Bas J.M. Werker

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Short bio

Bas Werker is professor of Econometrics and Finance at Tilburg University. His research specializes in both mathematical statistics and financial markets. He publishes in leading journals in these areas and serves on various editorial boards. Bas Werker is affiliated to Netspar and has an advisory role in the Dutch pension reform debate. He is a member of the political party D66.

Education

Ph.D. Economics, Tilburg University, September 14, 1995.

> *Dissertation:* Statistical Methods in Financial Econometrics.

> *Supervisors:* Prof.dr. B.B. van der Genugten, Prof.dr. Th.E. Nijman, Dr. F.C. Drost.

M.Sc. Econometrics, Tilburg University, 1991 (Cum Laude).

Mathematics, Eindhoven University of Technology, 1991 (no degree).

Employment

Professor of Econometrics and Finance, Tilburg University, 2001–present.

Associate Professor of Econometrics and Finance, Tilburg University, 2000–2001.

Chargé de Course Mathematical Statistics and Finance, Université Libre de Bruxelles, 1997–2000.

Assistant Professor of Econometrics, Tilburg University, 1996–1999.

Post doc (TMR), Université des Sciences Sociales, Toulouse, 1996.

Research

My research interests include Asset Pricing, Empirical Finance, Financial Econometrics, Financial Markets, Mathematical Statistics, Semiparametric Inference.

Publications

1. Arbitrage Pricing Theory for Idiosyncratic Variance Factors, with Eric Renault and Thijs van der Heijden, *Journal of Financial Econometrics*, forthcoming.

2. The Shadow Costs of Illiquidity, with Kristy Jansen, *Journal of Financial and Quantitative Analysis*, 57, 2693–2723, 2022.

3. Pareto Optimal Pension Risk Allocations, with Sander Muns, *De Economist*, 170, 133–172, 2022.

4. Semiparametric Testing with Highly Persistent Predictors, with Bo Zhou, *Journal of Econometrics*, 227, 347–370.

5. Pension fund's illiquid assets allocation under liquidity and capital requirements, with Dirk Broeders and Kristy Jansen, *Journal of Pension Economics and Finance*, 20, 102–124, 2021.

6. Systematic Longevity Risk: To Bear or to Insure? with Ling-Ni Boon and Marie Brière, *Journal of Pension Economics and Finance*, 19, 409–441, 2020.

7. The Effect of the Assumed Interest Rate and Smoothing on Variable Annuities, with Anne Balter, *ASTIN Bulletin - The Journal of the International Actuarial Association*, 50, 131–154, 2020.

8. Semiparametrically Optimal Hybrid Rank Tests for Unit Roots, with Bo Zhou and Ramon van den Akker, *Annals of Statistics*, 47, 2601–2638, 2019.

9. The Composite Iteration Algorithm for Finding Efficient and Financially Fair Risk-Sharing Rules, with Jaroslav Pazdera and Hans Schumacher, *Journal of Mathematical Economics*, 72, 122–133, 2017.

10. Health Cost Risk: A Potential Solution to the Annuity Puzzle, with Kim Peijnenburg and Theo Nijman, *The Economic Journal*, 127, 1598–1625, 2017.

11. Efficient Estimation of Integrated Volatility and Related Processes, with Eric Renault and Çisil Sarisoy, *Econometric Theory*, 33, 439–478, 2017.

12. The annuity puzzle remains a puzzle, with Kim Peijnenburg and Theo Nijman, *Journal of Economic Dynamics and Control*, 70, 18–35, 2016.

13. Asymptotic Inference for Jump Diffusions with State-Dependent Intensity, with Gaia Becheri and Feike C. Drost, *Scandinavian Journal of Statistics*, 43, 520–542, 2016.

14. Semiparametric Error-Correction Models for Cointegration with Trends: Pseudo-Gaussian and Optimal Rank-Based Tests of the Cointegration Rank, with Marc Hallin and Ramon van den Akker, *Journal of Econometrics*, 190, 46–61, 2016.

15. Cooperative Investment in Incomplete Markets Under Financial Fairness, with Jaroslav Pazdera and Hans Schumacher, *Insurance: Mathematics and Economics*, 71, 394–406, 2016.

16. Residual-based Rank Specification Tests for AR-GARCH type models, with Elena Andreou, *Journal of Econometrics* 185, 305–331, 2015.

17. Semiparametric Gaussian Copula Models: Geometry and Rank-Based Efficient Estimation, with Johan Segers and Ramon van den Akker, *Annals of Statistics* 42, 1911–1940, 2014.

18. The Dynamic Mixed Hitting-Time Model for Multiple Transaction Prices and Times, with Eric Renault and Thijs van der Heijden, *Journal of Econometrics* 180, 233–250, 2014.

19. Short-Horizon Regulation for Long-Term investors, with Zhen Shi, *Journal of Banking and Finance* 36, 3227–3238, 2012.

20. An Alternative Asymptotic Analysis of Residual-Based Statistics, with Elena Andreou, *Review of Economics and Statistics* 94, 88–99, 2012.

21. Optimal Annuity Risk Management, with Ralph Koijen and Theo Nijman, *Review of Finance* 15, 799–833, 2011.

22. A Class of Simple Semiparametrically Efficient Rank-Based Unit Root Tests, with Ramon van den Akker and Marc Hallin, *Journal of Econometrics* 163, 200–214, 2011.

23. Causality Effects in Return Volatility Measures with Random Times, with Eric Renault, *Journal of Econometrics* 160, 272–279, 2011.

24. When Can Life-cycle Investors Benefit from Time-varying Bond Risk Premia?, with Ralph Koijen and Theo Nijman, *Review of Financial Studies* 23, 741–780, 2010.

25. Efficient Estimation of Autoregression Parameters and Innovation Distributions for Semiparametric Integer-Valued AR(p) Models, with Feico Drost and Ramon van den Akker, *Journal of the Royal Statistical Society, Series B*, 71, 467–485, 2009.

26. The Asymptotic Structure of Nearly Unstable Non-negative Integer-valued AR(1) Models, with Feico Drost and Ramon van den Akker, *Bernoulli*, 15, 297–324, 2009.

27. Local Asymptotic Normality and efficient estimation for INAR(p) models, with Feico Drost and Ramon van den Akker, *Journal of Time Series Analysis*, 29, 783–801, 2008.

28. Note on Integer-valued Bilinear Time Series Models, with Feico Drost and Ramon van den Akker, *Statistics and Probability Letters* 78, 992–996.

29. Performance Information Dissemination in the Mutual Fund Industry, with Alexei Goriaev and Theo Nijman, *Journal of Financial Markets* 11, 144–159, 2008.

30. Semiparametrically Efficient Inference Based on Signs and Ranks for Median-Restricted Models, with Marc Hallin and Catherine Vermandele, *Journal of the Royal Statistical Society, Series B* 70, 389–412, 2008.

31. The Impact of Overnight Periods on Option Pricing, with Mark-Jan Boes and Feico Drost, *Journal of Financial and Quantitative Analysis* 42, 2007.

32. Serial and Nonserial Sign-and-Rank Statistics, with Marc Hallin and Catherine Vermandele, *The Annals of Statistics* 34, 254–289, 2006.

33. Semiparametric Lower Bounds for Tail-index Estimation, with Jan Beirlant and Christel Bouquiaux, *Journal of Statistical Planning and Inference* 136, 705–729, 2006.

34. GARCH and Irregularly Spaced Data, with Nour Meddahi and Eri Renault, *Economics Letters* 90, 200–204, 2006.

35. Multivariate Option Pricing Using Dynamic Copula Models, with Christian Genest and Rob van den Goorbergh, *Insurance: Mathematics and Economics* 37, 101–114, 2005.

36. Yet Another Look at Mutual Fund Tournaments, with Alexei Goriaev and Theo Nijman, *Journal of Empirical Finance* 12, 127–137, 2005.

37. Semiparametric Duration Models, with Feico Drost, *Journal of Business and Economic Statistics* 22, 40–50, 2004.

38. Semiparametric Efficiency, Distribution-Freeness, and Invariance, with Marc Hallin, *Bernoulli* 9, 137–165, 2003.

39. Currency Hedging for International Stock Portfolios: A General Approach, with Frans de Roon and Theo Nijman, *Journal of Banking and Finance* 27, 327–349, 2003.

40. A Jump-Diffusion Model for Exchange Rates in a Target Zone, with Frank de Jong and Feico Drost, *Statistica Neerlandica* 55, 269–299, 2001.

41. Testing for MV-Spanning with Short Sales Constraints and Transaction Costs: The Case of Emerging Markets, with Frans de Roon and Theo Nijman, *The Journal of Finance* 56, 723–744, 2001.

42. Optimal Inference for Discretely Observed Semiparametric Ornstein-Uhlenbeck Processes, with Marc Hallin and Christophe Koell, *Journal of Statistical Planning and Inference* 91, 323–340, 2000.

43. A Convenient Way to Characterize Equivalent Martingale Measures in Incomplete Markets, with Bertrand Melenberg, *Statistical Inference for Stochastic Processes* 2, 11–30, 1999.

44. Estimation and Testing in Models containing both Jumps and Conditional Heteroskedasticity, with Feico Drost and Theo Nijman, *Journal of Business and Economic Statistics* 16, 237–243, 1998.

45. Adaptive Estimation in Time Series Models, with Feico Drost and Chris Klaassen, *The Annals of Statistics* 25, 786–818, 1997.

46. Closing the GARCH Gap: Continuous Time GARCH Modeling, with Feico Drost, *Journal of Econometrics* 74, 31–57, 1996.

Policy Publications in Dutch

1. Baten van slimme toedeling rendementen hoger dan van intergenerationele risicodeling, with Sander Muns, *Economisch Statistische Berichten*, September 2019.

2. Risicodeling is geen gratis lunch, *Economisch Statistische Berichten*, June 2018.

3. Illiquide beleggingen 'jonge' pensioenfondsen niet altijd groter, with Dirk Broeders and Kristy Jansen, *Economisch Statistische Berichten*, June 2017.

4. Persoonlijk Pensioen met Risicodeling, with Mark Heemskerk and René Maatman, *Ondernemingsrecht*, March 2016.

5. DNB speelt hoog spel met introductie van rekenrente die niet bepaald risicovrij is, with Frank de Jong, Theo Kocken and, Sweder van Wijnbergen, *Financieel Dagblad*, July 14, 2012.

6. Nieuw toezicht op hervormde pensioenen, with Lans Bovenberg and Theo Nijman, *Economisch Statistische Berichten* 94, 730–733, 2011.

7. De waarheid over de rentevoet, with Lans Bovenberg and Theo Nijman, *Financieel Dagblad*, July 15, 2011.

8. De opvallende rendementsontwikkeling van smallcapaandelen, with A. Vissers, *Economisch Statistische Berichten* 89, 256–258, 2004.

9. Bewijs en intuïtie in de beleggingstheorie of De leer van het geld verliezen? Inaugural adress Tilburg University, November 8, 2002.

Other Publications

1. On Quadratic Expansions of Log-Likelihoods and a General Asymptotic Linearity Result with Marc Hallin and Ramon van den Akker. Festschrift for Prof. Deheuvels, 147–167, 2015, Springer.

2. Duration Models, the *Encyclopedia of Quantitative Finance*, 504-506, 2010, Wiley & Sons Ltd.

3. Discussion of "Quantile Autoregression" by R. Koenker and Z. Xiao, *Journal of the American Statistical Association*, vol.101, nr.475, 996-997, 2006, with Marc Hallin.

4. An Alternative Approach to Estimation Risk, 2006, in *Advances in Corporate Finance and Asset Pricing*, L. Renneboog (eds.), with J.R. ter Horst and F.A. de Roon.

5. A Risk Measure for Retail Investment Products, 2006, in *Advances in Corporate Finance and Asset Pricing* L. Renneboog (eds.), with Th.E. Nijman.

6. Dynamic Factor Models, *Journal of Econometrics*, 113, 223-230 (editorial to special issue), 2004, with C. Croux and E. Renault.

7. Discussion of "Non-Gaussian Ornstein-Uhlenbeck-based Models and Some of Their Uses in Financial Economics" by Ole E. Barndorff-Nielsen and Neil Shephard, *Journal of the Royal Statistical Society B*, 63, 167-241, 2001.

8. Conditions for the Asymptotic Semiparametric Efficiency of an Omnibus Estimator of Dependence Parameters in Copula Models, *Proceedings of the Conference on Distributions with Given Marginals and Statistical Modelling*, C. M. Cuadras and J.A. Rodríguez Lallena (eds.), 2002, with Chr. Genest.

9. Optimal Testing for Semiparametric Autoregressive Models: from Gaussian Lagrange Multipliers to Autoregression Rank Scores and Adaptive Tests, *Asymptotics, Nonparametrics, and Time Series*, S. Ghosh (eds.), M. Dekker, New York, 295-358, with M. Hallin.

10. Martingale-Based Hedge Error Control, *Numerical Methods in Finance*, L.C.G. Rogers and D. Talay (eds.), Cambridge University Press, 290-304,1997, with P. Bossaerts.

11. Statistical Methods in Financial Econometrics, PhD thesis, CentER, 1995, Tilburg University.

12. Adaptiveness in Time Series Models, *Asymptotic Statistics*, P. Mandl and M. Husková (eds.), Physica-Verlag, 203-211, 1994, with F.C. Drost and C.A.J. Klaassen.

PhD supervision

Current students

Per Bye on demand based asset pricing, with Jens Kværner

Christos Revelas on fraud detection, with Otilia Boldea

Gleb Gertsman on asset pricing, with Rik Frehen

Completed

1. Jorgo Goossens, 17 February 2023, Non-standard Preferences in Asset Pricing and Household Finance, with Marike Knoef, Eduard Ponds and Rob van den Goorbergh.

2. Martijn de Vries, 27 June 2022, Theoretical Asset Pricing under Behavioral Decision Making, with Ole Wilms.

3. Oliver Wichert, 29 April 2022, Unit-Root Tests in High-Dimensional Panels, with Ramon van den Akker and Feico Drost.

4. Zhaneta Tancheva, 23 November 2021, Essays on Macro-Finance and Market Anomalies, with Frans de Roon, Lars Lochstoer, and Alberto Manconi.

5. Kristy Jansen, 15 January 2021, Essays on Institutional Investors, Portfolio Choice, and Asset Prices, with Dirk Broeders and Theo Nijman.

6. Jaroslav Pazdera, 12 September 2018, Essays on risk exchanges within a collective, with Hans Schumacher.

7. Chao Hui Koo, 16 April 2018, Essays on Functional Coefficient Models, with Pavel Čížek.

8. Mario Rothfelder, 16 March 2018, Three Essays on Time-Varying Parameters and Time Series Networks, with Otilia Boldea.

9. Bo Zhou, 6 December 2017, Semiparametric Inference for non-LAN Models, with Ramon van den Akker and Gaia Becheri.

10. Ferenc Horváth, 3 November 2017, Essay on Robust Asset Pricing, with Frank de Jong.

11. Ling Ni Boon, 6 September 2017, Stakeholders in Pension Finance, with Marie Brière and Carole Gresse.

12. Alaa Abi Morshed, 30 May 2017, Three essays in applied macroeconomics and time series analysis, with Otilia Boldea.

13. Yi He, 6 December 2016, Multivariate Extreme Value Statistics for Risk Assessment, with John Einmahl.

14. Çisil Sarisoy, 17 December 2015, Efficiency Gains, Bounds, and Risk in Finance, with Peter de Goeij.

15. Jiehui Hu, 17 December 2013, Macroeconomic Announcements and Financial Markets, with Peter de Goeij.

16. Irene Gaia Becheri, 21 December 2012, Limiting experiments for panel data and jump-diffusion models, with Feike C. Drost and Ramon van den Akker.

17. Thijs van der Heijden, 31 May 2011, Duration Models, Heterogeneous Beliefs, and Optimal Timing, with Feike C. Drost.

18. Kim Peijnenburg, 27 May 2011, Consumption, Savings, and Investments over the Life Cycle, with Theo Nijman.

19. Zhen Shi, 18 December 2009, Three Essays in Pension Finance.

20. Crina Pungulescu, 10 March 2009, Essays on Financial Market Integration, with Frans de Roon.

21. Viorel Roscovan, 9 December 2008, Essays on Banking and Asset Pricing, with Steven Ongena.

22. Ralph Koijen, 16 April 2008, Essays on Asset Pricing, with Theo Nijman.

23. Ramon van den Akker, 7 November 2007, Integer-Valued Time Series, with Feike C. Drost.

24. Mark-Jan Boes, 13 January 2006, Index Options: Pricing, Implied Densities, and Returns, with Feike C. Drost.

25. Christel Bouquiaux, 5 September 2005, Semiparametric Estimation for Extreme Values, with Jan Beirlant.

26. Rob van den Goorbergh, 19 May 2004, Essays on Optimal Hedging and Investment Strategies, and on Derivative Pricing, with Frans de Roon.

27. Alexei Goriaev, 22 November 2002, On the Behavior of Mutual Fund Investors and Managers, with Theo Nijman.

28. Mohamed Selmouni, 22 October 2002, Estimation adaptative dans les modèles ARCH semi-parametrique avec une tendence linéaire, with Marc Hallin.

29. Catherine Vermandele, 9 September 2000, Semiparametrically Efficient Sign-and-Rank Methods for Median Regression and AR Models, with Marc Hallin.

Teaching

I've taught courses in Econometrics, Finance, and Statistics at the undergraduate and graduate level. Also, I've taught several modules in the Tilburg University Executive Teaching programs (TiasNimbas). In 2015 I won the Best Master Lecturer Award from the student organization Asset-Econometrics.

Statistics 1 for Business Economics, International Business Administration (Tilburg University)

Asset Liability Management for undergraduate Econometrics program (Tilburg University)

Asset Pricing for MSc Risk Management (Duisenberg School of Finance)

Financial Econometrics for PhD in Finance (Tilburg University)

Option Theory for MSc Investment Analysis (Tilburg University)

Investment Theory for MSc Investment Analysis (Tilburg University)

Mathematical Finance for PhD in Finance (Tilburg University)

Linear Models for MSc Statistics (Université Libre de Bruxelles)

Time Series for MSc Statistics (Université Libre de Bruxelles)

Professional Activities

Associate Editor Journal of Econometrics, January 2022–Present.

Member of the 'Committee Parameters', January 2022–September 2022.

Member of the 'Committee Parameters', January 2019–June 2019.

Chairman D66 Province of Brabant, December 2013–November 2019.

Associate Editor Econometrica, July 2013–June 2022.

Member of the Committee Survival Tables, Actuarial Society (AG), The Netherlands, October 2012–September 2016.

Fellow of the Society for Financial Econometrics, 2012–Present.

Research Coordinator Netspar, April 2011–Present.

Research Fellow Duisenberg School of Finance, September 2010–September 2014.

Council Member, Society for Financial Econometrics, 2009–Present.

Associate Editor Journal of Financial Econometrics, 2006–Present.

Chairman D66 Tilburg, Summer 2010–May 2014.

Department Chair of Econometrics and Operations Research Tilburg University, February 2008–January 2013.

Program Director Duisenberg School of Finance, September 2008–August 2010.

Department Chair of Finance Tilburg University, May 2004–January 2008.

Board Member Tilburg Center of Finance, September 2002–June 2012.

Research Coordinator CentER Finance group, April 2000–November 2003.

Reviewer for American Economic Review, Annals of Statistics, Biometrika, Canadian Journal of Statistics, Econometrica, Econometric Theory, Journal of the American Statistical Association, Journal of Banking and Finance, Journal of Business and Economic Statistics, Journal of Econometrics, Journal of Economic Dynamics and Control, Journal of Finance, Journal of Financial Markets, Journal of Statistical Planning and Inference, Review of Finance, Review of Financial Studies.

Software

Tilburg Finance Tool (TFT) is software that can be used to simulate financial markets, with a special emphasis on fixed-income assets and pension fund analysis. It is open source (Java) and can be freely downloaded from my website.

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