and R.S. Pindyck (1994), *Investment Under Uncertainty*, Princeton, NJ: Princeton University Press.
- Dominitz, J. (1998), 'Earnings expectations, revisions, and realizations', *Review of Economics and Statistics*, **80** (3), 374–88.
- Dominitz, J. and C.F. Manski (2006), 'Measuring pension-benefit expectations probabilistically', *Labour*, **20** (2), 201–36.
- Dornbusch, R. and J.A. Frenkel (1973), 'Inflation and growth: alternative approaches', *Journal of Money, Credit, and Banking*, Part I, **5** (1), 141–56.
- Duffy, J. (1998), 'Monetary theory in the laboratory', *Federal Reserve Bank of St Louis, Review*, **80** (5), 9–26.
- Duffy, J. and E. O'N. Fisher (2005), 'Sunspots in the laboratory', *American Economic Review*, **95** (3), 510–29.
- Dwyer, G.P. Jr., A.W. Williams, R.C. Battalio and T.I. Mason (1993), 'Tests of rational expectations in a stark setting', *Economic Journal*, **103** (418), 586–601.

- Eeckhoudt, L., C. Gollier and H. Schlesinger (2005), *Economic and Financial Decisions under Risk*, Princeton, NJ: Princeton University Press.
- Eggerton, I.R.C. (1982), 'Intuitive time-series extrapolation', *Journal of Accounting Research*, **20**, 68–102.
- Erev, I. and A.E. Roth (1998), 'Predicting how people play games: reinforcement learning in experimental games with unique, mixed strategy equilibria', *American Economic Review*, **88** (4), 848–81.
- Evans, G.W. and S. Honkapohja (2001), *Learning and Expectations in Macroeconomics*, Princeton, NJ: Princeton University Press.
- Evans, M.D.D. and R.K. Lyons (2005), 'Meese-Rogoff redux: micro-based exchange-rate forecasting', *American Economic Review*, **95** (2), 405–14.
- Eysenck, M.W. and N. Derakshan (1997), 'Cognitive biases for future negative events as a function of trait anxiety and social desirability', *Personality and Individual Differences*, **22**, 597–605.
- Ezekiel, M. (1938), 'The cobweb theorem', *Quarterly Journal of Economics*, **52** (2), 255–80.
- Fehr, E. and J.-R. Tyran (2001), 'Does money illusion matter?' *American Economic Review*, **91** (5), 1239–62.
- Feldman, J. (1963), 'Simulation of behavior in the binary choice experiment', in E.A. Feigenbaum and J. Feldman (eds), *Computers and Thought*, New York: McGraw-Hill.
- Figlewski, S. and P. Wachtel (1981), 'The formation of inflationary expectations', *Review of Economics and Statistics*, **63** (1), 1–10.
- Fischbacher, U. (1999), 'Z-Tree: Zurich toolbox for readymade economic experiments', IEW Working Paper 21, University of Zurich.
- Fisher, F.M. (1962), *A Priori Information and Time Series Analysis: Essays in Economic Theory and Measurement*, Amsterdam: North-Holland.
- Frankel, J.A. and K.A. Froot (1986), 'Understanding the dollar in the eighties: the expectations of chartists and fundamentalists', *Economic Record*, **62** (Supplementary Issue), 24–38.
- Frankel, J.A. and K.A. Froot (1990), 'Chartists, fundamentalists, and trading in the foreign exchange market', *American Economic Review*, **80** (2), 181–5.
- Frantz, R. (2003), 'Herbert Simon: artificial intelligence as a framework for understanding intuition', *Journal of Economic Psychology*, **24**, 265–77.
- Friedman, M. (1953), *Essays in Positive Economics*, Chicago, IL: Chicago University Press.
- Friedman, M. (1956), 'The quantity theory of money – a restatement', in M. Friedman (ed.), *Studies in the Quantity Theory of Money*, Chicago, IL: University of Chicago Press.
- Frieze, I.H., J.E. Parsons, P.B. Johnson, D.N. Ruble and G.L. Zellman (1978), *Women and Sex Roles*, New York: Norton.

- Gabrynowicz, J.I. (2003), 'Licensing and the Landsat story: law and policy', presentation to the National Research Council Committee on Licensing Geographic Data and Services, mimeo, National Remote Sensing and Space Law Center, University of Mississippi School of Law.
- Gardes, F. and G. Prat (2000), *Price Expectations in Goods and Financial Markets*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- Gilboa, I. and D. Schmeidler (1995), 'Case-based decision theory', *Quarterly Journal of Economics*, **110** (3), 605–39.
- Goodhart, C. (1990), 'News and the foreign exchange market', LSE Financial Market Group Discussion Paper No. 71.
- Guesnerie, R. (2001), *Assessing Rational Expectations: Sunspot Multiplicity and Economic Fluctuations*, Cambridge, MA: MIT Press.
- Haltiwanger, J.C. and M. Waldman (1989), 'Limited rationality and strategic complements: the implications for macroeconomics', *Quarterly Journal of Economics*, **104** (3), 463–83.
- Hamouda, O.F. and J.C.R. Rowley (1996), *Probability in Economics*, London: Routledge.
- Hays, P.L. (2002), 'What is spacepower and does it constitute a revolution in military affairs?' *Journal of Military and Strategic Studies*, **5** (1), 1–28.
- Heine, S.J. and D.R. Lehman (1995), 'Cultural variation in unrealistic optimism: does the west feel more invulnerable than the east?' *Journal of Personality and Social Psychology*, **68**, 595–607.
- Herrnstein, R.J. and D. Prelec (1991), 'Melioration: a theory of distributed choice', *Journal of Economic Perspectives*, **5** (3), 137–56.
- Hey, J.D. (1984), 'The economics of optimism and pessimism', *Kyklos*, **37** (2), 181–205.
- Hey, J.D. (1994), 'Expectations formation: rational or adaptive or . . .?' *Journal of Economic Behavior and Organization*, **25** (3), 329–49.
- Hey, J.D. (2003), *Intermediate Microeconomics: People are Different*, London: McGraw-Hill.
- Hicks, J. (1969), *A Theory of Economic History*, Oxford: Oxford University Press.
- Hicks, J. (1989), *A Market Theory of Money*, Oxford: Oxford University Press.
- Hill, J. and B. Schütt (2000), 'Mapping complex patterns of erosion and stability in dry mediterranean ecosystems', *Remote Sensing of Environment*, **74** (3), 557–69.
- Hirshleifer, D. (2001), 'Investor psychology and asset pricing', *Journal of Finance*, **56** (4), 1533–97.
- Hirshleifer, J. and J.G. Riley (1992), *The Analytics of Uncertainty and Information*, Cambridge: Cambridge University Press.

- Holden, K., D.A. Peel and J.L. Thompson (1985), *Expectations: Theory and Evidence*, Basingstoke: Macmillan.
- Hong, H. and J.C. Stein (2003), 'Simple forecasts and paradigm shifts', National Bureau of Economic Research Working Paper, No. 10013.
- Hopper, G.P. (1997), 'What determines the exchange rate: economic factors or market sentiment?' *Federal Reserve Bank of Philadelphia Business Review*, September, 17–29.
- Ito, T. (1990), 'Foreign exchange rate expectations: micro survey data', *American Economic Review*, **80** (3), 434–49.
- Jeong, J. and G.S. Maddala (1991), 'Measurement errors and tests for rationality', *Journal of Business and Economic Statistics*, **9** (4), 431–9.
- Jones, B. (2003), 'Bounded rationality and political science: lessons from public administration and public policy', *Journal of Public Administration Research and Theory*, **13** (4), 395–412.
- Jones, M.R. (1971), 'From probability learning to sequential processing: a critical view', *Psychological Bulletin*, **76**, 153–85.
- Kahneman, D. (2003), 'Maps of bounded rationality: psychology for behavioral economics', *American Economic Review*, **93** (5), 1449–75.
- Kahneman, D. and A. Tversky (1979), 'Prospect theory: an analysis of decision under risk', *Econometrica*, **47** (2), 263–91.
- Katona, G. (1946), 'Psychological analysis of business decisions and expectations', *American Economic Review*, **36** (1), 44–62.
- Keane, M.P. and D.E. Runkle (1990), 'Testing the rationality of price forecasts: new evidence from panel data', *American Economic Review*, **80** (4), 714–35.
- Kelly, M. (1997), 'Do noise traders influence stock prices?' *Journal of Money, Credit, and Banking*, **29** (3), 351–63.
- Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, London: Macmillan.
- Kirman, A.P. (1992), 'Whom or what does the representative individual represent?' *Journal of Economic Perspectives*, **6** (2), 117–36.
- Kiyotaki, N. and R. Wright (1989), 'On money as a medium of exchange', *Journal of Political Economy*, **97** (4), 927–54.
- Kiyotaki, N. and R. Wright (1992), 'Acceptability, Means of Payment, and Media of Exchange', *The New Palgrave Dictionary of Money and Finance*, London: Macmillan.
- Kmenta, J. (1971), *Elements of Econometrics*, New York: Macmillan.
- Krugman, P.R., T. Persson and L.E.O. Svensson (1985), 'Inflation, interest rates, and welfare', *Quarterly Journal of Economics*, **100** (3), 677–95.
- Laibson, D. (1997), 'Golden eggs and hyperbolic discounting', *Quarterly Journal of Economics*, **112** (2), 443–77.

- Lee, K.C. (1994), 'Formation of price and cost inflation expectations in British manufacturing industries: a multi-sectoral analysis', *Economic Journal*, **104**, 372–85.
- LeRoy, S.F. (2004), 'Rational exuberance', *Journal of Economic Literature*, **42** (3), 783–804.
- Levine, D.I. (1993), 'Do corporate executives have rational expectations?' *Journal of Business*, **66** (2), 271–93.
- Lo, A.W., H. Mamaysky and J. Wang (2000), 'Foundations of technical analysis: computational algorithms, statistical inference, and empirical implementation', *Journal of Finance*, **55** (4), 1705–65.
- Lovell, M.C. (1986), 'Tests of the rational expectations hypothesis', *American Economic Review*, **76** (1), 110–24.
- Lucas, R. (1978), 'Asset pricing in an exchange economy', *Econometrica*, **46** (6), 1429–45.
- Ludowicy, C., R. Schwaiberger and P. Leithold (2002), *Precision Farming: Handbuch für die Praxis*, Frankfurt am Main: DLG-Verlags-GmbH.
- Lund, N. (2001), *Attention and Pattern Recognition*, London: Routledge.
- Lundberg, S.J. and R. Startz (1983), 'Private discrimination and social intervention in competitive labor market', *American Economic Review*, **73** (3), 340–47.
- Macauley, M.K. and M.A. Toman (1991), 'Providing earth observation data from space: economics and institutions', *American Economic Review*, **81** (2), 38–41.
- Machina, M.J. (1989), 'Dynamic consistency and non-expected utility models of choice under uncertainty', *Journal of Economic Literature*, **27**, 1622–68.
- Marimon, R. and S. Sunder (1993), 'Indeterminacy of equilibria in a hyper-inflationary world: experimental evidence', *Econometrica*, **61** (5), 1073–107.
- Marimon, R. and S. Sunder (1994), 'Expectations and learning under alternative monetary regimes', *Economic Theory*, **4** (1), 131–62.
- Marimon, R. and S. Sunder (1995), 'Does a constant money growth rule help stabilize inflation? Experimental evidence', *Carnegie Rochester Conference Series on Public Policy*, **43** (December), 111–56.
- Markowitz, H. (1952), 'Portfolio selection', *Journal of Finance*, **7** (1), 77–91.
- Markowitz, H. (1959), *Portfolio Selection: Efficient Diversification of Investments*, New York: John Wiley & Sons.
- McCallum, B.T. (1989), *Monetary Economics: Theory and Policy*, New York: Macmillan.
- McCallum, B.T. (2004), 'Consistent expectations, rational expectations, multiple-solution indeterminacies, and least-squares learnability', in

- P. Minford (ed.), *Money Matters: Essays in Honour of Alan Walters*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar.
- McDonald, R. and D. Siegel (1986), 'The value of waiting to invest', *Quarterly Journal of Economics*, **101** (4), 707–28.
- Meese, R. and K. Rogoff (1983), 'Empirical exchange rate models of the seventies', *Journal of International Economics*, **14** (1–2), 3–24.
- Mirman, L.J., L. Samuelson and A. Urbano (1993), 'Monopoly experimentation', *International Economic Review*, **34** (3), 549–63.
- Morris, S. and H.S. Shin (2000), 'Rethinking multiple equilibria in macroeconomic modeling', *NBER Macroeconomics Annual*, 139–61.
- Muth, J.F. (1960), 'Optimal properties of exponentially weighted forecasts', *Journal of the American Statistical Association*, **55** (290), 299–306.
- Muth, J.F. (1961), 'Rational expectations and the theory of price movements', *Econometrica*, **29** (3), 315–35.
- National Research Council (1997), *Precision Agriculture in the 21st Century: Geospatial and Information Technologies in Crop Management*, Washington, DC: National Academy Press.
- Nerlove, M. (1983), 'Expectations, plans, and realizations in theory and practice', *Econometrica*, **51** (5), 1251–80.
- Nerlove, M. and I. Fornari (1998), 'Quasi-rational expectations, an alternative to fully rational expectations: an application to US beef cattle supply', *Journal of Econometrics*, **83** (1–2), 129–61.
- Newell, B.R., T. Rakow, N.J. Weston and D.R. Shanks (2004), 'Search strategies in decision making: the success of "success"', *Journal of Behavioral Decision Making*, **17** (2), 117–37.
- Niehans, J. (1978), *The Theory of Money*, Baltimore, MD: Johns Hopkins University Press.
- Niehans, J. (1997), 'Adam Smith and the welfare cost of optimism', *History of Political Economy*, **29** (2), 185–200.
- Nyhus, E.K. and P. Webley (2006), 'Discounting, self-control and saving', in M. Altman (ed.), *Handbook of Contemporary Behavioral Economics: Foundations and Developments*, Armonk, NY: M.E. Sharpe Publishers.
- Obstfeld, M. (1984), 'Multiple stable equilibria in an optimizing perfect-foresight model', *Econometrica*, **52** (1), 223–8.
- Ochs, J. (1995), 'Coordination games', in J.H. Kagel and A.E. Roth (eds), *The Handbook of Experimental Economics*, Princeton, NJ: Princeton University Press.
- Office of Technology Assessment (1984), *Remote Sensing and the Private Sector: Issues for Discussion – A Technical Memorandum*, Washington, DC: US Congress.
- Patinkin, D. (1949), 'The indeterminacy of absolute prices in classical economic theory', *Econometrica*, **17** (1), 1–27.

- Patinkin, D. (1950–51), 'A reconsideration of the general equilibrium theory of money', *Review of Economic Studies*, **18** (1), 42–61.
- Pesaran, M.H. (1987), *The Limits to Rational Expectations*, New York: Basil Blackwell.
- Pigou, A.C. (1927), *Industrial Fluctuations*, London: Macmillan.
- Pingle, M. (1992), 'Costly optimization: an experiment', *Journal of Economic Behavior and Organization*, **17** (1), 3–30.
- Pingle, M. (2006), 'Deliberation cost as a foundation for behavioral economics', in M. Altman (ed.), *Handbook of Contemporary Behavioral Economics: Foundations and Developments*, Armonk, NY: M.E. Sharpe Publishers.
- Pingle, M. and R.H. Day (1996), 'Modes of economizing behavior: experimental evidence', *Journal of Economic Behavior and Organization*, **29** (2), 191–209.
- Plott, C.R. (1987), 'Rational Choice in Experimental Markets', in R. Hogarth and M. Reder (eds), *Rational Choice: The Contrast between Economics and Psychology*, Chicago, IL: University of Chicago Press.
- Plott, C.R. and S. Sunder (1988), 'Rational expectations and the aggregation of diverse information in laboratory security markets', *Econometrica*, **56** (5), 1085–118.
- Pope, R.D. (1981), 'Supply response and the dispersion of price expectations', *American Journal of Agricultural Economics*, **63** (1), 161–3.
- Porter, D.P. and V.L. Smith (2003), 'Stock market bubbles in the laboratory', *Journal of Behavioral Finance*, **4** (1), 7–20.
- Posner, M.I. (1989), *The Foundations of Cognitive Science*, Cambridge, MA: MIT Press.
- Pötzelberger, K. and L. Sögner (2004), 'Sample autocorrelation learning in a capital market model', *Journal of Economic Behavior and Organization*, **53** (2), 215–36.
- Pruitt, S.W. and L.J. Gitman (1987), 'Capital budgeting forecast biases: evidence from the Fortune 500', *Financial Management*, **16**, 46–51; reprinted in D.J. Lamdin (ed.) (1996), *Managerial Economics Reader*, Oxford: Blackwell.
- Puccetti, R. (1974), 'Pattern recognition in computers and the human brain: with special application to chess playing machines', *British Journal for the Philosophy of Science*, **25** (2), 137–54.
- Rabin, M. (1998), 'Psychology and economics', *Journal of Economic Literature*, **36** (1), 11–46.
- Radner, R. (1982), 'Equilibrium under uncertainty', in K.J. Arrow and M.D. Intriligator (eds), *Handbook of Mathematical Economics*, Vol. 2, Amsterdam: North-Holland.
- Radner, R. (2000), 'Costly and bounded rationality in individual and team decision-making', *Industrial and Corporate Change*, **9** (4), 623–58.

- Rajeev, G. and J.C. Fox (2002), *Judgments, Decisions and Public Policy*, Cambridge: Cambridge University Press.
- Richardson, G.B. (1959), 'Equilibrium, expectations and information', *Economic Journal* **69**, (274), 223–37.
- Rötheli, T.F. (1996), 'Price and output effects of heterogeneous expectations', *Swiss Journal of Economics and Statistics*, **132** (2), 207–22.
- Rötheli, T.F. (1998), 'Pattern recognition and procedurally rational expectations', *Journal of Economic Behavior and Organization*, **37** (1), 71–90.
- Rötheli, T.F. (1999), 'Selling prices and profits: what survey data tell about firms' rationality', *Managerial and Decision Economics*, **20** (6), 319–25.
- Rötheli, T.F. (2001), 'Acquisition of costly information: an experimental study', *Journal of Economic Behavior and Organization*, **46** (2), 193–208.
- Rötheli, T.F. (2005), 'The illusion of over-optimism in survey data: the case of manufacturers' selling prices', *Journal of Socio-Economics*, **34** (2), 151–9.
- Rötheli, T.F. (2006), 'Elements of behavioral monetary economics', in M. Altman (ed.), *Handbook of Contemporary Behavioral Economics: Foundations and Developments*, Armonk, NY: M.E. Sharpe Publishers.
- Rousseau, J.-J. [1755] (1979), *Discours sur l'origine et les fondements de l'inégalité parmi les hommes*, Paris: Edition Sociales.
- Rumelhart, D.E., J.L. McClelland and the PDP Research Group (1986), *Parallel Distributed Processing: Explorations in the Microstructure of Cognition, Volume 1: Foundations*, Cambridge, MA: MIT Press.
- Saatchi, S.S., J.V. Soares and D.S. Alves (1997), 'Mapping deforestation and land use in amazon rainforest by using SIR-C imagery', *Remote Sensing of Environment*, **59** (2), 191–202.
- Salanie, B. (1997), *The Economics of Contracts: A Primer*, Cambridge, MA: MIT Press.
- Samuelson, P.A. (1958), 'An exact consumption-loan model of interest with or without the social contrivance of money', *Journal of Political Economy*, **66** (6), 467–82.
- Sannier, C.A.D., J.C. Taylor and W. Du Plessis (2002), 'Real-time monitoring of vegetation biomass with NOAA-AVHRR in Etosha National Park, Namibia, for fire risk assessment', *International Journal of Remote Sensing*, **23** (1), 71–89.
- Sargent, T.J. and N. Wallace (1975), '“Rational” expectations, the optimal monetary instrument, and the optimal money supply rule', *Journal of Political Economy*, **83** (2), 241–54.
- Sarle, C.F. (1925), 'The forecasting of the price of hogs', *American Economic Review*, **15** (3, Supplement), 1–22.
- Schelling, T.C. (1960), *The Strategy of Conflict*, Cambridge, MA: Harvard University Press.
- Schmalensee, R. (1976), 'An experimental study of expectation formation', *Econometrica*, **44** (1), 17–41.

- Schoemaker, P.J.H. (1982), 'The expected utility model: its variants, purposes, evidence and limitations', *Journal of Economic Literature*, **20** (2), 529–63.
- Scitovsky, T. (1954), 'Two concepts of external economies', *Journal of Political Economy*, **62** (2), 143–51.
- Selten, R. (1998), 'Features of experimentally observed bounded rationality', *European Economic Review*, **42** (3–5), 413–36.
- Shanks, D.R. (1995), 'Is human learning rational?' *Quarterly Journal of Experimental Psychology*, **48A**, 257–79.
- Shefrin, H. (2005), *A Behavioral Approach to Asset Pricing*, Burlington, MA: Elsevier Academic Press.
- Shiller, R.J. (1981), 'Do stock prices move too much to be justified by subsequent changes in dividends?' *American Economic Review*, **71** (3), 421–36.
- Shiller, R.J. (2001), *Irrational Exuberance*, New York: Princeton University Press.
- Shleifer, A. and Summers, L.H. (1990), 'The noise trader approach to finance', *Journal of Economic Perspectives*, **4** (2), 19–33.
- Shubik, M. (1990), 'A game theoretic approach to the theory of money and financial institutions', in B.M. Friedman and F.H. Hahn (eds), *Handbook of Monetary Economics*, Vol. I, Amsterdam: Elsevier Science Publishers.
- Simon, H.A. (1959), 'Theories of decision-making in economics and behavioral science', *American Economic Review*, **49** (3), 253–83.
- Simon, H.A. (1972), 'Theories of bounded rationality', in C.B. McGuire and R. Radner (eds), *Decision and Organization: A Volume in Honor of Jacob Marschak*, Amsterdam: North-Holland.
- Simon, H.A. (1983), *Models of Bounded Rationality: Economic Analysis and Public Policy*, Vol. 1, Cambridge, MA: MIT Press.
- Skyrms, B. (2003), *The Stag Hunt and the Evolution of Social Structure*, Cambridge: Cambridge University Press.
- Smith, V.L., G.L. Suchanek and A.W. Williams (1988), 'Bubbles, crashes, and endogenous expectations in experimental spot asset markets', *Econometrica*, **56** (5), 1119–51.
- Smyth, D.J. (1992), 'Measurement errors in survey forecasts of expected inflation and the rationality of inflation expectations', *Journal of Macroeconomics*, **14**, 439–48.
- Sugden, R. (1995), 'A theory of focal points', *Economic Journal*, **105** (430), 533–50.
- Thaler, R.H. (1994), 'Savings policies', *American Economic Review*, **84** (2), 186–92.
- Timmermann, A. (1994), 'Can agents learn to form rational expectations? Some results on convergence and stability of learning in the UK stock market', *Economic Journal*, **104** (425), 777–97.

- Tobin, J. (1958), 'Liquidity preference as behavior toward risk', *Review of Economic Studies*, **25** (2), 65–86.
- Todd, P.M. (2001), 'Heuristics for decision and choice', in N.J. Smelser and P.B. Baltes (eds), *International Encyclopedia of the Social and Behavioral Sciences*, Amsterdam: Elsevier.
- Turnovsky, S.J. (1983), 'The determination of spot and futures prices with storable commodities', *Econometrica*, **51** (5), 1363–88.
- Turnovsky, S.J. (2000), *Methods of Macroeconomic Dynamics*, Cambridge, MA: MIT Press.
- Tversky, A. and D. Kahneman (1992), 'Advances in prospect theory: cumulative representation of uncertainty', *Journal of Risk and Uncertainty*, **5** (4), 297–323.
- Tyebjee, T.T. (1987), 'Behavioral biases in new product forecasting', *International Journal of Forecasting*, **3**, 393–404.
- Usher, J.M. and D.D. Truax (2001), 'Exploration of remote sensing applicability within transportation', mimeo, Mississippi State University Remote Sensing Technology Center (RSTC).
- Van Huyck, J.B., R.C. Battalio and R.O. Beil (1990), 'Tacit coordination games, strategic uncertainty, and coordination failure', *American Economic Review*, **80** (1), 234–48.
- Van Huyck, J.B., R.C. Battalio and R.O. Beil (1991), 'Strategic uncertainty, equilibrium selection, and coordination failure in average opinion games', *Quarterly Journal of Economics*, **106** (3), 885–910.
- Von Neumann, J. and O. Morgenstern (1947), *Theory of Games and Economic Behavior*, (2nd edn), Princeton, NJ: Princeton University Press.
- Wald, A. (1950), *Statistical Decision Functions*, New York: John Wiley & Sons.
- Waldman, M. (1994), 'Systematic errors and the theory of natural selection', *American Economic Review*, **84** (3), 482–97.
- Wenzelburger, J. (2004), 'Learning to predict rationally when beliefs are heterogeneous', *Journal of Economic Dynamics and Control*, **28** (10), 2075–104.
- Wicksell, K. (1898), *Geldzins und Güterpreise*, Jena: G. Fischer.
- Williams, A.W. (1987), 'The formation of price forecasts in experimental markets', *Journal of Money, Credit and Banking*, **19** (1), 1–18.
- Wright, G. and P. Ayton (eds) (1994), *Subjective Probability*, New York: John Wiley & Sons.
- Zeckhauser, R., J. Patel and D. Hendricks (1991), 'Nonrational actors and financial market behavior', *Theory and Decision*, **31**, 257–87.
- Zellner, A. (1986), 'Biased predictors, rationality and the evaluation of forecasts', *Economic Letters*, **21** (1), 45–8.

Index

- adaptive expectations 43–4, 46, 48, 50, 57
- agents
 - bounded rationality and 80
 - natural born chartists 100, 118
 - predictions 6–8
 - probability assessments 10, 125, 137
 - risk adverse 20
 - subjective beliefs about future
 - outcome which is deterministic 23
 - uncertainty and contingent claims 3
 - what rational would offer 167, 175
- aggregate bias 22, 24
- agricultural market functioning 47
- agricultural production, analyses of
 - market dynamics 40
- agriculture, satellite information 93–4, 98
- Akerlof, G.A. 4
- Allais, M. 81
- allocation problem, binding
 - production lags 10
- Alpern, S. 158
- Amemiya, T. 112
- anonymous market mechanism,
 - determines equilibrium prices 165, 175
- anticipation and coordination failures 145–6
 - experimental findings 154–8
 - game and the two treatments 147
 - optimal strategies 151–4
- Antweiler, W. 136
- Appendix 3.1
 - formulation where probability assessments are object of disagreement and misjudgement 22–3
 - modelling heterogeneity of expectations with probabilities 29
- Appendix 5.1, supply function derived of expected profit maximization 60
- Appendix 5.2, computation of the rational expectations fundamental price 61–2
- Appendix 6.1
 - instructions for the experiment 66, 69, 82–4
 - dry-run exercise 84–5
 - the experiment 85–6
- Appendix 6.2, list of causal rules 67, 87–8
- Appendix 6.3
 - proofs of propositions 69, 89
 - existence of redundant information and implications for information acquisition 89–90
 - proof that information stochastically dominates choice without information 89
- Appendix 8.1
 - instructions for the experiment 102, 113
 - extra information 102–3, 112–14
 - procedure 114–15
- Appendix 8.2, the experimental series and measures of $D_t^{3,i}$ 116–17
- Appendix 9.1, instruction for the experiment 122, 139–41
- Appendix 9.2, criterion values and rankings for all patterns presented 122, 125, 131, 142–4
- Appendix 10.1, outline of computer program 151, 160–61
- Appendix 10.2
 - income under best random and non-random strategy 163
 - proof that outlined strategy is optimal 153–4, 155, 162–3

- Appendix 11.1
 instructions for the experiment 167, 177
 the course of the experiment 179
 market functioning 177–9
 applied welfare economics with
 boundedly rational expectations
 91–2
 cost–benefit analysis of provision of
 remotely sensed data 94–6
 how can welfare losses be avoided?
 96–8
 remote sensing 92–4
 appropriate extrapolative scheme,
 market will function as under
 rational expectations 48
 Armstrong, J.S. 39
 Arnett, J.J. 21
 Arrow–Debreu set-up 3
 Arthur, W.B. 108
 asset price, sentiment driven 134, 138
 assumption, all individuals can be
 represented by single rational
 individual 21, 27
 average output, affected by dispersion
 of beliefs 24
 Ayton, P. 9
- Barberis, N. 118
 Barsalou, L.W. 66
 basic module of efficient roof structure
 151–2
 Battalio, R.L. 158
 Baumol, W.J. 175
 Bayes estimator 112
 Begg, D.K.H. 21
 behavioural tendencies, relevance for
 financial markets 119
 benchmark
 calculations parameter values for 36
 cases 33, 36–7, 42
 conditions 35
 experimental investigation and
 166–7
 for stock price 51, 58
 level of output 28
 normative 70
 output 25
 random walk as 134
 values 35
- Bernoulli, D. 10
 Bernoulli process 103, 105
 Besanko, D. 39
 Blanchard, O.J. 57
 Bloomfield, R. 118
 Bolle, F. 57
 Bolton, P. 9
 Bomfim, A.N. 27
 bond, risk-free asset 19, 51
 Bonham, C. 56
 boundedly rational expectations 44, 48,
 91
 bounded rationality 80
 agents make suboptimal decisions
 because of limited cognitive
 abilities 91
 concept used by researchers in
 political science 91
 impediment to adoption of new
 technology 94
 information underacquisition 94
 information users, key element in
 public policies 98
 people learn optima through
 practice and end acting as if
 unboundedly rational 65
 prevention of loss of income due to
 96
- Bowman, M.J. 30
 Branch, W.A. 59
 Brehmer, B. 65, 80
 Brock, W.A. 59, 164
 broken trends, individual probability
 assessments 125
 Brown, D.J. 27
 Brown, K.C. 27
 Bryant, J. 153
 bubble case 55–7
 Buchanan, N.S. 45
 Busemeyer, J.R. 92
 Byamugisha, F. 99
- Camerer, C.F. 112
 Caplin, A. 91
 cardinal utility 10, 12
 Caskey, J. 59
 certainty equivalent of a lottery 16
 Champsaur, P. 9
 Cheung, Y.-W. 134
 Chow, G.C. 57

- Ciccone, S.J. 21
 classical version of expected utility 12
 Clower, R.W. 164
 Cohen, R. 56
 Cohen, R.B. 57
 Conlisk, J. 65, 91
 Connolly, T. 92
 Cooper, A.C. 39
 Cooper, D.J. 80
 Cooper, R.W. 145
 Cooper, W.W. 30
 coordination, location problems 146, 158
 coordination failure, players' decisions made under strategic uncertainty 146, 158
 cost-benefit analysis, remotely sensed data 94-6
 costly information and decision making 65-6
 analysis of individual performance 77-9
 analysis of individual information acquisition 69-77
 the experimental design 66-8
 optimal solution strategy 68-9
 costly rationality, decision making under uncertainty 65
 Cothren, R. 20
 Cox, J.C. 81
 Crawford, V.P. 158
 crop health, remote sensing 94, 99
 Cuthbertson, K. 57
 cyclical pattern of output 45

 Day, R.H. 65, 77
 De Bondt, W. 57, 118
 decision maker 13, 151
 decision making
 centralized/decentralized 145-58
 under uncertainty 6, 20, 65, 92
 with costly information 65
 De Grauwe, P. 108
 De Long, J.B. 27
 Derakshan, N. 21
 determination of economy's price level, role of expectations 164
 deviations from rationality in expectations, do not necessarily generate sizable market effects 50

 Dewachter, H. 108
 Dewatripont, M. 9
 dispersion of expectations 21-2, 27
 divergent dynamics 48, 58
 diversification 30, 32-3, 36, 38-9
 Dixit, A.K. 30
 Dominitz, J. 21, 112
 Dornbusch, R. 175
 Duffy, J. 58, 175
 Dwyer, G.P. Jr. 57, 104

 econometric analysis of expectations
 data, time series extrapolation has non-linear elements 137
 econometric studies of various markets, historical data for 57
 economic analysis, role of heterogeneity of expectations for 21
 economists (as subjects) 69, 104
 educational investments 80, 99
 Eeckhoudt, L. 9
 efficient valuation of stock 51
 egalitarian roof structure of optimal size 152-3
 Eggleton, I.R.C. 100, 105-6
 eliminating 30-33, 36-8
 endowment risk 173
 ENPV *see* expected net present value
 equilibrium, unbounded rationality and 166
 Erev, I. 80
 estimates of individual pattern use 105-8
 evaluating responses to pattern experiment 104-5
 Evans, G.V. 58
 Evans, M.D.D. 134
 exchange rates, diversity concerning which fundamentals important for valuing 136
 exchange rate simulations 134-5
 expectations
 on average biased towards optimism 21, 27
 conditional 40-43
 coordination of determines level of nominal prices 174
 errors 25-6
 heuristic 47, 57-8

- horizon 57
- hypotheses, empirical assessment 56–7
- inferred 169
- influence content of deals 4
- multi-period setting 40
- need to form of to take right actions 3
- price level and 174
- role of heuristics 58
- rules for calculus of 20
- wrong, outcome in terms of utility can be much lower than in case of correct anticipations 6
- expectations and stock prices 51
 - non-rational dividend expectations 51–2
 - short-term expectations 52–6
- expectations in time series models 40
 - conditional expectations in time and rational expectations 40–44
 - empirical assessment of expectations hypotheses 56–7
 - expectations and stock prices 51
 - non-rational dividend expectations 51–2
 - short-term expectations 52–6
 - market model with static, adaptive and rational expectations 45
 - comparison of price dynamics under different expectations 49–50
 - heterogeneous expectations 48–9
 - market dynamics under rational expectations 47–8
 - static and adaptive expectations 45–6
- expected dividend payment 51–6
- expected income maximization, use of in theoretical and empirical studies 13
- expected net present value 30, 32–3, 35–7, 39
- expected profit, below-average and above-average circumstances 42–3
- expected utility 16–17, 17–18, 109
- expected utility framework 9, 20
- expected utility maximization 8, 10, 12, 19–20
 - according to Von Neumann–Morgenstern 12–16
 - markets and equilibrium 11–12
 - measures of risk aversion 18–19
 - utilities and probabilities 10–11
 - variance of income as measure of risk 16–18
- experimental data, investigate econometrically 101, 105–6, 112
- experimental study, subjects fail to use information efficiently 65
- extrapolative expectations 39, 57–9
 - level 43–4
 - trend 43–4, 131
- Eysenck, M.W. 21
- Ezekiel, M. 45
- farming, application of remote sensing 93, 95, 99
- Fehr, E. 175
- Feldman, J. 100, 105–6, 112
- Figlewski, S. 21, 56
- finance professionals (as subjects) 104–5, 107–8, 111
- Fischbacher, U. 176
- Fischer, S. 57
- Fisher, E. O'N. 58
- Fisher, F.M. 56
- fixed pattern response 101, 112
- forecasting 30, 32, 36, 39
- forecasting among alternative strategies under uncertainty 30
 - choice of strategy 31–2
 - fixed set-up costs 32–5
 - operating costs 35–7
- effects of lowering forecasting costs 37–8
- going ahead 33
- refraining 32
- forecasting heuristics 39
- foresight, hypothesis of rationality in 56
- Fornari, I. 57
- Fox, J.C. 91
- Frank, M.Z. 136
- Frankel, J.A. 108
- Frantz, R. 100
- Frenkel, J.A. 175

- Friedman, M. 172, 175
 Frieze, I.H. 21
 Froot, K.A. 108
 full information strategy 69, 77
- Gabrynowicz, J.I. 93
 Gardes, F. 57
 Gilboa, I. 20
 Gitman, L.J. 21
 global positioning system (GPS),
 remotely sensed information and
 93
 going ahead 32–3, 36
 government intervention, will improve
 welfare with bounded rationality
 of agents 97–8
 government officials and businessmen,
 overacquisition of information 80
 Grether, D.M. 81
 Guesnerie, R. 58
- Hales, J. 118
 Haller, H. 158
 Haltiwanger, J.C. 145
 Hamouda, O.F. 20
 Hays, P.L. 98
 Heine, S.J. 21
 heterogeneous expectations 8, 12, 21,
 26–7, 48–9
 heterogeneous probability assessments,
 agents' and expected benefits from
 future market transactions 12
 heuristic forecasting schemes 39–40
 heuristics 27, 39, 44, 47
 use of visual patterns 105
 Hey, J.D. 29, 57, 158
 Hicks, J. 164
 Hill, J. 98
 Hirshleifer, J. 9, 20, 118
 hog cycle 45
 Holden, K. 56
 Hommes, C.H. 59
 Hong, H. 137
 Honkapohja, S. 58
 Hopper, G.P. 134
 hypothesis of rationality of foresight
 see rational expectations
- individual expectations, non-
 contractible elements and 9
- individuals, often remain ignorant
 about the working of their
 environment 79–80
 information 65, 80, 91–2, 94–6, 98, 105
 information acquisition by subjects of
 group economists 70, 74–6
 information acquisition by subjects of
 group people 70–73
 information costs 65–9, 78
 information service, banks could
 become important partner in 97
 information sheet 67–8
 investment strategies 32–3, 36
- Jeong, J. 56
 Jones, M.R. 91, 100, 105–6
Journal of Remote Sensing 99
- Kahneman, D. 20, 91
 Katona, G. 21
 Keane, M.P. 56
 Kelly, M. 57
 Keynes, J.M. 21, 175
 Kirman, A.P. 27
 Kiyotaki, N. 175
 Kmenta, J. 112
 Krugman, P.R. 164
- Laibson, D. 91
 land
 as variable factor of production 21
 rent 24–7
 land market 21–2
 Land Remote Sensing
 Commercialization Act (1984) 93
 LANDSAT 93
 Leahy, J. 91
 lean information strategy 69, 90
 Lee, K.C. 56
 Lehman, D.R. 21
 LeRoy, S.F. 57
 level-extrapolative expectations 43–4
 Levine, D.I. 21, 57
 Lo, A.W.H. 100
 location decision, role of forecast cost
 for 32
 location of plates and costs 149–50
 lotteries and compound lotteries 15
 lottery, market price of 108–10
 Lovell, M.C. 21, 56

- low-inflation equilibrium 165, 175
 Lucas, R. 20
 Ludowicy, C.R. 99
 Lund, N. 100
 Lundberg, S.J. 20
 Lyons, R.K. 134
- Macauley, M.K. 98
 McCallum, B.T. 58, 175
 McDonald, R. 30
 Machia, M.J. 20
 Maddala, G.S. 56
 main cue strategy 70, 77
 Manski, C.F. 112
 Marimon, R. 165, 169
 market
 agricultural 57
 moral hazard and 9
 populated with extrapolating noise traders 137
 stock 51–7, 119, 135–6
 market economy, determination of price level 164
 market model 45, 109, 125
 market prices 11, 20, 45, 58
 Markov chain, used to generate data in pattern experiment 102–4
 Markowitz, H. 19
 mathematical expectations 47, 49, 58
 maximin principle 6–9, 30
 maximum likelihood estimate of probabilities 103, 112
 measures of risk aversion 18–19
 Meese, R. 134
 military applications, remote sensing and 93, 98
 Milleron, J.-C. 9
 Mirman, L.J. 81
 model economy 164, 167, 175–6
 model of pattern-based expectations, behaviour and 111
 money, transactions and expectations 164–5, 175
 experimental analysis 167–8
 playable monetary economy 165–7
 aggregate outcomes 169–73
 assessing individual rationality 168–69
 tests of the quantity theory of money 173–4
- Morgenstern, O. 10
 Morris, S. 158
 multiple equilibria, rational expectation models and 58
 multiplicity of price level equilibria 164
 multivariate expectations 43–4
 Muth, J.F. 47, 57–9
- National Aeronautics and Space Administration (NASA) 93, 98–9
 National Research Council 99
 Nerlove, M. 57
 Newell, B.R. 92
 new technological information, challenge of teaching to farmers 99
 Niehans, J. 21, 27, 164, 173
 noise traders or feedback traders 27, 119, 137
 nominal prices, move proportionally to change in money supply 165, 174–5
 non-rational dividend expectations 51–2
 Nyhus, E.K. 91
- Obstfeld, M. 165
 Ochs, J. 166
 one-period ahead forecasts 54
 optimists 21–3, 27
 optimization problem, under certainty 151–2
 option value of waiting 30
 oscillatory dynamics of market price 46
 output levels in six runs of the experiment 169, 171
 overacquisition of information 80, 92
- Pareto dominant outcome 145, 158
 Patinkin, D. 166, 175
 pattern-based expectations and financial markets 112, 118–19
 the experiment 119–22
 experimental results 122–5
 how well simple extrapolative schemes explain elicited expectations 125–33
 simulated asset market and tests of realism 133–6

- pattern recognition as basis of
 - expectations 100–101
 - estimates of individual pattern use 105–8
 - evaluating the responses 104–5
 - the experiment 102–4
 - model of pattern use 101–2
 - pattern recognition and market psychology 108–11
- patterns
 - average of individual answers 125, 137–8
 - ranked according to maximum average cent amount earned in assessment of populations' expectation 125, 129
 - ranked according to maximum of individually expected change 122–3
 - ranked according to maximum size of bias in assessment of populations' expectations 125, 128
 - ranked according to minimum average cent amount earned in assessment of populations' expectations 125, 130
 - ranked according to minimum of individually expected change 122, 124
 - role in time series forecasting of non-experts 100
- People (as subjects) 104, 107–8, 111
- perfect market economy 3–4, 9
- Pesaran, M.H. 56–7
- pessimists 22–4, 27
- Pigou, A.C. 108
- Pindyck, R.S. 30
- Pingle, M. 65, 77
- playable monetary economy 164, 165–7, 175
- Plott, C.R. 57, 81
- point expectations 6
- Pope, R.D. 27
- Porter, D.P. 57
- positive and negative deviations from fundamental price 111–12
- Posner, M.I. 100
- possible roof models 148–9
- Pötzelberger, K. 58
- Prat, G. 57
- price dynamics 49–50, 57–8, 134
- price level 164, 169, 171, 173–5
 - realized 173
- prices of agricultural commodities 27
- price series 119, 137
- principle of expected utility maximization 8
- private sector as supplier of information 92–7
- producer, fixed amount of management skill 22
- production 6, 22, 31
- production decision depends on expectations 6, 10–12
- production lags 5–10, 45
- production sites, different locations or different countries 31
- prominent patterns 106, 122, 137
- Pruitt, S.W. 21
- psychology 92, 100, 108
- Puccetti, R. 100
- Pythagoras Theorem, use of 149
- quadratic utility function 17–18
- quantity theory of money
 - may be robust to agents' deviations from perfect rationality 174, 176
 - price level changes in proportion to change in money supply 173
- R&D, pursued along one or several lines 31
- Rabin, M. 80
- Radner, R. 27, 65
- Rajeev, G. 91
- random number generator 133–4
- random strategy 154, 162–3
- random variable 40
- random walk
 - as benchmark model 134–6
 - rational expectations and 44
- random walk series 135, 137–8
- Rapoport, A. 92
- rational bubbles 111
- rational expectations 40
 - bubble solution 56, 58
 - conditions when heuristics conform to 44

- equilibrium 22
- heterogeneity of expectations and
 - 21, 48–9
- market dynamics under 47–8, 58
- market price under 54, 58
- solution to problem presented 104, 112
- theory 21, 27
- rational solution, estimating
 - parameters of data-generating process by method of maximum likelihood 103, 112
- rationality, deviations from associated with animal spirits and sun spots 108
- rationality of expectations, can be tested independently of other hypotheses 57
- rationality of individual behaviour, assess using agent's maximization problem 168
- redundant knowledge, overacquisition of information and 80
- refraining 31–2, 36
- regression
 - analysis of market functioning 111
 - equation for (subject-) population average of expected changes 131–2
 - models for data of subjects 106–8
- regressive expectations 43–4, 48, 132
- remotely sensed data, cost–benefit analysis of 94–6, 99
- remotely sensed information, access made dependent on participation 95
- remote sensing 92–4, 98
- Remote Sensing of Environment* 99
- remote sensing information, satellite information services 92, 98–9
- repetition and learning, not sufficient to bring about rational choices 65, 80
- Reyniers, D.J. 158
- Richardson, G.B. 145
- Riley, J.G. 9, 20
- risk 146
 - assessment of fire 99
 - aversion measures of 15–16, 18–20, 58, 158
 - endowment 173
 - income 17
 - indifference 18
 - loving 16
 - neutral behaviour 13, 16, 18, 32, 41
 - premium 51
 - strategy 38
- risk-free,
 - bonds 19, 51
 - interest rate 51, 58
- Rogoff, K. 134
- Roth, A.E. 80
- Rötheli, T.F. 27, 56–7, 112, 175
- Rousseau, J.-J. 145
- Rowley, J.C.R. 20
- Rumelhart, D.E. 100
- run patterns 105–11
- Runkle, D.E. 56
- Saatchi, S.S. 99
- state-contingent commodities 5
- St Petersburg paradox of gambling 10
- Salanie, B. 9
- Samuelson, P.A. 175
- Sannier, C.A.D. 99
- Sargent, T.J. 164
- Sarle, C.F. 45
- satellite information services 92–3, 98
- savings policies 91
- Say's law 166, 175
- Schelling, T.C. 158, 175
- Schmalensee, R. 56
- Schmeidler, D. 20
- Schoemaker, P.J.H. 20
- Schütt, B. 99
- Scitovsky, T. 158
- Selten, R. 91
- servo-mechanisms, as a substitute for forecasting 30
- Shanks, D.R. 80
- Shefrin, H. 122, 132
- Shiller, R.J. 52, 57, 110, 136
- Shin, H.S. 158
- Shleifer, A. 137
- Shubik, M. 164
- Siegel, D. 30
- Simon, H.A. 44, 91, 100
- simulated time paths, comparison with historical financial data 135

- simulations of market dynamics 49–50, 134–6
- Skyrms, B. 146
- Smith, V.L. 57
- Smyth, D.J. 56
- Sögner, L. 58
- spot market 6–8, 11–12
- stag hunt problem 145–6, 158
- Startz, R. 20
- static expectations 43–5, 50, 53
- Stein, J.C. 137
- stochastic production function 41
- stochastic relationships, important limits to learning 65, 80
- stock, risky asset 19–20
- stock market 51–6
- stock price 40, 51–6
 - experimental time series and 119
 - simulations 135–6
- stopping rules 92
- subjective probabilities 9, 22, 27, 110
- subjects
 - coordinate actions poorly if have to make decisions on counterparts' actions 158
 - estimation of probabilities of a Bernoulli process 105
 - fail to find most economical way of forecasting successful project 80
 - hits and misses by 77–8
 - use of heuristical procedures 105
- suboptimal decision making, average loss due to 77
- suboptimal use of information, rule rather than exception 104
- suboptimality in decision making, cost–benefit analysis and 80
- Sugden, R. 175
- Summers, L.H. 137
- Sunder, S. 57, 165, 169
- swinging of a hammer, test of strength game 23
- switching 30–32, 36, 38–9, 69
- Switzerland
 - decision making experiment 69
 - pattern experiment 104
- Système Probatoire d'Observation de la Terre (SPOT) 93
- technical analysis 100
- thaler, worth in euro cents 149, 151
- Thaler, R.H. 57, 91
- thinking ahead, decision makers and 92
- Thorn, B.K. 92
- time series models 40
- Timmermann, A. 65
- Tobin, J. 18–19, 175
- Todd, P.M. 44
- Toman, M.A. 98
- treatments
 - A and B in coordination experiment 146–57
 - one, two and three in monetary experiment 167–73
- trend-extrapolative expectations 43–4, 131
- trend patterns 118–25, 132
- trend-reversing expectations 53–4
- Truax, D.D. 98
- Turnovsky, S.J. 57–8
- Tversky, A. 20
- Tyebjee, T.T. 21
- Tyran, J.-R. 175
- uncertainty 3, 6, 8–9, 20, 30, 38–9, 65
 - strategic 146
- underacquisition of information 80, 92
- University of Erfurt, students as subjects 118, 154, 167,
- Usher, J.M. 98
- Van Huyck, J.B. 143
- von Neumann, J. 10
- von Neumann–Morgenstern, expected utility 12–19
- Wachtel, P. 21, 56
- waiting 32, 36, 38–9
- Wald, A. 8
- Wald tests 107, 111–12
- Waldman, M. 27, 145
- Wallace, N. 164
- Webley, P. 91
- welfare analysis, conducted in light of bounded rationality of agents 80, 91
- welfare losses 96–8

- Wenzelburger, J. 58
Wicksell, K. 164
Williams, A.W. 57
World Bank, information service and
97, 99
World Wide Web 136
Wright, G. 9
Wright, R. 175
Zakout, W. 99
Zeckhauser, R. 133
Zellner, A. 56
zigzag patterns, expectations and
105–11, 119–25, 132