

Government Contingent Claims: Growth and Consequences

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BIOGRAPHIES



Sebastien Gay is the Director of Financial Analysis at the Congressional Budget Office. He also teaches in the Department of Economics at Georgetown University.

Prior to joining CBO, Dr. Gay was on the faculty at the University of Chicago Department of Economics. He was also a Director at the Berkeley Research Group, where he served as an expert on litigation cases in finance and economics.

He specializes in financial economics, empirical industrial organization, and law and economics. He has a Ph.D. in Economics from the University of Chicago. More specifically, his research focuses on empirical analysis of commercial and residential real estate (buyers affordability, real estate agent expertise, and investment strategies), financial economics and corporate governance, and privacy.

Dr. Gay was also a George Mason University School of Law LEC (Law & Economics Center) Privacy Fellow and a faculty affiliate at the Center for Health and the Social Sciences (CHeSS) at the University of Chicago.



Andrew W. Lo is the Charles E. and Susan T. Harris Professor, a Professor of Finance, and the Director of the Laboratory for Financial Engineering at the MIT Sloan School of Management.

Lo's current research spans three areas: evolutionary models of investor behavior and adaptive markets, artificial intelligence and financial technology, and healthcare finance. Recent projects include: an evolutionary explanation for bias and discrimination and how to reduce their effects; a new analytical framework for measuring the impact of impact investing; the potential for large language models to provide trustworthy financial advice to retail investors; and new statistical tools for predicting clinical trial outcomes, incorporating patient preferences into the drug approval process, and accelerating biomedical innovation via novel business, financing, and payment models.

Lo has published extensively in academic journals (see <http://alo.mit.edu>) and his most recent book is *Adaptive Markets: Financial Evolution at the Speed of Thought*. His awards include Batterymarch, Guggenheim, and Sloan Fellowships; the Paul A. Samuelson Award; the Eugene Fama Prize; the IAFE-SunGard Financial Engineer of the Year; the Global Association of Risk Professionals Risk Manager of the Year; the Harry M. Markowitz Award; the Managed Futures Pinnacle Achievement Award; one of TIME's "100 most influential people in the world"; and awards for teaching excellence from both Wharton and MIT. His book *Adaptive Markets* has also received a number of awards, listed here. He is a Fellow of Academia Sinica; the American Academy of Arts and Sciences; the Econometric Society; and the Society of Financial Econometrics.

Lo is also a principal investigator at the MIT Computer Science and Artificial Intelligence Laboratory, an affiliated faculty member of the MIT Department of Electrical Engineering and Computer Science, an external faculty member of the Santa Fe Institute, and a research associate of the National Bureau of Economic Research. He is a member of the New York Federal Reserve Board's Financial Advisory Roundtable, FINRA's Economic Advisory Committee, the National Academy of Sciences Board on Mathematical Sciences and Their Applications, Beth Israel Deaconess Medical Center's Board of Overseers, and the boards of Roivant Sciences and the Whitehead Institute for Biomedical Research.

Lo holds a BA in economics from Yale University and an AM and PhD in economics from Harvard University.



Deborah J. Lucas is a professor of Finance at MIT Sloan and Director of the MIT GCFP. Her recent research applies financial principles to estimate the costs and risks of governments' financial activities. She is widely published in asset pricing and corporate finance. Current positions include: Research Associate, NBER; Senior Fellow, ABFER; member, Shadow Open Market Committee; editorial board, Annual Review of Financial Economics; associate editor, American Economic Journal Policy; board member, Chicago Mercantile Exchange; and consultant, OECD, IMF and CBO. Past positions include: chief economist, assistant and associate director at CBO; senior staff economist Council of Economic Advisers; professor at Kellogg; and co-editor JMCB.



Alan J. Marcus is the Gabelli Professor of Finance in the Carroll School of Management at Boston College. He received his Ph.D. from MIT, has been a visiting professor at MIT's Sloan School of Management and has served as a Research Fellow at the National Bureau of Economic Research, where he participated in both the Pension Economics and the Financial Markets and Monetary Economics Groups. Professor Marcus also spent two years at the Federal Home Loan Mortgage Corporation (Freddie Mac), where he helped develop mortgage pricing and credit risk models. Professor Marcus has published widely in the fields of capital markets and portfolio theory. He is co-author of the widely-used texts *Investments, Essentials of Investments* (with Z. Bodie and A. Kane) and *Fundamentals of Corporate Finance* (with R. Brealey and S. Myers). He currently serves on the Research Foundation Advisory Board of the CFA Institute.



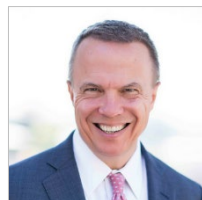
Robert C. Merton is the School of Management Distinguished Professor of Finance at the MIT Sloan School of Management and John and Natty McArthur University Professor Emeritus at Harvard University. He serves as Resident Scientist at Dimensional Fund Advisors Inc. Merton is Honorary Chairman of the Institute for Global Economics, Seoul.

Merton received the Alfred Nobel Memorial Prize in Economic Sciences in 1997 for a new method to determine the value of derivatives. He is past president of the American Finance Association, a member of the National Academy of Sciences, and a Fellow of the American Academy of Arts and Sciences.

Merton's research focuses on finance theory, including lifecycle and retirement finance, optimal portfolio selection, capital asset pricing, pricing of derivative securities, credit risk, loan guarantees, financial innovation, the dynamics of institutional change, and improving the methods of measuring and managing macro-financial risk.

Merton has also been recognized for translating finance science into practice. He received the inaugural Financial Engineer of the Year Award from the International Association for Quantitative Finance (formerly International Association of Financial Engineers), which also elected him a Senior Fellow. He received the 2011 CME Group Melamed-Arditti Innovation Award, and the 2013 WFE Award for Excellence from World Federation of Exchanges. A Distinguished Fellow of the Institute for Quantitative Research in Finance ('Q Group') and a Fellow of the Financial Management Association, Merton received the Nicholas Molodovsky Award from the CFA Institute, and the 2014 Lifetime Achievement Award from the Financial Intermediation Research Society. He received the 2017 Finance Diamond Prize from Fundación de Investigación, IMEF, Mexico. Merton received the 2022 Plan Sponsor Council of America Lifetime Achievement Award for his contribution to retirement finance.

Merton received a BS in Engineering Mathematics from Columbia University, a MS in Applied Mathematics from California Institute of Technology, a PhD in Economics from Massachusetts Institute of Technology and numerous honorary degrees from US and foreign universities.



William Nelson is an Executive Vice President and Chief Economist at the Bank Policy Institute and an adjunct professor at Georgetown University. Previously he served as Executive Managing Director, Chief Economist, and Head of Research at the Clearing House Association and Chief Economist of the Clearing House Payments Company. Mr. Nelson contributed to and oversaw research and analysis to support the advocacy of the Association on behalf of TCH's owner banks.

Prior to joining The Clearing House in 2016, Mr. Nelson was a deputy director of the Division of Monetary Affairs at the Federal Reserve Board where his responsibilities included monetary policy analysis, discount window policy analysis, and financial institution supervision. Mr. Nelson attended Federal Open Market

Committee meetings and regularly briefed the Board and FOMC. He was a member of the Large Institution Supervision Coordinating Committee (LISCC) and the steering committee of the Comprehensive Liquidity Analysis and Review (CLAR). He has chaired and participated in several BIS working groups on the design of liquidity regulations and most recently chaired the CGFS-Markets Committee working group on regulatory change and monetary policy. Mr. Nelson joined the Board in 1993 as an economist in the Banking section of Monetary Affairs. In 2004, he was the founding chief of the new Monetary and Financial Stability section of Monetary Affairs. In 2007 and 2008, he visited the Bank for International Settlements, in Basel, Switzerland, where his responsibilities included analyzing central banks' responses to the financial crisis and researching the use of forward guidance by central banks. He returned to the Board in the fall of 2008 where he helped design and manage several of the Federal Reserve's emergency liquidity facilities.

Mr. Nelson earned a Ph.D., an M.S., and an M.A. in economics from Yale University and a B.A. from the University of Virginia. He has published research on a wide range of topics including monetary policy rules; monetary policy communications; and the intersection of monetary policy, lender of last resort policy, financial stability, and bank supervision and regulation.



Robert S. Pindyck is the Bank of Tokyo-Mitsubishi Professor of Economics and Finance in the Sloan School of Management at MIT. He is also a Research Associate of the National Bureau of Economic Research, and he has been a Visiting Professor at Tel-Aviv University, Harvard University, and Columbia University. He is a Fellow of the Econometric Society, a past President and Fellow of the Association of Environmental and Resource Economists, and a winner of the Jamieson Prize for Excellence in Teaching.

Professor Pindyck's research and writing have covered topics in microeconomics and industrial organization, the behavior of natural resource and commodity markets, financial markets, capital investment decisions, and environmental economics. His work in economics and finance has examined the determinants of market structure and market power, the dynamics of commodity spot and futures markets, criteria for investing in risky projects, and the economics of R&D and the value of patents. His recent work in environmental economics has focused on climate change, and examined policy design in the face of uncertainty. He has also worked on the economic and policy implications of global catastrophic events, including the recent COVID-19 pandemic.

Professor Pindyck has published numerous academic journal articles, and he is also the author or co-author of eight books, including three popular textbooks: *Econometric Models and Economic Forecasts* (McGraw-Hill), *Microeconomics* (Pearson), and *Investment Under Uncertainty* (Princeton University Press). His most recent book is *Climate Future: Averting and Adapting to Climate Change* (Oxford University Press).

Professor Pindyck has been Co-Editor of *The Review of Economics and Statistics*. In addition to his academic research and teaching, he has been a consultant to a large number of public and private organizations. More information about Professor Pindyck is available on his website: <http://web.mit.edu/rpindyck/www>.



Carolina Rentería is the chief of the Public Financial Management (PFM) Division of the IMF's Fiscal Affairs Department, responsible for delivering PFM capacity development in Europe, Anglophone Africa, Middle East and Central Asia, and developing a comprehensive PFM analytical agenda, including balance sheet approach to fiscal policy, infrastructure governance, fiscal risks and debt management and gender responsive budgeting. She joined the World Bank in 2009 as Executive Director for Colombia and eight other countries, and later became Lead Economist for Africa. In Colombia, between 1999-2009, Carolina was Director of the National Planning Department (equivalent to Minister of Planning and member of the President's Cabinet), National Budget Director and Senior Advisor to the Council of Fiscal Policy. She was President of the IADB Latin American & Caribbean Network on Development Effectiveness Result-Based Fiscal Policy and of the Initiative for Integration of Regional Infrastructure in South America. In her Government, IMF and World Bank roles, she has led the design and implementation of important PFM reforms in multiple countries. Ms. Rentería has a master's degree from New York University on Public Administration (Fulbright scholarship) and from Universidad de Los Andes in Economic Development) and has published on fiscal, budgetary, decentralization and other economic matters.



Matthew Richardson is the Charles E. Simon Professor of Applied Economics in the Finance Department at the Leonard N. Stern School of Business at New York University. Prior to being at NYU, Professor Richardson was an Assistant Professor of finance at the Wharton School of the University of Pennsylvania. In addition, he is a Research Associate of the National Bureau of Economic Research.

Professor Richardson has done research in many areas of finance, including both theoretical and empirical work. His research has been published in the *American Economic Review*, the *Journal of Finance*, the *Review of Financial Studies*, and the *Journal of Financial Economics*, among other places. He was an associate editor of the *Journal of Finance*, *Review of Financial Studies* and *Journal of Financial and Quantitative Analysis*. He recently coedited two books on the financial crisis titled, *Restoring Stability: How to Repair a Failed System* (Wiley, 2009), and, *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance* (Wiley, November 2010), and is a co-author of, *Guaranteed to Fail: Fannie Mae, Freddie Mac and the Debacle of Mortgage Finance* (Princeton University Press, March 2011).

Professor Richardson completed both his bachelor and master degrees in economics concurrently at the University of California at Los Angeles. He received his doctor of philosophy in finance from the Graduate School of Business at Stanford University.



Parinitha Sastry is currently an Assistant Professor of Finance at Columbia Business School. Her research is at the intersection of climate finance, financial intermediation, and real estate. Prior to beginning her academic position, she spent a year at the Department of Treasury as a climate finance postdoctoral fellow. She received her PhD in finance from MIT, and her BA from Columbia University. Prior to her PhD, she worked at the Federal Reserve Bank of New York, the Brookings Institution, and the Task Force on Climate-Related Financial Disclosures.



Suzanne B. Shu is the Dean of Faculty and Research for the Cornell University SC Johnson College of Business, and the John S. Dyson Professor in Marketing at Cornell's Dyson School of Applied Economics and Management. Her main areas of research are in consumer financial decision making, especially regarding retirement income decisions, and in behavioral interventions for health behaviors. Dean Shu received a PhD from the University of Chicago; she also holds undergraduate and graduate degrees in Electrical Engineering from Cornell University. She is also currently an NBER Faculty Research Fellow and has been a visiting

scholar for several years at the Consumer Financial Protection Bureau.



Jeremy C. Stein is the Moise Y. Safra Professor of Economics at Harvard University and serves on the board of directors of the Harvard Management Company. From May 2012 to May 2014, he was a member of the Board of Governors of the Federal Reserve System. Before coming to Harvard in 2000, Stein was on the finance faculty of M.I.T.'s Sloan School of Management for ten years, most recently as the J.C. Penney Professor of Management. Prior to that, he was an assistant professor of finance at the Harvard Business School from 1987-1990. He received his AB in economics summa cum laude from Princeton University in 1983 and his PhD in economics from M.I.T. in 1986.

Stein's research has covered such topics as: behavioral finance and market efficiency; corporate investment and financing decisions; risk management; capital allocation inside firms; banking; financial regulation; and monetary policy.

Stein is a fellow of the American Academy of Arts and Sciences, a research associate at the National Bureau of Economic Research, and a member of the Federal Reserve Bank of New York's Financial Advisory Roundtable. In 2008, he was president of the American Finance Association. In 2009, he served as a senior advisor to the Treasury Secretary and on the staff of the National Economic Council. From 2018 to 2021, he was chair of Harvard's economics department.



Paul S. Willen is a senior economist and policy advisor in the Federal Reserve Bank of Boston Research Department. Willen conducts academic research with a focus on real estate and mortgage markets as part of the policy mission of the Federal Reserve. For many years, Willen studied the causes and consequences of the 2007-2008 Global Financial Crisis advising policy makers, and testifying in Congress, and publishing articles in top scholarly journals. His research on the topic was featured in virtually every major newspaper in the country. More recently, Willen has analyzed the effects of race and ethnicity on access to mortgage credit.

Willen did his undergraduate work at Williams College, earned his PhD from Yale and has taught at Princeton, the University of Chicago, MIT, and Harvard.