CURRICULUM VITAE

March, 2020

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Contact Information

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Education

- *Master of Social Sciences*, Statistics (major), Mathematics (minor), Economics (minor), University of Helsinki, 1975.
- *Licentiate in Social Sciences*, Statistics (major), Mathematics (minor), University of Helsinki, 1981.[1]
- *Doctor of Social Sciences*, Statistics, University of Helsinki, 1986.

Positions Held

- *Part-time Lecturer*, Department of Statistics and Department of Economics, University of Helsinki, Autumn 1976, Autumn 1977.
- *Assistant*, Department of Statistics, University of Helsinki, September 1978 - August 1987.
- *Senior Assistant*, Department of Statistics, University of Helsinki, August 1991 - December 1991.
- *Associate Professor of Statistics* (tenured), Department of Statistics, University of Helsinki, January 1992 - July, 1998.
- *Professor of Statistics*, Department Statistics, University of Helsinki, August 1, 1998 - December 31, 2003.
- *Professor of Statistics*, Department of Mathematics and Statistics, University of Helsinki, January 1, 2004 - December 31, 2016.
- *Co-director*, Research Unit of Economic Structures and Growth (Department of Economics, University of Helsinki). Selected by the Academy of Finland as a unit in the national program for Centres of Excellence in Research for the years 2002-2007.

[1] This is a degree between M.S. and Ph.D. A Licentiate of Social Sciences has completed all requirements for Ph.D. besides the doctoral dissertation. The licentiate's degree also contains a thesis.

Fellowships and Visiting Positions

- *Visiting Scholar*, University of Amsterdam, Department of Economic Statistics, March 1984 - June 1984.
- *Senior Research Fellow*, Academy of Finland, September 1986 - December 1986, October 1987 - December 1987, and January 1989 - July 1991.
- *Research Fellow*, Yrjö Jahnsson Foundation, September 1987, and January 1988 - December 1988.
- *Visiting Scholar*, Humboldt-University, Institute of Statistics and Econometrics, July 1993, July 1994, July 1995, August 1997 - October 1997, August 1998, August 1999, June 2000 - November 2000, July 2001.
- *Project Researcher*, Bank of Finland, May 15 1998 - December 31, 1998.
- *Visiting Scholar*, European University Institute, July 2002, September 2003 - November 2003, May 2004, June 2005, June 2007. Fernand Braudel Senior Fellow, European University Institute, March 2008 - June 2008.
- *Project Researcher*, Bank of Finland, August 1, 2008 - December 31, 2008 Project Researcher, Bank of Finland, September 1, 2012 - December 31, 2012

Grants and Research Projects

- Research grant of the Emil Aaltonen Foundation for three years 1983.
- Appropriation to senior scientist for one year, Academy of Finland 1996.
- Grants from the Yrjö Jahnsson Foundation 1999, 2001, 2002, 2003, 2004, 2005, 2006.
- Appropriation to senior scientist for one year, Academy of Finland 2003.
- Research project "Financial Econometrics" (with Markku Lanne), financed by the OP-Pohjola Group Research Foundation, 2007 - 2010.
- Research project "Econometrics of Macroeconomics and Finance, and the Interface between the Macroeconomy and Financial Markets" (with Markku Lanne), financed by the Academy of Finland, 2008 - 2011.
- Research project "Non-Gaussian Time Series Models with Macroeconomic and Financial Applications" (with Markku Lanne), financed by the Academy of Finland, 2011 - 2013.
- Grant of Foundations' Professor Pool, 2012.
- Research project "Nonlinear and Non-Gaussian Time Series Models with Macroeconomic and Financial Applications" (with Markku Lanne), financed by the Academy of Finland, 2014 - 2017.

Awards and Honors

- Tjalling Koopmans Econometric Theory Prize for the period 1991 - 1993
- Econometric Theory Plura Scripsit Award, 1996.
- Research Award of the Alexander von Humboldt Foundation, 1999.
- Econometric Theory Plurima Scripsit Award, 2002.

- Fellow of Journal of Econometrics, 2007.
- Reward of the Yrjö Jahnsson Foundation for significant contributions in promoting Finnish economics, 2008.
- Elected member of The Finnish Academy of Science and Letters, 2011.
- Eino H. Laurila National Income Medal, 2012.

Editorial Collaboration

Co-Editor

Econometric Theory, January 2000 - present

Associate Editor

Econometric Theory, 1994 - 1999
Scandinavian Journal of Statistics, 1995 - 2000

Referee

Annals of Statistics, Communications in Statistics, Computational Statistics and Data Analysis, Econometrica, Econometric Reviews, Econometric Theory, Econometrics Journal, Empirical Economics, Finnish Economics Papers, International Economic Review, International Journal of Forecasting, Journal of the American Statistical Association, Journal of Business & Economic Statistics, Journal of Econometrics, Journal of Multivariate Analysis, Journal of Statistical Planning and Inference, Journal of Time Series Analysis, Oxford Bulletin of Economics and Statistics, Quantitative Economics, Scandinavian Journal of Statistics, Statistics, Stochastic Processes and their Applications

Invited Presentations

- Yale-NSF Trending Multiple Time Series Conference, 1993, Yale University, New Haven, Connecticut, USA.
- EC^2 -conference on Nonparametric and Dynamic Modelling, 1994, Humboldt University, Berlin, Germany.
- Hitotsubashi Conference in Econometrics, 1995, Hitotsubashi University, Tokyo, Japan.
- Tinbergen Institute/Macroeconomic Dynamics Conference on Nonlinear Modeling of Multivariate Macroeconomic Relations, 1999, Tinbergen Institute, Rotterdam, The Netherlands.
- Cowles Foundation Conference New Developments in Time Series Econometrics, 1999, Yale University, New Haven, Connecticut, USA.
- The fifth ICSA International Conference, 2001, The University of Hong Kong, Hong Kong.
- Unit Root and Cointegration Testing Conference, 2005, University of Algarve, Faro, Portugal.
- 4th Nordic Econometric Meeting, 2007, Tartu, Estonia.
- International Workshop on “Recent Advances in Time Series Analysis”, 2008, Protaras, Cyprus.
- Hitotsubashi Conference on Econometrics, 2010, Hitotsubashi University, Tokyo, Japan.

- 6th Nordic Econometric Meeting, 2011, Sønderborg, Denmark.
- Conference on "New Developments in Time Series Econometrics", 2011, Florence, Italy.
- 25th Nordic Conference in Mathematical Statistics, 2014, Turku, Finland.
- Cambridge-INET Workshop on Developments in Time Series, 2015, Cambridge, UK.
- Workshop on "Time Series Econometrics", 2015, Tsinghua Sanya International Mathematics Forum, Sanya, China.
- Conference on "Innovations in Time Series Econometrics" in honor of Helmut Lütkepohl, 2016, DIW Berlin, Germany.
- A Celebration of Peter Phillips' Forty Years at Yale, 2018, Yale University, New Haven, Connecticut, USA.

Publications

Edited book

Haldrup, N., M. Meitz & P. Saikkonen (eds) (2014). Essays in Nonlinear Time Series Econometrics. Oxford University Press.

Articles in International Journals with Referee Practice

1. Saikkonen, P. (1983). Asymptotic relative efficiency of some tests of fit in time series models. ***Journal of Time Series Analysis*** 4, 69-78.
2. Saikkonen, P. (1983). Asymptotic properties of some tests for cross correlation. ***Scandinavian Journal of Statistics*** 10, 269-280.
3. Saikkonen, P. & T. Teräsvirta (1985). Modelling the dynamic relationship between wages and prices in Finland. ***Scandinavian Journal of Economics*** 87, 102-119.
4. Saikkonen, P. (1986). Asymptotic properties of some tests for autocorrelation. ***Statistics*** 17, 49-61.
5. Saikkonen, P. (1986). Asymptotic properties of some preliminary estimators for autoregressive moving average time series models. ***Journal of Time Series Analysis*** 7, 133-155.
6. Gooijer, J.G. de & P. Saikkonen (1988). A specification strategy for order determination in ARMA models. ***Communications in Statistics - Simulation and Computation*** 17, 1037-1054.
7. Saikkonen, P. & R. Luukkonen (1988). Lagrange multiplier tests for testing non-linearities in time series models. ***Scandinavian Journal of Statistics*** 15, 55-68.
8. Luukkonen, R., P. Saikkonen & T. Teräsvirta (1988). Testing linearity in univariate time series models. ***Scandinavian Journal of Statistics*** 15, 161-175.
9. Luukkonen, R., P. Saikkonen & T. Teräsvirta (1988). Testing linearity against smooth transition autoregressive models. ***Biometrika*** 75, 491-499.
10. Saikkonen, P. & R. Luukkonen (1988). An efficient method for the estimation of multivariate moving average models. ***Communications in Statistics - Theory and Methods*** 17, 4257-4270.

11. Saikkonen, P. (1989). Asymptotic relative efficiency of the classical test statistics under misspecification. ***Journal of Econometrics*** 42, 351-369.

12. Saikkonen, P. & R. Luukkonen (1989). Estimating multivariate autoregressive moving average models by fitting long autoregressions. ***Communications in Statistics - Theory and Methods*** 18, 1589-1615.

13. Saikkonen, P. (1991). Asymptotically efficient estimation of cointegration regressions. ***Econometric Theory*** 7, 1-21.

14. Saikkonen, P. & R. Luukkonen (1991). Power properties of a time series linearity test against some simple bilinear alternatives. ***Statistica Sinica*** 1, 453-464.

15. Saikkonen, P. (1992). Estimation and testing of cointegrated systems by an autoregressive approximation. ***Econometric Theory*** 8, 1-27.

16. Saikkonen, P. (1993). Estimation of cointegration vectors with linear restrictions. ***Econometric Theory*** 9, 19-35.

17. Saikkonen, P. (1993). Continuous weak convergence and stochastic equicontinuity results for integrated processes with an application to the estimation of a regression model. ***Econometric Theory*** 9, 155-188.

18. Saikkonen, P. & R. Luukkonen (1993). Testing for a moving average unit root in autoregressive integrated moving average models. ***Journal of the American Statistical Association*** 88, 596-601.

19. Saikkonen, P. & R. Luukkonen (1993). Point optimal tests for testing the order of differencing in ARIMA models. ***Econometric Theory*** 9, 343-362.

20. Saikkonen, P. (1993). A note on a Lagrange multiplier test for testing an autoregressive unit root. ***Econometric Theory*** 9, 494-498.

21. Saikkonen, P. (1995). Dependent versions of a central limit theorem for the squared length of a sample mean. ***Statistics and Probability Letters*** 22, 185-194.

22. Saikkonen, P. (1995). Problems with the asymptotic theory of maximum likelihood estimation in integrated and cointegrated systems. ***Econometric Theory*** 11, 888-911.

23. Luukkonen, R. & P. Saikkonen (1995). Power of the Lagrange multiplier test for testing an autoregressive unit root. ***Economics Letters*** 51, 27-35.

24. Saikkonen, P. & H. Lütkepohl (1996). Infinite order cointegrated vector autoregressive processes: Estimation and inference. ***Econometric Theory*** 12, 814-844.

25. Saikkonen, P. & R. Luukkonen (1996). Testing the order of differencing in time series regression. ***Journal of Time Series Analysis*** 17, 481-496.

26. Saikkonen, P. & R. Luukkonen (1997). Testing cointegration in infinite order cointegrated vector autoregressive processes. ***Journal of Econometrics*** 81, 93-126.

27. Lütkepohl, H. & P. Saikkonen (1997). Impulse response analysis in infinite order cointegrated vector autoregressive processes. ***Journal of Econometrics*** 81, 127-157.

28. Luukkonen, R, A. Ripatti & P. Saikkonen (1999). Testing for a valid normalization of cointegrating vectors in vector autoregressive processes. ***Journal of Business & Economic Statistics*** 17, 195-204.

29. Saikkonen, P. & H. Lütkepohl (1999). Local power of likelihood ratio tests for the cointegrating rank of a VAR process. ***Econometric Theory*** 15, 50-78.

30. Lütkepohl, H. & P. Saikkonen (1999). A lag augmentation test for the cointegrating rank of a VAR process. ***Economics Letters*** 63, 23-27.

31. Saikkonen, P. (1999). Testing normalization and overidentification of cointegrating vectors in vector autoregressive processes. ***Econometric Reviews*** 18, 235-257.

32. Lütkepohl, H. & P. Saikkonen (2000). Testing for the cointegrating rank of a VAR process with a time trend. ***Journal of Econometrics*** 95, 177-198.

33. Saikkonen, P. & H. Lütkepohl (2000). Testing for the cointegrating rank of a VAR process with an intercept. ***Econometric Theory*** 16, 373-406.

34. Saikkonen, P. & H. Lütkepohl (2000). Trend adjustment prior to testing for the cointegrating rank of a VAR process. ***Journal of Time Series Analysis*** 21, 435-456.

35. Saikkonen, P. & H. Lütkepohl (2000). Testing for the cointegrating rank of a VAR process with structural shifts. ***Journal of Business & Economic Statistics*** 18, 451-464.

36. Saikkonen, P. & A. Ripatti (2000). On the estimation of Euler equations in the presence of a potential regime shift. ***The Manchester School*** 68 s1, 92-121.

37. Saikkonen, P. & H. Lütkepohl (2001). Testing for unit roots in time series with level shifts. ***Allgemeines Statistisches Archiv*** 85, 1-25.

38. Saikkonen, P. (2001). Consistent estimation in cointegrated vector autoregressive processes with nonlinear time trends in cointegrating relations. ***Econometric Theory*** 17, 296-326.

39. Saikkonen, P. (2001). Statistical inference in cointegrated vector autoregressive processes with nonlinear time trends in cointegrating relations. ***Econometric Theory*** 17, 327-356.

40. Ripatti, A. & P. Saikkonen (2001). Vector autoregressive processes with nonlinear time trends in cointegrating relations. ***Macroeconomic Dynamics*** 5, 577-597.

41. Hubrich, K., H. Lütkepohl & P. Saikkonen (2001). A review of systems cointegration tests. ***Econometric Reviews*** 20, 247-318.

42. Lütkepohl, H., P. Saikkonen & C. Trenkler (2001). Maximum eigenvalue versus trace tests for the cointegrating rank of a VAR process. ***Econometrics Journal*** 4, 287-310.

43. Saikkonen, P. & H. Lütkepohl (2002). Testing for a unit root in a time series with a level shift at unknown time. ***Econometric Theory*** 18, 313-348.

44. Lanne, M. & P. Saikkonen (2002). Threshold autoregressions for strongly autocorrelated time series. ***Journal of Business & Economic Statistics*** 20, 282-289.

45. Lanne, M., H. Lütkepohl & P. Saikkonen (2002). Comparison of unit root tests for time series with level shifts. ***Journal of Time Series Analysis*** 23, 667-685.

46. Lanne, M., H. Lütkepohl & P. Saikkonen (2003). Test procedures for unit roots in time series with level shifts at unknown time. ***Oxford Bulletin of Economics and Statistics*** 65, 91-115.

47. Lütkepohl, H., P. Saikkonen & C. Trenkler (2003). Comparison of tests for the cointegrating rank of a VAR process with a structural shift. ***Journal of Econometrics*** 113, 201-229.

48. Lanne, M. & P. Saikkonen (2003). Reducing size distortions of parametric stationarity tests. ***Journal of Time Series Analysis*** 24, 423-439.

49. Lanne, M. & P. Saikkonen (2003). Modeling the U.S. short-term interest rate by mixture autoregressive processes. ***Journal of Financial Econometrics*** 1, 96-125.

50. Lütkepohl, H., P. Saikkonen & C. Trenkler (2004). Testing for the cointegrating rank of a VAR process with level shifts at unknown time. ***Econometrica*** 72, 647-662.

51. Saikkonen, P. & I. Choi (2004). Cointegrating smooth transition regressions. ***Econometric Theory*** 20, 301-340.

52. Choi, I. & P. Saikkonen (2004). Testing linearity in cointegrating smooth transition regressions. ***Econometrics Journal*** 7, 341-346.

53. Saikkonen, P. (2005). Stability results for nonlinear error correction models. ***Journal of Econometrics*** 127, 69-81.

54. Lanne, M. & P. Saikkonen (2005). Nonlinear GARCH models for highly persistent volatility. ***Econometrics Journal*** 8, 251-276.

55. Saikkonen, P., H. Lütkepohl & C. Trenkler (2006). Break date estimation for VAR processes with level shift with an application to cointegration testing. ***Econometric Theory*** 22, 15-68.

56. Lanne, M. & P. Saikkonen (2006). Why is it so difficult to uncover the risk-return tradeoff in stock returns? ***Economics Letters*** 92, 118-125.

57. Brüggemann, R., H. Lütkepohl & P. Saikkonen (2006). Residual autocorrelation testing for vector error correction models. ***Journal of Econometrics*** 134, 579-604.

58. Lanne, M. & P. Saikkonen (2007). A multivariate generalized orthogonal factor GARCH model. ***Journal of Business & Economic Statistics*** 25, 61-75.

59. Saikkonen, P. (2007). Stability of mixtures of vector autoregressions with autoregressive conditional heteroskedasticity. ***Statistica Sinica*** 17, 221-239.

60. Lanne, M. & P. Saikkonen (2007). Modeling conditional skewness in stock returns. ***European Journal of Finance*** 13, 691-704.

61. Saikkonen, P. (2008). Stability of regime switching error correction models under linear cointegration. ***Econometric Theory*** 24, 294-318.

62. Trenkler, C., H. Lütkepohl & P. Saikkonen (2008). Testing for the cointegrating rank of a VAR process with level shift and trend break. ***Journal of Time Series Analysis*** 29, 331-358.

63. Meitz, M. & P. Saikkonen (2008). Ergodicity, mixing, and existence of moments of a class of Markov models with applications to GARCH and ACD models. ***Econometric Theory*** 24, 1291-1320.

64. Meitz, M. & P. Saikkonen (2008). Stability of nonlinear AR-GARCH models. ***Journal of Time Series Analysis*** 29, 453-475.

65. Kauppi, H. & P. Saikkonen (2008). Predicting U.S. recessions with dynamic binary response models. ***Review of Economics and Statistics*** 90, 777-791.

66. Demetrescu, M., H. Lütkepohl & P. Saikkonen (2009). Testing for the cointegrating rank of a vector autoregressive process with uncertain deterministic trend term. ***Econometrics Journal*** 12, 414-435.

67. Meitz, M. & P. Saikkonen (2010). A note on the geometric ergodicity of a nonlinear AR-ARCH model. ***Statistics and Probability Letters*** 80, 631-638.

68. Choi, I. & P. Saikkonen (2010). Tests for nonlinear cointegration. ***Econometric Theory*** 26, 682-709.

69. Lanne, M. & P. Saikkonen (2011). GMM estimation with noncausal instruments. ***Oxford Bulletin of Economics and Statistics*** 73, 581-592.

70. Lanne, M. & P. Saikkonen (2011). Noncausal autoregressions for economic time series. ***Journal of Time Series Econometrics***, Vol. 3, Iss. 3, Article 2.

71. Meitz, M. & P. Saikkonen (2011). Parameter estimation in nonlinear AR-GARCH models. ***Econometric Theory*** 27, 1236-1278.

72. Lanne, M., J. Luoto & P. Saikkonen (2012). Optimal forecasting of noncausal autoregressive time series. ***International Journal of Forecasting*** 28, 623-631.

73. Meitz, M. & P. Saikkonen (2013). Maximum likelihood estimation of a noninvertible ARMA model with autoregressive conditional heteroskedasticity. ***Journal of Multivariate Analysis*** 114, 227-255.

74. Lanne, M. & P. Saikkonen (2013). Noncausal vector autoregression. ***Econometric Theory*** 29, 447-481.

75. Lanne, M., M. Meitz & P. Saikkonen (2013). Testing for linear and nonlinear predictability of stock returns. ***Journal of Financial Econometrics*** 11, 682-705.

76. Nyberg, H. & P. Saikkonen (2014). Forecasting with a noncausal VAR model. ***Computational Statistics and Data Analysis*** 76, 536-555.

77. Kalliovirta, L., M. Meitz & P. Saikkonen (2015). A Gaussian mixture autoregressive model for univariate time series. ***Journal of Time Series Analysis*** 36, 247-266.

78. Saikkonen, P. & R. Sandberg (2016). Testing for a unit root in noncausal autoregressive models. ***Journal of Time Series Analysis*** 37, 99-125.

79. Kalliovirta, L., M. Meitz & P. Saikkonen (2016). Gaussian mixture vector autoregression. ***Journal of Econometrics*** 192, 485-498.

80. Lanne, M., M. Meitz & P. Saikkonen (2017). Identification and estimation of non-Gaussian structural vector autoregressions. ***Journal of Econometrics*** 196, 288-304.

81. Kheifets, I. L. & P. Saikkonen (2020). Stationarity and ergodicity of vector STAR models. ***Econometric Reviews*** 39, 407–414.

Articles in International Compilation Works with Referee Practice

1. Lütkepohl, H. & P. Saikkonen (1999). Order selection in testing for the cointegrating rank of a VAR process. In R.F. Engle and H. White (eds) ***Cointegration, Causality, and Forecasting, A Festschrift in Honour of Clive W.J. Granger***, pp. 168-199, Oxford University Press, Oxford.

2. Saikkonen, P. & H. Lütkepohl (2000). Asymptotic inference on nonlinear functions of the coefficients of infinite order cointegrated VAR processes. In A. Barnett, D.F. Hendry, S. Hylleberg, T. Teräsvirta, and A. Würtz (eds) ***Nonlinear Econometric Modelling in Time Series Analysis***, pp. 165-201. Cambridge University Press, Cambridge.

3. Lütkepohl, H., C. Müller & P. Saikkonen (2001). Unit root tests for time series with a structural break when the break point is known. In C. Hsiao, K. Morimune, and J. Powell (eds) ***Nonlinear Statistical Modeling***, pp. 327-348, Cambridge University Press, Cambridge.

4. Lanne, M., H. Lütkepohl & P. Saikkonen (2002). Unit root tests in the presence of innovational outliers. In I. Klein and S. Mittnik (eds) ***Contributions to Modern Econometrics***, pp. 151-167, Kluwer Academic Publishers, Dordrecht, The Netherlands.

Other Scientic Publications

1. Lanne, M. & P. Saikkonen (2003). On mixture autoregressive models. In R. Höglund, M. Jäntti and G. Rosenqvist (eds) ***Statistics, Econometrics and Society: Essays in Honour of Leif Nordberg***, pp. 69-89, Statistics Finland, Helsinki.

2. Kalliovirta, L., M. Meitz & P. Saikkonen (2014). Modeling the Euro USD exchange rate with the Gaussian mixture autoregressive model. In J. Knif and B. Pape (eds) ***Contributions to Mathematics, Statis- tics, Econometrics, and Finance: Essays in Honour of Professor Seppo Pynnönen***, pp.171193, Acta Wasaensia Series, 296, Statistics 7.

Manuscripts

1. Kalliovirta, L. & P. Saikkonen (2010). Reliable residuals for multivariate nonlinear time series models.

2. Meitz, M. & P. Saikkonen (2017). Testing for observation-dependent regime switching in mixture autoregressive models.

3. Meitz, M., D. Preve, & P. Saikkonen (2018). A mixture autoregressive model based on Student's t–distribution.

4. Lütkepohl, H., M. Meitz, A. Netšunajev, & P. Saikkonen (2018). Testing identification via heteroskedasticity in structural vector autoregressive models.

5. Meitz, M. & P. Saikkonen (2019). Subgeometrically ergodic autoregressions.

6. Meitz, M. & P. Saikkonen (2019). Subgeometric ergodicity and β-mixing