Curriculum Vitae
SCOTT F. RICHARD

565 Fairview Road
Coatesville, PA 19320
(610) 384-9165 home
(610) 291-9352 mobile
Citizen of USA

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Education:

Graduate: Harvard University
Graduate School of Business Administration
Boston, Massachusetts
Doctor of Business Administration - November 1972
Thesis: Optimal Life Insurance Decisions for a Rational Economic Man

Undergraduate: Massachusetts Institute of Technology
Cambridge, Massachusetts
Bachelor of Science - June 1968
Major - Electrical Engineering and Sciences

Professional Experience:

7/2009 – present	Practice Professor of Finance, Wharton School, University of Pennsylvania
2/2009 – 6/2009	Visiting Scholar, Wharton School, University of Pennsylvania
12/2008 – 1/2009	Retired
8/1996 – 11/2008	Managing Director, Morgan Stanley Investment Management
1/1994 – 7/1996	Partner, Miller Anderson and Sherrerd
2/1992 – 12/1993	Portfolio Manager, Miller Anderson and Sherrerd
9/1987 – 1/1992	Vice President, Fixed Income Research, Goldman, Sachs & Co. Co-head (with Robert Litterman) of Research & Model Development Group Head of Mortgage Research Group, January 1992
6/1986 - 6/1987	Visiting Professor of Finance, Sloan School of Management, MIT
1983 - 8/1987	Professor of Financial Economics, Carnegie-Mellon University
1977 - 1983	Associate Professor of Industrial Administration, C-MU
1972 - 1977	Assistant Professor of Industrial Administration, C-MU

Investment Management Experience:

2/1992-11/2008

My investment responsibilities included being co-head of the Mortgage Investment Team, head of the Government Portfolio Teams, and a member of the Senior Strategy Investment Team. The Mortgage Team was responsible for mortgage strategies and security selection in all of our fixed income portfolios; we managed about $26 billion in mortgages, but the range varies up to $35 billion depending on our strategy. The Government Portfolio Team was responsible for managing about $5.2 billion of retail mutual fund assets invested in government and mortgage securities. The Mortgage Portfolio Team was responsible for managing $6.8 billion in institutional mutual funds and separately managed portfolios invested primarily in mortgage securities. Finally, the Senior Strategy Investment Team was responsible for setting major systematic risk targets and asset allocation in all of our portfolios; we manage a total of about $84 billion in all of our portfolios.

I was a member of the MSIM Risk Management Committee and a member of the MSIM Investment Management Committee

1/2003 - 5/2008

I was site manager for MSIM fixed-income in West Conshohocken. I was responsible for the day-to-day management of our domestic fixed-income business. I was directly responsible for the fifty-five professional members of our U.S. fixed-income team, which managed about $80 billion. (We managed all of MSIM’s taxable fixed income portfolios in West Conshohocken.) In this role, I managed fixed-income trading, client service, technology, legal, and operations. I was also Head of the Investment Research Team, in which position I was responsible for our analytical research, model development, and risk management, including all of our mortgage, term structure, and credit models.

Sell-Side Experience: 9/1987 - 2/1992

My general responsibilities included development and supervision of valuation and hedging models for all existing and new fixed-income products, but concentrating on mortgage-backed securities, options, derivative products and swaps. I supervised a group of twelve professionals.

My specific responsibilities included:

Mortgages:

1) Building prepayment models for both fixed-rate and adjustable-rate mortgages.
2) Valuation models to calculate option-adjusted spreads and hedges for mortgage-backed securities, derivative products, and collateralized mortgage obligations for both sales and trading use.
3) Invented and modeled mortgage-treasury spread options.
4) Building a trading model of the mortgage-treasury yield spread.

Swaps, options and derivative products:

1) Supervised all valuation, hedging and trading models in the swaps, options and derivative products systems.
2) Developed a multiple-factor model of the term structure of interest rates for use in the swaps and mortgage systems.

Numerous presentations to trade groups and clients.
Member of Fixed-Income New Products Committee.

Teaching Experience:

1972 - 1987	Master's and executive level courses in options, corporate finance and capital markets. Doctoral courses in corporate finance and dynamic equilibrium models in financial economics. Topics in corporate finance and capital markets in executive education programs.
1984	George Leland Bach Award for Teaching

Consulting Experience:

AT&T-Bell Labs, Copperweld, Goodyear Tire and Rubber, Mellon Bank, Westinghouse.

Professional Activities and Societies:

Associate Editor, *Journal of Finance*, 1983-1988
Associate Editor, *Journal of Financial Economics*, 1976-1983
Associate Editor for Finance, *Management Science*, 1977-1978
Associate Editor, *Journal of Portfolio Management*, 2008-Present
Associate Editor, *Journal of Fixed Income*, 1991-Present
American Finance Association

Boards:

Kepos Capital Advisory Board, 2010 to present
Philadelphia Opera, 2010 to present
Buck and Doe Conservancy, 2009 to present

Publications in Refereed Journals:

Scott F. Richard, "Optimal Consumption Portfolio and Life-Insurance Rules for an Uncertain Lived Individual in a Continuous Time Model," *Journal of Financial Economics*, Vol. 2, No. 2, 187-203 (June 1975).

Scott F. Richard, "Multivariate Risk Aversion, Utility Independence and Separable Utility Functions," *Management Science*, Vol. 22, No. 1, 12-21 (September 1975).

Scott F. Richard, "Optimal Impulse Control of a Diffusion Process with both Fixed and Proportional Costs of Control," *SIAM Journal of Control and Optimization*, Vol. 15, No. 1, 79-91 (January 1977).

George Constantinides and Scott F. Richard, "Existence of Optimal Simple Policies for Discounted-Cost Inventory and Cash Management in Continuous Time," *Operations Research*, Vol. 26, No. 4, July/August 1978, pp. 620-636.

Scott F. Richard, "An Arbitrage Model of the Term Structure of Interest Rates," *Journal of Financial Economics*, Vol. 6, No. 1, 33-58 (March 1978).

Allan H. Meltzer and Scott F. Richard, "A Rational Theory of Size of Government," *Journal of Political Economy*, Vol. 89, No. 5, 914-927 (October 1981).

Scott F. Richard and M. Sundaresan, "A Continuous Time Equilibrium Model of Commodity Contract Prices in a Multigood Economy," *Journal of Financial Economics*, Vol. 9, No. 4, 347-371 (December 1981).

Allan H. Meltzer and Scott F. Richard, "Tests of a Rational Theory of the Size of Government," *Public Choice*, 41: 403-418 (1983).

Allan H. Meltzer and Scott F. Richard, "A Positive Theory of In-Kind-Transfers and the Negative Income Tax," Carnegie conference on Political Economy, *Public Choice* 47: 231-265 (1985).

Scott F. Richard and William R. Zame, "Proper Preferences and Quasi-Concave Utility," *Journal of Mathematical Economics*, 15: 231-247 (1986).

Lars P. Hansen and Scott F. Richard, "The Role of Conditioning Information in Deducing Testable Restrictions Implied by Dynamic Asset Pricing Models," *Econometrica*, 55: 587-613 (1987).

Scott F. Richard and Sanjay Srivastava, "Equilibrium in Economics with Infinitely Many Consumers and Infinitely Many Commodities," *Journal of Mathematical Economics*, 1987.

Scott F. Richard, "A New Approach to Production Equilibria in Vector Lattices," *Journal of Mathematical Economics*, 18 (1989), 41-56.

Scott F. Richard and Richard Roll, "Prepayments on Fixed-Rate Mortgage-Backed Securities," *Journal of Portfolio Management*, 15 (1989), 73-82.

Andreu Mas-Colell and Scott F. Richard, "A New Approach to the Existence of Equilibria in Vector Lattices," *Journal of Economic Theory*, 53(1991), 1-11.

Other Articles:

Allan H. Meltzer and Scott F. Richard, "Why the Government Grows (and Grows) in a Democracy," *The Public Interest*, No. 52, 111-118 (Summer 1978).

Scott F. Richard, "A Generalized Capital Asset Pricing Model," in Elton, E. J. and M. J. Gruber (eds.), *Portfolio Theory, 25 Years After*, Studies in Management Science, Vol. 11, North-Holland, New York, 1979.

Scott F. Richard, "Relative Prepayment Rates on Thirty-Year FNMA, FHLMC and GNMA Fixed-Rate Mortgage-Backed Securities," Advances and Innovations in the Bond and Mortgage Markets, F. Fabozzi, Ed., Probus Publishing, Chicago, IL, 1989.

Scott F. Richard, "Valuation Challenges: Mortgage-Backed Securities and Collateralized Mortgage Obligations," Understanding Securitized Investments and Their Use in Portfolio Management, K. Eades, D. Harrington and R. Harris, eds., Association for Investment Management and Research, Charlottesville, VA, 1991.

Scott F. Richard, "Housing Prices and Prepayments for Fixed Rate Mortgage-Backed Securities," *Journal of Fixed Income*, 1(1991), 54-58.

Lynn Edens and Scott F. Richard, "Prepayment and Valuation Modeling for Adjustable Rate Mortgage-Backed Securities," Handbook of Mortgage-Backed Securities, 3rd Edition, F. Fabozzi, Ed., Probus Publishing, Chicago, IL, 1992.

Frank Fabozzi and Scott F. Richard, "Valuation of CMOs," CMO Portfolio Management, F. Fabozzi, Ed., Frank J. Fabozzi Associates, Summit NJ, 1994.; revised and reprinted by Frank Fabozzi, David Horowitz, and Scott F. Richard, in Advances in the Valuation and Management of Mortgage-Backed Securities, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 1998; reprinted in The Handbook of Fixed-Income Securities, Sixth Edition, F. Fabozzi, Ed., McGraw-Hill, New York, 2001.

Benjamin J. Gord and Scott F. Richard, "Measuring and Managing Interest Rate Risk," Managing Fixed-Income Portfolios, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 1997; reprinted in Selected Topics in Bond Portfolio Management, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 1997; reprinted in Perspectives on Interest Rate Risk Management for Money Managers and Traders, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 1998; reprinted in Handbook of Portfolio Management, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 1998;

Frank Fabozzi, Steven Kreider, and Scott F. Richard, "Improving Guidelines for Interest Rate and Credit Derivatives," Professional Perspectives on Fixed-Income Portfolio Management, Volume 1, F. Fabozzi, Ed., Frank J. Fabozzi Associates, New Hope, PA, 2000; reprinted in Handbook of Finance, Vol. 3, F. Fabozzi, Ed., John Wiley & Sons, Hoboken, NJ, 2008.

Scott F. Richard, "Managing Fixed-Income Risk in Core Plus Portfolios," in Core-Plus Bond Management, AIMR Conference Proceedings, 2001.

W. David Armstrong and Scott F. Richard, "A Model of the Term Structure of Interest Rates Based on the Taylor Rule," Morgan Stanley Investment Management, September 2002.

Frank Fabozzi, David Horowitz, and Scott F. Richard, "Monte Carlo Simulation/OAS Approach to Valuing Residential Real Estate-Backed Securities," Interest Rate, Term Structure and Valuation Modeling, F. Fabozzi, Ed., John Wiley & Sons, Hoboken, NJ, 2002.

Scott F. Richard, "Exploring a Two-Factor, Markovian, Lognormal Model of the Term Structure of Interest Rates," The Legacy of Fischer Black, Bruce Lehmann, Ed., Oxford University Press, 2005.

Frank Fabozzi, David Horowitz, and Scott F. Richard, "Valuation of Mortgage-Backed Securities," The Handbook of Fixed-Income Securities, Seventh Edition, F. Fabozzi, Ed., McGraw-Hill, New York, 2005; reprinted in The Handbook of Mortgage-Backed Securities, Sixth Edition, F. Fabozzi, Ed., McGraw-Hill, New York, 2006.

Book:

Allan H. Meltzer, Alex Cukierman and Scott F. Richard, Political Economy, Oxford University Press, 1991.

Op Ed:

Robert Kaplan, Robert Merton and Scott Richard, "Disclose the fair value of complex securities," *Financial Times*, August 17, 2009.