JD Opdyke

JDOpdyke@gmail.com

EDUCATION

Massachusetts Institute of Technology, Advanced Study Program Fellow – Statistics, in Graduate Mathematics Department, 1999
Harvard University, Master in Public Policy, with concentration in Empirical Methods (Statistics/Econometrics), 1992

- Kennedy Fellowship (3 of 170 students)
- Social Policy Research Fellowship (3 of 170 students)

Yale University, Bachelor of Arts, Sociology (Psychology minor) (with honors), 1987

SKILLS / EXPERIENCE SUMMARY

- **Building/Managing Masters/PhD-level Quant Teams**: For over 25 years, both in-house and at top consulting firms
- **Industries**: Capital Markets (Complex Derivatives/Structured Products, Sovereign Wealth Fund, Venture Capital), Insurance (Enterprise Portfolio Risk), Banking (Corporate, Retail Mortgage, Credit Card)
- **14 Peer Reviewed & Award-Winning Publications (SSRN Top 1% Authors):** VaR-based capital estimation, number theory/combinatorics, robust & computational statistics, risk-adjusted market performance, statistical quality control, applied econometrics; portfolio risk monograph, with applications to causal modeling, currently under editorial review
- **Investment/Risk Analytics**: Operational Risk 13 capital estimation statistical projects for multiple Global/Fortune 50's, ***Journal of Operational Risk*** papers Voted **WINNER** of ORR Innovation Awards' "Paper of the Year," 2012 & 2015; Credit Risk (PD, LGD, EAD) for multiple Fortune 50 banks; Market Risk (developed widely-cited risk-adjusted performance metric); Model Risk: **WINNER**, Dushman Award; only 2 of 200+ model frameworks to receive 1st round pass "fit for purpose" grade (both Tier1).
- **SAS**: 30+ yrs, unrivaled expertise: multiple peer reviewed pubs of big data algos ***orders of magnitude faster than SAS Procs***
- Previous Experience with Mathematica, mathStatica, C++, C, FORTRAN, LISP, APL, Assembly Language
- Review Editor: AI (Artificial Intelligence) in Finance, among many other machine learning / data science / statistics journals.

PROFESSIONAL EXPERIENCE

Sachs Capital Group Asset Management, LLC — 2022 – 2025

Chief Analytics Officer, Senior Managing Director

Built team of senior quants optimally constructing/allocating portfolios of equities-based complex derivatives products. Derived and coded firm's IP transforming discrete, infrequent 'looks' into continuous time series and robust, oracle-property parameter estimates for fully systematic multi-period alpha capture.

ADIA – Abu Dhabi Investment Authority — 2020 – 2021

Quantitative Research and Development Lead, Strategy & Planning

Quant lead of the portfolio oversight function in a rapidly growing alpha factory; modeled alpha decay/structural breaks & alpha capture validation, contributed to portfolio construction & asset allocation (2 pub & 1 forthcoming paper implemented by the group)

Allstate — 2019 – 2020

Head of Enterprise Risk Analytics: Vice President, Enterprise-Level Financial Risk and Return Measurement

Reported directly to the firm CRO; hired risk quant team to design, code from scratch, & productionalize measurement of enterprise economic capital and quantitative scenario analytics/stress testing for the firm's entire portfolio, across all risk silos and business lines. Established firm's risk measurement center of excellence and designed multiple groups' model dev. & MRM policies.

GE Capital — 2013 – 2017

Managing Director, Head of Modeling, 2 Teams: OpRisk, & Enterprise-level Capital Estimation, Aggregation & Allocation

Built and lead two teams responsible for 1) all operational risk modeling and quantification at GEC (enterprise-level RCap and ECap), CCAR (stress testing) and all related analytics and reporting (per SR11-7); and 2) enterprise-level model development for Economic Capital estimation, aggregation, and allocation across all business lines/risk types (oprisk, credit, market, industrial, ins.)

DataMineit, LLC — www.DataMineit.com

Managing Director, Risk Analytics & Quantitative Investment Strategies — 2002 – 2013, 2018, 2025

Provide profitable investment and risk algorithm development to the banking, capital markets, & consulting sectors. Select clients:

- **Barclays Capital**: For the Group Operational Risk Team, researched, tested, and implemented robust statistical alternatives for more stable and reliable (heavy-tailed) severity distribution parameter estimation. Designed/implemented homogeneity analyses across nearly 100 UoMs and robustly combined internal and external loss data to statistically benchmark scenario analysis data.
- **Northern Trust**: For the Corporate Operational Risk Group, per Basel II guidelines, researched, tested, and developed robust statistical alternatives to MLE for more stable and reliable capital estimation and severity distribution parameter estimation (heavy-tailed & truncated). Gave statistical modeling presentations to inform and develop regulatory strategy; incorporated multivariate regression approaches to mitigate heterogeneity within units of measure and account for time-varying real truncation thresholds. Also developed fully data-driven (reverse) agglomeration algos (clustering/heterogeneity analyses) for unit-of-measure definition.
- **American Express**: For $1B+ liability in rewards points, a) ensured robust estimation of complex statistical measures by deriving and implementing an original, mathematically optimal algorithm for automating the re-aggregation of "thin data" segments in large-data production runs (method later published); b) developed recurrent events econometric models of points redemptions.
- **Wells Fargo**: For portfolios of 8 million mortgages and over half trillion USD, improved the estimation of creditworthiness by a) performing original econometric modeling of credit risk and delinquency behavior using proportional and non-proportional hazards, time series, count data and logistic regression models; b) increased the speed of established company SAS macros (from over a week to minutes) and created original statistical SAS Macros faster than SAS Procs; c) quantified "what if" analyses on complex credit class rules; d) designed technical presentations and presented across multiple groups of senior management.

- **Correlation Ventures**: As the Director of Quantitative Strategies (2007-2010), developed from scratch and implemented the firm's portfolio selection investment algorithms using a proprietary dataset containing tens of thousands of exit-related financing rounds spanning 20 years. As the sole model developer, wrote over 400K lines of SAS code. Made detailed presentations of model performance to all sizeable potential investors (including 3 largest institutions (as of 4/10) prior to their commitments to invest).
- **Numerous Big 4 and Economic Consulting Firms**: On large litigations, developed econometric models (TSCS, GARCH, ARIMA, non-prop. hazards, nonlinear price elasticity); presented expert testimony in federal court arbitration ($0.4b damages).

Andersen LLP, Economic Consulting Group
Senior Manager (promoted from Manager) **1998 – 2002**
Conducted and supervised applied microeconomic, statistical, and econometric analyses in economic litigation consulting and the implementation of data science solutions for diverse business consulting services. Provided key business development as one of the original senior managers building a new firm practice (1st hire into Boston office, 3rd team member nationally, fastest promotion to Sr. Mgr. directly under national partner). Growth to 30 team members upon departure 4 years later to start own firm.

Charles River Associates, Inc.
Senior Associate (promoted from Associate) **1993 - 1998**
Project manager of large antitrust/merger/predatory pricing litigations requiring advanced statistical and econometric analyses.

National Bureau of Economic Research
Research Analyst – Performed statistical and econometric modeling as an applied empirical researcher. **1991-1992**

Harvard University, John F. Kennedy School of Government
Teaching Assistant, Advanced Econometrics; **Research Assistant**, Wiener Center for Social Policy **1991-1992**

PEER REVIEWED PUBLICATIONS SSRN Top 1% Authors – All-time by downloads

- Beyond Correlation: Positive Definite Dependence Measures for Robust Inference, Flexible Scenarios, and Causal Modeling for Financial Portfolios, *monograph forthcoming*, 2026.
- "Fast, Accurate, Straightforward Extreme Quantiles of Compound Loss Distributions," ***J. Operational Risk***, 12(4), 1-30, 2017.
- "Estimating Operational Risk Capital with Greater Accuracy, Precision, and Robustness" ***J. Operational Risk***, 9(4), 3-78, 2014. ORR Innovation Awards **WINNER – VOTED "PAPER OF THE YEAR"** (panel of practitioners, regulators, & academics).
- "Bootstraps, Permutation Tests, and Sampling Orders of Magnitude Faster Using SAS®," ***Computational Statistics: WIREs Interdisciplinary Reviews***, *Vol. 5*, Issue 5, 391-405, 2013.
- "OpRisk Capital Estimation and Planning: Exact Sensitivity Analysis and Business Decision Making Using the Influence Function," with Alex Cavallo, pp.3-73, in Operational Risk: New Frontiers Explored, Davis. E., ed., Risk Books, London, 2012.
- "Estimating Operational Risk Capital: the Challenges of Truncation, the Hazards of MLE, and the Promise of Robust Statistics," with Alex Cavallo, ***Journal of Operational Risk***, pp.3-90, 7(3), 2012. ORR Innovation Awards **WINNER – VOTED "PAPER OF THE YEAR"** by panel of expert practitioners, regulators, & academics.
- "Permutation Tests (and Sampling Without Replacement) Orders of Magnitude Faster Using SAS®," ***InterStat***, January, 2011.
- "Much Faster Bootstraps Using SAS®," ***InterStat***, October, 2010.
- "A Unified Approach to Algorithms Generating Unrestricted and Restricted Integer Compositions and Integer Partitions," ***Journal of Mathematical Modelling and Algorithms***, *Vol. 9*, No. 1, 53-97, March, 2010. (derived formulae define multiple OEIS Sloane sequences: A017898, A078012, A017899, A013982)
- "A Powerful and Robust Nonparametric Statistic for Joint Mean-Variance Quality Control," ***InterStat***, September, 2009.
- "Comparing Sharpe Ratios: So where are the *p*-values?," ***Journal of Asset Management***, *Vol. 8*, No. 5, 308-336, Dec., 2007. **SSRN Top 1% All-time paper downloads**
- "A Single, Powerful, Nonparametric Statistic for Continuous-data Telecommunications 'Parity Testing'," ***Journal of Modern Applied Statistical Methods***, *Vol. 4*, No. 2, 372-393, November, 2005.
- "Misuse of the 'modified' *t* Statistic in Regulatory Telecommunications," ***Telecom.Policy***, *Vol. 28,* No. 11, 821-866, 2004.
- "Fast Permutation Tests That Maximize Power Under Conventional Monte Carlo Sampling for Pairwise and Multiple Comparisons," ***Journal of Modern Applied Statistical Methods***, *Vol. 2*, No. 1, 27-49, May, 2003. Earlier draft presented at National Conference (**PharmaSUG 2002), WINNER–VOTED BEST PAPER**, Statistics and Pharmacokinetics Section.
- "The Use of Regression Techniques in Transfer Price Analysis," with R. Hartman and D. Wright, ***European Taxation***, International Bureau of Fiscal Documentation, TP, Suppl. No. 18, July, 1996.

WORKING PAPERS

- "Getting Extreme VaR Right: Eliminating Convexity and Approximation Biases from Heavy-tailed, Moderately-sized Samples" *working paper*, 2019.

JOURNAL REFEREE: ***Review Editor: Artificial Intelligence in Finance***; ***Quantitative Finance***; ***The American Statistician***; ***World Scientific Books, J. of Operational Risk***; ***J. of Applied Statistics***; ***Comm. in Statistics – Simulation & Computation***; ***Telecommunications Policy***; ***Intl. Journal of Economics & Business Research***; ***Behavior Research Methods***; ***A. Matematika***

 JDOpdyke@gmail.com

PRESENTATIONS / CONFERENCE CHAIRS

- **UC Santa Barbara, Invited Speaker, Dept. Seminar,** "The Highly Versatile Angle Space of Positive Definite Dependence Measures: Causal Discovery, Inference, Sampling, and Generalized Entropy," **Dept. Stats & Applied Prob.**, 01/28/26.
- **Fordham Business School**, Understanding the Future of Machine Learning in Quantitative Finance, **QuantVision25**, 5/22/25.
- "Beating the Correlation Breakdown, for Pearson's and Beyond: Robust Inference and Fully Flexible Scenarios and Stress Testing for Financial Portfolios," Featured Article, Conference Event Guide, **QuantMinds Intl**, 11/18/24, London, UK.
- "Beating the Correlation Breakdown, for Pearson's and Beyond: Robust Inference and Flexible Scenarios and Stress Testing for Financial Portfolios," **QuantStrats-11**, Keynote Speaker & Chair, Applied Quant Stream, NYC, 03/12/24.
- **Columbia University, Invited Guest Lecture,** "Beating the Correlation Breakdown: Robust Inference and Fully Flexible Scenarios and Stress Testing for Financial Portfolios," **Machine Learning for Risk Management Dept.**, NYC, 03/20/23.
- "Beating the Correlation Breakdown: Robust Inference and Fully Flexible Scenarios and Stress Testing for Financial Portfolios," **QuantStrats, 10thed, Quantitative Strategy & Innovation**, Invited Speaker & Moderator, NYC, 03/14/23.
- "Beating the Correlation Breakdown: Robust Inference and Fully Flexible Scenarios and Stress Testing for Financial Portfolios," **RiskMinds Intl / RiskFuse, AI & Machine Learning Applications for Risk Management & Modeling**, 12/22.
- "The Correlation Matrix Under General Conditions: Robust Inference and Fully Flexible Scenarios and Stress Testing for Financial Portfolios," **QuantMindsEdge: Alpha & Quant Investing**, June 6, 2022.
- "Full Probabilistic Control for Direct and Robust, Generalized and Targeted Stressing of the Correlation Matrix (Even When Eigenvalues are Empirically Challenging)" **QuantMinds International 2020**, Hamburg, Germany, November 2-6, 2020.
- "Full Probabilistic Control for Direct and Robust, Generalized and Targeted Stressing of the Correlation Matrix (Even When Eigenvalues are Empirically Challenging)" **QuantMinds/RiskMinds Americas 2020**, Boston, MA, September 22-23, 2020.
- "Getting Extreme VaR Right: Eliminating Convexity and Approximation Biases from Heavy-tailed, Moderately-sized Samples" **RiskMinds International 2019**, Invited Speaker, Amsterdam, Netherlands, December 2-6, 2019.
- "Getting Extreme VaR Right: Eliminating Convexity and Approximation Biases from Heavy-tailed, Moderately-sized Samples" **QuantMinds/RiskMinds Americas 2019**, Invited Speaker, Boston, September 9-11, 2019.
- "If not AMA, or SMA, then What? MIAMA" **RiskMinds Americas 2016**, Invited Speaker, Chicago, September 20-23, 2016.
- "The Challenges of, and Practical Solutions to, Capital Aggregation and Allocation under Heavy-Tailed, Empirical Loss Distributions," **Quant Summit USA 2016**, Invited Speaker, NYC, July 12-13, 2016.
- "Operational Risk Modeling," **OpRisk North America-2016**, Invited Speaker-Chair: Quant Studies Stream, NYC, 03/15/16.
- "Operational Risk Modeling," **GARP-17th Annual Risk Management Convention**, Invited Speaker, NYC, March 1-2, 2016.
- "Estimating Operational Risk Capital with Greater Accuracy, Precision, and Robustness," **Marcus Evans Operational Risk Management Series**, Conference Chairman and Invited Presenter, NYC, NY, September 16-17, 2015.
- "Estimating OpRisk Capital with Greater Accuracy, Precision, & Robustness," **ORX Analytics Forum**, Milan, Italy, 5/21/15.
- "Extreme Losses & Operational Risk Capital: Myths & Realities," **OpRisk NA**, Invited Presenter & Moderator, NYC, 3/24/15.
- **Yale University, Invited Lecture,** "Estimating Operational Risk Capital with Greater Accuracy, Precision, and Robustness," **Risk Week – Yale**, Invited Presenter, Yale University, New Haven, CT, December 9-12, 2014.
- "Estimating Operational Risk Capital with Greater Accuracy, Precision, & Robustness," **JSM 2014**, Boston, MA, 8/5/14.
- "From Loss Data to Capital: Implementing a Comprehensive Operational Risk Capital Estimation Framework Under the AMA-LDA," **OpRisk North America-2014**, Invited Workshop Leader, 4-session, 6 hour Workshop, NYC, March, 2014.
- "Estimating Operational Risk Capital with Greater Accuracy, Precision, and Robustness – OR – How to Prevent Jensen's Inequality from Inflating your OpRisk Capital Estimates," **Globally Attended Webinar**, Boston, MA, February 11, 2013.
- "Better Capital Planning via Exact Sensitivity Analysis Using the Influence Function," **American Bankers Association: ABA Operational Risk Modeling Meeting**, Invited Presenter, Washington, DC, July 18-20, 2012.
- "Robust Statistics vs. MLE for OpRisk Severity Distribution Parameter Estimation (with and without truncation)" **Operational Risk eXchange (ORX) Analytics Modeling Forum**, Invited Presenter, San Francisco, California, September 27-29, 2011.
- "Robust Statistics vs. MLE for OpRisk Severity Distribution Parameter Estimation,"**ABA Op Risk Modeling Meeting**, Invited Presenter, Charlotte, NC, 8/11/11. Discussant: Bakhodir A. Ergashev, Ph.D., Lead Financial Economist, FRB of Richmond.
- "Bootstraps, Permutation Tests, and Sampling With and Without Replacement Orders of Magnitude Faster Using SAS®," **JSM 2011 – Joint Statistical Meetings**, Miami, Florida, July 30-August 4, 2011.
- "Easily Implemented Hypothesis Tests for Sharpe Ratios," **Joint Statistical Meetings**, Seattle, WA, August 6-10, 2006.
- "A Nonparametric Statistic for Joint Mean-Variance Quality Control," **Joint Statistical Meetings**, Minneapolis, 8/8/2005.
- "Misuse of the 'modified' *t* statistic in Regulatory Telecommunications," **Joint Statistical Meetings**, San Francisco, 8/3/03.
- "Fast Two-Sample Permutation Tests, Especially for Multiple Comparisons," **MCP Intl, 2002**, Bethesda, MD, 8/5-7, 2002.
- "Fast Two-Sample Permutation Tests, Even When One Sample is Large, That Efficiently Maximize Power Under Crude Monte Carlo Sampling," **PharmaSUG 2002**, May 5-8, 2002, **WINNER–VOTED BEST PAPER**, Statistics and Pharmacokinetics.

PATENTS: **Fast Two-Sample Permutation Tests**, Patent US2003/0065477 A1, Aug. 30, 2001

PROFESSIONAL ASSOCIATIONS: • Amer. Statistical Assoc. • The Econometric Society • Amer. Finance Assoc.

OTHER AWARDS / SCORES: • GRE Quant: 800 • LSAT: 99th Percentile • Harvard Book Award • Natl Merit Finalist