

William G. Foote, Ph.D.

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EDUCATION

Fordham University, Ph.D., Economics, 1984. Dissertation: "Money and the Short-run Determination of Stock Price." Charles Webster, supervisor.

Fordham University, M.A., Economics, 1980. Fordham University Teaching Fellow. Sloan Foundation Research Assistant.

Fordham University, B.A., Philosophy and Classical Languages, 1976, *magna cum laude*.

ACADEMIC EXPERIENCE

Manhattan College, Visiting Associate Professor (2016-present), Adjunct Associate Professor (2014-2016)
Taught Business Statistics, Advanced Data Analytics, Decision Modeling with Spreadsheets, Corporate Finance (including financial engineering analytics, enterprise risk management and credit risk management) and Corporate Structure and Financing to graduate MBA and undergraduate students.

Le Moyne College Professor of Finance (1989-1996) and Director of MBA Program (1994-1995)
Taught Corporate Finance, Corporate Risk Management, Cases in Finance, Capital Budgeting, and Business Ethics. Helped to establish and then administered the MBA Program including faculty development and curriculum, student recruiting, research support, corporate sponsorships. MBA Faculty of the Year 1995.

Syracuse University Associate Professor of Finance (1985-1989)
Taught Money and Banking, Corporate Finance, Cases in Finance, Working Capital Management, and Managerial Economics courses in undergraduate, MBA, Executive MBA, and Doctoral programs; on campus and in distance learning (online) settings. Supervised two doctoral dissertations in finance. Undergraduate Business Faculty of the Year 1987. MBA Faculty of the Year 1988. Executive MBA Faculty of the Year and Speaker at first Executive MBA class commencement 1989. Taught in Army Comptroller and Advanced Resource Management Course programs on campus and in distance learning (online) settings.

Clarkson University Assistant Professor of Finance (1981-1985)
Taught Financial Management, Engineering Economics, Investments, Banking Management, Micro and Macro Economics, Economic Statistics, Securities Markets in undergraduate, MBA, and corporate programs on campus and off campus through The Management Institute.

Pace University Instructor (1981)
Taught undergraduate Macro and Micro-economics, and Econometrics courses.

Fordham University Instructor and Teaching Fellow (1979-80)
Taught undergraduate Economic Statistics and Macro-Economics courses.

CORPORATE EXPERIENCE

Alvarez & Marsal LLC Director (9/2014 – 7/2016)

Enterprise risk management lead modeler. Develops risk analytics for client risk management implementations from the identification of risk through management prioritization and business decision making.

- Designed, developed and built an enterprise risk management process, governance, quantification, and reporting capability for impending ORSA and existing business decision making requirements.
- Developed and built an analytical model with Excel and R Shiny web-server interfaces to assess the impact of Federal Funding reductions on jobs, credit, income, and state budgets using socio-economic, natural resource sustainability, Federal allocation mechanism, financial and resource market scenarios.
- Developed risk models for a transnational utility to help prepare for decommissioning of fossil assets and constructing mitigation scenarios for building sustainable power sources.
- Designed and built enterprise risk measurement and reporting for mitigation decisions and regulatory disclosure by senior management of a major U.S. asset manager with emphasis on energy and commodity markets.

Paraclete Risk Solutions LLC Director (9/2009 – 2014)

Planning, budget preparation, financial analysis, modeling, business simulation in capital markets, treasury, financial management, business management functions; risk and performance decision analytics; provide client team leadership; manage client relationships from boardroom to operations; educate clients through advisory activities; manage engagement cycle, produce analytical and eminence work product; make presentations to clients; write reports; analyze data with Excel, R, SAS, and SQL Reports, across Oracle, Teradata, SAP, and other ERP platforms; analytics for business intelligence; client account management; manage controllable margin and working capital; project management; cross-team collaboration; strong communications skills; provide thought leadership and eminence; communicating with senior management; applying appropriate creativity to client problem-solving. Technical skills include MS Office suite, Excel, Access, JavaScript, PowerPoint. Major projects include:

- Assisted \$150 million per year information management practice to realize \$30 million per year savings by designing, developing, and implementing decision-centric methodology (value, process, decision, function, metrics) on software-as-a-service platform to support client pursuits, engagement work product design and delivery, and knowledge transfer, strategy and process improvement; develop training and educational materials and deliver in person and online; design and develop Excel, Powerpoint, and d3.js visualizations; designed and developed financial information management ontologies on Protégé platform; industries included life sciences, retail, energy, banking, insurance, and public sector; domains included customer, supply chain, risk, finance, and workforce.
- Developed with a major pharmaceutical models to improve pricing related margins by \$2 billion and reduce treasury, marketing, and sales process costs by \$5 billion on a \$32 billion operating annual budget by designing integrated valuation, risk, value chain, decision, real options pricing, and KPI taxonomies to deliver enterprise risk and performance strategy for CFO business planning and budgeting function; constructed business simulation, scenario analysis, stress testing, capital modeling and review to support project management based on integrated taxonomies.
- Worked with an IT Analytics team at a premium retailer to realize \$20 million savings and user improvements on a \$125 million Oracle business intelligence platform spend by designing integrated valuation, risk, value chain, decision, and KPI taxonomies to deliver enterprise risk and performance analytics strategy for business planners, forecasters, buyers, merchandisers, warehouse operators; linked KPIs and reports to OBIEE logical presentation layer and physical systems; designed visualizations to query linkages among performance objectives, risks, decisions, functions, and KPIs, and the lineage of KPIs to source system metrics; constructed business simulation to support scenario generation based on integrated taxonomies; design and develop d3.js and spreadsheet interactive visualizations

Charles River Associates (CRA International) Vice President (4/2007 – 8/2009)

Enterprise risk and performance management, financial analysis, modeling, documentation, reporting, planning and budget preparation, litigation support, and due diligence; provide client team leadership; manage client relationships, engagement cycle, produce analytical and eminence work product; educate clients and colleagues through advisory activities; develop resources and industry alliances; cross-team collaboration; project management; make presentations to clients; write reports; analyze data with R, Excel and SQL Reports; client account management; manage controllable margin and working capital; strong communications skills; providing thought leadership and eminence; communicating with senior management; applying appropriate creativity to client problem-solving. Technical skills include MS Office suite, Excel, Access, R, SAS, JavaScript. Major projects included:

- Helped soy complex food producer and trader to plan, budget, and realize a \$25 million reduction in the cost of managing a \$ billion crush spread working capital position using cash flow margin at risk, ECAR and CCAR, liquidity, and real options analytics, business simulation, scenario analysis, stress testing, and counterparty credit risk rating and performance risk measurement to align trading, treasury, counterparty credit, futures exchange, bank credit facilities, and physical scheduling processes
- Helped energy and commodity asset manager and global investment advisor, and its counsel, to build risk management program that hedged 2007-9 impact on treasury operations, option pricing, CCAR, liquidity, trading books and investor-client relations; resulted in retaining over \$450 billion in assets under management; designed and developed risk management ontologies on Protégé platform
- Assisted a major municipality's economic development corporation analyze long term electricity transmission requirements, on-going and planned regional transmission projects, and public-private partnerships to realize Office of the Mayor's energy, carbon footprint, and budget goals
- Investigated procure-to-pay third party construction fraud at a major investor owned electrics and gas utility as an agent of a state public service commission; the fraud totaled over \$150 million involving 18 internal arrests; built fraud risk analytics and end-to-end process, controls, and perpetrator analysis to identify additional \$200 million at risk across 20 contractors
- Provided expert testimony for bank whose collateralized debt obligation desk along with the bank's intellectual property, moved to a competitor; achieved \$50 million settlement
- Provided expert testimony for audit firm sued for negligence in applying risk management standards and practices to the examination of mortgage backed securities portfolio and client's credit risk management practices; achieved \$100 million reduction in settlement costs

Deloitte & Touche LLP Firm Director (7/2000 -- 3/2007)

Risk management, financial analysis, analytics, modeling, decision support technology, planning and budget preparation, CCAR and ECAR capital analytics, reporting in capital markets, financial management, and treasury practice; provide client team leadership; manage client relationships, engagement cycle, produce analytical and eminence work product; educate clients and colleagues through advisory activities; develop resources and industry alliances; manage controllable margin and working capital; make presentations to clients; write reports; analyze data with Excel, R, SAS, and SQL Reports; provide thought leadership and eminence; cross-team collaboration; project management; client account management; manage controllable margin and working capital; strong communications skills; applying appropriate creativity to client problem-solving. Technical skills include MS Office Suite, Excel, Access, S-Plus, PowerPoint. Major projects included:

- Grew capital markets trading and risk management analytics practice from \$1.5 million to \$22 million in three years
- Assisted chemical producer's leadership team to identify over \$120 million in cost avoidance by designing and implementing enterprise risk assessment, monitoring, environmental and human resource planning, and analytics across basic and downstream chemicals businesses
- Helped investment bank identify, plan, budget, and realize a \$33 million per year gains on a \$5 billion energy portfolio through performance and risk assessment of key energy capacity environmental and labor agreements, development of risk control and mitigation programs and alignment of planning, budgeting, forecasting, close and consolidation of results to support functional decision makers

- Assisted aerospace contractor in identifying \$55 million per year cost avoidance across manufacturing divisions by incorporating enterprise risk management as a foundational component for existing six sigma manufacturing and contracting programs
- Assisted integrated oil company's risk management, real options pricing, trading, internal audit, and treasury operations to identify over \$50 million in forward trading book value by aligning planning, budgeting, emission trading, and control to execution of trading strategies
- Assisted telecommunications client to retain \$2 billion government customer revenue stream by using enterprise risk assessment, mitigation and control, and delegation of authority techniques across planning, budgeting, treasury, internal audit functions for operating and capital budget programs

Ernst & Young LLP Senior Manager (1/1997 – 6/2000)

Risk and performance management, financial analysis, analytics, planning, budget preparation, reporting in treasury, capital markets, financial management; decision support technology; provide client team leadership; manage client relationships, engagement cycle, produce analytical and eminence work product; educate clients and colleagues through advisory activities; develop resources and industry alliances; manage controllable margin and working capital; make PowerPoint presentations to clients; write Word reports; analyze data with Excel and SQL Reports; client account management; project management; provide thought leadership and eminence; cross-team collaboration; manage controllable margin and working capital; strong communications skills; applying appropriate creativity to client problem-solving. Technical skills include MS Office Suite, Excel, Access, SAS, PowerPoint. Major projects included:

- Assisted energy trading client to avoid \$65 million loss in trading margin and identify, plan, budget, and realize a \$6 billion increase in traded revenue by developing and implementing risk to performance management practices, relocate trading operations to Switzerland, and establish risk management as a shared service
- Helped utility to invest \$15 billion and reduce its cost of capital by 200 basis points in Latin American portfolio of gas and electric holdings using risk assessment, valuation, and mitigation techniques
- Assisted two oil majors to merge their oil, liquids, refined products, petrochemicals, electricity, and natural gas trading operations; identified \$110 million in unrealized trading book value, working capital requirements, and discrepancies between physical and financial positions by aligning trading, treasury, counterparty credit, futures exchange, bank credit facilities, and physical scheduling processes

Other employers available upon request.

Work in Progress

Spreadsheet Decision Modeling Lecture Series. https://www.youtube.com/playlist?list=PLQhA-d1xKdQYhnQZ7yIPW-Nlk_0w1wie

"Volatility and Market Spillover: Facts of the Renewables Market." (co-authored with Brian Wholey) Preprint, 2022. <https://github.com/wgfoote/market-risk/tree/main/market-facts>

Stats One Lecture Series. 2022. <https://www.youtube.com/playlist?list=PLQhA-d1xKdQYlweQXn2SfosBNPmIY6fVZ>

"Neither a beast nor a god [nor a robot]: a model of ethical decision making." Draft, 2021-2022.

"Robots are (a)moral: the reification of AI." Draft, 2022.

“Past, Present, and Future Perception of Well-Being: Sri Lankan and Rwandan Refugee Experience.”
Draft (co-authored with Naouras Mousa Almatar and Nuwan Jayawickreme).

“WAIC up! going beyond R squared: Practical Use of the Watanabe-Akaike Information Criterion.” **Draft.**

“Adam Smith Against Himself? A Textual Analysis of Wealth of Nations and Moral Sentiment.” **Draft.**

“Interpreting Logistic Risk Analysis: A Discrete Choice Optimization Approach.” Draft at
<https://wgfoote.github.io/stat-thinking/html/logistic-regression.html>).

“Dialectical Foundations of Intelligence Analysis: A New Optic” being prepared for submission to the
peer-reviewed journal *International Studies Perspectives*.

“Dialectical Interactions in Intelligence Analysis.” (with Andrew W. Foote) being prepared for submission
to the peer reviewed journal *International Interactions*.

“Federal Funding Risk Scenarios: Scenarios and User Interaction at the State and County Level.”
Interactive model at <https://wgfoote.shinyapps.io/FFRM/> .

“Backcasting for Missing Data.” (Draft at <https://wgfoote.github.io/fin-alytics/HTML/backcasting-returns.html>).

“Gamma in Finance.” (Draft at <https://wgfoote.github.io/fin-alytics/HTML/gamma-in-finance.html>).

“Non-Linear Optimization Models in Business Analytics: Introduction to Karush-Kuhn-Tucker.” (Draft at
<https://wgfoote.github.io/stat-thinking/html/kkt.html>).

“Interpreting ACF-PACF in Financial Models.” (Draft at <https://wgfoote.github.io/stat-thinking/html/acf-pacf.html>).

Draft books

Decision Modeling with Spreadsheets (draft manuscript, 5/20/2021 at <https://wgfoote.github.io/book-decision/>)

Statistical Learning with Spreadsheets (draft manuscript, 7/20/2021 at <https://wgfoote.github.io/book-stats-one/>)

Probabilistic Reasoning (draft manuscript, 10/16/2020 at <https://wgfoote.github.io/book-probabilistic-reasoning/>)

Financial Engineering Analytics in R (draft manuscript, 1/1/2020 at <https://wgfoote.github.io/book-fin-alytics/index.html>)

Statistical Thinking (draft manuscript 8/11/2020 at <https://wgfoote.github.io/book-stat-thinking/>)

PUBLICATIONS, REPORTS, AND PRESENTATIONS

"Sub-Saharan Violence and Human Development." Presentation delivered at O'Malley School of Business Research Seminar, Manhattan College, Bronx NY, October 2021.

"Neither a beast nor a god [nor a robot]: a model of ethical decision making." Invited presentation to the Leadership Summit, University of Southern Florida, October 6, 2021.

"Dialectical Interactions in Intelligence Analysis." With Andrew Foote, Intelligence Studies Society: Challenges and Methods of Intelligence Analysis, Toronto CA, March 23, 2019.

"Dialectical Intelligence Analysis." Intelligence Studies Society: Challenges and Methods of Intelligence Analysis, San Francisco CA, April 7, 2018.

"Heavy Metal: Escapades in Market Risk." R/Finance Annual Meeting, Chicago IL, June 2, 2018.

"Quantifying and Assessing the Risks of an Exhibition Game in Latin America." Report and presentation to a sports league management team and Alvarez & Marsal, July, 2016.

"Developing a Risk Taxonomy for a Regional Banking Institution in West Africa." Interactive model and report to a retail banking organization and Alvarez & Marsal, April, 2016.

"Quantifying, Assessing, and Mitigating Cyber Risk." Report, interactive model, and presentation to healthcare informatics provider and Alvarez & Marsal, March, 2016.

"R in Financial Risk Analytics Applications." Presentation at New York Data Science Academy Meetup, February 3, 2016, at <https://www.meetup.com/NYC-Data-Science-Academy/events/228335509/>.

"Federal Funds Risk Management Model." With Yvette Connor, Doug Richter, Matt Frank, and Shu Yan. Retrieved on 12/6/2016 from federalrisk.le.utah.gov (best viewed on Internet Explorer). Public summary of report is embodied in interactive website. A press release can be found at <http://utahpolicy.com/index.php/features/featured-articles/7094-utah-creates-online-tool-to-predict-effects-of-potential-federal-funding-crises>.

"Impact of Per Capita Income on Federal Funding of State Budgets." With R. Sherman. Report to the State of Utah, Federal Funds Commission. May, 2016.

"Reduction in Collateral to Underwrite Workers Compensation Claims" (with Y. Connor). Report, model and presentation to a US state commission on financing workers compensation claims and Alvarez & Marsal, December, 2015.

"Quantification and Reporting of Health Insurer's Own Risk and Solvency" (with Y. Connor). Report and model for a not-for-profit health insurer and Alvarez and Marsal. October, 2015.

“Default Prediction for the Furniture Industry Merchants Segment” (with Y. Connor). Presentation, report, and model for a global payments processor and Alvarez & Marsal, August, 2015.

“Quantifying and Tracking Human Resource Costs of a Pandemic” (with Y. Connor). Report and model for health insurer and Alvarez & Marsal, December, 2014.

“Developing a Risk Taxonomy for a Regional US Not-for-profit Health Insurer” (with Y. Connor). Interactive model and report to a retail banking organization and Alvarez & Marsal, October, 2014.

“Quantification of Material Risks to the Performance of an Asset Manager” (with Y. Connor). Report for asset manager board of directors and Alvarez & Marsal, September, 2014.

“Managing the Professional Services Practice: an Interactive Project and Resource Database, Analysis, and Reporting System” (with Y. Connor). Interactive model and reports for Alvarez & Marsal, September, 2014.

“Tracing Predictive Indicator Lineage from Data to Performance Management.” (With A.W. Foote) Report and model for multi-line retailer and Deloitte Consulting. June, 2014.

“Value Chain Value Performance Management to Guide Strategic Choices.” (With A.W. Foote) Report and model for global specialty semi-conductor manufacturer and Deloitte Consulting. January, 2014.

“Value Chain Performance Management of Disruptive Retail Strategy.” (With A.W. Foote) Report and model for global discount retailer and Deloitte Consulting. October, 2013.

“Value Chain Performance Management System.” (With A.W. Foote) Report and model for global medical device company. February, 2013.

“Development of Value Management Reporting System.” (With A.W. Foote) Report and model for global pharmaceutical company and Deloitte Consulting. November, 2012.

“Prioritizing Analytics Services Across the Retail Value Chain.” (With A.W. Foote) Report and model for regional discount retailer and Deloitte Consulting. May, 2012.

“Simulation of the Total Cost of Ownership for Enterprise Resource Planning Service Migration.” (with A.W. Foote) Report and model for regional water utility and AlignAlytics. February, 2012.

“Developing Risk Management Capability in a Federal Agency.” (with A.W. Foote) Report and presentation to the Department of Commerce. June, 2011.

“Risk Management of Department of Defense Internal Controls.” (with A.W. Foote) Report and presentation to the National Defense University. February, 2011.

“Case 09-M-0243: Comprehensive Investigative Accounting Examination of Consolidated Edison of New York, Inc.” (with A.W. Foote) Report and presentation to the New York State Public Service Commission. October 20, 2010.

“Managing the Voter and Sponsor Supply Chain.” (with A.W. Foote) Report and presentation to the management of Patrick Murray’s Congressional Campaign, Alexandria, VA. September, 2010.

“Refinancing Electricity Generation Plant Fleet.” (with F. Kautz) Report to regional electric generation company and Charles River Associates. October, 2008.

“Risk Management of Turnaround Opportunities.” With F. Kautz and T. Murphy. *Global Financier*, August 2007.

“Risk Management is Good Management.” *Global Financier*, June 2007.

“Quantitative Practices in the Evolving Energy Industry.” With J. Buffington and T. Murphy. *Energy Risk International*, September 2002.

“Real and Financial Options Interactions.” With T. Murphy. *Energy Power Risk Management*, August, 2001.

Valuation: Manual and Workbook. Wiley: New York, 1996 and 2000.

“The Determinants of Devaluation Decisions: A Logistic Explanation of Brazilian Devaluations 1969-1971.” With P. Asheghian. *Eastern Economic Journal* 19(3), July-September 1993), pp. 240-251.

“Intertemporal Substitution in Macroeconomics: Consumption, Labor and Money Demand.” *Review of Economics and Statistics* 74, September 1992, pp. 333-338.

“The Demand for Money: A Rational Expectations Approach: Reply.” *Review of Economics and Statistics* 73, May 1991, pp. 752-754.

“Bankruptcy Prediction of Selected Airlines.” *Proceedings of the Midwest Business Association*, April 1991, pp. 69-74.

“Risk-based Valuation of Thrift Institution Balance Sheet Strategies.” *Federal Home Loan Bank Board*, Office of Thrift Supervision Occasional Papers, 1991.

“APL2 Analysis and Design of Mortgage-backed Securities.” *APL Quote Quad* 20(4), July 1990, pp. 106-116.

“APL2 Implementation of an Interest Rate Volatility Model of the Term Structure.” *APL Quote Quad* 19(4), August 1989, pp. 129-135.

“Managing Interest Rate Risk in Banking Institutions.” *European Journal of Operational Research* 41, 1989, pp. 302-313.

“The Dynamic Demand for Bank Discount Window Borrowing with Non-Negativity Constraints.” *Atlantic Economic Journal* 17(2) (June 1989), pp. 36-41.

"The Rationality and Efficiency of Stock Price Relative to Money Supply Information." *Financial Review* 24(2) (May 1989), 281-298.

"Forecasting Discount Window Borrowing." With D. Dutkowsky. *International Journal of Forecasting* 4, December 1988, pp. 593-603.

"Exchange Rate Devaluation: A Monetary Model and Empirical Investigation." With P. Asheghian. *Eastern Economic Journal* 14(2), April-June 1988, pp. 181-187.

"A Multiperiod Goal Programming Model for Managing Interest Rate Risk in Banks and Thrifts." *Federal Home Loan Bank Board, Office of Policy and Economic Research Occasional Papers*, March 1988.

"The Demand for Money: A Rational Expectations Approach." With D. Dutkowsky. *Review of Economics and Statistics* 70(1), February 1988, pp. 83-92.

"Ein mehrstufiges Goal Programming Modell zum Risikomanagement in Kreditinstituten." *Geld, Banken und Versicherungen* 1987/Band II, VVW Karlsruhe, pp. 691-707.

"APL2 Implementation of Numerical Asset Pricing Models." With J. Kraemer and G. Foster. *APL Quote Quad* 18, December 1987, pp. 120-125.

"Efficient Evaluation of the Area Under the Normal Curve." With J. Kraemer and G. Foster. *APL Quote Quad* 18, December 1987, pp. 126-130.

"Capital Efficiency and Debt-Equity: A Comparison of Canadian and U.S. Manufacturing Firms in Canada." With P. Asheghian. *Midwestern Journal of Business and Economics* 2(1), Fall 1986, pp. 39-48.

"X-Inefficiency and Interfirm Comparison of U.S. and Canadian Manufacturing Firms in Canada." With P. Asheghian. *Quarterly Journal of Business and Economics* 42(3), Fall 1985.

"Switching, Aggregation and the Demand for Borrowed Reserves." With D. Dutkowsky. *Review of Economics and Statistics* 67(2), May 1985, pp. 331-335.

"The Productivity of U.S. Multinationals in the Industrial Sector of the Canadian Economy." With P. Asheghian. *Eastern Economic Journal* 11(2), April-June 1985, pp. 123-133.