



UvA-DARE (Digital Academic Repository)

Essays in nonlinear dynamics in economics and econometrics with applications to monetary policy and banking

Wolski, M.

[Link to publication](#)

Citation for published version (APA):

Wolski, M. (2014). Essays in nonlinear dynamics in economics and econometrics with applications to monetary policy and banking

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <http://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Bibliography

ABRAMSON, I. S. (1982): “On bandwidth variation in kernel estimates – A square root law,” *The Annals of Statistics*, 10, 217–1223.

——— (1984): “Adaptive density flattening – A metric distortion principle for combating bias in nearest neighbor methods,” *The Annals of Statistics*, 12, 880–886.

ACHARYA, V. (2009): “A theory of systemic risk and design of prudential bank regulation,” *Journal of Financial Stability*, 5, 224–255.

ACHARYA, V., L. PEDERSEN, T. PHILIPPON, AND M. RICHARDSON (2010): “Measuring systemic risk,” Working Paper 1002, New York University.

ACHARYA, V. V., I. DRECHSLER, AND P. SCHNABL (2011): “A Pyrrhic victory? – Bank bailouts and sovereign credit risk,” Working Paper 17136, National Bureau of Economic Research.

ADRIAN, T. AND M. K. BRUNNERMEIER (2011): “CoVaR,” Working Paper 17454, FED New York.

ASSENZA, T., P. HEEMEIJER, C. HOMMES, AND D. MASSARO (2011): “Individual expectations and aggregate macro behavior,” CeNDEF Working Paper 11-01, University of Amsterdam.

BAECK, E. AND W. BROCK (1992): “A nonparametric test for independence of a multivariate time series,” Working Paper 9204, University of Wisconsin – Madison.

BIBLIOGRAPHY

- BAI, Z., W.-K. WONG, AND B. ZHANG (2010): “Multivariate linear and nonlinear causality tests,” *Mathematics and Computers in Simulation*, 81, 5–17.
- BASURTO, M. A. S., C. CACERES, AND V. GUZZO (2010): “Sovereign spreads: Global risk aversion, contagion or fundamentals?” Working Paper 120, International Monetary Fund.
- BAUER, M. D. AND G. D. RUDEBUSCH (2013): “What caused the decline in long-term yields?” Economic Letters, Federal Reserve Bank of San Francisco.
- BAUR, D. G. AND T. K. MCDERMOTT (2010): “Is gold a safe haven? International evidence,” *Journal of Banking and Finance*, 34, 1886–1898.
- BECK, R. AND E. RAHBARI (2008): “Optimal reserve composition in the presence of sudden stops: The euro and the dollar as safe haven currencies,” Working Paper 916, European Central Bank.
- BEKIROU, S. AND C. DIKS (2008a): “The nonlinear dynamic relationship of exchange rates: Parametric and nonparametric,” *Journal of Macroeconomics*, 30, 1641–1650.
- (2008b): “The relationship between crude oil spot and futures prices: Cointegration, linear and nonlinear causality,” *Energy Economics*, 30, 2673–2685.
- BERNANKE, B. S. AND M. GERTLER (1989): “Agency costs, net worth, and business fluctuations,” *The American Economic Review*, 79, 14–31.
- BERNANKE, B. S., M. GERTLER, AND S. GILCHRIST (1999): “The financial accelerator in a quantitative business cycle framework,” in *Handbook of Macroeconomics*, ed. by J. B. Taylor and M. Woodford, New York: Elsevier, 1341–1393.
- BERNANKE, B. S. AND M. WOODFORD (1997): “Inflation forecasts and monetary policy,” *Journal of Money, Credit and Banking*, 29, 653–684.
- BLANCHARD, O. J. AND C. M. KAHN (1980): “The solution of linear difference models under rational expectations,” *Econometrica*, 48, 1305–1311.

- BLINDER, A. S. (2013): *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead*, New York: Penguin Press HC.
- BRANCH, W. A. (2004): “The theory of rationally heterogeneous expectations: Evidence from survey data on inflation expectations,” *The Economic Journal*, 114, 592–621.
- BRANCH, W. A. AND B. MCGOUGH (2009): “A new Keynesian model with heterogeneous expectations,” *Journal of Economic Dynamics and Control*, 33, 1036–1051.
- (2010): “Dynamic predictor selection in a new Keynesian model with heterogeneous expectations,” *Journal of Economic Dynamics and Control*, 34, 1492–1508.
- BROCK, W. A. AND C. H. HOMMES (1997): “A rational route to randomness,” *Econometrica*, 65, 1059–1096.
- BRUNNERMEIER, M. (2009): “Deciphering the liquidity and credit crunch 2007-2008,” *Journal of Economic Perspectives*, 23, 77–100.
- BRUNNERMEIER, M., A. CROCKET, C. GOODHART, A. PERSSAUD, AND H. SHIN (2009): *The Fundamental Principles of Financial Regulation: Geneva Reports on the World Economy*, London: Centre for Economic Policy Research.
- BUITER, W. (2009): “The unfortunate uselessness of most state of the art academic monetary economics,” *Financial Times*, March 3.
- BULLARD, J. AND K. MITRA (2002): “Learning about monetary policy rules,” *Journal of Monetary Economics*, 49, 1105–1129.
- CABALLERO, J. (2012): “Banking crises and financial integration,” Research Department Publications 4816, Inter-American Development Bank.
- CAERS, J. AND M. A. MAES (1998): “Identifying tails, bounds and end-points of random variables,” *Structural Safety*, 20, 1–23.

BIBLIOGRAPHY

- CALVO, G. A. (1983): “Staggered prices in a utility-maximizing framework,” *Journal of Monetary Economics*, 12, 383–398.
- CAPORIN, M., L. PELIZZON, F. RAVAZZOLO, AND R. RIGOBON (2012): “Measuring sovereign contagion in Europe,” Working Paper 05, Norges Bank.
- CARRECK, N. AND D. CHRISTIAN (1997): “A study of grain dormancy and viability in spring barley,” *European Journal of Agronomy*, 6, 155–161.
- CARROLL, C. D. (2003): “Macroeconomic expectations of households and professional forecasters,” *Quarterly Journal of Economics*, 118, 269–298.
- CARTWRIGHT, N. (2007): *Hunting Causes and Using Them: Approaches in Philosophy and Economics*, Cambridge: Cambridge University Press.
- CASARES, MIGUEL AND POUTINEAU, J.-C. (2010): “Short-run and long-run effects of banking in a new Keynesian model,” *The B.E. Journal of Macroeconomics*, 11, 1–34.
- CHINAZZI, M. AND G. FAGIOLO (2013): “Systemic risk, contagion, and financial networks: A survey,” LEM Working Paper 2013/08, Sant’Anna School of Advanced Studies.
- CHINAZZI, M., G. FAGIOLO, J. A. REYES, AND S. SCHIAVO (2013): “Post-mortem examination of the international financial network,” *Journal of Economic Dynamics and Control*, 37, 1692–1713.
- CHOI, E. AND P. HALL (1999): “Data sharpening as a prelude to density estimation,” *Biometrika*, 86, 941–947.
- CHRISTOFFEL, K., G. COENEN, AND A. WARNE (2010): “Forecasting with DSGE models,” Working Paper 1185, European Central Bank.
- CLARIDA, R., J. GALI, AND M. GERTLER (1999): “The science of monetary policy: A new Keynesian perspective,” *Journal of Economic Literature*, 37, 1661–1707.

- CONLISK, J. (1996): “Why bounded rationality?” *Journal of Economic Literature*, 34, 669–700.
- DATZ, G. (2013): “The narrative of complexity in the crisis of finance: Epistemological challenge and macroprudential policy response,” *New Political Economy*, 18, 459–479.
- DENKER, M. AND G. KELLER (1983): “On U -statistics and v. Mises’ statistics for weakly dependent processes,” *Zeitschrift für Wahrscheinlichkeitstheorie und verwandte Gebiete*, 64, 505–522.
- DIEBOLD, F. X. AND K. YILMAZ (2011): “On the network topology of variance decompositions: Measuring the connectedness of financial firms,” Working Paper 17490, National Bureau of Economic Research.
- DIKS, C. AND V. PANCHENKO (2005): “A note on the Hiemstra-Jones test for Granger non-causality,” *Studies in Nonlinear Dynamics and Econometrics*, 9, 1–7, art. 4.
- (2006): “A new statistic and practical guidelines for nonparametric Granger causality testing,” *Journal of Economic Dynamics and Control*, 30, 1647–1669.
- DIKS, C. AND M. WOLSKI (2013): “Nonlinear Granger causality: Guidelines for multivariate analysis,” CeNDEF Working Paper 13-15, University of Amsterdam.
- DIXIT, A. K. AND J. E. STIGLITZ (1977): “Monopolistic competition and optimum product diversity,” *The American Economic Review*, 67, 297–308.
- DRAINVILLE, B., E. KHATCHADOURIAN, AND M. TORREY (2011): “The case for balanced investing in Emerging Markets,” *Leadership Series (Investment insights)*.
- EDGE, R. M. AND R. S. GÜRKAYNAK (2010): “How useful are estimated DSGE model forecasts for central bankers?” Discussion Paper 8158, Centre for Economic Policy Research.
- EJSING, J. AND W. LEMKE (2011): “The Janus-headed salvation: Sovereign and bank credit risk premia during 2008-2009,” *Economics Letters*, 110, 28–31.

BIBLIOGRAPHY

- ENGLE, R. (2002): “Dynamic conditional correlation: A simple class of multivariate generalized autoregressive conditional heteroskedasticity models,” *Journal of Business & Economic Statistics*, 20, 339–350.
- EVANS, G. W. AND S. HONKAPOHJA (2001): *Learning and Expectations in Macroeconomics*, Princeton: Princeton University Press.
- EVANS, G. W. AND B. MCGOUGH (2005): “Monetary policy, indeterminacy and learning,” *Journal of Economic Dynamics and Control*, 29, 1809–1840.
- FAGIOLO, G. (2007): “Clustering in complex directed networks,” *Physical Review E*, 76, 2–8.
- FRANCIS, B. B., M. MOUGOUA, AND V. PANCHENKO (2010): “Is there a symmetric nonlinear causal relationship between large and small firms?” *Journal of Empirical Finance*, 17, 23–38.
- FRIEDMAN, M. (1953): *Essays in Positive Economics*, Chicago: Chicago University Press.
- FRYDMAN, R. AND M. D. GOLDBERG (2007): *Imperfect Knowledge Economics: Exchange Rates and Risk*, Princeton: Princeton University Press.
- FULLER, W. A. (1995): *Introduction to Statistical Time Series (Wiley Series in Probability and Mathematical Statistics)*, New York: Wiley-Interscience.
- GAO, B. AND R.-E. REN (2013): “The topology of a causal network for the Chinese financial system,” *Physica A: Statistical Mechanics and its Applications*, 392, 2965–2976.
- GARCIA, N. E. (2011): “DSGE macroeconomic models: A critique,” *Economie Appliquee*, 64, 149–171.
- GILBERT, C. L. (2010): “How to understand high food prices,” *Journal of Agricultural Economics*, 61, 398–425.

- GILMORE, C. G., B. M. LUCEY, AND M. W. BOSCIA (2010): “Comovements in government bond markets: A minimum spanning tree analysis,” *Physica A: Statistical Mechanics and its Applications*, 389, 4875–4886.
- GOODFRIEND, M. (2005): “Narrow money, broad money, and the transmission of monetary policy,” in *Models and Monetary Policy: Research in the Tradition of Dale Henderson, Richard Porter, and Peter Tinsley*, ed. by J. Faust, A. Orphanides, and A. Reifschneider, Washington, DC: Board of Governors of the Federal Reserve System.
- GOODFRIEND, M. AND B. T. MCCALLUM (2007): “Banking and interest rates in monetary policy analysis: A quantitative exploration,” *Journal of Monetary Economics*, 54, 1480–1507.
- GRAMMATIKOS, T. AND R. VERMEULEN (2012): “Transmission of the financial and sovereign debt crises to the EMU: Stock prices, CDS spreads and exchange rates,” *Journal of International Money and Finance*, 31, 517–533.
- GRANGER, C. W. J. (1969): “Investigating causal relations by econometric models and cross-spectral methods,” *Econometrica*, 37, 424–438.
- GRANOVSKY, B. L. AND H. G. MLLER (1991): “Optimizing kernel methods: A unifying variational principle,” *International Statistical Review*, 59, 373–388.
- GUO, S., C. LADROUE, AND J. FENG (2010): “Granger causality: Theory and applications,” in *Frontiers in Computational and Systems Biology*, ed. by J. Feng, W. Fu, and F. Sun, London: Springer, vol. 15 of *Computational Biology*, 83–111.
- HABIB, M. H. AND L. STRACCA (2012): “Getting beyond carry trade: What makes a safe haven currency?” *Journal of International Economics*, 87, 50–64.
- HALE, G., C. CANDELARIA, J. CABALLERO, AND S. BORISOV (2013): “Bank linkages and international trade,” Working Paper 2013-14, Federal Reserve Bank of San Francisco.

BIBLIOGRAPHY

- HALL, P. AND M. C. MINNOTTE (2002): “High order data sharpening for density estimation,” *Journal of the Royal Statistical Society. Series B (Statistical Methodology)*, 64, 141–157.
- HARTMANN, P., S. STRAETMANS, AND C. DE VRIES (2004): “Asset market linkages in crisis periods,” *Review of Economics and Statistics*, 86, 313–326.
- HE, Z. AND A. KRISHNAMURTHY (2012): “A macroeconomic framework for quantifying systemic risk,” Working Paper 233, National Bank of Belgium.
- HIEMSTRA, C. AND J. D. JONES (1994): “Testing for linear and nonlinear Granger causality in the stock price – volume relation,” *Journal of Finance*, 49, 1639–1664.
- HOMMES, C. (2011): “The heterogeneous expectations hypothesis: Some evidence from the lab,” *Journal of Economic Dynamics and Control*, 35, 1–24.
- (2013): *Behavioral Rationality and Heterogeneous Expectations in Complex Economic Systems*, Cambridge: Cambridge University Press.
- HOMMES, C., J. SONNEMANS, J. TUINSTRA, AND H. VAN DE VELDE (2005): “Coordination of expectations in asset pricing experiments,” *Review of Financial Studies*, 18, 955–980.
- HUANG, X., H. ZHOU, AND H. ZHU (2010): “Systemic risk contributions,” Working Paper 60, Bank for International Settlements.
- INTERNATIONAL MONETARY FUND (2012): *Global Financial Stability Report*, Washington, DC: International Monetary Fund.
- (2013): *World Economic Outlook: Hopes, Realities, and Risks*, Washington, DC: International Monetary Fund.
- JAMMAZI, R. AND C. ALOUI (2012): “Crude oil price forecasting: Experimental evidence from wavelet decomposition and neural network modeling,” *Energy Economics*, 34, 828–841.

- JEONG, K., W. K. HÄRDLE, AND S. SONG (2012): “Nonparametric test for causality in quantile,” *Econometric Theory*, 28, 861–887.
- JONES, M. C. (1992): “Estimating densities, quantiles, quantile densities and density quantiles,” *Annals of the Institute of Statistical Mathematics*, 44, 721–727.
- KIYOTAKI, N. AND J. MOORE (1997): “Credit cycles,” *The Journal of Political Economy*, 105, 211–248.
- KRUGMAN, P. (2009): “How did economists get it wrong?” *New York Times*, September 6, MM36.
- KUPIEC, P. H. (2002): “Stress testing in a value at risk framework,” in *Risk Management: Value at Risk and Beyond*, ed. by M. A. H. Dempster, Cambridge: Cambridge University Press, 76–99.
- KYDLAND, F. E. AND E. C. PRESCOTT (1982): “Time to build and aggregate fluctuations,” *Econometrica*, 50, 1345–1370.
- LEVINE, R. (1997): “Financial development and economic growth views and agenda,” *Journal of Economic Literature*, 35, 688–726.
- LUCAS, R. E. (1972): “Expectations and the neutrality of money,” *Journal of Economic Theory*, 4, 103–124.
- MANGANELLI, S. AND G. WOLSWIJK (2007): “Market discipline, financial integration and fiscal rules: what drives spreads in the euro area government bond market?” Working Paper 745, European Central Bank.
- MANKIW, N. G. AND R. REIS (2007): “Sticky prices in general equilibrium,” *Journal of European Economic Association*, 5, 603–613.

BIBLIOGRAPHY

- MANKIW, N. G., R. REIS, AND J. WOLFERS (2003): “Disagreement about inflation expectations,” in *NBER Macroeconomics Annual*, ed. by M. Gertler and K. Rogoff, Cambridge: MIT Press, December 2002, 209–248.
- MASSARO, D. (2013): “Heterogeneous expectations in monetary DSGE models,” *Journal of Economic Dynamics and Control*, 37, 680–692.
- MERTON, R. C., M. BILLIO, M. GETMANSKY, D. GRAY, A. W. LO, AND L. PELIZZON (2013): “On a new approach for analyzing and managing macrofinancial risks,” *Financial Analysts Journal*, 69.
- MINOIU, C., C. KANG, V. SUBRAHMANIAN, AND A. BERA (2013): “Does financial connectedness predict crises?” Working Paper WP/13/267, International Monetary Fund.
- MODY, A. (2009): “From Bear Stearns to Anglo Irish: How eurozone sovereign spreads related to financial sector vulnerability,” Working Paper WP/09/108, International Monetary Fund.
- MUTH, J. F. (1961): “Rational expectations and the theory of price movements,” *Econometrica*, 29, 315–335.
- NEWBY, W. AND K. D. WEST (1987): “A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix,” *Econometrica*, 55, 703–08.
- PANDL, Z. (2013): “The bond risk premium,” *Columbia Management*.
- PARZEN, E. (1962): “On estimation of a probability density function and mode,” *The Annals of Mathematical Statistics*, 33, 1065–1076.
- PFAJFAR, D. AND B. ZAKELJ (2011): “Inflation expectations and monetary policy design: Evidence from the laboratory,” CentER Working Paper 2011-091, Tilburg University.
- PHILLIPS, P. C. B. AND P. PERRON (1988): “Testing for a unit root in time series regression,” *Biometrika*, 75, 335–346.

- POPP, M. P., C. R. DILLON, AND T. C. KEISLING (2003): "Economic and weather influences on soybean planting strategies on heavy soils," *Agricultural Systems*, 76, 969–984.
- POWELL, J. L. AND T. M. STOKER (1996): "Optimal bandwidth choice for density-weighted averages," *Journal of Econometrics*, 75, 219–316.
- RANALDO, A. AND P. SÖDERLIND (2010): "Safe haven currencies," *Review of Finance*, 14, 385–407.
- ROSVALL, M. AND C. T. BERGSTROM (2007): "Maps of random walks on complex networks reveal community structure," *Proceedings of the National Academy of Sciences of the USA*, 104, 1118–1123.
- ROTEMBERG, J. J. AND M. WOODFORD (1997): "An optimization based econometric framework for the evaluation of monetary policy," *NBER Macroeconomics Annual*, 12, 297–346.
- SAMIUDDIN, M. AND G. M. EL-SAYYAD (1990): "On nonparametric kernel density estimates," *Biometrika*, 77, 865–874.
- SARI, R., S. HAMMOUDEH, C.-L. CHANG, AND M. MCALEER (2012): "Causality between market liquidity and depth for energy and grains," *Energy Economics*, 34, 1683–1692.
- SCOTT, D. W. (1992): *Multivariate Density Estimation (Wiley Series in Probability and Mathematical Statistics)*, New York: Wiley-Interscience.
- SERFLING, R. J. (1980): *Approximation Theorems of Mathematical Statistics*, New York: Wiley.
- SHI, S. (1999): "Search, inflation and capital accumulation," *Journal of Monetary Economics*, 44, 81–103.
- SILVERMAN, B. W. (1998): *Density Estimation for Statistics and Data Analysis (Chapman & Hall/CRC Monographs on Statistics & Applied Probability)*, London: Chapman and Hall/CRC.

BIBLIOGRAPHY

- SIMON, H. A. (1955): “A behavioral model of rational choice,” *Quarterly Journal of Economics*, 69, 99–118.
- (1957): *Models of Man: Social and Rational : Mathematical Essays on Rational Human Behavior in a Social Setting*, New York: Garland Publishing.
- SOROS, G. (2003): *The Alchemy of Finance*, New York: Wiley.
- STANISLAWSKA, E. AND E. TOMCZYK (2010): *Inflation Expectations: A View from Various Perspectives*, Warsaw: Warsaw School of Economics Publishing.
- TABE, H. (2010): *The Unravelling of Structured Investment Vehicles: How Liquidity Leaked Through SIVs: Lessons in Risk Management and Regulatory Oversight*, New York: Thoth Capital.
- TALEB, N. N. (2010): *The Black Swan: The Impact of the Highly Improbable*, New York: Random House Trade Paperbacks.
- TAYLOR, J. B. (1999): “A historical analysis of monetary policy rules,” in *Monetary Policy Rules*, Cambridge: National Bureau of Economic Research, Inc.
- TOVAR, C. (2008): “DSGE models and central banks,” Working Paper 258, Bank for International Settlements.
- TVERSKY, A. AND D. KAHNEMAN (1974): “Judgment under uncertainty: Heuristics and biases,” *Science*, 185, 1124–1131.
- VAN DER VAART, A. (1998): *Asymptotic Statistics*, Cambridge: Cambridge University Press.
- VON KRUECHTEN, V., E. ROMANOVA, AND M. SCHMAUS (2009): “Austria-based Erste Group Bank AG ‘A’ rating affirmed on high systemic importance,” Discussion Paper 2013/08, Standard & Poor’s Rating Direct.
- WALSH, C. E. (2010): *Monetary Theory and Policy*, Cambridge/London: MIT Press, 3rd ed.

- WAND, M. P. AND M. C. JONES (1995): *Kernel Smoothing (Chapman & Hall/CRC Monographs on Statistics & Applied Probability)*, London: Chapman and Hall/CRC.
- WOLSKI, M. (2013a): “Exploring nonlinearities in financial systemic risk,” CeNDEF Working Paper 13-14, University of Amsterdam.
- (2013b): “Monetary policy, banking and heterogeneous expectations,” Working Paper 136, National Bank of Poland.
- WOODFORD, M. (1994): “Determinacy of equilibrium under alternative policy regimes,” *Economic Theory*, 4, 323–326.
- (2003): *Interest and Prices*, Princeton: Princeton University Press.
- XIAOHUA, D. AND K. SHIYING (2012): “International early warning nonlinear model for securities systemic risk based on RBFNN using UDM and BVM,” *Procedia Engineering*, 29, 1378–1386.