



RUTTER ASSOCIATES LLC

**Market and Portfolio Credit Risk Measurement and Management Advice
Investment Portfolio Examinations, Analytics, and Advice
Derivative Valuation and Hedge Analysis
Dispute Resolution and Litigation Support
Model Review and Validation**

Keeping Our Clients on Course for a Quarter Century

A “Rutter” is a General Guide to Navigation

Early navigators referred to the precursors to charts that they carried as “rutters.” (The name is likely derived from the French word “routier.”) Rutters were hand-drawn on vellum and combined elements of charts with observations and instructions. Continually updated and revised, they represented the best knowledge at the time and were the navigator’s most prized possession.

This map is the rutter of Piri Reis, the oldest chart of America seaways in existence. Piri Reis (1465-1554) was a Turkish pirate and admiral. The rutter, drawn on camel skin, is 86cm long and 61cm, tapering to 41cm, wide. (The taper is due to the natural shape of the skin; but the ragged edge indicates that the right hand section of the rutter was torn away.)



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RUTTER ASSOCIATES' AREAS OF FOCUS

AND REPRESENTATIVE ASSIGNMENTS

MARKET AND PORTFOLIO CREDIT RISK MEASUREMENT AND MANAGEMENT ADVISORY

- Examine the Credit Risk Management and Surveillance practices, including internal ratings, loss assessments, and capital adequacy of monoline insurers (both those writing business and those in runoff) at the behest of state insurance regulators
- Modeled the portfolio of tranching credit risk, internal rating assessments, capital requirements and risk-based pricing for a newly emerging firm providing credit insurance to financial institutions.
- Modeled market risk, potential credit exposure and alternative margin requirements for a nascent central counterparty clearinghouse. Delivered an online margin calculator.
- Advised a systemically important global bank in its implementation of Credit Portfolio Management policies and procedures.

INVESTMENT PORTFOLIO EXAMINATIONS, ANALYTICS, AND ADVISORY

- Examine investment portfolio risk, asset allocation and asset selection policies and procedures, personnel, and ethics of dozens of US and Canadian insurance companies for state insurance regulators.
- Built and maintained an investment shortfall risk model for a large not-for-profit endowment fund.
- Examined investment portfolio management and risk management of 3 of the 10 largest US pension funds for state regulators.

DERIVATIVE VALUATION AND HEDGE ANALYSIS

- Review the hedge effectiveness of the OTC and exchange-traded derivatives used to offset the risks of variable and fixed index annuities in insurance examinations and examine derivative usage for consistency with regulatory requirements.
- Valued tens of thousands of derivative contracts (from plain vanilla to highly exotic) at closeout for financial and non-financial institutions throughout the decade following the Lehman event of default in September 2008.
- Valued closeout values of hundreds of single-name and index OTC equity derivatives to validate the claims of the counterparties impacted by the failure of a very large family office.
- Valued a large portfolio of plain vanilla and complex derivatives, encompassing interest rates, FX, credit, equities, commodities, and inflation, for a major European bank.

MODEL REVIEW AND VALIDATION

- Review model documentation and validation of financial institutions valuing and managing the risks of their investments in CLOs, RMBS, CMBS, and other structured products. (Voluntary and involuntary prepayment models, default probability and severity models, correlation assumptions, waterfall frameworks, term structure models, etc.)
- Reviewed, revised, and documented the CCAR engine for the fair value stress analysis of the available-for-sale investment portfolio of a major regional bank.
- Supported a hedge fund audit of internal practices using benchmarks from *Sound Practices for Hedge Fund Managers*.
- Reviewed the probability of default models of an investment bank prior to submission of those models to its regulator.
- Validated the claims of bank dealers in the default of a hedge fund investing in volatility and variance derivatives by reviewing valuation models and replicating outputs.

DISPUTE RESOLUTION AND LITIGATION SUPPORT

- Provide expert opinion about and explanations of risk management, valuation, corporate finance, derivative documentation and appropriate usage.
- Consult with counsel on the merits of claims and the strategies for resolving disputes.
- Assist in the negotiated and mediated settlement of financial market disputes.
- Provide independent valuations of, CLOs, RMBS, CMBS, other ABS, exotic and plain-vanilla derivatives and other equity and fixed income securities that are the subject of litigation.
- Provide expert economic and statistical assessments of the financial market dynamics including key benchmark interest rates and foreign exchange fixings.
- Provide statistical assessments of trading strategies including studies of tick-by-tick trading patterns.
- Provide expert evidence in cryptocurrency and precious metals disputes.
- Provide expert quantum determination.

Rutter Associates' Clients

We have a global presence. While we are headquartered in New York City, our projects have involved clients from and/or assignments in virtually every corner of the world. A representative list of firms and agencies for whom we have worked follows.

Financial Institutions, including:

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| AIG | Farm Credit Administration | Mizrahi Bank |
| Ambac Financial | Federal Home Loan Bank of Chicago | Moore Capital Management |
| Bank Sinopec | Federal Home Loan Bank of Cincinnati | Morgan Stanley |
| Bank of China | Freddie Mac | MUFG |
| Bank Julius Baer | Goldman Sachs | Nomura |
| Barclays Bank | HSBC | Palamon Capital Partners |
| BNPP | IKB Deutsche Industriebank | Point Clear Capital Management |
| Chubb | ING | Prudential Financial |
| CIBC | KBC Bank | Radian Group |
| Citigroup | Key Bank | Royal Bank of Canada |
| Commonwealth Bank of Australia | Land Bank of Taiwan | Skandinaviska Enskilda Bank (SEB) |
| Credit Agricole | Lincoln National Life Insurance | Security Benefit Life Insurance |
| Credit Suisse | Macquarie | Societe Generale |
| DBS Bank Limited | MassMutual | State Street |
| Deutsche Bank | MBIA | Swiss Re |
| Ebury Partners UK Limited | Merrill Lynch | UBS |
| European Bank for Reconstruction and Development | | |

Non-Financial Institutions, including:

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| Adventist Health System | Intel |
| British Petroleum | Michelin |
| Cargill | Northern Natural Gas |
| Carlsberg | PSALM |

Regulators:

Rutter Associates has been engaged by a variety of US and State regulators in connection with the examination of regulated entities including insurance companies and State and City Pension Systems, enforcement actions and educational programs.

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| U.S. Commodity Futures Trading Commission | U.S. Internal Revenue Service |
| Delaware Department of Insurance | New Jersey Department of Banking and Insurance |
| Federal Reserve Bank of New York | NY State Department of Financial Services |
| U.S. Federal Reserve Board of Governors | U.S. Office of Comptroller of the Currency |
| Bank of England | U.K. Financial Conduct Authority |
| Iowa Insurance Division | Virginia Bureau of Insurance |
| Arizona Department of Insurance | |

Service Providers and Trade Associations, including:

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| Ernst & Young | New York Portfolio Clearing |
| Global Association of Risk Professionals | New York Stock Exchange |
| International Association of Credit Portfolio Managers | Price Waterhouse Coopers |
| International Swaps and Derivatives Association | Q5 Partners |
| Managed Funds Association | S&P Risk Solutions |

Law Firms:

In the course of our litigation, arbitration and mediation support projects, and in connection with a variety of non-contentious matters, Rutter Associates has worked with many of the world's leading global and regional law firms, including:

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| Allen & Overy | Linklaters |
| Arnold & Porter | Leesh Tischman Fuscaldo & Lampl |
| Ashurst | Morgan Lewis & Bockius |
| Boies Schiller & Flexner | Morrison & Foerster |
| Butzel Long | Neal Gerber Eisenberg |
| Charles Law, PLC | Patterson Belknap Webb & Tyler |
| Cleary Gottlieb Steen & Hamilton | Paul Weiss Rifkind Wharton & Garrison |
| Clifford Chance | Pinsent Masons |
| Dechert | Proskauer Rose |
| Epstein, Becker, Green | Quinn Emanuel Urquhart & Sullivan |
| Friedman Kaplan Seiler Adelman | Reed Smith |
| Freshfields Bruckhaus Deringer | Sidley Austin |
| Gibson Dunn & Crutcher | Step toe |
| Herbert Smith Freehills | Stroock & Stroock & Lavan |
| Horten | Sullivan & Cromwell |
| Hunton & Williams | Taft Stettinius & Hollister |
| Katten Muchin Rosenman | Tieglund Hunt |
| King & Wood Mallesons | White & Case |
| LCS Partners | Williams & Connolly |

RUTTER ASSOCIATES STAFF

PARTNERS

Rick Grove rgrove@rutterassociates.com joined Rutter Associates in 2007 as a Partner and Chief Executive Officer. Rick has spent over 35 years working in the financial markets, as both an investment banker and a lawyer. From 1997 to 2001, he was the CEO of the International Swaps and Derivatives Association (ISDA). Following ISDA and before joining Rutter Associates, Rick was a Managing Director at Bank of America, co-managing the Global Commodity Derivatives Group. Prior to joining ISDA, he worked as a marketer in the fixed income and derivatives businesses at Paribas Capital Markets and headed the Financing Desk and the Fixed Income Syndicate Desk in New York. Rick originally joined Paribas as General Counsel of Paribas Corporation after practicing corporate law with Cravath, Swaine & Moore in New York and London. Rick is currently a member of the panel of experts of PRIME Finance in The Hague. He has served on the CFTC's Global Markets Advisory Council and the World Bank's Financial Markets and Development Conference Advisory Board. Rick has chaired ISDA's U.S. Regulatory Committee and has testified about the derivatives markets before the U.S. Senate and House of Representatives. He has served on ISDA's panel of experts for credit event determinations. Rick received his J.D. *magna cum laude* from Harvard Law School, where he was an editor of the *Harvard International Law Journal*, and his A.B. *summa cum laude* from Princeton University where he was enrolled in the Woodrow Wilson School of Public and International Affairs.

Bob Selvaggio rselvaggio@rutterassociates.com joined Rutter Associates as Partner and Head of Analytics in 2010. Prior to joining Rutter Associates, Bob was Senior Vice President and Head of Risk Analysis in Fidelity Investment's Institutional Products Group. At Fidelity he oversaw Capital Markets risk, potential counterparty exposure, CVA and risk adjusted performance measurement. Prior to joining Fidelity, Bob was Managing Director and Head of Capital Planning and Risk Analysis of Ambac Financial Group, Inc. responsible for investment and insurance portfolio credit and market risk analysis, economic and rating agency capital attribution and allocation, and risk-adjusted performance measurement. Prior to joining Ambac, Bob served as a financial economist at Thomson McKinnon Securities, and then held a number of positions at The Chase Manhattan Bank including Senior Asset/Liability Analyst, Head of Fixed Income and Mortgage Research, and Managing Director of Treasury Analytics. A graduate of the University of Pennsylvania, Bob holds a Ph.D. in Economics from Brown University where he was a University Fellow. Bob is a member of the American Economic Association and National Association of Business Economists and is a BAI Certified Risk Professional in Credit and Treasury/ALM.

ALL ENGAGEMENTS ARE MANAGED DIRECTLY BY RICK AND/OR BOB; BOTH PARTNERS ARE CONTINUOUSLY AVAILABLE TO OUR CLIENTS.

Charles Smithson is our Founding Partner. Charles has a diverse experience set, with positions in academia and in government, as well as in the practitioner community. Charles taught economics at Texas A&M University and served with the Federal Trade Commission and the Consumer Products Safety Commission before moving to the private sector where, most recently, he was the Managing Director of the CIBC School of Financial Products. Prior to CIBC, he worked at the Chase Manhattan Bank, as the developer of Chase's education program for derivatives and as the Managing Director for Risk Management Research and Education and at Continental Bank, where he was the Managing Director for Risk Management Research. The author of numerous articles in professional and academic journals, Charles is the author of five books, including *Managing Financial Risk* and *Credit Portfolio Management*. Charles received his Ph.D. in economics from Tulane University.

PRINCIPALS AND ASSOCIATES

Chia-Ling Hsu is a Principal of Rutter Associates. She joined Rutter Associates in 2006, after receiving her M.S. in Operations Research at Columbia University in 2005. Ms. Hsu obtained both a B.B.A. and M.B.A. in Finance from National Taiwan University. At Rutter Associates, Chia-Ling provides independent valuation for risk management, trading, litigation, and accounting purposes. Her projects have involved various derivatives, including complex credit, interest rate, and FX derivatives. She has also performed substantial modeling and valuation of cash and synthetic structured credit products, including CLOs, CDOs, RMBS, and ABS. Chia-Ling Hsu has been a speaker at the International Association of Credit Portfolio Managers (IACPM) Education Seminars, demonstrating the value of credit portfolio management using simulation exercises. In addition, Ms. Hsu has been involved in projects validating clients' internal credit rating models and analyzing clients' trading strategies. She is a CFA Charter holder and a Certified FRM holder.

Nancy Kovacik is an attorney and the Chief Operating Officer of Rutter Associates. Before joining Rutter Associates in 2012, she practiced law at a small Long Island-based law firm for five years and most recently was the director of a franchise of an international fitness company. Nancy obtained a BA *summa cum laude* from The State University of New York at Albany and a JD *cum laude* from Boston University School of Law.

SELECTED RUTTER ASSOCIATE'S AFFILIATES

OUR AFFILIATES ARE SUBJECT MATTER EXPERTS WHO WORK WITH US AS THE OPPORTUNITY ARISES

Steve Allen is a risk management expert, specializing in risk measurement and valuation with a particular emphasis on illiquid and hard-to-value assets. After a 35-year career in the finance industry, most recently as managing director of JPMorgan Chase in charge of risk methodology, including responsibility for capital methodology for both market and credit risk, development of risk models, and model review, he was a Co-Founder and Deputy Director of the Mathematics in Finance Masters Program at New York University's Courant Institute of Mathematical Sciences. Mr. Allen is the author of *Financial Risk Management: A Practitioner's Guide to Managing Market and Credit Risk* (2nd ed. 2013).

Joseph Bauman has over 40 years' experience in finance and was most recently the Chief Administrative Officer of Athlon Structured Investment Advisors LLC, a New York based investment and risk management firm.

Paul J.W. Cluley retired from Allen & Overy LLP in April 2023 after 20 years as a partner specializing in all aspects of derivatives and structured finance. Paul is the author of "Close-outs: The law and market practice of OTC derivative terminations" (2024, LexisNexis).

Jeffrey Golden is the Founder and Chair Emeritus of The P.R.I.M.E. Finance Foundation in The Hague, and a member of the Foundation's Panel of Recognized International Market Experts in Finance, an Honorary Fellow and Governor Emeritus at the London School of Economics and Political Science, where he has also been Visiting Professor in the Law Department and Member of Court, and a member at 3 Hare Court Chambers, where he also served as Joint Head of Chambers. He is General Editor of the Capital Markets Law Journal (Oxford University Press), and his most recent book (co-edited with Carolyn Lamm) *International Financial Disputes: Arbitration and Mediation* is published by Oxford University Press.

Gene D. Guill, Ph.D. has over 25 years of experience in financial markets as both an investment banker and a consultant having worked at Deutsche Bank, and previously at Bankers Trust, where he pioneered the use of risk-adjusted credit analysis, credit portfolio models, and the active management of credit risk of loan portfolios using credit default swaps and asset securitizations.

Paul Hannon has 40 years' experience in the analysis of financial products and investment portfolios. The last 19 years of these was with the New York State Department of Insurance and the New York State Department of Financial Services where he was a Supervising Risk Management Specialist in the Capital Markets Division. Mr. Hannon is a CFA Charter holder.

Tom Jasper played a leading role in the growth and development of key areas of the financial markets. Tom serves on a number of boards where he actively supports various management teams in building and managing their businesses. Under his leadership as CEO (2001-2010) and director (2002-2010), Primus Guaranty, Ltd. established the first credit derivatives product company, an innovative business model for selling credit default swaps to global financial institutions that additionally developed a significant credit asset management business. During his 17 years at Salomon Brothers and its successor companies Mr. Jasper was Chairman of Salomon SWAPCO, and was included in the 2003 RISK Hall of Fame.

Petter Kolm, Ph.D. is the Director of the Mathematics in Finance Masters Program and Clinical Associate Professor at the Courant Institute of Mathematical Sciences, New York University.

Kokichi Komagata joined Bank of Tokyo (currently Bank of Tokyo-Mitsubishi UFJ) in 1975, and over the next five decades served as Chief Executive Officer of Tokyo-Mitsubishi International in London, Executive Officer of Bank of Tokyo-Mitsubishi, Senior Executive Officer at Mitsubishi UFJ Morgan Stanley Securities where he served as Director and Senior Executive Officer in various business units including the primary market business, the global secondary markets and the retail business and President and Chief Executive Officer of Mitsubishi UFJ Kokusai Asset Management.

Shyan Yuan Lee, Ph.D. is a Professor in the Department of Finance at National Taiwan University. Dr. Lee is an Advisor for the Securities Investment Trust and Consulting Association and the Public Service Pension Fund in Taiwan.

Keith Noyes has over 30 years' experience in finance and was most recently the Chief Risk and Compliance Officer for Covario, a digital asset prime brokerage, where he developed in-house procedures for onboarding crypto asset trading clients that were compliant with VQF AML best practices. He is trained in Chainalysis blockchain forensics.

Edward Ocampo was a Managing Director for Morgan Stanley in London where he was Head of Fixed Income Risk Management for Europe and a member of the board of directors of Morgan Stanley's UK bank. Most recently Mr. Ocampo was a Senior Advisor in the Markets Directorate at the Bank of England, where he led work to develop and promote alternatives to Libor.

Neil D. Pearson, Ph.D. is the Harry A. Brandt Distinguished Professor of Finance at the University of Illinois at Urbana-Champaign.

Robert G. Pickel joined Rutter Associates as an affiliate after stepping down as the Chief Executive Officer of the International Swaps and Derivatives Association, Inc. (ISDA) in 2014. Mr. Pickel is currently Chair of the Management Board of the P.R.I.M.E. Finance Foundation

Ted Sotir is currently Chair, State Street Global Advisors Limited (SSGAL – UK entity) and has a 25-year career in investment management at Goldman Sachs & Co. in a variety of chairmanship, leadership and management responsibilities including CIO, COO, portfolio manager, sales & distribution, marketing & product development, risk management, fund board and regulatory governance.