Curriculum Vitae

Name:	Karl FRAUENDORFER
Date of birth:	27.06.1960
Profession:	Full Professor for Operations Research at the University of St. Gallen
Nationality:	Austrian
Present Position:	Ordinarius and Director at the Institute for Operations Research and Computational finance (ior/cf-HSG) University of St. Gallen

Education:

1992	University of Zurich, Wirtschaftswissenschaftliche Fakultät Venia Legendi in Operations Research
1992	University of Zurich, Wirtschaftswissenschaftliche Fakultät Habilitation: “Stochastic Two-Stage Programming”
1984	Johannes Kepler University of Linz, Institute of Applied Computer Science, Faculty of Technical and Natural Sciences Doctoral degree with distinction: “mit Auszeichnung”
1982	Technical University of Vienna, Mathematics Degree: “Dipl.Ing.Math.”

University Affiliations:

Since 2000	University of St. Gallen Full Professor for Operations Research at the Institute for Operations Research and Computational Finance
1996 - 2000	University of St. Gallen Associate Professor for Operations Research at the Institute for Operations Research
1995	Latsis-Prize 1995 of the University of St. Gallen for his contributions in "Stochastic Programming"
1993 - 1996	University of St. Gallen Assistant Professor for Operations Research at the Institute for Operations Research
1992 - 1993	University of Zurich, Senior Lecturer for Operations Research (PD an der Wirtschaftswissenschaftlichen Fakultät)
1986 - 1993	University of Zurich, Senior Research Assistant at the Institute for Operations Research (Wirtschaftswissenschaftliche Fakultät)
1984 - 1985	University of Zurich Research Assistant at the Institute for Operations Research (Wirtschaftswissenschaftliche Fakultät)
1982 - 1984	Johannes Kepler University of Linz Research Assistant at the Institute of Applied Computer Science (Technisch-Naturwissenschaftliche Fakultät)

Service Activities:

Internal:

- Dean, School of Finance, since 2011 - 2015
- President, Swiss Institute of Banking and Finance, since 2009
- Member, University Senate
- Committee Member, Department of Business Administration
- Director, Institute for Operations Research and Computational Finance

Scientific Membership:

- Swiss Operations Research Society: Board Member (1990-1998)
- Pension Education Center: Member of the Board (2000-2006)
- Mathematical Programming Society: Member (since 1986)
- German Operations Research Society: Member (since 1984)
- Austrian Operations Research Society: Member (since 1984)
- Society of Applied Mathematics: Member (since 1986)
- IFIP Working Group 7.7 [Stochastic Optimization]: Member (since 1990)

Applied Research Projects in Cooperation with the Energy Industry (since 2000)

Oil-indexed vs. hub-based gas contracts
Valuation and hedging of energy derivatives
Valuation and hedging of electricity swing options
Management of virtual power plants
Management of gas storages
Management of pump storage plants
Intra-Day optimization of flexible power plants
Modelling inflow dynamics for hydro plant parks
Evaluation for risk premia in electricity delivery contracts
Volume and price risks in full service contracts
Risk adjusted optimization in the energy procurement
Risk adjusted portfolio optimization for the gas industry
Risk controlling in energy trading
Analysis of cross border auctions in the electric power industry
Cash-Flow forecasts for electricity producers
Diversification potentials in client portfolios of energy providers
Marketing of renewable energy sources
Cross border allocation methods
Generation of hourly price forward curves
Effect of the EEG law to electricity prices
Bidding strategies for flexible power plants
Coupling & decoupling of gas and oil prices
Influence of wind injection to electricity prices
Design of stress tests for clearing institutions
Calibration of electricity and gas price dynamics
Spot and forward price models for Swissix and Phelix

Applied Research Projects in Cooperation with the Finance Industry

Dependencies in banking products
Valuation of hybrid instruments
Valuation and management of trade credit risks
Valuation of prepayment options
Coherent measurements of financial risks
Client rate models
Risk adjusted optimization in retail banking
Volume risk of saving deposits and mortgages
Management and hedging of balance sheets of large banks
FX-effects in the strategic asset allocation
Volume models for the balance sheet positions of retail banks
Strategic asset allocation subject to given liability dynamics
Regime-switch based sensitivity analysis for the asset allocation
Liquidity risk in retail banking
Management of non-maturing accounts
Design of stress tests for retail banking
Modelling and calibration of interest rate dynamics
Regime switch models in financial markets

Selected Publications

Articles (academic journals)

Gratwohl, Alois; Baldomero, Helen; Gratwohl, Michael; Aljurf, Mahmoud; Bouzas, Luis; Horowitz, Mary; Kodera, Yoshihisa; Lipton, Jeff; Iida, Minako; Pasquini, Marcelo; Passweg, Jakob; Szer, Jeff; Madrigal, Alejandro; Frauendorfer, Karl; Niederwieser, Dietger: Quantitative and Qualitative Differences in Use and Trends of Hematopoietic Stem Cell Transplantation: A Global Observational Study.
In: Haematologica 98 (2013), Nr. 8, S. 1282-1290, DOI:10.3324/haematol.2012.076349.

Gratwohl, Alois ; Baldomero, Helen ; Gratwohl, Michael ; Tichelli, André ; Niederwieser, Dietger ; Madrigal, Alejandro ; Frauendorfer, Karl: The EBMT Activity Survey 2009 : Trends over the Past 5 Years. In: Bone Marrow Transplantation 46 (2011), Nr. 4, S. 485-501, DOI:10.1038/bmt.2011.11.

Gratwohl, Alois ; Schwendener, Alvin ; Baldomero, Helen ; Gratwohl, Michael ; Apperley, Jane ; Niederwieser, Dietger ; Frauendorfer, Karl: Changes in the use of hematopoietic stem cell transplantation: a model for diffusion of medical technology. In: Haematologica 95 (2010), Nr. 4, S. 637-643, DOI:10.3324/haematol.2009.015586.

Gratwohl, Alois ; Baldomero, Helen ; Aljurf, Mahmoud ; Pasquini, Marcelo ; Bouzas, Luis ; Yoshimi, Ayami ; Szer, Jeff ; Lipton, Jeff ; Schwendener, Alvin ; Gratwohl, Michael ; Frauendorfer, Karl ; Niederwieser, Dietger ; Horowitz, Mary ; Kodera, Yoshihisa: Hematopoietic Stem Cell Transplantation : A Global Perspective. In: Journal of the American Medical Association (JAMA) 303 (2010), Nr. 16, S. 1617-1624, DOI:10.1001/ jama.2010.491.

Gratwohl, Alois ; Baldomero, Helen ; Schwendener, Alvin ; Gratwohl, Michael ; Urbano-Ispizua, Alvaro ; Frauendorfer, Karl: Hematopoietic stem cell transplants for chronic myeloid leukemia in Europe – Impact of cost considerations. In: Leukemia (2007), Nr. 21, S. 383-386, DOI:10.1038/sj.leu.2404509.

Gratwohl, Alois ; Baldomero, Helen ; Schwendener, Alvin ; Gratwohl, Michael ; Apperley, Jane ; Niederwieser, Dietger ; Frauendorfer, Karl: Predictability of Hematopoitetic Stem Cell Transplantation Rates. In: Haematologica 92 (2007), Nr. 12, S. 1679-1686, DOI:10.3324/ haematol.11260.

Frauendorfer, Karl ; Jacoby, Ulrich ; Schwendener, Alvin: Regime Switching based Portfolio Selection for Pension Funds. In: Journal of Banking and Finance 31 (2007), Nr. 8, S. 2265-2280.

Frauendorfer, Karl ; Güssow, Jens ; Haarbrücker, Gido ; Kuhn, Daniel: Stochastische Optimierung im Energiehandel: Entscheidungsunterstützung und Bewertung für das Portfoliomanagement. In: e|m|w Zeitschrift für Energie, Markt, Wettbewerb 1 (2005), Nr. 0, S. 59-66.

Frauendorfer, Karl ; Haarbrücker, Gido ; Kuhn, Daniel ; Kiske, Klaus: Swing-Optionen im Elektrizitätsmarkt - Bewertung und optimale Ausübung komplexer Stromderivate. In: e| m|w Zeitschrift für Energie, Markt, Wettbewerb 5 (2005), Nr. 0, S. 70-74.

Frauendorfer, Karl ; Keel, Alex ; Schmid, Olivier: Hohe Modellrisiken. In: Schweizer Bank 19 (2004), Nr. 6, S. 48-50.

Jacoby, Ulrich ; Keel, Alex ; Frauendorfer, Karl: Studie im Auftrag für das Bundesamt für Sozialversicherung über die kurz- und mittelfristigen Finanzierungsrisiken von Vorsorgeeinrichtungen - Eine Analyse unter besonderer Berücksichtigung des Einflusses der technischen Parameter. In: Soziale Sicherheit AWP (2004), Nr. 11, S. 66.

Jacoby, Ulrich ; Keel, Alex ; Frauendorfer, Karl: Zusatzstudie im Auftrag für das Bundesamt für Sozialversicherung. Aufarbeitung der Schnittstellen zwischen dem Projekt 'Optimierung der Aufsicht' und der 'Studie über die kurz- und mittelfristigen Finanzierungsrisiken von Vorsorgeeinrichtungen, Schlussbericht, Universität St. Gallen, 2003. In: Soziale Sicherheit AWP (2004), Nr. 14, S. 2.

Frauendorfer, Karl ; Schürle, Michael: Management of non-maturing deposits by multistage stochastic programming. In: European Journal of Operational Research 151 (2003), Nr. 3, S. 602-616.

Frauendorfer, Karl ; Haarbrücker, Gido: Solving Sequences of Refined Multistage Stochastic Linear Programs. In: Annals of Operations Research 124 (2003), Nr. 1, S. 133-163.

Frauendorfer, Karl ; Schürle, Michael: Term Structure Models in Multistage Stochastic Programming: Estimation and Approximation. In: Annals of Operations Research 100 (2000), Nr. 1, S. 189-209.

Frauendorfer, Karl ; Haarbrücker, Gido: Test Problems in Stochastic Multistage Programming. In: Optimization 47 (2000), Nr. 3/4, S. 267-285.

Frauendorfer, Karl ; Siede, Heiko: Portfolio Selection Using Multi-Stage Stochastic Programming. In: Central European Journal of Operations Research 7 (1999), Nr. 4, S. 277-289.

Frauendorfer, Karl ; Schmid, Olivier: Strukturanpassung im Finanzbereich. In: THEXIS, Fachzeitschrift für Marketing 15 (1998), Nr. 2, S. 58-59.

Frauendorfer, Karl: Asset & Liability Management. In: OR-News (1997), Nr. 1, S. 23-26.

Frauendorfer, Karl: Barycentric Scenario Trees in Convex Multistage Stochastic Programming. In: Mathematical Programming 75 (1996), Nr. 2, S. 277-294.

Frauendorfer, Karl: Stochastic Multistage Programming in Financial Decision Making. In: Zeitschrift für Angewandte Mathematik und Mechanik (ZAMM) 76 (1996), S. 21-24.

Frauendorfer, Karl: Stochastic Programming Tutorial for Financial Decision Making (The Saddle Property of Optimal Profits). In: Central European Journal for Operational Research and Economics 4 (1996), Nr. 2-3, S. 199-221.

Book chapters

Frauendorfer, Karl ; Kuhn, Daniel ; Schürle, Michael: Barycentric Bounds in Stochastic Programming : Theory and Application. In: Stochastic programming: the state of the art in honor of George B. Dantzig. New York, NY : Springer Science+Business Media, LLC, 2011, S. 67-96. - ISBN 978-1-4419-1641-9.

Frauendorfer, Karl ; Güssow, Jens: Clean Valuation with Regard to EU Emission Trading. In: Optimization in the Energy Industry. Berlin-Heidelberg-New York : Springer, 2008, S. 461-483. - ISBN 978-3-540-88964-9.

Frauendorfer, Karl ; Schürle, Michael: Dynamic modelling and optimization of non-maturing accounts. In: Matz, L. (Hrsg.) ; Neu, P. (Hrsg.): Liquidity Risk Measurement and Management: A Practitioner's Guide to Global Best Practices. Singapore : Wiley, 2007, S. 327-359. - ISBN 0-470-82182-5.

Frauendorfer, Karl ; Haarbrücker, Gido: Numerical Techniques in Applied Multistage Stochastic Programming. In: Dzemyda, G. (Hrsg.) ; Saltenis, V. (Hrsg.) ; Zilinskas, A. (Hrsg.): Stochastic and Global Optimization. Dordrecht, NL : Kluwer Academic Publishers, 2005, S. 111-127. - ISBN 1-4020-0484-2.

Frauendorfer, Karl ; Schürle, Michael: Refinancing Mortgages in Switzerland. In: Applications of Stochastic Programming. Philadelphia : SIAM Society for Industrial and Applied Mathematics, 2005, S. 445-469. - ISBN 0-89871-555-5.

Frauendorfer, Karl ; Haarbrücker, Gido ; Schmid, Olivier: Management Science: Quantitative Methoden. In: Dubs, Rolf (Hrsg.) ; Euler, Dieter (Hrsg.) ; Rüegg-Stürm, Johannes (Hrsg.) ; Wyss, Christina (Hrsg.): Einführung in die Managementlehre - Band 5. Bern : Haupt, 2004, S. 191-243. - ISBN 3-258-06999-9.

Frauendorfer, Karl ; Schürle, Michael: Multistage stochastic programming: Barycentric approximation. In: Parkalos, P. (Hrsg.) ; Floudas, C. A. (Hrsg.): Encyclopedia of Optimization - Volume 3. Dordrecht, NL : Kluwer Academic Publishers, 2001, S. 576-580. - ISBN 0-7923-6932-7.

Frauendorfer, Karl ; Schürle, Michael: Stochastic linear programs with recourse and arbitrary multivariate distributions. In: Parkalos, P. (Hrsg.) ; Floudas, C. A. (Hrsg.): Encyclopedia of Optimization - Volume 5. Dordrecht, NL : Kluwer Academic Publishers, 2001, S. 314-319. - ISBN 0-7923-6932-7.

Frauendorfer, Karl ; Schürle, Michael: Stochastic Optimization in Asset & Liability Management: A Model for Non-Maturing Accounts. In: Ziemba, W.T. (Hrsg.) ; Mulvey, J. M. (Hrsg.): Probabilistic Constrained Optimization: Methodology and Applications. Dordrecht, NL : Kluwer Academic Publishers, 2001, S. 67-101. - ISBN 0-7923-6644-1.

Frauendorfer, Karl ; Schürle, Michael: Barycentric Approximation of Stochastic Interest Rate Processes. In: Zilinskas, A. (Hrsg.) ; Mulvey, J.M. (Hrsg.): World Wide Asset and Liability Modelling. Cambridge, UK : Cambridge University Press, 1998, S. 231-262. – ISBN 0-521-57187-1.

Frauendorfer, Karl: Stochastic Programming: Resolving Uncertainty with Barycentric Approximation. In: Prix Latsis universitaires. 1995, présentation des travaux des trois lauréats / Fondation Latsis internationale. Genève : Fondation Latsis internationale, 1995,

Other relevant publications:

Frauendorfer, Karl and Klaus Kiske (2010): Die Spot-Volatilität der Spotpreise an der EEX. *e|m|w Zeitschrift für Energie, Markt, Wettbewerb* 1/2010, 2-6.

Fiedler, Robert, Karl Frauendorfer and Michael Schürle (2005): Systematische Steigerung von Erträgen aus Bodensatzprodukten. *Betriebswirtschaftliche Blätter* 05/2005, 257-259.

Frauendorfer, Karl, Jens Güssow, Gido Haarbrücker and Daniel Kuhn (2005): Stochastische Optimierung im Energiehandel – Entscheidungsunterstützung und Bewertung für das Portfoliomanagement. *e|m|w Zeitschrift für Energie, Markt, Wettbewerb* 1/2005, 59-66.

Frauendorfer, Karl, Gido Haarbrücker, Klaus Kiske and Daniel Kuhn (2005): Swing-Optionen im Elektrizitätsmarkt – Bewertung und optimale Ausübung komplexer Stromderivate. *e|m|w Zeitschrift für Energie, Markt, Wettbewerb* 5/2005, 70-74.