

Francis Parisi, Ph.D.

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Profile Summary

Student-centered business and data science professor and retired financial services professional, committed to student growth and success. Experience teaching at the undergraduate and graduate levels, on-campus and online. Supporting diverse students to success. Experience training credit analysts in structured finance, commercial and residential MBS analysis, and risk management.

- Discrete Mathematics
- Machine Learning
- Data Science
- Probability & Statistics
- R, Python, C++, Mathematica
- Modeling & Forecasting
- Time Series Analysis
- Multivariate Analysis
- Student Advisement
- Credit Risk Management
- CAT Bond Modeling
- Credit Risk Training

Academic Positions

- 2024– **Adjunct Lecturer**, *Stony Brook University*, Stony Brook, NY, College of Business
 - BUS 408 - Property & Casualty Insurance
- 2018–2024 **Clinical Professor**, *Pace University*, New York, NY, Department of Computer Science
- 2020–2024 **Chair, MS in Data Science Program**, *Pace University*, New York, NY
- 2023–2024 **Co-director, BS in Computational Economics Program**, *Pace University*, New York, NY
- 2016–2018 **Adjunct Assistant Professor**, *Pace University*, New York, NY, Department of Computer Science
 - Computer Science Curriculum Committee, 2018–2024 (Chair, 2018–2019)
 - Pace NYC Faculty Council Curriculum Committee, 2019–2024 (Chair, 2020–2021)
 - Admissions & Retention Committee, 2023–2024
 - Developed the curriculum and core courses for the MS in Data Science degree program (launched Fall 2020)
 - Developed the curricula for undergraduate Machine Learning and Data Science courses
 - Collaborated to develop the BS in Computational Economics degree program (launched Fall 2023), and serve as co-director

- Co-instructor in the STEM Summer Institute – Data Science with Python, taught high school students how to code in Python and gather and analyze data using Python (2017–2023)
- Supervised student research work
- Faculty sponsor, Seidenberg School Peer Mentoring Program
- Served as honors thesis advisor, masters thesis committee member, and doctoral committee member
- Worked with students from diverse backgrounds, and many first-generation college students

Courses Taught

- Mathematical Structures for Computer Science (discrete math)
- Data Science with Python & R
- Mathematical Statistics
- Calculus II
- Mathematical Foundations of Machine Learning
- Mathematical Foundations of Analytics
- Computational Statistics
- Analytics Capstone Course

2015–2018 **Tutor - statistics, mathematics, finance, Varsity Tutors**

2005–2009 **Faculty, University of Phoenix - online**

- Research Methods

Education

- 2003 **Ph.D. Management of Engineering & Technology, Southern California University for Professional Studies**
- 1998 **M.S. Statistics, Colorado State University**
- 1977 **B.A. Philosophy, Brooklyn College, CUNY**

Scholarly Interests

Machine learning, time series analysis, extreme value theory, applied probability, applied statistics, Markov decision processes, computational statistics, graph theory, financial data science, and statistical climatology.

Non-Academic Positions

1985–2015 **Managing Director**, *S&P Global Ratings, Inc.*, New York

Held various positions of increasing responsibility focusing on credit research, data analytics, quality and process improvement. Led criteria development projects globally as Chief Credit Officer for structured finance, and managed teams ranging in size up to 20 people.

- Developed risk-monitoring models enhancing risk management capabilities.
- Created and implemented a framework for independent validation and risk review of ratings methodologies.
- Collaborated to develop analytical methodologies for catastrophe reinsurance (CAT) bonds and evaluated third-party hurricane and earthquake risk models.
- Validated models used in the analysis of catastrophe reinsurance bonds.
- Developed a residential mortgage risk-scoring model to risk rank mortgage loans included in mortgage-backed securities; validated third-party scoring models.
- Built stochastic interest rate models using autoregressive time series methods and Markov chain Monte Carlo simulation to create interest rate paths under different levels of economic stress.
- Developed a methodology for assessing FX risk using extreme value methods to create currency devaluation assumptions for different rating levels.
- Developed loss and default models for consumer assets using logistic regression.
- Created a housing volatility index model ranking housing markets by risk of price declines.
- Established procedures to undertake ex-ante validation of credit rating methodologies. Some applications include:
 - analyzing the consistent application of risk factors for insurance companies using principal components analysis
 - assessing the drivers of the default risk in European mortgages using generalized linear regression models
 - applying cluster analysis to study the use of economic metrics in sovereign credit analysis
- Established minimum documentation standards to improve the criteria review process, and compliance and regulatory requirements.
- Created a quality review process for monitoring documentation errors in the ratings process.
- Developed ratings criteria for commercial real estate mortgage-backed securities.
- Trained new analysts in statistics, structured finance and financial institutions ratings analysis.

- Co-managed the residential mortgage-backed securities group overseeing the analytical process for RMBS ratings, the strategic planning and management of the business unit.
- 1978–1985 **Assistant Secretary**, *Chemical Bank*, New York, Real Estate Division
- Mortgage warehouse lending
 - Packaging, issuing and servicing Mortgage-backed securities
 - Secondary marketing MBS and whole loan portfolios
 - Developed and conducted mortgage banking training for new analysts

Select Publications

Ceman, E. and Parisi, F. (2018). Extreme market value declines: How well do rating agency assumptions hold? *The Journal of Structured Finance*, 24(3):79–88.

Karvetski, C., Lund, R. B., and Parisi, F. (2009). A statistical study of extreme Nor'easter snowstorms. *Involve*, 2(3).

Kay, L., Thompson, E., Parisi, F., and Ramkhelwan, G. (2007). North American CMBS default and loss study: Year-end 2006 update shows drop in defaults and loss severities. *Standard & Poor's Ratings Direct*.

Khadem, V. and Parisi, F. (2007). Residential mortgage-backed securities. In de Servigny, A. and Jobst, N., editors, *The Handbook of Structured Finance*, pages 543–592. McGraw-Hill, New York.

Kozel, P. P. and Parisi, F. (1999). Commercial mortgage origination and its impact on the CMBS market. *Ratings Direct*, Standard & Poor's, New York.

LoPiccolo, K. and Parisi, F. (2023). Modeling the potential impact of government regulation on cryptocurrency prices. *Economic Analysis Letters*, 2(3):10–17.

Parisi, F. (2000). Extreme value theory and Standard & Poor's ratings. *Standard & Poor's Structured Finance Special Report*.

Parisi, F. (2004a). Extreme value modeling with S-PLUS and S+FinMetrics in Standard & Poor's ratings. *Standard & Poor's RatingsDirect*. Presented at the S-PLUS User's Conference, Boston, MA, October 21-22, 2004.

Parisi, F. (2004b). Loss correlations among U.S. consumer assets. *Structured Finance Special Report*, Standard & Poor's.

Parisi, F. (2006a). Choosing the right quantitative model for the job. *Standard & Poor's RatingsDirect*.

Parisi, F. (2006b). The differing role of quantitative analytics in credit and equity ratings. *Standard & Poor's RatingsDirect*.

Parisi, F. (2006c). Fitting time into models of default recovery rates. *Standard & Poor's RatingsDirect*.

Parisi, F. (2020). But this time IS different-COVID recession. *The Journal of Structured Finance*, 26(3):63–70.

Parisi, F. (2022). Shifting drivers for U.S. house prices. *The Journal of Structured Finance*, 28(1).

Parisi, F. and Herlihy, H. M. (1999). Modeling catastrophe reinsurance risk: Implications for the CAT bond market. *Structured Finance Special Report*, Standard & Poor's, New York.

Parisi, F. and Lund, R. (2000). Seasonality and return periods of landfalling Atlantic basin hurricanes. *Australian & New Zealand Journal of Statistics*, 42(3):271–282.

Parisi, F. and Lund, R. (2008). Return periods of Continental U.S. hurricanes. *Journal of Climate*.

Parisi, F. and Mason, S. (2004). Boom, Bubble, or Bust? Tracking the U.S. housing market and its effect on RMBS. *Standard & Poor's Ratings Direct*.

Raiter, F. L. and Parisi, F. (2004a). Mortgage credit and the evolution of risk-based pricing. Working Paper Series 3, Joint Center for Housing Studies, Harvard University.

Raiter, F. L. and Parisi, F. (2004b). Risk-based pricing in the non-conforming market. *Mortgage Banking*.

Personal Interests

Guitars, songwriting, reading, analytic philosophy, logic, astronomy, physics, and travel.