

Princeton University

Bendheim Center for Finance

Annual Report
2007

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Director's Introduction

The mission of Princeton University's Bendheim Center for Finance is twofold: First, to develop new courses and programs in finance that will afford exciting learning opportunities to Princeton students; and second, to establish a leading center for modern financial research.

Under the aegis of the BCF, Princeton's existing finance curriculum is being expanded and improved, and two new academic programs have been created: an Undergraduate Certificate in Finance in 1999 and a Master Program in Finance in 2001. Center-affiliated faculty teach in both programs as well as in a variety of contexts in their home departments across the University. By bringing together outstanding scholars from a wide variety of disciplines in a well-equipped setting that encourages dialogue and interaction, the BCF is an ideal environment in which to conduct significant research in finance. It also serves as a major venue where the world's leading experts in finance from academia, government and the private sector can meet regularly to exchange views and information.

Proximity to Wall Street and other important centers of private-sector financial research provide an additional source of intellectual stimulation and interchange for the BCF. Students are able to explore internships and longer-term job opportunities in a wide variety of finance-related areas. The BCF also encourages students at all levels to conduct finance-related research at the University by providing such services as funding senior thesis projects, serving as a clearinghouse and major source of data, and providing expert faculty advisors.

Faculty

The scholars in the BCF are chosen for their ability to deploy cutting-edge methodologies to a wide range of finance-related topics, from stock-price determination to public policy toward financial markets to the role of financial institutions in economic growth. The Center supports these leading scholars by encouraging their individual, collaborative and multidisciplinary research and by providing facilities (including computer and data support), research assistance, financial resources and venues for the exchange of ideas (such as weekly seminars and conferences). The University's existing strengths in areas such as economics, mathematics and statistics, operations research, computer science, psychology and public policy provide a serious disciplinary basis for this research, leveraging our resources to produce a truly distinguished program. To promote maximum interchange among disciplines, all Center faculty have appointments in regular University departments as well as in the BCF.

Twenty-eight faculty members, representing seven different departments, are currently affiliated with the BCF. Tenure was awarded this year to two faculty affiliated with the Center: Markus Brunnermeier and Jonathan Parker. Effective July 1, 2006, Jianqing Fan was named the Frederick L. Moore, Class of 1918, Professor of Finance. Birgit Rudloff was appointed Assistant Professor in ORF department this year. Her research interests include hedging in incomplete markets with convex risk measures, mathematical finance, risk management and convex analysis. She received a Master and a Ph.D. in Mathematical Finance from Martin-Luther University Halle-Wittenberg in Germany.

Undergraduate Certificate in Finance

Now in its ninth year, the Undergraduate Certificate in Finance continues to do extremely well, attracting record numbers of students. We enrolled 126 juniors from the Class of 2009. In previous years, the numbers were as follows: Class of '00: 61, '01: 82, '02: 85, '03: 122, '04: 113, '05: 126, '06: 158, '07: 154, '08: 105. This brings our total number of undergraduate students in the program (juniors and seniors) to about 260 this year. The success of the program has been overwhelming, especially in light of our limited senior thesis advising resources.

Students earning the UCF are drawn from a wide cross-section of departments on campus, 18 in total for the Class of 2007. In addition, UCF students are an extremely talented subgroup of the already high-achieving Princeton classes. They continue to receive a high proportion of the prizes awarded by their respective departments. The Valedictory Oration was presented this year by Eric Weyl, one of our UCF recipients. This honor is awarded by faculty vote to one of the highest-ranking candidates for bachelor degrees. Special qualifications as well as scholastic standing are taken into account when awarding this honor.

54 UCF students received a combination of departmental prizes, honors, and athletic awards; 8 UCF students received departmental prizes and honors; 4 UCF students received athletic awards; 13 UCF students were elected to Phi Beta Kappa Society; 18 UCF students were elected to membership in Society of Sigma Xi; 11 UCF students were elected to membership in Tau Beta Pi National Engineering Society; and finally, 61 UCF students received academic honors (29 cum laude, 24 magna cum laude and 8 summa cum laude).

Eric Weyl was the recipient of the Birch Family Prize which was presented at our Class Day ceremonies. This prize was established in 2004 by William D. Birch, Jr. '64 and William Marco Birch '92. This is the second year we were able to present it to a graduating senior with the highest grade point average in coursework related to the Undergraduate Certificate in Finance.

The large size of the UCF has stretched our limited advising resources. In conjunction with the Dean of the College, we put in place tougher admission requirements into the UCF, starting with the Class of 2008, in order to cap the size of the program at a more manageable level. Specifically, a minimum B+ average in the three prerequisite courses (mathematics, statistics and microeconomics) and a minimum grade of B in each of them will be required for ECO and ORF majors. Once admitted, a minimum B average computed over the two core courses ECO 362 and 363, the three elective courses, and the independent work will be required of all students to earn the certificate. We set these cutoffs based on grade data from previous classes, with the objective of limiting the number of UCF students to approximately 100, of which we expect about two-thirds to major in the ECO or ORF departments. We designed the tougher criteria for ECO and ORF students specifically to avoid "crowding out" the non-ECO/ORF majors from the UCF. With these new requirements in place, in May 2007 we admitted 126 students from the Class of 2009 into the UCF. We expect that the reduced size of the UCF will provide an even better experience for students and faculty alike.

Master in Finance

The fifth full class of the Center's Master in Finance (MFin) graduated in June 2007. Reflecting the interdisciplinary nature of the BCF, the MFin program is nearly unique in producing students with extensive training in both quantitative methods (drawing on the strengths of our Engineering, Computer Science, Mathematics and other departments) and in Economics. This set of skills makes our Master students highly sought after in the job market. The program is designed to be completed in four semesters, but students with strong backgrounds will be able to finish more quickly, in as little as one year.

Because business schools do not generally offer so specialized a program, or expect their students to have such a strong mathematical background, Princeton's MFin offers students a significant advantage in obtaining coveted positions in investment banking, brokerage houses, and similar firms. BCF faculty also benefit from the program because it provides a forum in which they can develop an active intellectual interchange with leading private-sector financial researchers and practitioners.

We have continued to invest heavily in the placement of our graduating students. The networking efforts of our two dedicated placement advisors, the strong support from our Corporate Affiliates and Advisory Council, and the success enjoyed by our previous four graduating classes has been reflected in a strong demand for our 2007 graduates, all of whom accepted permanent employment in financial firms. Our two year students all accepted offers of summer internships from financial firms.

We repeated in September 2006 our three-day "boot camp" introductory program which was introduced in 2003 for the incoming students prior to the beginning of classes, and will continue to do so in future years. The camp focuses on a refresher of various finance topics, the types of careers for which the MFin degree prepares students and some useful information and interviewing skills (such as mock videotaped interviews).

MFin applications for 2007-08 exceeded the level of the previous year, reaching 425 in January 2007. We intend to continue keeping the program small and selective. We admitted 49 students this year, and 32 will be enrolling this coming fall. Our selectivity rate continues to be exceptionally high, with our program admitting 8% of its applicant pool. This is a substantially smaller percentage than our peer programs in quantitative finance (NYU, Columbia, Carnegie-Mellon, Berkeley, Chicago, Stanford, etc.) and one that is comparable to the most selective business schools. Our yield (66% this year) was also excellent and well beyond our expectations, despite the absence in most cases of financial aid. Overall, this is a very good sign for the continued success of our program.

We have continued to conduct interviews of the most promising subset of our applicant pool using our Advisory Council and placement officers. This process helps us ascertain which of the strong academic candidates we had identified through their written applications also excelled in areas such as communication and leadership. In addition to the obvious benefit of collecting very useful information about potential students, we get a positive "halo" effect with the strongest candidates who get to meet our industry-leading Advisory Council members.

Ph.D. Students

Ph.D. students in the Bendheim Center for Finance are admitted through the Department of Economics, the Department of Operations Research and Financial Engineering or the Program in Applied and Computational Mathematics. Four students graduated in 2007. Our students continue to achieve high quality placements which will further raise the visibility of the Center in the world of academic finance and industry.

- **Carlos Viana de Carvalho** graduated from the Department of Economics. His thesis studied the implications of heterogeneity in price setting behavior on the part of firms for aggregate dynamics. He has accepted a position at the Federal Reserve Bank of New York.
- **Sylvain Champonnois** graduated from the Department of Economics. His thesis, "Financial Architecture and Corporate Investment," studied the role of financial

architecture for corporate investment. He accepted a position of assistant professor at the Rady School of Management at UC San Diego.

- **Tal Fishman** graduated from the Department of Economics. His thesis studied market manipulation via voluntary disclosure by informed traders and the ability of smart traders to eliminate mispricings in the stock market. He has accepted a Quantitative Research Associate position with Parkcentral Capital Management, a hedge fund, in the Chicago area.
- **Yosuke Yasuda** graduated from the Department of Economics. His thesis, "Essays in Theoretical Industrial Organization," studied the efficient design of license auctions and school choice mechanisms. He accepted a position of assistant professor at the National Graduate Institute for Policy Studies in Tokyo, Japan.

Fund Raising

Looking forward, our greatest challenge will be to continue to recruit and retain top-flight faculty. Faculty recruitment and retention is essential to our new educational initiatives and for continued expansion of course offerings. To be successful in this very competitive market, we have found it necessary to make commitments to provide research support for faculty members. All of this requires active fund raising and we continue to work closely with the Development Office to increase the Center's resources.

I am pleased to announce that the Heyman Terrace was dedicated this year thanks to a gift from his son, Advisory Council member William H. Heyman '70. The ceremony took place on May 30, 2007 to install the plaque which reads: "In memory of George H. Heyman, Jr. P70 h70, Financier and Philanthropist."

Our Corporate Affiliates Program has also been quite successful. Under this program, financial firms are asked to make annual gifts to the Center. In exchange, member firms are given certain privileges, such as the right to receive Center publications, to send representatives to Center events, and to receive assistance in recruiting our students (both undergraduate and master students) for internships and permanent jobs. Members for 2006-07 include Barclays Capital, Citadel Investments Group, Citigroup, Crédit Suisse, FreddieMac, Global Environmental Fund, Goldman Sachs, JP Morgan Chase, Lehman Brothers, Merrill Lynch, Moody's Corporation, and Morgan Stanley. We welcome our newest member: FreddieMac.

Advisory Council

The Center relies on the help and advice of prominent alumni working in the financial sector. The seventh annual meeting of the Advisory Council took place on campus on May 30-31, 2007. Our meeting format included a dinner the evening before the morning meeting. This enabled the Council members to exchange ideas in a more informal setting. The agenda was centered on the placement of future Master students, fine-tuning of the Undergraduate Certificate in Finance, and the design of the benefits offered to Corporate Affiliates. Council members were pleased to note the continued success of the Center's programs.

Conclusion

Finance is important to Princeton's continued success as an educational and research institution because of increasing demands for training in these areas by our students at all levels and because these fields have become central to research efforts in diverse disciplines, including

economics. As one of the world's leading research and teaching universities, Princeton has much to offer to the future development and effective application of finance, including distinguished academic programs that can provide support in such areas as operations research, mathematics and statistics, decision science, and organizational theory. It is not Princeton's objective to create a simulacrum of a business school. Rather, our strategy is to focus on those portions of the conventional business school curriculum in which it has existing strengths, such as fields that can be solidly grounded in analytical, discipline-based research, and emphasize interdisciplinary research. Indeed, research and teaching in finance with an essential interdisciplinary component constitutes the distinguishing feature of the BCF.

By helping to attract outstanding new faculty, encouraging and supporting the work of existing faculty, and bringing outstanding scholars and practitioners from private industry to campus, the Center continues to stimulate exciting new research, dialogue and collaboration. And through its educational programs, the Center enhances the education, training and career opportunities of many of the world's very best students.

A handwritten signature in black ink that reads "Yacine Ait-Sahalia". The signature is written in a cursive, flowing style.

Yacine Ait-Sahalia
Otto A. Hack '03 Professor of Finance and Economics
Director, Bendheim Center for Finance
July 2007

Faculty

Dilip Abreu is the Edward E. Matthews, Class of 1953, Professor of Finance and Professor of Economics. His research interests include behavioral economics and finance, economic theory and game theory. He is a Fellow of the Econometric Society and a current member of its Council, and a Fellow of the American Academy of Arts and Sciences. He received a B.A. from Bombay University, an M.Phil. from Oxford University and a Ph.D. in Economics from Princeton.

Courses taught:

- ECO 418: Strategy and Information
- ECO 502: Microeconomic Theory
- ECO 514: Game Theory

Undergraduate students advised:

- Howard Deutsch, "On-campus Recruiting as a Two-sided Matching Problem or, How I Managed to Find a Job"
- Adam Nebesar, "Oil and War: New Methods for Estimating the Macroeconomic Effects of Oil Shocks, using War in Iraq as a Case Study"

Graduate student advised:

- Attila Ambrus, "Coalitional Rationalizability"
- Daisuke Nakajima, "Essays on Auctions and the War of Attrition with the Allais Paradox"

Representative publications:

- "Bargaining, Reputation and Equilibrium Selection in Repeated Games with Contracts," *Econometrica*, May 2007 (with D. Pearce).
- "Bubbles and Crashes," *Econometrica* 71(1), 173-204, January 2003 (with M. Brunnermeier).
- "Bargaining and Reputation," *Econometrica* 68(1), 85-117, January 2000 (with F. Gul).
- "Information and Timing in Repeated Partnership," *Econometrica*, November 1991 (with P. Milgrom and D. Pearce).
- "On the Theory of Infinitely Repeated Games with Discounting," *Econometrica* 56(2), 383-396, March 1988.

Yacine Aït-Sahalia is the Otto A. Hack '03 Professor of Finance and Economics and the Director of the Bendheim Center for Finance at Princeton University. He was previously a professor at the

University of Chicago's Graduate School of Business. A past Sloan Research Fellow, he was named an outstanding faculty by *Business Week's 1997 Guide to the Best Business Schools*, and is the recipient of the 1997 Michael Brennan Award, the 1998 Cornerstone Research Award, the 2001 FAME Research Award and the 2003 Aigner Award. He is a Fellow of the Econometric Society, the Institute of Mathematical Statistics, and a Research Associate for the National Bureau of Economic Research. He currently serves as an Editor of the *Review of Financial Studies*. He received his Ph.D. in Economics from the Massachusetts Institute of Technology in 1993 and his undergraduate degree from France's École Polytechnique.

Course taught:

- ECO 575/FIN 575: The Econometrics of Continuous-time Finance

Graduate students advised:

- Julio Cacho-Diaz, "Optimal Portfolio Choice in the Presence of Jumps"
- Rodrigo Guimaraes, "Comparing the Information in Currency Options and the Domestic and Foreign Term Structures of Interest Rates"

Representative publications:

- "Volatility Estimators for Discretely Sampled Lévy Processes," *Annals of Statistics* 35, 355-392, 2007 (with J. Jacod),
- "Maximum Likelihood Estimation of Stochastic Volatility Models," *Journal of Financial Economics* 83, 413-452, 2007 (with R. Kimmel).
- "Saddlepoint Approximations for Continuous-Time Markov Processes," *Journal of Econometrics* 134, 507-551, 2006 (with J. Yu).
- "A Tale of Two Time Scales: Determining Integrated Volatility with Noisy High-frequency Data," *Journal of the American Statistical Association*, 2005 (with L. Zhang and P. Mykland).
- "How Often to Sample a Continuous-time Process in the Presence of Market Microstructure Noise," *Review of Financial Studies*, 2005 (with P. Mykland and L. Zhang).

Alexandre d'Aspremont joined Princeton's ORF department in September 2004. His research focuses on interest rate option pricing and risk-management, applications of convex optimization to finance, statistics and machine learning and large-scale convex optimization in general. He received his undergraduate and graduate degrees from École Polytechnique and his Ph.D. from Stanford University in 2004. He is a member of the Institute for Operations Research and the Management Sciences (INFORMS) and the Society for Industrial and Applied Mathematics (SIAM).

Courses taught:

- ORF 307: Linear Programming
- ORF 523: Nonlinear Programming

Undergraduate students advised:

- Tiffany Eng, “News or Noise: Text Classification of Financial News using Support Vector Machines”
- Andrew Lieu, “Interest Rate Model Calibration: An Analysis of Rank vs. Stability”
- Vidal Sadaka, “The Effect of Political Reforms on Interest Rates as Turkey Negotiates Accession to the European Union”

Representative publications:

- “First-order Methods for Sparse Covariance Selection,” to appear in *SIAM Journal of Matrix Analysis and Its Applications*, 2007 (with O. Banerjee and L. El Ghaoui).
- “Static versus Dynamic Arbitrage Bounds on Multivariate Option Prices,” preprint on ArXiv: cs.CE/0407029. To appear in *IMA Volumes in Mathematics and Its Applications*.
- “A Direct Formulation for Sparse PCA using Semidefinite Programming,” preprint on ArXiv: cs.CE/0406021, NIPS 2004, to appear in *SIAM Review* (with L. El Ghaoui, M. Jordan and G. Lanckriet).
- “Static Arbitrage Bounds on Basket Option Prices,” Preprint on ArXiv: math.OC/0302243. *Mathematical Programming*, Series A 106(3), pp. 467-489, July 2006 (with L. El Ghaoui).
- “Risk-management Methods for the Libor Market Model using Semidefinite Programming,” preprint on ArXiv: cs.CE/0302035, *Journal of Computational Finance* 8(4), pp. 77-99, summer 2005.

Swati Bhatt has been a lecturer at Princeton since September 1992, teaching at the Woodrow Wilson School and in the Department of Economics. She obtained her Ph.D. in Economics from Princeton University in 1986 and worked as a research economist at the Federal Reserve Bank of New York until 1990. She then taught at the Stern School of Business, New York University, prior to joining Princeton. She is currently Director of Student Programs (undergraduate and graduate) at the Bendheim Center for Finance, Member of the Princeton Marshall Committee and the Princeton Rhodes Committee and Lecturer. Her research interests center on empirical corporate finance, venture capital and the entrepreneurship process. She runs the Bendheim Finance Seminar Series, a guest lecture program where leaders in business and finance interact with undergraduates. She is the liaison for several student organizations such as the Princeton Entrepreneurship Club, the Princeton Pre-Business Society, Business Today, 85Broads (a global network for women in finance, founded by Janet Hanson, Lehman Brothers), and the alumni organization, the Princeton Entrepreneurship Network (PEN).

Courses taught:

- ECO 320: Financial Derivatives and Arbitrage
 - WWS 582: Topics in Applied Economics
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David Blair is Director of Corporate Relations for the Bendheim Center for Finance. Previously he had been a Managing Director with Morgan Stanley and, prior thereto, a partner in the law firm of White & Case. His responsibilities with the Center include i) managing the Corporate Affiliates program which seeks support for the Bendheim Center from firms interested in finance and which works with corporations to build partnerships investigating financial topics of mutual interest, ii) advising undergraduates and Master in Finance candidates on career issues, including the development of applied finance programs and interview enhancement techniques for the Master in Finance program, iii) facilitating the recruiting activities of Corporate Affiliates by coordinating on-campus recruiting presentations and organization of events at the Bendheim Center, and iv) developing and teaching a special seminar in applied finance. He received his undergraduate degree from Princeton and graduate degrees in law and business from Columbia University.

Course taught:

- Freshman Seminar FRS 128: Modern Financial Markets
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Alan Blinder is the Gordon S. Rentschler Memorial Professor of Economics. He is also the Co-Director of the Center for Economic Policy Studies at Princeton University, which he founded in 1989. He is former Vice Chairman of the Board of Governors of the Federal Reserve System (1994-1996) and before that was a member of President Clinton's original Council of Economic Advisers (1993-1994). He also served briefly as Deputy Assistant Director of the Congressional Budget Office in 1975. He is a partner in the Promontory Financial Group, Vice Chairman of Promontory Interfinancial Network, Vice Chairman of the G7 Group, former Governor of the American Stock Exchange, and has been elected to the American Philosophical Society and the American Academy of Arts and Sciences. He is the author or co-author of 17 books and has written scores of scholarly articles on topics such as fiscal policy, monetary policy, and the distribution of income. He received his Ph.D. from the Massachusetts Institute of Technology.

Courses taught:

- ECO 101: Introduction to Macroeconomics
- WWS 594i: Policy Analysis: The Political Economy of Central Banking

Representative publications:

- "Monetary Policy Today: Sixteen Questions and about Twelve Answers," in S. Fernandez de Lis and F. Restoy (eds.), *Central Banks in the 21st Century*, Banco de Espana, pp. 31-72, 2006.
- *Downsizing in America: Reality, Causes, and Consequences*, Russell Sage Foundation, 2003 (with W. Baumol and E. Wolff).
- "Offshoring: The Next Industrial Revolution?" *Foreign Affairs*, March/April 2006.
- "Understanding the Greenspan Standard," in Federal Reserve Bank of Kansas City, *The Greenspan Era: Lessons for the Future*, Proceedings of the 2005 Jackson Hole Symposium, 2005 (with R. Reis).

- “Are Two Heads Better than One? Monetary Policy by Committee,” *Journal of Money, Credit, and Banking*, October 2005 (with J. Morgan).

Markus Brunnermeier is a Professor in the Department of Economics and faculty affiliate of the Bendheim Center for Finance and the International Economics Section. He is also a research associate at CEPR, NBER and CESifo, and an academic consultant to the Federal Reserve Bank of New York. Prof. Brunnermeier was awarded his Ph.D. by the London School of Economics (LSE), where he was also affiliated with its Financial Markets Group. His research focuses on stock market bubbles, financial and liquidity crisis, hedge funds as well as behavioral economics. He shows that bubbles persist since sophisticated traders prefer to ride a stock market bubble rather than to go against it. His work on financial crisis and risk management studies the interaction between funding and market liquidity and “predatory trading” and explains why liquidity dries up when it is needed most. His research in behavioral finance proposes a shift away from the rational expectations paradigm towards “optimal expectations.” He is associate editor of the *Journal of Finance*, the *Review of Financial Studies* and is on the editorial board of the *Journal of Financial Intermediation*. He won various awards, including the Sloan Research Fellowship, the Smith-Breeden Prize for the best paper published in the *Journal of Finance* 2004, grants from the National Science Foundation and he was selected for the Review of Economic Studies Tour.

Course taught:

- FIN 501: Asset Pricing I: Pricing Models and Derivatives
- ECO 525/FIN 525: Financial Economics I

Representative publications:

- “Money Illusion and Housing Frenzies,” *Review of Financial Studies*, forthcoming.
- “Optimal Expectations,” *American Economic Review*, 95(4), 1092-1118, 2005 (with J. Parker).
- “Predatory Trading,” *Journal of Finance*, 60(4), 1825-1863, 2005 (with L. Pedersen).
- “Hedge Funds and the Technology Bubble,” *Journal of Finance*, 59(5), 2007-2034, 2004 (with S. Nagel). Smith Breeden Prize for the best article published in the *Journal of Finance*, 2004 (First Prize).
- “Bubbles and Crashes,” *Econometrica*, 71(1), 173-204, 2003 (with D. Abreu).

René Carmona, Paul M. Wythes '55 Professor of Engineering and Finance, is with the Department of Operations Research and Financial Engineering. As Director of Graduate Studies of the Bendheim Center, he is responsible for the Master in Finance program. He joined Princeton University in 1995. He was granted the “Agrégation” of Mathematics (federal degree) in June 1969, and a “These d’Etat” in Probability from the University of Marseille in June 1977. He was elected Fellow of the Institute of Mathematical Statistics in 1984. He is a member of the American Mathematical Society, the Society for Industrial and Applied Mathematics, the Institute of Mathematical Statistics and the Bachelier Finance Society. His research interests center on stochastic analysis as applied to financial engineering and statistical analysis of financial data. He works on mathematical models for incomplete markets and computational methods for energy and credit markets.

Courses taught:

- ORF 505/FIN 505: Modern Regression and Time Series
- ORF 531/FIN 531: Computational Finance in C++
- ORF 557,558: Stochastic Analysis Seminar

Graduate students advised:

- Albina Danilova, "Indifference Pricing for Weather Derivatives"
- Valdo Durrleman, "From Implied to Spot Volatility"
- Mike Ludkovski, "Monte Carlo Pricing of Energy Tolling Agreements"
- Lixin Wang, "Applications of the Malliavin Calculus to the Analysis of Stochastic Partial Differential Equations"

Recent publications:

- *Indifference Pricing* (editor), Princeton University Press, forthcoming 2007.
- *Interest Rate Models: An Infinite Dimensional Stochastic Analysis Perspective*, Springer Verlag, 2006.
- *Statistical Analysis of Financial Data in S-Plus*, Springer Verlag, 2nd Printing, 2006.
- "Optimal Switching with Applications to Energy Tolling Agreements" (with M. Ludkovski).
- "Gas Storage and Supply Guarantees: An Optimal Switching Approach" (with M. Ludkovski).

Patrick Cheridito received his Ph.D. from ETH Zurich (Switzerland) in 2001 and visited universities in Vienna, Paris, Barcelona and Pisa in the academic year 2001-02, before visiting the BCF in 2002-03. Since September 2003, he has been an Assistant Professor in the Department of Operations Research and Financial Engineering. His research interests center on the theory of stochastic processes and their applications to finance. In the last year he has been working on the following research projects: Together with Damir Filipović (University of Munich) and Robert Kimmel (Bendheim Center), he worked on affine models for interest rates; with Mete Soner (Koc University in Istanbul) and Nizar Touzi (Crest in Paris), he studied the problem of hedging contingent claims under gamma constraints; and with Freddy Delbaen and Michael Kupper (both ETH Zurich), he studied dynamic risk measures.

Courses taught:

- ORF 435: Financial Risk Management
- ORF 535: Financial Risk Management

- ORF 527: Stochastic Calculus and Finance
- ORF 558: Stochastic Analysis Seminar

Undergraduate students advised:

- Richard Apple, "How Deep is the Hole? A Stochastic Analysis of the Pension Benefit Guaranty Corporation"
- Ceyda Dagdelen, "Risk Measures and Capital Requirements"
- Elizabeth Larkins, "The Wealth of Nations: An Analysis of the Correlation between United States Economic Indicators and the Probability of Default of Emerging Market Countries"
- Andrea Leewong, "The Stock Market Overreaction Mystery: Human Judgment Bias in Financial Decision-making"
- Joseph McConnell, "Optimal High School Sizes in Relation to School Demographics"
- Joseph Solomond, "Measuring Risk in Sectors of the S&P 500: Calculating VaR and Expected Shortfall Assuming Heavy Tailed Distributions"

Graduate student advised:

- Andrew Moroz, "Determining the Minimum Super-replication Cost of a Contingent Claim under Delta and Gamma Constraints in Discrete Time"

Recent publications:

- "Composition of Time-consistent Dynamic Monetary Risk Measures in Discrete Time," preprint (with M. Kupper).
- "Monetary Risk Measures on Maximal Subspaces of Orlicz Classes," preprint (with T. Li).
- "Time-consistency of Indifference Prices and Monetary Utility Functions," preprint (with M. Kupper).
- "Second Order Backward Stochastic Differential Equations and Fully Non-linear Parabolic PDEs," forthcoming in *Communications on Pure and Applied Mathematics* (with M. Soner, N. Touzi and N. Victoir).
- "Market Price of Risk Specifications for Affine Models: Theory and Evidence," forthcoming in *Journal of Financial Economics* (with D. Filipović and R. Kimmel).

Gregory Chow is Professor of Economics and Class of 1913 Professor of Political Economy, Emeritus, at Princeton University. He was Manager of Economic Research at the I.B.M. Thomas J. Watson Research Center from 1962-1970, and Director of the Econometric Research Program at Princeton University from 1970-1997. The Program was renamed the Gregory C. Chow Econometric Research Program in 2001. Professor Chow is a member of the American Philosophical Society and of Academia Sinica and a Fellow of the American Statistical Association and of the Econometric Society. He has served as Associate Editor

or Co-editor of the *American Economic Review*, *China Economic Review*, *International Economic Review*, *Journal of Economic Dynamics and Control*, *MOCT-MOST*, and the *Review of Economics and Statistics*. Professor Chow's contributions to economics cover three main areas: econometrics, including the often used "Chow test" for parameter stability, the estimation of simultaneous stochastic equations and criteria for model selection; dynamic economics, including spectral methods and optimal control methods for the analysis of econometric models and dynamic optimization under uncertainty to be solved by the method of Lagrange multipliers (in lieu of dynamic programming); and the Chinese economy, an institutional, theoretical and quantitative approach to its study. He received his Ph.D. from the University of Chicago.

Course taught:

- ECO 379: The Chinese Economy

Representative publications:

- *China's Economic Transformation*. Oxford: Blackwell Publishers, second edition, 2007.
- *Knowing China*. Singapore: World Scientific Publishing Co., 2004.
- "A Time-series Analysis of the Shanghai and New York Stock Price Indices," *Annals of Economics and Finance*, 17-35, May 2003 (with C. Lawler).
- *Dynamic Economics: Optimization by the Lagrange Method*. Oxford: Oxford University Press, 1997.
- Articles on Healthcare Reform, Milton Friedman, "The Exchange Rate of RMB and Macro-economic Policy and Economic Analysis of Corruption" in the *Financial Review Magazine* (The People's Bank of China), February, April, May and June, 2007 (in Chinese).

Erhan Çinlar first came to Princeton University as a Visiting Professor of Statistics in 1979-80. He is currently the Norman J. Sollenberger Professor of Engineering in the Department of Operations Research and Financial Engineering. He is a Fellow of the Institute of Mathematical Statistics, a Fellow of INFORMS, an elected member of the International Statistical Institute and is the recipient of the Science Prize of TUBITAK. He has served as editor or associate editor of over 12 journals on probability theory and its applications. His research interests center on martingales, Markov processes, stochastic differential equations, dynamic point processes, mass transport by stochastic flows, and their applications to mathematics of insurance and finance, reliability of complex systems, and modeling and estimation of natural hazards.

Courses taught:

- ORF 309: Probability and Stochastic Systems
- ORF 526: Stochastic Modeling
- ORF 551/APC 521: Probability Theory
- ORF 554: Markov Processes
- ORF 557: Stochastic Analysis Seminar

Representative publications:

- "Lyapunov Exponents of Poisson Shot-noise Velocity Fields," *Stochastic Processes and their Applications*, 94, 29-49, 2001 (with M. Caglar).
- "Spectral Expansion of the Occupation Measure for Birth and Death on a Flow," *Stochastic Processes and their Applications*, 74, 203-215, 1998 (with J. Kao).
- "Dispersion of Particle Systems in Brownian Flows," *Advances in Applied Probability*, 28, 53-74, 1996 (with C. Zirbel).
- "Mass Transport by Brownian Flows," in *Stochastic Models in Geosystems*, edited by S. A. Molchanov. *IMA Volumes in Mathematics and Its Applications*, Springer-Verlag, 1996 (with C. Zirbel).
- "Conditional Levy Processes," *Computers and Mathematics*, 46, 993-997, 2003.

Savas Dayanik joined Princeton's ORF Department in September 2002. His research interests include applied probability, stochastic processes and modeling, optimal stopping, optimal stochastic control with applications to finance, investment decision analysis and operations management. He completed his Ph.D. degree in Operations Research with concentration in Applied Probability at Columbia University in 2002. He received the first prizes in the INFORMS 2002 George E. Nicholson Student Paper Competition and in the INFORMS 2005 Junior Faculty Interest Group Paper Competition. He was also selected as the recipient of the IMS 2006 Inaugural Richard L. Tweedie New Researcher Award. He is a member of Institute for Operations Research and the Management Sciences (INFORMS) and Institute of Mathematical Statistics (IMS).

Courses taught:

- ORF 245: Fundamentals of Engineering Statistics
- ORF 417: Dynamic Programming
- ORF 526: Stochastic Modeling
- ORF 542: Controlled Markov Processes

Undergraduate students advised:

- Shern Frederick, "Ideal Damping Factor for Simulating Portfolio Returns: A Market-representative Approach"
- Neset Pirkul, "Insights into the Nature of Successful Acquisitions: An Empirical Approach"
- Todd Levy, "Buying and Selling Movies: An Analysis of the Hollywood Stock Exchange"
- Nishani Siriwardane, "Investment under Uncertainty: Optimal Strategies of CO2 Emitting Firms under the Kyoto Global Emissions Trading Market"

- Kevin Foster, "Your Team is Going Broke! Now Switch to Variable Ticket Pricing. An Analysis of NBA Game Attendance to be used with Revenue Management Techniques"
- Nada Siddiqui, "Re-engineering Portfolio Theory: Optimizing the Diversification of Moët Hennessy-Louis Vuitton (LVMH)"
- Devaushi Singham, "The Option to Abandon as Applied to the Sequential Investment Problem"
- Carl Zhang, "Speculation, Liquidity, and Information: The Puzzle of Chinese B-shares"

Graduate students advised:

- Masahiko Egami
- Semih S. Sezer
- Kazutoshi Yamazaki
- Christian Goulding

Representative publications:

- "Filling the Gap between American and Russian Options: Adjustable Regret," *Stochastics*, 79:1-2, 61-83, 2007 (with M. Ludkovski).
- "Compound Poisson Disorder Problem," *Mathematics of Operations Research*, 31:4, 649-672, 2006 (with S. Sezer).
- "Adaptive Poisson Disorder Problem," *Annals of Applied Probability*, 16:3, 1190-1261, 2006 (with E. Bayraktar and I. Karatzas).
- "Poisson Disorder Problem with Exponential Penalty for Delay," *Mathematics of Operations Research*, 31:2, 217-233, 2006 (with E. Bayraktar).
- "On the Optimal Stopping Problem for One-dimensional Diffusions," *Stochastic Processes and their Applications*, 107(2), 173-212, 2003 (with I. Karatzas).

Jianqing Fan is the Frederick L. Moore '18 Professor of Finance, who joined the Department of Operations Research and Financial Engineering in the fall of 2003. A specialist in statistics, he served as a faculty member at the University of North Carolina, University of California at Los Angeles, and the Chinese University of Hong Kong before joining Princeton. He also was chair of the Statistics Department of the Chinese University, where he received teaching awards in 2001 and 2002. In addition, Professor Fan received the 2000 President's Award from the Committee of Presidents of Statistical Societies, recognizing the most outstanding statistician under age 40. He is an elected member of the International Statistical Institute and an elected Fellow of the Institute of Mathematical Statistics, the American Statistical Association, and The American Association for Advancement of Science. He is the president-elect of the Institute of

Mathematical Statistics. He served on the board of the International Chinese Statistical Association from 2000 to 2002, and the Council of the Institute of Mathematical Statistics from 2003 to 2006. He is one of the top 10 highly cited researchers in mathematical sciences between 1991-2001, 1993-2003, 1994-2004, 1995-2005, 1996-2006, according to Thomson Incites. He serves as the editor of *The Annals of Statistics* and as an Associate Editor of the *Journal of the American Statistical Association*. He has served as an Editor of *Journal of Multivariate Analysis* (1998-2000) and *Probability Theory and Related Fields* (2003-2005), and an Associate Editor of *The Annals of Statistics* (1998-2002) and *Statistica Sinica* (1996-2002). He earned his Ph.D. degree in University of California at Berkeley. His research interests are financial econometrics, asset pricing, risk management, computational biology, nonlinear time series, high-dimensional data analysis, likelihood theory, nonparametric modeling.

Courses taught:

- ORF 504/FIN 504: Financial Econometrics

Undergraduates advised:

- Trip Tate, "On Prediction of Baseball"

Graduate students advised:

- Ying Fan
- Clifford Lam
- Jinchu Ly
- Yue Niu
- Forest Zhang
- Yang Feng

Representative publications:

- "A Selective Overview of Nonparametric Methods," in *Financial Econometrics* (with discussion), *Statistical Science*, 20, 317-357, 2005.
 - "Non-concave Penalized Likelihood with Diverging Number of Parameters," *The Annals of Statistics*, 32, 928-961, 2004 (with H. Peng).
 - "Re-examination of Stanton's Diffusion Estimations with Applications to Financial Model Validation," *Journal of American Statistical Association*, 98, 118-134, 2003 (with C. Zhang).
 - *Nonlinear Time Series: Nonparametric and Parametric Methods*, 570pp, Springer-Verlag, New York.
 - "Time-dependent Diffusion Models for Term Structure Dynamics and the Stock Price Volatility," *Statistica Sinica*, 13, 965-992, 2003 (with J. Jiang, C. Zhang, and Z. Zhou).
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Harrison Hong joined Princeton University in 2003 as a Professor of Economics and Finance after having spent the year visiting us from the Graduate School of Business at Stanford University. His interests focus on behavioral finance, asset pricing with differences of opinion and short-sales constraints, asset pricing with market imperfections, career concerns and herding, social interaction and investor behavior in stock markets, and mutual funds. He is a member of the American Economic Association, American Finance Association, and the Western Finance Association. He received his Ph.D. from the Massachusetts Institute of Technology in 1997.

Courses taught:

- ECO 462/FIN 515: Portfolio Theory and Asset Management
- ECO 525: Financial Economics I

Undergraduate students advised:

- Kevin Crowe, Jr., "The Emergence of an Asset Class: An Empirical Analysis of Private Equity Performance"
- Donald Komorous, "The Stock Split Anomaly: An Analysis of Underreaction to Stock Splits"
- Lauren Washychyn, "Does Expensing Stock Options Cause Share Prices to Decline?"
- Scott Willig, "Dividend Taxation and Market Valuation"

Representative publications:

- "Does Fund Size Erode Mutual Fund Performance? The Role of Liquidity and Organization," *American Economic Review*, December 2004 (with J. Chen and J. Kubik).
- "Talking up Liquidity: Insider Trading and Investor Relations," *Journal of Financial Intermediation*, January 2005 (with M. Huang).
- "Thy Neighbor's Portfolio: Word-of-mouth Effects in the Holdings and Trades of Money Managers," *Journal of Finance*, December 2005 (with J. Stein and J. Kubik).
- "Asset Float and Speculative Bubbles," *Journal of Finance*, June 2006 (with J. Scheinkman and W. Xiong).
- "Do Industries Lead Stock Markets?" *Journal of Financial Economics*, February 2007 (with W. Torous and R. Valkanov).

Harold James, who holds a joint appointment as Professor of International Affairs in the Woodrow Wilson School and Professor in the History Department, studies economic and financial history and modern German history. He was educated at Cambridge University (Ph.D. in 1982) and was a Fellow of Peterhouse for eight years before coming to Princeton University in 1986. In 2004 he was awarded the Helmut Schmidt Prize for Economic History, and in 2005 the Ludwig Erhard Prize for writing about economics. He is Chairman of the Editorial Board of *World Politics*.

Course Taught:

- WWS 460: History of Financial Crises

Graduate Students advised:

- Conor Healy, "Politics in a Tight Fix" (Politics of Exchange Rate Regimes)
- Klaus Veigel, "Politics of Stabilization in Argentina"

Representative publications:

- *The Deutsche Bank and the Nazi Economic War against the Jews*, Cambridge: Cambridge University Press, 2001.
- *The End of Globalization: Lessons from the Great Depression*, Cambridge MA: Harvard University Press (also available in Chinese, German, Greek, Japanese, Korean, and Spanish translations), 2001
- *Europe Reborn: A History 1914-2000*, London: Longman/Pearson Education, 2003.
- *The Roman Predicament: How the Rules of International Order Create the Politics of Empire*, Princeton: Princeton University Press, 2006.
- *Family Capitalism: Wendels, Haniels and Falcks*, Cambridge MA: Harvard University Press, (also available in German: Munich, Verlag C.H. Beck), 2006.

Daniel Kahneman is the Eugene Higgins Professor of Psychology and Professor of Public Affairs in the Woodrow Wilson School since 1993. He was presented with the Thomas C. Schelling Award by Harvard's Kennedy School of Government in early May 2006. He is the co-recipient of the 2002 Nobel Prize in Economic Sciences. He is a member of the National Academy of Sciences, and in 2002 received (together with his late colleague Amos Tversky) the prestigious Grawemeyer Award in Psychology. He is a Fellow of the American Academy of Arts and Sciences, the Econometric Society, the American Psychological Association and the Canadian Psychological Association. He is currently on the Editorial Boards of the *Journal of Behavioral Decision Making*, *Thinking and Reasoning*, and *Economics and Philosophy*. He received his Ph.D. in 1961 from the University of California.

Courses taught:

- PSY 101: Introduction to Psychology
- PSY 528/WWS 519: Negotiation, Persuasion, and Social Influence: Theory and Practice
- WWS 312/PSY 321: The Psychology of Decision Making and Judgment
- WWS 502: Psychology for Policy Analysis and Implementation
- WWS 515/PSY 529: Conceptions of the Human Agent: Implications for Policy

Representative publications:

- *Choices, Values and Frames*, New York: Cambridge University Press and the Russell Sage Foundation, summer 2000 (with A. Tversky).

- “Maps of Bounded Rationality: A Perspective on Intuitive Judgment and Choice,” *Les Prix Nobel 2002*, T. Frangsmyr (ed.), 416-499.
- “A Perspective on Judgment and Choice: Mapping Bounded Rationality,” *American Psychologist*, 58(9), 697-720, 2003.
- “Social Experiences of Research,” *American Psychologist*, 58(9), 697-720, 2003.
- “Zeroing in on the Dark Side of the American Dream: A Closer Look at the Negative Consequences of the Goal for Financial Success,” *Psychological Science*, 14(6), 531-536, 2003 (with C. Nickerson, N. Schwarz, and E. Diener).

Paul Krugman is the author or editor of dozens of books and several hundred articles, primarily about international trade and international finance. He is also nationally known for his twice-weekly columns in *The New York Times*. He was the Ford International Professor of International Economics at the Massachusetts Institute of Technology and has served on the staff of the U.S. Council of Economic Advisers. He was the recipient of the 1991 John Bates Clark Medal, an award given every two years by the American Economic Association to an economist under 40. He received his Ph.D. from the Massachusetts Institute of Technology. He holds a joint appointment with the Economics Department and the Woodrow Wilson School of Public and International Affairs.

Course taught:

- WWS 524: Advanced Macroeconomics: Domestic Policy Issues

Representative publications:

- *Currency Crises* (ed.), University of Chicago Press, 2000.
- *The Return of Depression Economics*, Norton, 1999.
- *The Spatial Economy*, MIT Press, 1999 (with M. Fujita and A. Venables).

Burton Malkiel has been the Chemical Bank Chairman’s Professor of Economics at Princeton since 1988. His research interests center on financial markets, asset pricing, and investment strategies. He is a regular op-ed page writer for *The Wall Street Journal*. He also serves on the boards of several financial and non-financial corporations. He has been awarded the Honorary Doctor of Humane Letters Degree from the University of Hartford (June 1971), Phi Beta Kappa, and the Harvard Business School Alumni Achievement Award for 1984. He received his Ph.D. from Princeton University.

Course taught:

- ECO 362: Financial Investments

Undergraduate students advised:

- Teong Jun, “Dynamic Indexing”

- Adam Mikah Malin, “A Rational Theory of Options Backdating”

Graduate students advised:

- Michael Massey, “Analyses of the Efficiency of the Hong Kong Equity Markets”

Representative publications:

- *A Random Walk Down Wall Street*, W. W. Norton & Co., New York, 9th edition paperback, January 2007.
- “Investigating the Behavior of Idiosyncratic Volatility,” *The Journal of Business*, 76(4), October 2003 (with Y. Xu).
- “Have Individual Stocks Become More Volatile?,” *Journal of Finance*, February 2001 (with J. Campbell, M. Lettau and Y. Xu). [First Prize paper for the Smith Breeden Prizes for 2002]
- “The Growth of Index Funds and the Pricing of Equity Securities,” *Journal of Portfolio Management*, 27(2), winter 2001 (with A. Radisich). [Best Article for the Third Annual Bernstein Fabozzi/Jacobs Levy Awards]
- “Hedge Funds: Risk and Return,” *Financial Analysts Journal*, November/December 2005 (with A. Saha).

Stephen Morris is an economic theorist whose work ranges from game theory to applied (microeconomic) theory to topics in financial economics. He taught at the University of Pennsylvania from 1991 to 1998, first as assistant and then as (tenured) associate professor. He joined the Yale faculty as Professor of Economics in 1998. In 2005 he was appointed as Professor of Economics at Princeton University and was named the Harold T. Shapiro *64 Professor of Economics for the period July 1, 2005 to July 1, 2006. He received his Ph.D. in economics from Yale University in 1991. Representative publications:

- “Central Bank Transparency and the Signal Value of Prices,” *Brookings Papers on Economic Activity* 2, 1-66, 2005 (with H. Shin).
 - “Multidimensional Private Value Auctions,” *Journal of Economic Theory* 126, 1-30, 2006 (with H. Fang).
 - “Social Value of Information: Morris and Shin (2002) is Actually Pro Transparency, Not Con: Reply,” *American Economic Review* 96, 453-455, 2006 (with H. Shin and H. Tong).
 - “Inertia of Forward Looking Expectations,” *American Economic Review Papers and Proceedings* 96, 152-157, 2006 (with H. Shin).
 - “Beauty Contests and Bubbles,” *Review of Financial Studies* 19, 2006 (with F. Allen and H. Shin).
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John Mulvey is Professor of Operations Research and Financial Engineering. His research interests center on designing integrated financial planning systems for institutions, primarily pension plans and hedge funds, and wealthy individuals; developing optimal hedge fund strategies; combining financial optimization and stochastic models; stochastic optimization algorithms; and decentralized risk management. He was a finalist for the Edelman Prize for Towers Perrin-Tillinghast investment system in 1999. He received his Ph.D. in Management from the University of California, Los Angeles.

Courses taught:

- ORF 311: Optimization under Uncertainty
- ORF 534: Financial Engineering

Undergraduate students advised:

- Calvin Chan, "Observing Price Momentum in Industry Level Markets using Dynamic Capital Allocation and the Z-Score Strategy"
- Adelina Grozdanova, "Analysis of Novel Debt Securities"
- Anna J. Huang, "Anticipating the Future: Financial Risk Management for Princeton University"
- Christina Norair, "Start Saving Today: How the 2007 ORFE Graduate can Apply Lessons of Long-term Investing"
- Schuster Brett Tanger, "Preparing for Potential Credit Default Waves by Implementing CDPO-variation Strategies"
- Alex Thorn, "Novel Hedge Fund Strategies"

Graduate students advised:

- Mehmet Bilgili, "Optimizing a Multi-strategy Hedge Fund via Dynamic Overlays"
- Hakan Kaya, "Stochastic Models for Soybeans and Conditional Investment Strategies"
- Woo Chang Kim "Modeling Implied Correlation in Equity Markets"
- Sally Lee-Ling "A Synthetic Procedure for Generating Private Equity Returns"
- Ke Wan, "Deep Style Analysis of Mutual Fund Portfolios"
- Ke Yu, "Creating Synthetic Equity Investments in China"

Representative publications:

- “Improving Investment Performance for Pension Plans,” *Journal of Asset Management*, May 2006.
- “Improving Performance for Long-term Investors: Wide Diversification, Leverage, and Overlay Strategies,” *Quantitative Finance*, April 2007.
- “Decentralized Risk Management for Global Property and Casualty Insurance Companies,” *Applications of Stochastic Programs*, SIAM Publication, 2005.
- “Applying CVaR for Decentralized Risk Management,” *Journal of Banking and Finance*, 2005.
- “Applying Optimization Technology to Portfolio Management,” *Journal of Portfolio Management*, 30th Anniversary Issue 2004.

Jonathan A. Parker is an Associate Professor of Economics and Public Affairs at Princeton University where he is affiliated with the Department of Economics, the Bendheim Center for Finance, and the Woodrow Wilson School of Public and International Affairs. Dr. Parker received his Ph.D. in Economics from the Massachusetts Institute of Technology where he was awarded the Robert Solow Endowment Prize for excellence in research and teaching. Prior to his present position at Princeton, he held positions at the University of Michigan Business School, where he was a Society of Scholars Fellow, and at the Department of Economics at the University of Wisconsin, where he was the Maude P. and Milton J. Shoemaker Fellow. Since coming to Princeton, Professor Parker has been named an Alfred P. Sloan Research Fellow and a National Bureau of Economics Aging and Health Economics Fellow, and his research has received support from the National Science Foundation and the Sloan Foundation. He is also a National Bureau of Economic Research Faculty Research Fellow, an Associate Editor for the *Journal of Money, Credit and Banking*, and a member of the American Economic Association and Econometric Society. Professor Parker teaches macroeconomics, and his research has focused on the risk of the stock market, optimism and portfolio choice, taxation and consumer spending, national saving, income risk and consumer demand, corporate profit taxes and investment, and how wages adjust in recessions.

Courses taught:

- ECO 503: Macroeconomic Theory I
- ECO 521: Advanced Macroeconomic Theory I
- ECO 562: Topics in Development
- WWS 512c: Macroeconomic Analysis Advanced

Representative publications:

- “Consumption Risk and the Cross-section of Expected Returns,” *Journal of Political Economy*, 113(1), 185-222, February 2005 (with C. Julliard).
- “Luxury Goods and the Equity Premium,” *Journal of Finance*, December 2004 (with Y. Aït-Sahalia and M. Yogo).

- “Consumption over the Life Cycle,” *Econometrica*, 70(1), 47-89, January 2002 (with P. Gourinchas).
 - “The Consumption Risk of the Stock Market,” *Brookings Papers on Economic Activity*, 2, 279-348, 2001.
-

Hélène Rey received her Ph.D. from the London School of Economics and from the École des Hautes Études en Sciences Sociales in 1998. She came to Princeton in 2000 as an Assistant Professor. She was awarded an Alfred P. Sloan Research Fellowship in 2005. She is currently a Faculty Research Fellow in International Finance and Macroeconomics for the National Bureau of Economic Research. She is also a Research Affiliate in International Macroeconomics for the Centre for Economic Policy Research, and an Associate Editor of the *Journal of the European Economic Association* and of the *Economic Journal*. Her research interests focus mainly on international capital flows, exchange rates and financial crises.

Courses taught:

- ECO 553: International Monetary Theory and Policy I
- ECO 554: International Monetary Theory and Policy II
- WWS 544: International Macroeconomics

Graduate students advised:

- Deniz Igan
- Jordi Mondria
- Thomas Wu

Representative publications:

- “PPP Strikes Back: Aggregation and the Real Exchange Rate,” *Quarterly Journal of Economics*, 120(1), 1-43, February 2005 (with J. Imbs, H. Mumtaz and M. Ravn).
 - “The Determinants of Cross Border Equity Transaction Flows,” *Journal of International Economics*, 64(2), 269-296, March 2005 (with R. Portes).
 - “Financial Super-markets: Size Matters for Asset Trade,” *Journal of International Economics*, 64(2), 335-361, December 2004 (with P. Martin).
 - “Exchange Rates, Equity Prices and Capital Flows,” *Review of Financial Studies*, 19(1), 2006 (with H. Hau).
 - “Globalization and Emerging Markets: With or Without Crash?”, forthcoming *American Economic Review* (with P. Martin).
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Birgit Rudloff is Assistant Professor in Operations Research and Financial Engineering. Her research interests include hedging in incomplete markets with convex risk measures, mathematical finance, risk management and convex analysis. She received a Master and a Ph.D. in Mathematical Finance from Martin-Luther University Halle-Wittenberg in Germany.

Courses taught:

- ORF 569: Special Topics in Statistics and Operations Research: Risk Measure Theory
- ORF 515/ FIN 503: Asset Pricing II: Stochastic Calculus and Advanced Derivatives

Representative publications:

- "Convex Hedging in Incomplete Markets," to appear in *Applied Mathematical Finance*, 2007.
- "Coherent Hedging in Incomplete Markets," Preprint 05-01 MLU, 2005.
- "A Generalized Neyman-Pearson Lemma for Hedge Problems in Incomplete Markets," Proceedings of the Workshop "Stochastische Analysis," ISSN 1612-5665, 2005.

José Scheinkman joined Princeton as the Theodore Wells '29 Professor of Economics in 1999. He received an M.S. in Mathematics from the Instituto de Matemática Pura e Aplicada, Brazil, and an M.A. and a Ph.D. in Economics from the University of Rochester. Professor Scheinkman is a Research Associate of the National Bureau of Economic Research, a Fellow of the American Academy of Arts and Sciences and of the Econometric Society, and a "docteur honoris-causa" from the University of Paris-Dauphine. He was named a Fellow of the John Simon Guggenheim Memorial Foundation in 2007. From 1973 to 1998, Professor Scheinkman taught at the University of Chicago, where he was from 1995 to 1998 the Chairman of the Economics Department, and since 1997 the Alvin H. Baum Distinguished Service Professor of Economics. From June 1987 to December 1988, he was Vice President of the Financial Strategies Group at Goldman, Sachs & Co. He has been a visiting professor at Princeton University, University of Paris-Dauphine, E.H.E.S.S. (France), Instituto de Matemática Pura e Aplicada and E.P.G.E. (Brazil). During 2002, Professor Scheinkman held a Blaise Pascal Research Chair (France). His current research interests are the study of asset-price bubbles, developing tools for empirical studies of asset markets, and the economics of social interactions.

Courses taught:

- ECO 371/LAS 346: Topics in Country and Regional Economics: Latin American Economies
- ECO 502: Microeconomic Theory II
- ECO 525/FIN 595: Financial Economics I
- ECO 526: Finance Economics II

Representative publications:

- "Optimal Exercise of American Claims when Markets Are Not Complete." *Finance and Stochastics*, forthcoming (with L. Rogers).
- "Executive Compensation and Short-termist Behavior in Speculative Markets," *The Review of Economic Studies*, 73, 577-610, 2006 (with P. Bolton and W. Xiong).
- "Equilibria in Systems of Social Interactions," *Journal of Economic Theory*, 130, 44-77, 2006 (with U. Horst).
- "Asset Float and Speculative Bubbles," *Journal of Finance*, 1073-1117, June 2006 (with H. Hong and W. Xiong).
- "Pay for Short-term Performance: Executive Compensation in Speculative Markets," *Journal of Corporate Law*, 721-747, Summer 2005 (with P. Bolton and W. Xiong).

Hyun Song Shin joined Princeton in 2006 as Professor of Economics. Before coming to Princeton, he was Professor of Finance at the London School of Economics, and Senior Research Fellow of Nuffield College, Oxford. His research interests are in financial economics, especially in issues related to disclosures, financial regulation, crises and financial stability, issues on which he has advised central banks and policy institutions. He is a fellow of the Econometric Society and of the British Academy. He received his Ph.D. from Oxford University in 1988.

Courses taught:

- ECO 363: Corporate Finance and Financial Institutions
- ECO 526: Financial Economics II

Representative publications:

- "Catalytic Finance: When Does It Work?," *Journal of International Economics*, 70, 161-177, 2006 (with S. Morris).
- "Beauty Contests and Iterated Expectations in Asset Markets," *Review of Financial Studies*, 19, 719-752 (with F. Allen and S. Morris).
- "Disclosure Risk and Price Drift," *Journal of Accounting Research*, 44, 351-379, 2006.
- "Disclosures and Asset Return," *Econometrica*, 71, 105-133, 2003.
- "Social Value of Public Information," *American Economic Review*, 52, 1521-1534, 2002, (with S. Morris).

Christopher Sims has been Professor of Economics at Princeton University since 1999. He received his Ph.D. from Harvard University in 1968. He taught in the Economics Department of the University of Minnesota from 1969 to 1990, then moved to Yale University where he taught from 1990 to 1999. He is a member of the National Academy of Sciences and a Fellow of the Econometric Society, for which he has also served as president and as a co-editor of *Econometrica*. He has intermittently served as adviser, consultant, and visitor to several regional Federal

Reserve Banks. He has worked on econometric methods, economic theory, and empirical work, mostly related to macroeconomics and monetary policy.

Representative publications:

- “Were there Regime Switches in US Monetary Policy?”, *American Economic Review*, 96(1), 54-81, March 2006.
- “Implications of Rational Inattention,” *Journal of Monetary Economics*, 50(3), April 2003.
- “The Role of Models and Probabilities in the Monetary Policy Process,” *Brookings Papers on Economic Activity*, 2, 1-60, 2002.
- “The Precarious Fiscal Foundations of EMU,” *De Economist*, 147(4), 415-436, 1999.
- “Error Bands for Impulse Responses,” *Econometrica*, 67(5), 1113-1156, 1999 (with T. Zha).

Ronnie Sircar received his doctorate in 1997 from Stanford University. He taught for three years at the University of Michigan in the Department of Mathematics before coming to Princeton’s ORF Department, where he is an Associate Professor. He has been the recipient of National Science Foundation Research Grants during the period 1998-present. He was a recipient of the E-Council Excellence in Teaching Award for his teaching spring term 2006, and the Howard B. Wentz Jr. Junior Faculty Award in 2003. His research interests center on stochastic models in finance, particularly for market volatility and credit risk; optimal control and utility indifference pricing in incomplete markets; and valuation of employee stock options.

Courses taught:

- ORF 335/ECO 364: Introduction to Financial Engineering
- ORF 538: Analytical & Computational Methods for Financial Engineering
- ORF 575: Financial Engineering Seminar: Computational Finance (2003); Credit Risk (2004)

Current Graduate students:

- Siu-Tang Leung
- Evangelos Papageorgiou
- Antoine Toussaint

Representative publications:

- “Accounting for Risk Aversion, Vesting, Job Termination Risk and Multiple Exercises in Valuation of Employee Stock Options,” preprint, November 2006 (with T. Leung).
- “A General Framework for Evaluating Executive Stock Options,” *Journal of Economic Dynamics and Control*, 2007, forthcoming (with W. Xiong).
- “Optimal Static-dynamic Hedges for Barrier Option,” *Mathematical Finance*, 16(2), 2006 (with A. Ilhan).

- “Optimal Investment with Derivative Securities,” *Finance & Stochastics*, 9(4), 2005 (with A. Ilhan and M. Jonsson).
 - “A Limit Theorem for Financial Markets with Inert Investors,” *Mathematics of Operations Research*, 2006 (with E. Bayraktar and U. Horst).
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Kenneth Steiglitz received his doctorate in 1963 from New York University and has been teaching at Princeton ever since. He was promoted to Associate Professor in 1967 and Professor in 1973. He is a Fellow of the IEEE (1981), a Fellow of the ACM (1997) and has been awarded the Technical Achievement Award of the Signal Processing Society (1981), the Signal Processing Society Award (1986), the IEEE Centennial Medal in 1984, the School of Engineering Distinguished Teacher Award in 1997, and the IEEE Third Millennium Medal in 2000. His research interests are in agent-based modeling of markets and auctions, and in computing using soliton collisions.

Courses taught:

- COS 444: Electronic Auctions
- COS 576: Nonstandard Computation
- FRS 119: Beyond Silicon: The Future(s) of Computers

Undergraduate students advised (agent-based simulation projects):

- Kimberly Tzeng, “A Simulation of Price Bubbles in the Market”
- John Pym, “Performance of Alternative Pricing Models for S&P 500 Index Options”

Representative publications:

- “Snipers, Shills, and Sharks: EBay and Human Behavior,” Princeton University Press, 2007.
 - “Quantum Theory of Manakov Solitons,” *Phys. Rev. A* 71, 053805, 1-10, May 11, 2005 (with D. Rand and P. Prucnal).
 - “The Spite Motive and Equilibrium Behavior in Auctions,” *Contributions to Economic Analysis & Policy*, 2(1), Article 5, 2003 (with J. Morgan and G. Reis).
 - “Effects of Price Signal Choices on Market Stability,” *Journal of Economic Behavior and Organization*, 52(2), 235-251, October 2003 (with H. Mizuta and E. Lirov).
 - “Computing with Solitons: A Review and Prospectus,” Chapter 10 in *Collision-Based Computing*, A. Adamatzky (ed.), Springer, 2002 (with M. H. Jakubowski and R. Squier).
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Lars E. O. Svensson joined the Economics Department in the fall of 2001. He had been Professor of International Economics at the Institute for International Economic Studies, Stockholm University, since 1984. He has published extensively in scholarly journals on monetary economics and monetary policy, exchange rate theory and policy, and general international macroeconomics. He has lectured and visited at universities, central banks and international organizations in many countries. He is a member of the Royal Swedish Academy of Sciences, a member of Academia Europae, a foreign member of the Finnish Academy of Science and Letters, a foreign honorary member of the American Academy of Arts and Sciences, a Fellow of the Econometric Society, a research associate of the National Bureau of Economic Research, a research fellow of the Centre for Economic Policy Research, London, and a Fellow of the European Economic Association. He was a member of the Prize Committee for the Alfred Nobel Memorial Prize in Economic Sciences through 2002 and its chair during 1999-2001. He is active as advisor to Sveriges Riksbank (Bank of Sweden) and regularly consults for international, U.S., and Swedish agencies and organizations. In 2000-2001, he undertook a review of monetary policy in New Zealand, commissioned by the New Zealand government. In 2002, he chaired a committee evaluating monetary policy in Norway. He is a member of the Academic Advisory Board and the Monetary Policy Advisory Panel of the Federal Reserve Bank of New York. He received his Ph.D. in Economics from Stockholm University.

Courses taught:

- ECO 200: Advanced Principles of Economics: Concepts and Applications
- ECO 504: Macroeconomic Theory II
- ECO 522: Advanced Macroeconomic Theory
- ECO 554: International Monetary Theory and Policy II

Undergraduate students advised:

- Nini Suet, "The Effects of Ownership Structure on Firm Performance and Earnings Informativeness"
- Joshua White, "Terrorists Attacks and their Impact on Publicly Traded Companies"
- Alice Zhou, "Syndicated Loans and the Rise of the Chinese Market"

Graduate students advised:

- Brad Strum, "Monetary Policy in Input-output Economics"
- Rujikorn Pavasuthipaisit

Representative publications:

- "Credible Commitment to Optimal Escape from a Liquidity Trap: The Role of the Balance Sheet of an Independent Central Bank", *American Economic Review*, 97, 474-490, 2007 (with O. Jeanne).
- "Time Consistency of Fiscal and Monetary Policy: A Solution," *Econometrica* 74, 193-212, 2006 (with M. Persson and T. Persson).

- “Implementing Optimal Policy through Inflation-forecast Targeting,” in Ben S. Bernanke and Michael Woodford (eds.), *The Inflation-Targeting Debate*, University of Chicago Press, 19-83, 2005 (with M. Woodford).
- “Indicator Variables for Optimal Policy,” *Journal of Monetary Economics*, 50, 691-720, 2003 (with M. Woodford).
- “What Is Wrong with Taylor Rules? Using Judgment in Monetary Policy through Targeting Rules,” *Journal of Economic Literature*, 41, 426-477, 2003.

Robert Vanderbei is a Professor in Operations Research and Financial Engineering since 1999. He is currently the Chair of that Department. Broadly viewed, his research interests are in algorithms for nonlinear optimization and their application to problems arising in engineering and science. Application areas of interest focus mainly on inverse Fourier transform optimization problems and action minimization problems with a special interest in applying these techniques to the design of NASA’s terrestrial planet finder space telescope. He is Associate Editor for *Optimization in Engineering* and *Mathematical Programming*. He is a member of the American Mathematical Society, Society for Industrial and Applied Mathematics, Institute for Operations Research and the Management Sciences, Mathematical Programming Society, SPIE, and American Astrophysical Society. He received his Ph.D. in Applied Mathematics from Cornell University in 1981.

Courses taught:

- ORF 307: Optimization
- ORF 522: Linear Optimization

Representative publications:

- “Interior-point Methods for Nonconvex Nonlinear Programming: Jamming and Numerical Testing,” *Mathematical Programming*, 2003 (with H. Benson and D. Shanno).
- “Two-mirror Apodization for High-contrast Imaging,” *Astrophysical Journal*, 599, 695-701, 2003 (with W. Traub).
- “Circularly Symmetric Apodization via Starshaped Masks,” *Astrophysical Journal*, 590, 593-603, 2003 (with D. Spergel and N. Kasdin).
- “Frontiers of Stochastically Nondominated Portfolio,” *Econometrica*, 71(4), 2003 (with A. Ruszczyński).
- *Linear Programming: Foundations and Extensions*, Kluwer Academic Publishers, 2nd edition, 2001.

Erik VanMarcke is Professor of Civil and Environmental Engineering. He was on the faculty of the Massachusetts Institute of Technology until 1985, since receiving his doctorate there in 1970. At MIT, he was the Gilbert W. Winslow Career Development Professor and served as Director of the Civil Engineering Systems Methodology Group. He held visiting appointments at Harvard

University, the Technical University of Delft (The Netherlands), and the University of Leuven (Belgium), his undergraduate alma mater, and was the Shimizu Corporation Visiting Professor at Stanford University. His principal expertise is in risk assessment and applied systems science. He authored *Random Fields: Analysis and Synthesis*, published by the MIT Press, recently reprinted in the MIT Classics Series, and extended this work to modeling space-time processes and complex systems. He won several research prizes of the American Society of Civil Engineers, and chaired its Council on Disaster Risk Management. He was awarded a Senior Scientist Fellowship from the Japanese Society for the Promotion of Science, and is a foreign member of the Royal Academy of Arts and Sciences of Belgium.

Courses taught:

- CEE 360 & 548: Risk Assessment and Management
- CEE 558: Random Fields and Random Media

Undergraduate students advised:

- Andrew Brett, "The Impact of Hurricane Mitigation on the Costs of Extreme Events"
- Lisa Kamran Bilir, "Comparing Costs under Uncertainty as a Guide for Public Policy: An Application of Markov Chains to Region-based Water Management in California"
- Geoffrey Adamson, "Catastrophic Risk of Florida Landfalling Hurricanes: The Effect of El Nino on Financial Engineering Applications"

Graduate student advised:

- Mark Dobossy, "Reliability Analysis of Self-centering Steel Frames Subjected to Strong Earthquake Ground Motions"
- Nan Ding, "Enterprise Risk Management: Applications in Software Development and Data Security"

Representative publications:

- "Hedging and Fox Strategies for Reducing Risks in Infrastructure Systems," *Natural Hazards Review*, 7(3), 2006 (with C. Taylor).
- Quantum-physics-based Probability Models with Applications to Reliability Analysis," Chapter 16 in *Engineering Design Reliability Handbook*, Eds. Nikolaidis, Ghiocel and Singhal, CRC Press, 2005.
- *Infrastructure Risk Management Processes: Natural, Accidental, and Deliberate Hazards*, Monograph No. 25, Council on Disaster Risk Management and Technical Council on Lifeline Earthquake Engineering, Published by ASCE, 2005 (ed., with C. Taylor).
- *Acceptable Risk Processes: Lifelines and Natural Hazards*, Monograph No. 21, Council on Disaster Reduction and Technical Council on Lifeline Earthquake Engineering, Published by the American Society of Civil Engineers, (ed. with C. Taylor).

- *Random Fields: Analysis and Synthesis*, The MIT Press, Cambridge, MA and London, England, ISBN 0-262-22026-1, 1983; reprinted in MIT Press Classics Series, 2004.
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Mark Watson is Professor of Economics and Public Affairs in the Economics Department and the Woodrow Wilson School. His research interests include econometrics, macroeconomics and forecasting. He is a research associate at the National Bureau of Economic Research and a Fellow of the Econometric Society. He has been awarded National Science Foundation research grants from 1982-2005 and has received the Galbraith Award for Graduate Teaching in 1986. He holds a Ph.D. in Economics from the University of California, San Diego and his past credentials include posts at Northwestern University and Harvard University.

Courses taught:

- Economics 313: Advanced Econometrics: Time Series Models
- Economics 517: Econometric Theory II
- WWS 507c: Quantitative Analysis

Undergraduate students advised:

- David Page, "Degree of Market Integration in the Domestic Natural Gas Market"
- Derek Sudan, "The Effects of Gasoline Prices on Domestic Automobile Sales"

Representative publications:

- "Forecasting using Principal Components from a Large Number of Predictors," *Journal of the American Statistical Association*, 2002 (with J. Stock).
- "Macroeconomic Forecasting using Many Predictors," *Handbook of Economic Forecasting*, Graham Elliott, Clive Granger, Allan Timmerman (eds.), North Holland, 2006 (with J. Stock).
- "Understanding Changes in International Business Cycle Dynamics," *Journal of the European Economic Association*, 2005 (with J. Stock).

Wei Xiong is a Professor in the Department of Economics. He received his Ph.D. from the Fuqua School of Business, Duke University, in 2001. He is also a fellow of the National Bureau of Economic Research. His research interests center on speculative bubbles, financial market crisis, and behavioral finance. His recent papers provide a framework to analyze speculative behavior of investors and its implications for stock price dynamics and managerial incentives. His earlier papers analyze the contagion and market liquidity during crisis periods. He is currently working on effects of heterogeneous beliefs, prospect theory preferences and investor attention on asset pricing.

Courses taught:

- ECO 465/FIN 522: Futures, Options and Financial Derivatives
- ECO 525/FIN 595: Financial Economics I
- ECO S500: Mathematics for Economists

Undergraduate students advised:

- Michael Tang, "Motives and Efficacy of Hedge Fund Activism"
- Olga Zhilavaev, "Valuation of Executive Stock Options: A Comparative Analysis"
- Sean Cameron, "Heterogeneity in Mortgage Refinancing: An Analysis of Homeowner Background Variables"
- Jeremy Fazli, "QQQ and the Nasdaq-100: Modeling Structural Differences in the Associated Options Markets"
- Brian Shiau, "Event Contracts: New Financial Applications and Implementation in Theory"

Representative publications:

- "Executive Compensation and Short-termist Behavior in Speculative Markets," *Review of Economic Studies*, 2006 (with P. Bolton and J. Scheinkman).
 - "Asset Float and Speculative Bubbles," *Journal of Finance*, 2006 (with H. Hong and J. Scheinkman).
 - "Investor Attention, Overconfidence and Category Learning," *Journal of Financial Economics*, 2006 (with L. Peng).
 - "Overconfidence and Speculative Bubbles," *Journal of Political Economy*, 2003 (with J. Scheinkman).
 - "Contagion as a Wealth Effect," *Journal of Finance*, 2001 (with P. Kyle).
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Visiting Faculty

During the academic year 2006-07, the BCF welcomed the following visiting faculty:

Sara Biagini is an Assistant Professor at the Department of Math, Finance and Statistics of Perugia University, Italy. She received her Ph.D. in Applied Mathematics in 2005 from Scuola Normale Superiore, Italy. Recently, her thesis "Convex Duality in Financial Theory with General Semimartingales" was awarded the SIMAI prize (best Italian Ph.D. thesis of the last three years in Applied Mathematics). Her research interests are in the general theory of stochastic processes and functional analysis with applications to pricing and portfolio optimization in finance. She is currently Visiting Assistant Professor at ORF Department, spring semester.

Course taught:

- FIN 521: Fixed Income

Selected publications:

- "Model-free Representation of Pricing Rules as Conditional Expectations," *Stochastic Processes and Applications to Mathematical Finance, Proceedings of the 6th Ritsumeikan International Symposium*, World Scientific, Singapore, 53-66, 2007 (with R. Cont).
- "An Orlicz Spaces Duality for Utility Maximization in Incomplete Markets," *Progress in Probability*, Birkhauser, 2007.
- "The Supermartingale Property of the Optimal Wealth Process for General Semimartingales," *Finance and Stochastics*, 11(2), 253-266, 2007 (with M. Frittelli).
- "Utility Maximization in Incomplete Markets for Unbounded Processes," *Finance and Stochastics*, 9(4), 493-517, 2005 (with M. Frittelli).
- "On the Super Replication Price of Unbounded Claims," *The Annals of Applied Probability*, 14(4), 1970-1991, 2004 (with M. Frittelli).

Xavier Gabaix is an Associate Professor of Economics at MIT. He obtained his Ph.D. in economics from Harvard University. His research focuses on the finance, macroeconomics, the origins of scaling laws in economics, and the economics of seemingly irrational behavior. He is a Fellow of the National Bureau of Economic Research.

Courses taught:

- ECO 468/FIN 568: Behavioral Economics and Finance
- ECO 575/FIN 575 : Topics in Finance

Undergraduate students advised:

- Mark Adams, “Modelling Risk, in a Large Payout Game: A Case Study of Deal or No Deal”
- Samson Benen, “The Long-term Profitability of Selling Index Straddles”
- Elizabeth Distefano, “Boys May Be Boys, but They Are Not Alone: The Relationship between Demographics and Common Stock Investment”
- Chris Kelsch, “Insiders vs. Outsiders: An Empirical Analysis of CEO Turnover and Succession Planning”
- Brij Khurana, “The Effects of the Mortgage Market on the Monetary Transmission Mechanism and Macroeconomic Volatility: A Cross-country Analysis”
- Daria Koroleva, “From the Gridiron to the Flat Iron: The Effect of Sports Sentiment on Wall Street”
- Jarryd Levine, “An Empirical Analysis of the Market Responses to the Options Backdating Scandal”
- James McKenna, “The Impact of Welfare Reform on Marriage: An Analysis using Becker’s Theoretical Foundation”
- Allen Morton, “The Business of Baseball: Are Players Paid for What They Produce?”
- Deven Petito, “Consortium Impact: The Effects of Buyout Group Composition on Leveraged Buyout Deal Success Probability”
- Dustin Sedgwick, “A Detailed Analysis of Minority and Gender Discrimination in Executive Compensation”

Selected publications:

- “A Theory of Power Law Distributions in Financial Market Fluctuations,” *Nature* 423, p. 267-70, 2003 (with P. Gopikrishnan, V. Plerou and H. Stanley).
 - “Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets,” *Quarterly Journal of Economics* 121(2), p. 505-540, May 2006 (with D. Laibson).
 - “Costly Information Acquisition: Experimental Analysis of a Boundedly Rational Model,” *American Economic Review* 96(4), p. 1043-1068, September 2006 (with D. Laibson, G. Moloche and S. Weinberg).
 - “Limits of Arbitrage: Theory and Evidence from the Mortgage-Backed Securities Market,” *Journal of Finance* 62(2), p. 557-595, April 2007 (with A. Krishnamurthy and O. Vigneron).
 - “Why Has CEO Pay Increased So Much?,” forthcoming, *Quarterly Journal of Economics* (with A. Landier).
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Marc Hallin is Professeur Ordinaire at the Department of Mathematics and a resident member of ECARES (European Centre for Advanced Research in Economics and Statistics), Université libre de Bruxelles, Brussels (Belgium). He is also a Fellow of the Institute of Mathematical Statistics (I.M.S.), of the American Statistical Association (A.S.A.), and a Membre titulaire of the International Statistical Institute (I.S.I.). He is also a member of the Classe des Sciences de l'Académie Royale de Belgique. He is on the editorial boards of the *Journal of the American Statistical Association*, the *Journal of Time Series Analysis*, *Sankhya*, *Statistical Inference for Stochastic Processes*, the *Annales de l'Institut de Statistique de l'Université de Paris*, and the *Journal de la Société Française de Statistique*. He serves as a coordinating editor for the *Journal of Statistical Planning and Inference*. From September 2006 through February 2007, he has been a Visiting Professor at ORF.

Course taught:

- ORF 524: Statistical Theory and Methods

Representative publications:

- "Linear Serial and Nonserial Sign-and-rank Statistics: Asymptotic Representation and Asymptotic Normality," *Annals of Statistics* 34, 254-289 (with C. Vermandele and B. Werker).
- "Semiparametrically Efficient Rank-based Inference for Shape: I Optimal Rank-based Tests for Sphericity," *Annals of Statistics* 34, forthcoming (with D. Paindaveine).
- "Semiparametrically Efficient Rank-based Inference for Shape: II Optimal R-estimation of Shape," *Annals of Statistics* 34, forthcoming (with H. Oja and D. Paindaveine).
- "The Generalized Dynamic Factor Model: Determining the Number of Factors," *Journal of the American Statistical Association*, forthcoming (with R. Liska).
- "Optimal Tests for Non-correlation between Multivariate Time Series," *Journal of the American Statistical Association*, forthcoming (with A. Saidi).

O. Griffith Sexton was, until 1995, a Managing Director of Morgan Stanley and Director of the Corporate Restructuring Group within the firm's Financing and Advisory Services Department. Mr. Sexton graduated from Princeton University in 1965. Following six years of service as an aviator in the U.S. Navy, he attended the Stanford Graduate School of Business where he received his MBA. He joined Morgan Stanley in 1973 and spent his career there involved in a broad range of the firm's financing and advisory activities. In May 1995, Mr. Sexton became an active Advisory Director of Morgan Stanley. In September 1995, Mr. Sexton became an Adjunct Professor at Columbia University's Graduate School of Business, teaching two courses in the subject of Corporate Finance. In the spring of 2000, he became a Visiting Lecturer at Princeton University. Mr. Sexton is a member of the Board of Directors of Morgan Stanley, and is a Director of Investor AB, a publicly traded company based in Stockholm, Sweden, and of two other privately held companies.

Course taught:

- ECO 464/FIN 519: Corporate Restructuring

Visiting Fellows

The Center welcomed the following visiting fellows during the academic year 2006-07:

Roger J. A. Laeven is Associate Professor at the Department of Econometrics and Operations Research, Tilburg University. He spent the spring 2007 semester visiting Yacine Aït-Sahalia at the Bendheim Center for Finance. Roger holds an M.Sc. (Fields: Econometrics and Actuarial Science, *With highest honors*) and a Ph.D. (Fields: (Applied) Probability and Actuarial Science, *With highest honors*), both from the University of Amsterdam. In 2004, he was a visiting research fellow at the London School of Economics, Department of Statistics. From 2001-2005, he was a part-time consultant for Mercer Oliver Wyman. Roger is a fellow of CentER and serves as an Associate Editor of *Insurance: Mathematics and Economics*. Roger's research interests span probability and mathematical statistics, (micro) economic theory, actuarial science and quantitative finance. In 2006, Roger was awarded a VENI grant for young outstanding faculty by the Netherlands Organization for Scientific Research.

Gara Minguez-Afonso is a Ph.D. candidate at the London School of Economics. She spent the academic year 2006-2007 at the Bendheim Center for Finance as a Visiting Student Research Collaborator under the supervision of Professor Hyun Shin. She worked on the analysis of balance sheet interactions and their implications for the propagation of asset price bubbles and financial crises. Gara will remain at Princeton for academic year 2007-2008 as a Visiting Student.

Olaf Posch is a Ph.D. candidate at Hamburg University, Germany. He has been visiting the Bendheim Center for Finance during spring 2007. His research interests include the estimation of jump-diffusion processes in macroeconomics. He is expecting to complete his Ph.D. from Hamburg by the end of the academic year 2007.

Tommi Vuorenmaa is a Ph.D. candidate at the University of Helsinki and an ex-Fulbright at UC San Diego. He spent the academic year 2006/07 at the Bendheim Center for Finance. His research in financial econometrics is currently focused on high-frequency data analysis and volatility estimation. He is expecting to complete his Ph.D. from University of Helsinki in the end of the calendar year 2007.

Torben Rasmussen is a Ph.D. candidate at the University of Aarhus and an alumnus of London School of Economics. He spent the academic year 2006-2007 at the Bendheim Center for Finance. His research topics include modeling of the term structure of interest rates with focus on econometric issues. He is expecting to complete his Ph.D. in the academic year 2007-2008.

Graduating Ph.D. Students

Ph.D. students in the Bendheim Center for Finance are admitted through the Department of Economics, the Department of Operations Research and Financial Engineering or the Program in Applied and Computational Mathematics. Four Ph.D. students graduated in 2006-07.

- **Carlos Viana de Carvalho** graduated from the Department of Economics. His thesis studied the implications of heterogeneity in price setting behavior on the part of firms for aggregate dynamics. He has accepted a position at the Federal Reserve Bank of New York.
- **Sylvain Champonnois** graduated from the Department of Economics. His thesis, "Financial Architecture and Corporate Investment," studied the role of financial architecture for corporate investment. He accepted a position of assistant professor at the Rady School of Management at UC San Diego.
- **Tal Fishman** graduated from the Department of Economics. His thesis studied market manipulation via voluntary disclosure by informed traders and the ability of smart traders to eliminate mispricings in the stock market. He has accepted a Quantitative Research Associate position with Parkcentral Capital Management, a hedge fund, in the Chicago area.
- **Yosuke Yasuda** graduated from the Department of Economics. His thesis, "Essays in Theoretical Industrial Organization," studied the efficient design of license auctions and school choice mechanisms. He accepted a position of assistant professor at the National Graduate Institute for Policy Studies in Tokyo, Japan.

Finance Seminars

Each week, the Bendheim Center for Finance organizes a seminar where academics are invited to present their latest research to the faculty and Ph.D. students of the Center. The seminar usually meets on Wednesdays, 2:50-4:00 p.m. in the Bendheim Center for Finance classroom.

Civitas Foundation Finance Seminars, Fall 2006

| | | |
|-------------------------|---|--|
| September 20, 21, 22 | Hayne Leland, UC Berkeley | Princeton Lectures in Finance |
| September 27 | Laura Veldkamp, New York University | Knowing What Others Know |
| October 4 | Tal Fishman, Princeton University | Follow the Leader: How Voluntary Trade Disclosure Can Break the Herd |
| October 11 | Olivier Scaillet, HRC Geneve | False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alphas |
| October 18 | Sylvain Champonnois, Princeton University | Comparing Financial Systems: A Structural Analysis |
| October 24 | Anders Nielsen, Princeton University | Capital Structure Choice, Governance and Equity Prices |
| October 25 | Per Krusell, Princeton University | (Department-wide seminar in Economics) Macroeconomics and Inequality |
| November 8 | Joel Peress, INSEAD | Product Market Competition and Stock Market Efficiency |
| November 15 | Amil Dasgupta, London School of Economics | Asset Price Dynamics when Traders Care about Reputation |
| November 29 | Xavier Gabaix, Princeton University | Why Has CEO Pay Increased So Much? |
| December 6 | Gary Gorton, Wharton | Bank Credit Cycles |

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| December 13 | Philip Bond, Wharton | Market Based Regulation and the Informational Content of Prices |
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Civitas Foundation Finance Seminars, Spring 2007

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|-------------|---|--|
| February 21 | Stijn Van Nieuwerburgh, New York University | Mortgage Timing |
| February 28 | Zhiguo He, Northwestern University | Optimal Executive Compensation when Cash Flows follow Geometric Brownian Motion |
| March 7 | Itay Goldstein, Wharton | Payoff Complementarities and Financial Fragility: Evidence from Mutual Fund Outflows |
| March 14 | Bilge Yilmaz, Wharton | Deliberation and Security Design in Bankruptcy |
| March 28 | Hyun Shin, Princeton University | (Department-wide seminar in Economics) Industrial Structure and Corporate Finance |
| April 4 | Pierre-Olivier Weill, UCLA | Learning from Private and Public Observations of Others' Actions |
| April 11 | David Thesmar, HEC | The Corporate Wealth Effect: From Real Estate Shocks to Corporate Investment |
| April 18 | Mark Westerfield, University of Southern California | Disagreement and Learning in a Dynamic Contracting Model |
| April 25 | Kewei Hou, Ohio State University | What Factors Drive Global Stock Returns? |
| May 1 | Jean-Charles Rochet, Université de Toulouse | Environmental Risk Insurance under Dynamic Moral Hazard |
| May 2 | Thomas Philippon, New York University | Financial Development and Firm Dynamics |
| May 9 | Costis Skiadas, Northwestern University | Dynamic Portfolio Choice and Risk Aversion |

Finance Ph.D. Student Workshop

Each week, the Bendheim Center for Finance organizes a seminar for its Ph.D. students and faculty where preliminary research ideas are presented internally. The seminar usually meets on Tuesdays, 12:00-1:20 p.m. in the Bendheim Center for Finance library.

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|--------------|-----------------------------|--|
| September 19 | Eric Weyl | "Some Unambiguous Price Theory of Two-sided Markets" |
| October 3 | Xavier Gabaix | "The Linearity-Inducing Class: A Modeling Tool Yielding Closed Forms for Asset Prices" |
| October 17 | Gara Minguez-Afonso | "Imperfect Common Knowledge in First Generation Models of Currency Crises" |
| October 24 | Anders Nielsen (Job Market) | "Abnormal Runs and Tight Capital Structure: A Long Horizon Capital Structure Choice, Governance and Equity Prices" |
| November 14 | Filipe Schwartzman | "Preliminary Thoughts on the Non-separability of Financing and Production Decisions" |
| | Yasuda Yosuke | "The Theory of Collusion under Financial Constraints" |
| November 28 | Julio Cacho-Diaz | "An Asset Pricing Model with Systemic Risk" |
| | Vinayak Tripathi | "Estimating Volatility Surfaces" |
| December 12 | Ing-Haw Cheng | "Disclosures and Manipulations" |
| February 13 | Xavier Gabaix | "A Unified Theory of Ten Financial Puzzles" |
| March 6 | Tommi Vuorenmaa | "Decimalization Realized Volatility and Market Microstructure Noise" |
| | Martin Oehmke | "Illiquidity and Crowded Trades" |
| March 13 | Sylvain Champonnois | "Limits to Diversification: Asset Prices and the Distribution of Fund Sizes" |

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|----------|---------------------------|---|
| March 27 | Marcus Brunnermeier | "Hedge Fund Tail Risk" |
| April 10 | Filipe Schwartzman | "Thoughts on Heterogeneity and Liquidity" |
| | Filippos Papakonstantinou | "Boards of Directors: Does Board Members' Professional Expertise Matter?" |
| April 24 | Ing-Haw Cheng | "Market Pressure Earnings Manipulation and Overvaluation" |
| | Patrick Cheridito | "Equilibrium Pricing in Incomplete Markets" |
| May 8 | Tobias Adrian | "Liquidity and Financial Cycles" (with Hyun Shin) |

Conferences

During the past year, the Bendheim Center for Finance organized the following conferences and events on campus.

The Princeton Lectures in Finance

Each year, the BCF organizes a series of public lectures. The Princeton Lectures in Finance are delivered by a leader in the field of finance. The author is invited to the BCF to deliver the contents of his or her book in the form of three two-hour lectures to the Center's faculty and students. The lectures form the basis of a book to be subsequently published by Princeton University Press.

The **2006** *Princeton Lectures in Finance* were given by **Hayne Leland** of the University of California at Berkeley, on the topic of "Structural Models in Corporate Finance," on September 20-22, 2006, in BCF 103:

- Wednesday, September 20, 3:00-4:20 p.m., Lecture 1: Structural Models of Corporate Financial Choice
- Thursday, September 21, 3:00-4:20 p.m., Lecture 2: Optimal Financial Decisions using Structural Models
- Friday, September 22, 10:30-11:50 a.m., Lecture 3: Optimal Financial Scope and Structured Finance

In previous years, Professor **Stephen A. Ross**, the Franco Modigliani Professor of Financial Economics at the Massachusetts Institute of Technology, delivered the May 2001 lectures at the BCF on the theme of **Arbitrage and Finance**. These published lectures are now available from the Princeton University Press. The second lecturer and author was Professor **Myron Scholes**, Emeritus Professor at Stanford University and 1997 Nobel Laureate. He delivered his lectures at the BCF on the theme of **Liquidity and Finance** in May 2002. There were no lectures in 2003. In 2004, **William Sharpe**, Professor Emeritus at Stanford University delivered his lectures on **Asset Prices and Portfolio Choice**. The 2005 lectures were given by **Douglas Diamond**, Professor at the University of Chicago, on the topic of **Financial Intermediation and Financial Systems**.

Second Cambridge-Princeton Conference

This conference, the second in the series, brought together faculty from Princeton's Bendheim Center for Finance (BCF) and the Cambridge Endowment for Research in Finance (CERF), thanks to generous support from William H. Janeway. The conference took place on **September 8-9, 2006** at Cambridge University. Faculty affiliated with the Centre for Financial Research (CFR), Centre for International Macroeconomics and Finance (CIMF), and Centre for Research in Quantitative Finance (CRQF) also participated in this conference. The following presentations were given:

- **Yacine Aït-Sahalia** (Princeton), "Testing for Jumps in a Discretely Observed Process." Discussants: **Mardi Dungey** (CERF) and **Vanessa Smith** (CERF)
- **Savas Dayanik** (Princeton), "Filling the Gap between American and Russian Options: Adjustable Regret." Discussant: **Chris Rogers** (CRQF)
- **Michael Dempster** (CRF), "Asset Pricing and Hedging in Financial Markets with Transaction Costs: An Approach Based on the von Neumann-Gale Model." Discussant: **John Mulvey** (Princeton)
- **John Eatwell** (CERF), Welcoming Remarks
- **Peter Friz** (CRQF), "Regular Variation and Smile Asymptotics." Discussant: **Ronnie Sircar** (Princeton)
- **Chryssi Giannitsarou** (CIMF), "Asset Pricing with Adaptive Learning"
- **Harrison Hong** (Princeton), "Do Arbitrageurs Amplify Fundamental Shocks: Evidence from Short Selling in Equity Markets." Discussant: **Michael McKenzie** (CERF)
- **Seppo Honkapohja** (CIMF), "Anticipated Fiscal Policy and Adaptive Learning"
- **José Scheinkman** (Princeton), "Long-term Risk: An Operator Approach." Discussant: **Xiangdone Long** (CERF)
- **Ronnie Sircar** (Princeton University), "Utility Valuation of Credit Derivatives and Application to CDOs." Discussant: **Elena Medova** (CFR)
- **Demosthenes Tambakis** (CERF), "Endogenous Market Turbulence." Discussant: **José Scheinkman** (Princeton)

- **Rodrigo Dupleich Ulloa** (CERF), "Testing for Breaks and Threshold Effects: A Nonnested Approach."

Conference on Risk Measures and Robust Control in Finance

Every year, the Bendheim Center for Finance organizes a concentrated conference on a specific topic, alternating between themes in mathematical finance and in financial econometrics. In 2006, the conference theme was a topic in mathematical finance, specifically: *Dynamic Risk Measures and Robust Control in Finance*. Academics working in areas as diverse as financial economics, optimization and operations research, and financial mathematics contributed significantly in separate and independent ways to the topic of the conference, and synergy was our goal.

The conference organizers were **Yacine Aït-Sahalia** and **René Carmona**. The conference took place on **October 6-7, 2006** at the Bendheim Center. The following topics were presented:

- **Patrick Cheridito** (Princeton University), "Composition of Time-consistent Dynamic Monetary Risk Measures in Discrete Time"
- **Freddy Delbaen** (ETH Zurich), "BSDE with Quadratic Driver: A Personal View using Duality"
- **Nicole El Karoui** (École Polytechnique), "Cash Sub-additive Risk Measures and Interest Rates Ambiguity"
- **Hans Foellmer** (Humboldt University), "Dynamics of Convex Risk Measures: Asymptotic Safety and Asymptotic Precision"
- **Marco Frittelli** (University of Florence), "Convex Risk Measures on Banach Lattices and Orlicz Spaces"
- **Lars Hansen** (University of Chicago) and **Thomas Sargent** (New York University), "Fragile Beliefs and the Price of Model Uncertainty"
- **Dimitry Kramkov** (Carnegie-Mellon University), "Asymptotic Analysis of Utility-based Hedging Strategies for Small Number of Contingent Claims"
- **Andrew Lim** (University of California, Berkeley), "Robust Asset Allocation with a Relative Performance Objective"
- **Alexander Schied** (Berlin University of Technology), "On the Problem of Optimal Investments under Model Uncertainty"
- **Martin Schneider** (New York University), "Learning under Ambiguity"
- **Albert Shiryaev** (Steklov Mathematical Institute), "On the Duality in Option Pricing: Semi-Martingale Setting"
- **Chris Sims** (Princeton University), "Asset Markets with Capacity-constrained Agents"
- **Mete Soner** (Koc University), "Super-replication in Illiquid and Constrained Markets"
- **Lars Svensson** and **Noah Williams** (Princeton University), "Bayesian and Adaptive Optimal Policy under Model Uncertainty"

Financial support from **Moody's Corporation** and **Morgan Stanley** is gratefully acknowledged. In October 2007, the conference theme will be a topic in financial econometrics, *Likelihood Methods in Finance*.

Rethinking Business Management: An Examination of the Foundations of Business Education

This conference was organized by Harold James and took place on May 17-19, 2007, at Princeton University. The conference was co-sponsored by the Bendheim Center for Finance, The Clayton Fund, the Social Trends Institute, and the Witherspoon Institute. This conference examined

experiences of business school education in light of social and ethical responsibilities. The thesis presented for the discussion at the conference was that effective management is grounded both on good business science and on robust ethical and anthropological conceptions of human flourishing.

The following topics were presented:

- **Carlos Cavalle** (IESE Business School) and **Harold James** (Princeton University), Welcoming Remarks
- **Anthony Daniels** (alias Theodore Dalrymple), "Management and the Corporate State: Private Enterprise without Enterprise and Public Service without Service?"
- **R. Edward Freeman** and **David Newkirk** (University of Virginia Darden School of Business), "Management as a Human Activity – Implications for Education"
- **Edwin Hartman** (New York University), "Flourishing in the Organization: Why Do It; How to Do It; How to Teach It"
- **Michael Maibach** (European-American Business Council), Luncheon Remarks
- **Wilfred McClay** (University of Tennessee at Chattanooga), "Invisible Hand to Glad Hand: Workplace Community and the Problem of False Personalization"
- **Ian Mitroff** (University of Southern California), "The Inseparability of Ethics: What Isn't Ethical, Including the 'Big Bang'?"
- **David Novak** (University of Toronto), "Natural Law, Human Dignity, and the Protection of Human Property"
- **James O'Toole** (University of Southern California), "Aristotelian Virtue and the MBA: The Odd Couple"
- **Roger Scruton** (Visiting Professor at Princeton University), "Profit as By-product, Versus Profit as Goal"
- **Robin Fretwell Wilson** (University of Maryland School of Law), "Keeping Women in Business: Examining the Business School Education and Workplace Practices"

Undergraduate Certificate in Finance

In 1999, the BCF started offering an Undergraduate Certificate in Finance to Princeton undergraduates. The certificate program in finance has four major components:

- First, there are prerequisites in mathematics, economics, and probability and statistics, as necessary for the study of finance at a sophisticated level. These prerequisite courses are to be completed during the freshman and sophomore years. Students then apply at the end of their sophomore year.
- Second, two required core courses, during the junior year, provide an integrated overview and background in modern finance.
- Third, students are required to take three elective courses.
- Fourth, a significant piece of independent work must relate to issues or methods of finance. This takes the form of a senior thesis, or for non-ECO or ORF majors only, if there is no possibility of finance content in their senior thesis or junior paper, a separate, shorter piece of independent work is required instead.

Now in its ninth year, the Undergraduate Certificate in Finance continues to do extremely well, attracting record numbers of students. We enrolled 126 juniors from the Class of 2009. In previous years, the numbers were as follows: Class of '00: 61, '01: 82, '02: 85, '03: 122, '04: 113, '05: 126, '06: 158, '07: 154, '08: 105. This brings our total number of undergraduate students in the program (juniors and seniors) to about 260 this year. The success of the program has been overwhelming, especially in light of our limited senior thesis advising resources. As discussed in the Director's introduction, we have instituted grade requirements starting with the Class of '08 in order to admit a more manageable number of students into the program.

Students earning the Certificate are drawn from a wide cross-section of departments on campus, testifying both to the interdisciplinary flavor of the program and its wide appeal. The breakdown by major is given in the following two tables.

Class of '07

Total number of certificates awarded: 129 (36 to women or 31%)

| Major | Number of Students |
|-------------------------------------|---------------------------|
| Chemistry | 2 |
| Civil and Environmental Engineering | 1 |
| Classics | 1 |
| Comparative Literature | 2 |
| Computer Science | 3 |
| East Asian Studies | 2 |
| Economics | 56 |
| Electrical Engineering | 3 |
| German | 1 |
| History | 2 |

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| Mathematics | 3 |
| Molecular Biology | 1 |
| Music | 1 |
| Operations Research & Financial Engineering | 35 |
| Physics | 1 |
| Politics | 5 |
| Religion | 1 |
| Woodrow Wilson School | 9 |

Class of '08

Total expected number of certificates to be awarded: 105 (32 to women or 27%)

| Major | Number of Students |
|---|---------------------------|
| Art | 2 |
| Chemical Engineering | 4 |
| Chemistry | 5 |
| Classics | 1 |
| Computer Science | 2 |
| East Asian Studies | 1 |
| Economics | 31 |
| Electrical Engineering | 2 |
| Engineering, Civil and Environmental | 1 |
| English | 1 |
| History | 4 |
| Italian | 1 |
| Mathematics | 5 |
| Molecular Biology | 5 |
| Operations Research and Financial Engineering | 21 |
| Physics | 4 |
| Politics | 2 |
| Psychology | 3 |
| Woodrow Wilson School | 10 |

Departmental Prizes, Honors and Athletic Awards to UCF '07 Students

In addition, UCF students are an extremely talented subgroup of the already high-achieving Princeton classes. They continue to receive a high proportion of the prizes awarded by their respective departments.

Valedictory Oration

- Given this year by Eric Weyl, one of our UCF recipients. This honor is awarded by faculty vote to one of the highest-ranking candidates for bachelor degrees. Special qualifications as well as scholastic standing are taken into account when awarding this honor.

8 UCF students received departmental prizes and honors:

- Eric Weyl, *George B. Wood Legacy Junior Prize*
- Adam Epstein, *Applied and Computational Mathematics Independent Project Prize*
- Eric Weyl, *Wolf Balleisen Memorial Prize*
- Eric Weyl, *The Birch Family Prize*
- Dustin Sedgwick, *Senior Thesis Prize in Economics*
- Elizabeth Distefano, *Senior Thesis Prize in Finance*
- Adam Malin, *Senior Thesis Prize in Finance (honorable mention)*
- Eric Weyl, *Halbert White '72 Prize in Economics*
- Jim Tai, *John Ogden Bigelow Jr. Prize in Electrical Engineering*
- Adam Eptstein, *Calvin Dodd MacCracken Senior Thesis/Project Award*
- Adam Epstein, *Ahmet S. Cakmak Prize*
- Raj Hathiramani, *Ahmet S. Cakmak Prize*
- Raj Hathiramani, *Kenneth H. Condit Prize*
- Andriy Mykhaylovskyy, *Montgomery Raiser '92 Thesis Prize*

13 UCF students were elected to Phi Beta Kappa Society:

Thomas Brown (WWS), Benjamin Easter (ECO), Milan Entchev (WWS), Adam Epstein (ORF), Raj Hathiramani (ORF), Meera Krishnan (ORF), Adam Malin (ECO), Dustin Sedgwick (ECO), Ngai Suet (ECO), Michael Tang (ECO), Charles Vu (ECO), Eric Weyl (ECO) and Jie Wu (ELE).

18 UCF students were elected to membership in Society of Sigma Xi:

Benton DeLoache (COS), Anand Dharan (MOL), Robert Ebe (ORF), Brian Elbogen (ORF), William England (ORF), Adam Epstein (ORF), Eugene Gokhvat (ORF), Adelina Grozdanova (ORF), Raj Hathiramani (ORF), Anna Huang (ORF), Max Jacobson (ORF), Alexander Julie (ORF), Ross Kozarsky (CHE), Meera Krishnan (ORF), Eric Murphy (ORF), Ramsey Stephan (ORF), James Tate (ORF), and Alvin Wang (COS).

11 UCF students were elected to membership in Tau Beta Pi National Engineering Society:

Calvin Chan (ORF), Brian Elbogen (ORF), Adam Epstein (ORF), Neel Gehani (ORF), Adelina Grozdanova (ORF), Raj Hathiramani (ORF), Ross Kozarsky (CHE), Meera Krishnan (ORF), Charles Vu (ECO), Alvin Wang (COS), Vincent Yu (ORF).

4 UCF students received athletic awards:

- Salvatore Iacono, *William J. Clarke Trophy* (baseball)

- William England, *The W. Lyman Biddle Medal* (heavyweight crew)
- Justin Oppenheimer, *The Robert Hauter Myslik '90 Memorial Award* (soccer)
- Reid Joseph, *Scott A. C. Roche '94 Memorial Water Polo Award*

Finally, 61 UCF students received some form of honors (29 cum laude, 24 magna cum laude and 8 summa cum laude).

Senior Theses of the Class of '07

This table shows the senior thesis titles from the Undergraduate Certificate in Finance Class of 2007:

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| Brian Adams (ECO) | <i>The Effect of Investor Flows on Hedge Fund Manager Performance and the Decision to Invest</i> |
| Peter Allen (ECO) | <i>A Welfare Analysis of the Corn Market Implications of the 2002 Farm Act</i> |
| Robert Anderson (ECO) | <i>Pricing Public Derivative Exchanges: Modeling Stationary Relationship between Exchange Prices and Firm Fundamentals</i> |
| Chukwuemeka Asonye (ECO) | <i>A Model of Inefficiency: Major League Baseball's Labor Market</i> |
| George Azarias (ECO) | <i>The Microeconomic Determinants of Personal Saving Today: Evidence from the 2004 Survey of Consumer Finances</i> |
| Lev Berlin (ORF) | <i>Snowmaking: An Approximate Dynamic Programming Approach to Decision Making for Ski Resorts</i> |
| Brent Besson (PHY) | <i>Maximizing Absorption in the ACT Millimeter Bolometer Array Camera</i> |
| R. Mark Bhagavatula (ECO) | <i>Current Account and the Dollar: Has the Connection Loosened?</i> |
| Alicia Bonilla (CLA) | <i>Permissu Augusti: Selected Cities in Iberia and the Impact of the Empire</i> |
| Robert Bremmer (ECO) | <i>Real Estate Returns in the United States: A Regional Approach by Metropolitan Area</i> |
| Daniel Brown (WWS) | <i>Addressing the Root Causes of Islamist Terrorism</i> |
| Thomas Brown (WWS) | <i>Proposed Changes to the Budget of the United States for Fiscal Years 2007-2016/Evaluating Pennsylvania's State and Local Tax Structure</i> |
| Samantha Cai (ECO) | <i>Class and Inequality in China</i> |
| Calvin Chan (ORF) | <i>Global Equity Markets: Dynamic Capital Allocation via Price Momentum</i> |
| John Chapman (REL) | <i>Guanxi and China's Changing Labor Market</i> |
| Sharla Cloutier (ORF) | <i>Probability Distribution Models for the Hurricane Damage Process</i> |
| John Cochrane (ORF) | <i>The Economics of Municipal Solid Waste: Recycling and Landfilling</i> |
| Bryan Comis (CHE) | <i>Biological Laser Printing: A Novel Technique for Laser Printing Mammalian Embryonic Stem Cells</i> |
| Douglas Coombs (ECO) | <i>An Empirical Examination of US Equity Transactions</i> |
| Alexandra Copos (ECO) | <i>Unfulfilled Promises? New Evidence on the Effects of Trade</i> |

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| | <i>Liberalization on Poverty and Inequality in Russia</i> |
| Robert Creighton (MAT) | <i>Satisfaction Based Experimentation in the Nash Demand Game</i> |
| Benton Deloache (COS) | <i>Using Approximate Dynamic Programming to Find an Optimal Bidding Strategy for the First-price All Pay Bid Auction across Multiple Periods</i> |
| Michael DeSantis (ECO) | <i>Is Socially Responsible Investing Financially Responsible?</i> |
| Dara Deshe (ORF) | <i>Construction and Analysis of a Domestic Fashion Index</i> |
| Anand Dharan (MOL) | <i>Predicting Conserved Cis-regulatory Elements in Prokaryotic Phylogenetic Neighborhoods through Comparative Genomics</i> |
| Elizabeth Distefano (ECO) | <i>Boys May Be Boys, but They are Not Alone: The Relationship between Demographics and Common Stock Investment</i> |
| Benjamin Easter (ECO) | <i>Body Mass Index, Weight Status, and Academic Achievement in Elementary School Children</i> |
| Robert Ebe (ORF) | <i>A Binomial Approach to the Optimal Timing of Reverse Leveraged Buyouts and their Post-offering Performance</i> |
| Brian Elbogen (ORF) | <i>Saving the Green: An Analysis of Hedging Strategies for the EU-ETS Carbon Dioxide Market</i> |
| William England (ORF) | <i>"Super-indexing the GSCI": Portfolio Optimization in Commodity Futures Markets</i> |
| Milan Entchev (WWS) | <i>The 2007 Bulgarian Accession to the EU: Upon Economics, Perceptions and the Recreating of Dividing Lines with Europe</i> |
| Adam Epstein (ORF) | <i>Top-down or Bottom-up? An Examination of Multi-name Credit Derivative Pricing Models</i> |
| Anne Erdman (ECO) | <i>A Prescription for Profit: An Evaluation of the Pharmaceutical Industry's Response to Direct-to-customer Advertising</i> |
| Fredric Flaxman (ECO) | <i>How Movies Make Money: Identifying the Determinants of Probability in Motion Pictures</i> |
| Silpa Gadiraju (ORF) | <i>Striking a Balance between Health Care Costs and Compliance using Dynamic Programming</i> |
| Casey Gallagher (EAS) | <i>Games of Power and Deception: The Role of Regulation in the Stock Market of Hong Kong and Shanghai</i> |
| Meghana Gandhi (WWS) | <i>Art Museum Financing: Negotiating Profitability and the Public Trust</i> |
| Neel Gehani (ORF) | <i>Exploring the Equity Premium Puzzle with Constant Relative Risk</i> |
| Eugene Gokhvat (ORF) | <i>Correlation Car Crash: The Credit Crisis of May 2005</i> |
| Adelina Grozdanova (ORF) | <i>Understanding CPDO Risks, Effect of Leverage on Sensitivity to Defaults</i> |
| Raj Hathiramani (ORF) | <i>Dissecting the Collapse of Amaranthe Advisors LLC (2006)</i> |
| William Hayes (PPOL) | <i>Reforming the International Monetary Fund: Lessons Learned from the Asian Financial Crisis</i> |
| Caitlin Higgins (POL) | <i>The Effectiveness of Tax-based Incentives on Increasing Household Savings Rates: Evidence from the United Kingdom and the United States</i> |
| Anna Huang (ORF) | <i>Anticipating the Future: Financial Risk Management for Princeton University</i> |
| Salvatore Iacono (ECO) | <i>Testing the Efficiency of the Baseball Gambling Market: An Economic Approach to Matchup Analysis</i> |

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| Max Jacobson (ORF) | <i>The Traveling Salesman Problem: An Implementation with Experiments</i> |
| Janet Jenq (ORF) | <i>Decoding Analysts, Analyzing Codes: What Do Security Analysts Really Mean?</i> |
| Ted Jeon (POL) | <i>Regional Financial Cooperation—China’s Growing Role in East Asia</i> |
| Jamie Jin (ORF) | <i>Text Classification of Financial News</i> |
| Yiting Jin (ECO) | <i>If the Green Shoe Fits: An Analysis of IPO Underpricing from the Angle of Issue?</i> |
| Cyriak John (ECO) | <i>An International Study on the Relationship between Legal Factors and Executive Decision Making</i> |
| Reid Joseph (ECO) | <i>Financial Contracts in an Emerging Market: An Analysis of the Forces behind Private Equity and Venture Capital</i> |
| Alexander Julie (ORF) | <i>Specific Weather Event Risk Hedging: An Examination of the Citrus Market</i> |
| Olivia Kamarebe (ORF) | <i>An Analysis of Financial Crises and Lessons for Financial Policy in Emerging Market Economies: A Study of South Korea</i> |
| Jordan Katz (ECO) | <i>Does Financial Ratio Analysis Improve upon Corporate Default Probabilities?</i> |
| Chris Kelsch (ECO) | <i>Insiders vs. Outsiders: An Empirical Analysis of CEO Turnover and Succession Planning</i> |
| Brij Khurana (ECO) | <i>Factors that Contribute to the Abnormal Announcement Effect in Private Investments in Public Equity</i> |
| Amie Ko (ECO) | <i>Investor Profitability and Market Efficiency: Can Mad Money Make You Money?</i> |
| Daria Korolelva (ECO) | <i>From the Gridiron to the Flat Iron: The Effects of Sports Sentiment on Wall Street</i> |
| Ross Kozarsky (CHE) | <i>Enhancing the Sensitivity of Sensors using Nanostructured Silica Coatings</i> |
| Meera Krishnan (ORF) | <i>Distribution of Antiviral Drugs during Pandemic Influenza: An Approximate Dynamic Programming Analysis</i> |
| Michelle Lahtonen (ECO) | <i>Electronic Communication Networks and the Consolidation of the Stock Market</i> |
| Marcus Lampert (GER) | <i>Clarifying Estrangement: Alienation, the Individual, and Society in the Works of Marx and Simmel</i> |
| Ann Lee (WWS) | <i>Tips on TIPS: An Evaluation of the United States Treasury Inflation-protected Securities (TIPS) Program</i> |
| Sze Leung (ECO) | <i>The Relationship between Real Exchange Rate and Foreign Direct Investment in China</i> |
| Michelle Lin (ECO) | <i>The Determinants of Geographical Diversification: An Analysis of U.S. Firms</i> |
| Billy Liu (ECO) | <i>Analysis of Risk in the Risk-free Rate: Theory and Application</i> |
| Adam Malin (ECO) | <i>A Rational Theory of Options Dating, Is Backdating Still a Perfect Payday?</i> |
| Eric Marcotulli (ECO) | <i>Insider Trading in the United States: An Analysis of Regulation and Enforcement (1990-2006)</i> |
| Ryan Marrinan (ENG) | <i>Vectors of Value: Cultural and Symbolic Capital as the Marxist Fetish in Chris Abani’s GraceLand</i> |

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| Michael Marron (HIS) | <i>The Effect of New Stadiums and Arenas on Local Employment</i> |
| Ryan McInnis (ECO) | <i>Repeated Distress: CEO Turnover, Post-bankruptcy Firm Performance, and Chapter XI Efficiency</i> |
| James McKenna (ECO) | <i>The Impact of Welfare Reform on Marriage: An Analysis using Becker's Theoretical Foundation</i> |
| Lauren McKenna (ORF) | <i>Queuing Theory in the Airline Industry</i> |
| Rahul Mehra (ECO) | <i>A Passage to India: A Study of the Indian Stock Market</i> |
| A. Paul Mirabello (ORF) | <i>Solving Sudoku Puzzles</i> |
| Kyle Morgan (ECO) | <i>The Principal-agent Problem and Equity Financing</i> |
| Eric Murphy (ORF) | <i>Optimal Exercise Patterns and Valuation of Employee Stock Options: An Approximation Dynamic Programming Approach</i> |
| Andriy Mykhaylovskyy (WWS) | <i>Oil in the Caspian Basin and Chechnya: Geopolitical and Economic Impact on the Chechen War</i> |
| Christina Norair (ORF) | <i>Investigating Fixed-Mix and Momentum Investment Strategies as Possible Methods of Portfolio Management for the Recent ORFE Graduate</i> |
| Justin Oppenheimer (POL) | <i>A Historical Analysis of the "Race" for Control over America's Charters</i> |
| Luke Owings (ECO) | <i>The Effect of the Internet on the Educational Expectations of High School Sophomores</i> |
| James Park (MUS) | <i>An Analysis of the Marketing Expenditure of the Princeton University Orchestra</i> |
| Deven Petito (ECO) | <i>Consortium on Leveraged Buyout Deal Success Probability</i> |
| Ashwin Rajendra (ECO) | <i>Race and Reward: The Truth behind Discrimination in the NFL</i> |
| Robert Ravnaas (ECO) | <i>Determinants of Hedging Position and the Effect on Firm Value: A Study of the Independent Oil and Gas Industry</i> |
| Gregory Redman (ORF) | <i>The Client-facing Approach to Mass Transit: Modeling Reliability on the Washington Metro</i> |
| Towson Remmel (COM) | <i>Causes of the Savings and Loan Crisis</i> |
| Peter Ryan (ECO) | <i>Collateralized Debt Obligations: A Discussion of Structure, Pricing and the Drivers of Tranche Returns</i> |
| Eloise Salmon (ECO) | <i>Dealing with Diabetes: An Analysis of the Impact of Medicare Eligibility on the Care of Individuals with Type 2 Diabetes</i> |
| Lawrence Schuler (ECO) | <i>Committee Dynamics in Monetary Policy</i> |
| Dean Scott (ELE) | <i>Markov Models for Credit Ratings: A Study of Current Techniques and New Proposals</i> |
| Nicholas Seaver (ECO) | <i>The Closed-end Mutual Fund Puzzle in China</i> |
| Dustin Sedgwick (ECO) | <i>A Detailed Analysis of Minority and Gender Discrimination in Executive Compensation</i> |
| Ian Shea (ORF) | <i>Cournot Competition with Limited Resources: Venezuela vs. OPEC</i> |
| Jian Shen (MAT) | <i>Duality Approach for Monte Carlo Pricing of American Options</i> |
| Haemi Shin (ECO) | <i>Measuring the Effect of the Increased Presence of Microcredit on the Poor in the Northeast Region of Brazil</i> |
| Julia Shneyderman (ECO) | <i>"Made in China": A Blessing or a Curse for US Firms? Case Study of Apparel and Electronic Manufacturing Industries</i> |
| Michael Short (ECO) | <i>Convergence in the European Monetary Union: An Optimal</i> |

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| | <i>Monetary Policy Approach</i> |
| Richard Shriner (POL) | <i>Financial Convergence and Institutional Embeddedness: A Comparison of Germany and Japan</i> |
| Alexander Smorczewski (ECO) | <i>Unemployment and Crime in Georgia, 1990-2004: County-level Analysis with Panel Data</i> |
| Pei Soh (ECO) | <i>Playing Footsie with Global Warming: How the European Union Emissions Trading Scheme Impacts the London Stock Exchange</i> |
| Ashley Soloff (ECO) | <i>In the Business of Giving: An Empirical Examination of the Relationship between Corporate Philanthropy and Financial Performance</i> |
| Ben Steiner (WWS) | <i>Peak Oil and Policy Recommendations for Mitigating its Effect on the US Transportation Sector</i> |
| Rafe Steinhauer (ORF) | <i>Modeling Disabled List Time in Major League Baseball and its Effects on Team's Injury Risk</i> |
| Ramsey Stephan (ORF) | <i>The Carry-to-risk Portfolio Model: A Monte Carlo Approach to Optimality</i> |
| David Stopher (HIS) | <i>Martyrdom of the Maya</i> |
| Ngai Suet (ECO) | <i>The Effects of Ownership Structure on Firm Performance and Earnings Informativeness: Evidence from Korea</i> |
| Jim Tai (ELE) | <i>Chaoticity as a Measure of Risk in Financial Time Series</i> |
| Michael Tang (ECO) | <i>Motives and Efficacy of Hedge Fund Activism</i> |
| James Tate (ORF) | <i>The Game behind the Game: An Analysis of Baseball Player Evaluation Models</i> |
| Alex Thorn (ORF) | <i>A Theoretical Model on the Incentive Structure of Hedge Fund Managers</i> |
| Edward Tostanoski (ORF) | <i>Approximate Dynamic Programming for Equity Portfolio Selection</i> |
| Charles Vu (ECO) | <i>Pricing Catastrophe Bonds and Industry Loss Warranties within a Compound Poisson Process Framework</i> |
| Brandon Walker (ECO) | <i>Signaling Effects of Corporate Actions</i> |
| Albert Wang (COM) | <i>The Sense of Essence: An Essay Concerning Aesthetic Effect and Social Knowledge</i> |
| Alvin Wang (COS) | <i>Catastrophe Risk Modeling: Formulation and Applications to Insurance</i> |
| Carol Wang (WWS) | <i>Ensuring that School-based Finance Formulas Provide an Adequate Education for Special-needs Children New York City's Autonomy Zone Schools</i> |
| Eric Weyl (ECO) | <i>The Price Theory of Two-sided Markets</i> |
| Joshua White (ECO) | <i>Terrorist Attacks and their Impact on Publicly Traded Companies</i> |
| Tyler Woulfe (ORF) | <i>Credit Default Swaps and Corporate Bonds: Empirical Relationships in and out of the Energy Sector</i> |
| Jie Wu (ELE) | <i>Study of Long-range Dependency in Commodity Markets using Wavelet Analysis</i> |
| Wei Xiang (COS) | <i>Copyrights in Virtual Worlds</i> |
| Alice Yeh (ORF) | <i>Dynamic Modeling of Optimal Housing Tenure Choice for Low-income Households</i> |
| Vincent Yu (ORF) | <i>Approximate Dynamic Programming for Blood Inventory Management</i> |

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| Mocharl Zaret (ECO) | <i>The Effect of Aggregate Valuation on Public to Private Leveraged Buyout Activity</i> |
| Jeanne-Paloma Zelmati | <i>What Does it Take to Paint Fire Engines Red? Tradeoffs in Nation-building: The Experiences of the EU and the UN in Kosovo</i> |
| Hanjiang Zhou (ECO) | <i>A Study of China's Syndicated Loans Market</i> |
| Joseph Zipkin (MAT) | <i>A Wavelet-based Estimator of a Parameter of Long-range Dependence with Applications to Financial Time Series</i> |

Mini-Course on Financial Modeling, Valuation and Analysis

using Excel, VBA and C++

This seven-session, not-for-credit, mini-course, taught students the fundamentals of constructing financial models in Microsoft Excel, VBA and C++. It was designed to provide real experience in applying financial concepts to valuation models, and taught the basic mechanics involved in financial modeling. In the process, students were better able to recognize the intuition behind financial concepts that they have already been taught in other finance courses.

Undergraduate Certificate in Finance and Master in Finance students were strongly encouraged to attend. It was possible to take the first four sessions separately from the last three.

In the first four sessions, students gained a proficiency in Microsoft Excel and VBA and its use as a tool for rigorous financial analysis. They were also presented with certain commonly accepted methodologies of presentation in the areas of financial analysis and valuation. As a result of this class, students were better able to construct a variety of financial analyses such as projections and valuations. This valuable skill will be applicable in areas as diverse as investment analysis, government service, and financial management of non-profit organizations. On-line tutorials in Microsoft Excel were provided.

The last three sessions introduced financial modeling using C++. This was particularly useful for students who intended to enroll in ORF 531/FIN 531: Computational Finance in C++ during the spring semester, which is highly recommended for all Master in Finance students.

The sessions took place from 8:00 pm until 10:00 pm, in the Computer Science building, Room 104, on the following dates:

- Tuesday, November 7, 2006: Excel Lecture 1
- Tuesday, November 14, 2006: Excel Lecture 2
- Tuesday, November 21, 2006: Excel Lecture 3
- Tuesday, November 28, 2006: VBA Lecture
- Tuesday, December 5, 2006: C++ Lecture 1
- Thursday, December 7, 2006: C++ Lecture 2
- Tuesday, December 12, 2006: C++ Lecture 3

The course was taught by Casey Carnathan.

Master in Finance

The interdisciplinary Bendheim Center for Finance offers a Master in Finance degree. The distinctive feature of Princeton's Master in Finance program is its strong emphasis on financial economics in addition to financial engineering and computational methods. Graduates of our program have a solid understanding of the fundamental quantitative tools from economic theory, probability, statistics, optimization and computer science, all of which are becoming increasingly vital in the financial industry. To a greater degree than at any time in the past, there now exists a body of knowledge that is widely agreed to be essential for the proper analysis and management of financial securities, portfolios and the financial decisions of firms. A driving force behind these developments is a lively exchange of ideas between academia and the financial industry, a collaboration that is the closest parallel in the social sciences to the academic-private sector interactions routinely seen in engineering and the applied sciences.

The Master in Finance program is intended to prepare students for a wide range of careers both inside and outside the financial industry, including financial engineering and risk management, quantitative asset management, macroeconomic and financial forecasting, quantitative trading, and applied research. The program does not require prior work experience, although it can be a plus. The BCF provides extensive career assistance to students, including help with internships and job placement, through its own staff and our placement record has been excellent. The program does have a small number of merit-based fellowships (in the form of a fraction of the full-year's tuition cost) that we grant to our top applicants.

The curriculum is designed to be completed in four terms. Admission letters will specify the expected program length. Individual meetings between students admitted into the program and the director of graduate studies will determine, on the basis of courses previously completed at Princeton or another institution, which courses need to be taken. This flexible format allows exceptionally well-prepared students to complete the program in as little as one academic year. The program is designed to be completed on a full-time basis. Classes are taught during the day, and full-time students take four or five courses per term. Given the logistics, the only possibility for part-time enrollment would be for students who already work in the Princeton area and who would be able to attend class during the day. Part-time students are expected to take a minimum of two classes per term, and a maximum of four years (eight terms) to finish the program. All students are subject to an annual review of academic progress.

Princeton's Master program draws upon the combined strength of a variety of departments at Princeton, including the Department of Economics, the Department of Operations Research and Financial Engineering, the Department of Computer Science, and others. The program has two major course components. First, required core courses will provide (1) the prerequisite skills in mathematics, economics, and probability and statistics necessary for the study of finance at a sophisticated level and (2) an integrated introduction to modern financial analysis. Second, a wide range of elective courses, drawn from many departments, will allow students to tailor the program to fit their own needs and interests. These courses will permit a range of opportunities for specialization and in-depth study of topics of interest to the student. Finally, the required summer internship is meant to provide additional practical experience in addressing real-world finance issues.

Admission Requirements

The Master in Finance program is designed both for students with mathematical (or physics and engineering) training, who want to make finance their main field of application, and for students with an economics (or business or social science) background, who want to acquire the quantitative skills essential for a well-rounded training in finance. In either case, students must have an interest in, and be able to handle the combination of economic analysis, mathematics, econometrics, and computer science that are pervasive in modern finance. An intensive two-week review course, The Math Refresher Course for Incoming MFin Students (“math camp”) covering probability and topics in mathematics, as required for the core courses, is taken by students prior to the beginning of classes in the fall. In September, for the incoming class, we organize a three-day “boot camp” with industry professionals where various career issues are reviewed and help is provided (including resume-writing, one-on-one videotaped interview sessions, etc.).

Applicants must take either the GRE or the GMAT. Applicants whose native language is not English and who have not received their undergraduate education in the United States must take the TOEFL or the IELTS exam.

Statistics on the Admission Process

| | Applications | Offers | Acceptances |
|------------|--------------|--------|-------------|
| January 04 | 200 | 19 | 9 |
| January 05 | 296 | 31 | 19 |
| January 06 | 418 | 47 | 27 |
| January 07 | 425 | 49 | 32 |

Highest Degree Before Applying to Princeton’s M.Fin.

| | Bachelor | Master | Ph.D. |
|------------|----------|--------|-------|
| January 04 | 85% | 15% | 1% |
| January 05 | 60% | 35% | 5% |
| January 06 | 66% | 30% | 4% |
| January 07 | 68% | 28% | 4% |

Applicant Profile: Gender & Age

| | Female | Male | Median Age |
|------------|--------|------|------------|
| January 04 | 29% | 71% | 24 |
| January 05 | 26% | 74% | 26 |
| January 06 | 29% | 71% | 25 |
| January 07 | 31% | 69% | 23 |

Applicant Profile: GRE Scores Mean (Median)

| | Analytical | Quantitative | Verbal |
|-----------------------------|-----------------------|--------------|--------------|
| January 04 Applicants | 714 (810) | 776 (790) | 554 (560) |
| September 04 Entering Class | 768 (780) | 786 (800) | 609 (620) |
| January 05 Applicants | 705 (745) | 781 (800) | 547 (580) |
| September 05 Entering Class | 765 (765) | 789 (800) | 642 (640) |
| January 06 Applicants | 4.47 (4.5) (new test) | 781 (800) | 568 (580) |
| September 06 Entering Class | 5.1 (5) (new test) | 786.5 (800) | 647.5 (655) |
| January 07 Applicants | 4.44 (4.5) | 786.77 (800) | 563.75 (570) |
| September 07 Entering Class | 4.75 (5) | 795.39 (800) | 600.38 (630) |

Program Requirements

The program requirements consist of six core courses and 10 elective courses (see list below), with the following provisions:

- At least five of the elective courses must be at the level 500 or higher.
- At least five of the elective courses must be taken from List 1 below.
- The program can be completed in one or two years; most complete it in two. Admission letters will specify the expected length of study. Individual meetings between students admitted into the program and the Director of Graduate Studies will determine, on the

basis of courses previously completed at Princeton or another institution, which courses need to be taken.

- Students must maintain an overall grade average of B or better as well as earn a passing grade in all core and elective courses.
- Audited courses cannot be used to fulfill the program's requirements.
- While no Master's thesis is required, students interested in independent research may work with a Bendheim Center-affiliated faculty member on a topic relevant to finance, and by enrolling in the appropriate courses (FIN 560/561), they can receive academic credit equivalent to one or two elective courses (thereby reducing the number of required electives).

Core Courses

The core courses of the Master in Finance program provide students with analytical fundamentals of modern finance, both theoretical and empirical. The organization of the core courses for students entering the program is:

- Financial Economics – ECO 362 (fall) and FIN 502 (spring)
- Asset Pricing – FIN 501/ORF 514 (fall) and ORF 515/FIN 503 (spring)
- Statistics and Econometrics – ORF 505/FIN 505 (fall) and ORF 504/FIN 504 (spring)

Elective Courses

In addition to core courses, which provide a broad survey of topics and techniques of modern finance, the program will offer students the opportunity to choose among a variety of elective courses. Some of these courses have prerequisites, or require permission of the respective instructors.

List 1: Finance Applications Courses

- FIN 512: Trading and Securities Markets
- FIN 515: Portfolio Theory and Asset Management
- FIN 516: Topics in Corporate Finance, Corporate Governance and Banking
- FIN 517: Venture Capital and Private Equity Investment
- FIN 518: International Financial Markets
- FIN 519: Corporate Restructuring, Mergers and Acquisitions
- FIN 521: Fixed Income: Models and Applications
- FIN 522: Options, Futures and Financial Derivatives
- FIN 523: Forecasting and Time Series Analysis
- FIN 560: Master's Project I
- FIN 561: Master's Project II
- FIN 567: Institutional Finance
- FIN 568: Behavioral Finance and Economics
- FIN 570: Valuation and Security Analysis
- ECO 414: Introduction to Economic Dynamics
- ECO 525/FIN 595: Financial Economics I
- ECO 526/FIN 596: Financial Economics II
- ECO 575/FIN 575: Topics in Financial Economics

- ORF 527: Stochastic Calculus and Finance
- ORF 530: Statistical Analysis of Large Financial Datasets
- ORF 531/FIN 531: Computational Finance in C++
- ORF 534/FIN 534: Financial Engineering
- ORF 535/FIN 535: Financial Risk Management
- ORF 555: Fixed Income Models
- ORF 569: Special Topics in Statistics and Operations Research
- ORF 574: Special Topics in Investment Science
- WWS 451: Special Topics in Public Affairs: Regulation of International Financial Markets

List 2: General Methodology for Finance

- APC 350: Introduction to Differential Equations
- APC 503: Analytical Techniques in Differential Equations
- APC 518/ORF 518: Applied Stochastic Analysis and Methods
- CEE 513: Introduction to Finite-element Methods
- CEE 532: Advanced Finite-element Methods
- CEE 548: Risk Assessment and Management
- CHE 508: Numerical Methods for Engineers
- CHE 530: Systems Engineering
- COS 318: Operating Systems
- COS 323: Computing for the Physical and Social Sciences
- COS 333: Advanced Programming Techniques
- COS 423: Theory of Algorithms
- COS 425: Database Systems
- COS 432: Information Security
- COS 436: Human-computer Interface Technology
- COS 444/ECO 444: Electronic Auctions
- COS 461: Computer Networks
- ECO 418: Strategy and Information
- ECO 501: Microeconomic Theory I
- ECO 502: Microeconomic Theory II
- ECO 503: Macroeconomic Theory I
- ECO 504: Macroeconomic Theory II
- ECO 511: Advanced Economic Theory I
- ECO 512: Advanced Economic Theory II
- ECO 513: Advanced Econometrics: Time Series Models
- ECO 517: Econometric Theory I
- ECO 518: Econometric Theory II
- ECO 519: Advanced Econometrics: Nonlinear Models
- ECO 521: Advanced Macroeconomic Theory I
- ECO 522: Advanced Macroeconomic Theory II
- ECO 523: Public Finance I
- ECO 524: Public Finance II
- ECO 531: Economics of Labor
- ECO 541: Industrial Organization and Public Policy
- ECO 551: International Trade I
- ECO 552: International Trade II
- ECO 553: International Monetary Theory and Policy I
- ECO 554: International Monetary Theory and Policy II
- ELE 591: High-tech Entrepreneurship
- MAE 305/MAT 301: Mathematics in Engineering I
- MAE 306/MAT 302: Mathematics in Engineering II
- MAE 503: Basic Numerical Methods for Ordinary and Partial Differential Equations

- MAT 301/MAE 302: Mathematics in Engineering I (ODE, PDE)
- MAT 305: Mathematical Programming
- MAT 591 & MAT 592: Applied Partial Differential Equations
- MAT 594/APC 584 Wavelets: Applications of Wavelets in Mathematics and Other Fields
- ORF 307: Optimization
- ORF 311: Optimization under Uncertainty
- ORF 401: Electronic Commerce
- ORF 474: Special Topics in Operations Research and Financial Engineering
- ORF 522: Linear Optimization
- ORF 523: Nonlinear Optimization
- ORF 524: Statistical Theory and Methods
- ORF 526: Stochastic Modeling
- ORF 542: Controlled Markov Processes
- ORF 547: Dynamic Programming
- ORF 548: Large-scale Optimization
- ORF 549: Stochastic Programming
- ORF 551: Probability Theory
- ORF 553: Stochastic Differential Equations
- ORF 554: Markov Processes

Tracks

Elective courses can be chosen according to either individual needs and preferences, or to conform to one of the suggested tracks, listed below. It is not necessary for a student to designate or complete a particular track to satisfy the Master's requirements; the tracks listed below are merely illustrations of coherent courses of study that students might choose. Beyond the tracks listed below, we offer a number of electives in corporate finance, dealing with the choice and financing of investment projects, firms' determination of dividend policy, optimal capital structure, financial reorganization, mergers and acquisitions, start-up financing, deal structure, incentive design, valuation of high risk projects, initial public offerings, etc. However, we believe that our students' comparative advantage lies in other areas encompassed within the modern investment bank such as asset management, risk management, derivatives pricing and trading, fixed income analytics and other areas where a quantitative background in theoretical and practical aspects of modern finance is essential.

Financial Engineering and Risk Management

Financial engineers design and evaluate products that help organizations manage risk-return tradeoffs. Financial engineering is no longer limited to quantitative traders and derivatives specialists, but is now used widely throughout the private sector for purposes including hedging foreign currency exposures, financing real investment, and managing real and financial risks. The aim of this track is to provide students with the background they need to be leaders and innovators in this growing field. The track includes courses in dynamic programming and stochastic control, financial economics, optimization under uncertainty, probability, and stochastic calculus and computational finance. Special attention is given to the development of the efficient computational techniques that are needed in "real-time" computing environments. In addition, students can elect to focus on the computer-based technologies that are becoming increasingly important in finance, such as the design of efficient trading systems, algorithms, interfaces, large databases, and the security of computer networks. Several courses provide students with the opportunity to acquire practical experience. In particular, full-time students

will have the opportunity to work in a small group on actual financial engineering problems under the joint guidance of a faculty member and a high-level industry practitioner.

Quantitative Asset Management and Macroeconomic Forecasting

Highly trained financial specialists are increasingly utilized in the fields of portfolio management and macroeconomic forecasting. Among the quantitative tools used in this area are analysis of earnings revisions, “attribute” screening, and quantitative forecasting methods. Quantitative techniques are widely employed to control portfolio risk and to establish portfolios balanced with different assets (stocks, bonds, real estate, etc.) so as to minimize the variance of returns. Finally, major asset managers, commercial banks, life insurance companies, securities firms, etc., all employ financial economists to formulate strategies consistent with the expected performance of the macroeconomy; required skills include expertise in applied time series analysis and an understanding of the major statistical macroeconomic models.

Financial Technologies Track

Computer-based technologies are becoming increasingly important in finance, such as algorithms, efficient trading systems, large databases, multimedia and web interfaces, parallel processing and the security of computer networks. The continued development of e-commerce, the growth of computer-based trading and the renewed emphasis on risk management in all firms are creating a new competitive environment where increasing the speed and lowering the costs of trading and other financial operations become essential components of success. This track gives students access to the latest tools and techniques of computer science and computational methods applied to finance.

Seminars and Computing Environment

Students are involved in regular seminars offered by academic researchers and industry representatives, and they will have the opportunity to participate in collaborative projects in some of the elective courses. The Financial Engineering Laboratory (equipped with financial data feeds and personal computers, workstations) has been set up to facilitate such projects. The program provides a standardized computing environment based on Mathematica, Matlab, S-Plus and Microsoft Office. Computational skills are taught in a series of workshops and in a course on computational finance in C++.

Some Course Descriptions

ECO 362: Financial Investments

This course surveys the field of investments with special emphasis on the valuation of financial assets. Issues studied include how portfolios of assets should be formed, how to measure and control risk, how to evaluate investment performance and how to test alternative investment strategies and asset pricing models.

FIN 501: Asset Pricing I: Pricing Models and Derivatives

Provides an introduction to the modern theory of asset pricing. Topics include: no arbitrage, Arrow-Debreu prices and equivalent martingale measures, security structure and market completeness, mean-variance analysis, Beta-pricing, CAPM, and introduction to derivative pricing.

FIN 502: Corporate Finance and Financial Accounting

Covers the basics of financial statements, the analysis and recording of transactions, and the underlying concepts and procedures. In addition, a more detailed study of some aspects of financial accounting that have widespread significance is undertaken, such as inventories, long-term productive assets, bonds and other liabilities, stockholders equity, and the statement of changes in financial position. The course provides students with the skills necessary to become informed users of financial statements. Problem sets emphasize an ability to interpret and analyze financial statement disclosures.

FIN 512: Trading and Securities Markets

The organization and regulation of stock markets; price formation, volatility, and liquidity in the secondary market (market microstructure). The course will also focus on stock market crashes, Keynes beauty contest comparison, and herding behavior. The listing decision and the primary market for raising equity capital for firms.

FIN 515: Portfolio Theory and Asset Management

This course covers a number of advanced topics related to asset management and asset pricing. Topics include mean-variance analysis, CAPM, APT, market efficiency, delegated money management, stock return predictability, bubbles and crashes, social interaction and investor behavior, security analysts and investor relations, and mutual fund performance and organization.

FIN 516: Topics in Corporate Finance, Corporate Governance and Banking

The course covers agency and control issues in corporate finance such as managerial compensation, the role of corporate boards, takeovers, leveraged buyouts and bankruptcy. It also studies the role of banks and other intermediaries' activities in facilitating investment and promoting sound corporate governance.

FIN 518: International Financial Markets

This course studies the assets and institutions of international financial markets. A key difference between these markets and others is the role of exchange rates relating the value of two or more national currencies. The course studies the market-making institutions, the market conventions, and market practices. It also studies the interrelationships between different assets and their pricing, trading, and use by corporations.

FIN 519: Corporate Restructuring, Mergers and Acquisitions

This course examines some of the most popular restructuring options available to corporate managers and will construct a framework to evaluate the implications they may have to shareholder value.

FIN 521: Fixed Income: Models and Applications

This course deals with the valuation for fixed income securities. Topics include: (i) interest rate contracts: zero-coupon bonds, coupon bonds, floating rate notes, yields, forwards and futures, swaps, options, caps, swaptions; (ii) arbitrage free pricing in discrete time: Vasicek model, Ho-Lee model, Black-Derman-Toy model; (iii) introduction to continuous-time fixed income modeling: Black model, Heath-Jarrow-Morton; (iv) applications of arbitrage free models to pricing of interest rate contracts, (v) credit risk; (vi) mortgage-backed securities.

FIN 522: Options, Futures and Financial Derivatives

The objective of this course is to study the essential techniques of pricing financial derivatives. These techniques include the Black-Scholes formula (awarded 1997 Nobel prize in economics), binomial tree method and risk-neutral valuation method. We will also discuss extensively trading strategies associated with financial derivatives for different purposes, and potential problems that can arise in the application of financial derivatives. This course is technical by nature, and requires extensive use of calculus, statistics and Excel spreadsheet programming.

FIN 560/561: Master's Project I & II

Under the direction of a Bendheim-affiliated faculty member, students carry out a Master's project and write a report.

FIN 567: Institutional Finance

This course studies financial institutions and focuses on the stability of the financial system. It covers important theoretical concepts and recent developments in financial intermediation, asset pricing under asymmetric information, behavioral finance and market microstructure. Topics include market efficiency, asset price bubbles, herding, liquidity crisis, risk management, market design and financial regulation.

FIN 568: Behavioral Finance and Economics

Course will present models that are psychologically more realistic than the standard "rational actor" model. About 30% of the course will be devoted to economics, 70% to finance. Applications to economics will include decision theory, happiness, fairness, and neuroeconomics. Applications to finance will include theory and evidence on investor psychology, predictability of the stock market and other markets, limits to arbitrage, bubbles and crashes, experimental finance, and behavioral corporate finance.

FIN 570: Valuation and Security Analysis

A specialized corporate finance course. The objective is to teach valuation methods. Course uses accounting and finance concepts for valuing firms and covers the necessary corporate finance concepts with an equal mix of theory and application. Topics include financial statement analysis, capital budgeting methods, estimating cash flows, estimating various costs of capital, valuation of projects, valuation of companies and security valuation, LBOs, mergers and acquisitions, valuing a drug licensing opportunity, the initial public offering valuation and valuation of strategic and real options.

ECO 525/FIN 595: Financial Economics I

Asset pricing in competitive markets where traders have homogeneous information. Empirical tests of asset-pricing models and associated "anomalies" are also surveyed. Measures of riskiness and risk aversion, intertemporal asset-pricing models, dynamic portfolio choice, option pricing and the term structure of interest rates, corporate investment and financing decisions, and taxation are studied.

ECO 526/FIN 596: Financial Economics II

Theories and empirical evidence regarding financial markets and institutions that focus on asymmetric information, transaction costs, or both; and rational expectation models of asset pricing under asymmetric information, dynamic models of market making, portfolio manager

performance evaluation, principal-agent models of firm managerial structure, takeover bids, capital structure, and regulation of financial markets are studied.

ECO 575/FIN 575: Topics in Financial Economics

This course is intended for Ph.D. students who have already completed the year-long Ph.D. sequence in finance (ECO 525 and 526) and who intend to write their dissertation in finance. Topics vary by year, focusing on recent developments in the field.

ORF 504/FIN 504: Financial Econometrics

This course covers econometric and statistical methods as applied to finance. Topics include measurement issues in finance, predictability of asset returns and volatilities, value at risk and extremal events, linear factor pricing and portfolio problems, intertemporal models of the Stochastic Discount Factor and Generalized Method of Moments, vector autoregressive and maximum likelihood methods in finance, risk neutral valuation in discrete time, estimation methods for continuous time models, volatility smiles and alternatives to Black-Scholes, and nonparametric statistical methods for option pricing.

ORF 505/FIN 505: Modern Regression and Time Series

Linear and mixed effect models. Nonlinear regression. Nonparametric regression and classification. Time series analysis: stationarity and classical linear models (AR, MA, ARMA). Nonlinear and nonstationary time series models. State space systems, hidden Markov models and filtering.

ORF 515/FIN 503: Asset Pricing II: Stochastic Calculus and Advanced Derivatives

Begins with an overview of basic probability theory and covers the elements of stochastic calculus and stochastic differential equations that are widely used in derivatives modeling, pricing, and hedging. Topics include Brownian motion, martingales, and diffusions and their uses in stochastic volatility; volatility smiles; risk management; interest-rate models; and derivatives, swaps, credit risk, and real options.

ORF 531/FIN 531: Computational Finance in C++

The intent of this course is to introduce the student to the technical and algorithmic aspects of a wide spectrum of computer applications currently used in the financial industry, and to prepare the student for the development of new applications. The student will be introduced to C++, the weekly homework will involve writing C++ code, and the final project will also involve programming in the same environment.

ORF 534/FIN 534: Financial Engineering

A survey of central topics in the area of financial engineering and multi-period financial planning systems. Pricing methodologies integrated with financial planning systems. Linking asset and liability strategies to maximize surplus wealth over time. We model the organization as a multi-stage stochastic program with decision strategies.

ORF 535/FIN 535: Financial Risk Management

This course is about measuring, modeling and managing financial risks. It introduces the variety of instruments that are used to this effect and the methods of designing and evaluating such

instruments. Topics covered include risk diversification, planning models, market and nonmarket risks, and portfolio effects.

ORF 555/FIN 555: Fixed Income Models

Introduction to continuous-time models for the arbitrage-free pricing of interest rate derivatives. Topics include primitives of the bond market and the relation between their dynamics, short rate models, the Heath-Jarrow-Morton methodology and related consistency problems, LIBOR market models, affine term structure models, risk of default.

Master in Finance Placement

Our program has continued to enjoy excellent success with all of our 2007 graduates being placed in finance industry jobs. The candidates for the Master in Finance degree get support and assistance with their post-graduate career planning from a coordinated program of resources, including Princeton's Office of Career Services and the BCF's Director of Corporate Relations, David H. Blair. They also benefit from support from our Corporate Affiliates and Advisory Council.

Our graduates will be pursuing their careers at:

| | |
|---------------------------|---|
| Crédit Suisse | Associate in quantitative analysis |
| Goldman Sachs | Strategist in private wealth management |
| JP Morgan | One in structured credit and one in statistical arbitrage group |
| Lehman Brothers | Senior analyst in capital markets Senior analyst in equity derivatives Prime brokerage Associate in fixed income research Associate in energy trading Associate in asset backed securities |
| Merrill Lynch | Credit derivatives |
| REC Capital Markets | Associate in global debt markets |
| Reserve Bank of Australia | Associate economist |

Our first year students have obtained summer internships as follows:

| | |
|-----------|----------------|
| Afrinvest | Emeka Onodugo |
| Bloomberg | Zain Hoda |
| Citadel | Theo Vanderzee |

| | |
|-----------------------------|--|
| Crédit Suisse | Gabriel Gray |
| Harvard Management Company | Ryan Simmons |
| JP Morgan | Edwin Amonoo, Eric Goldlust, Ganesh Lakshminarayana, Hashim Zaman |
| Lehman Brothers | Rajashekar Reddy |
| Polygon Investment Managers | Xian Tang |
| PRINCO | Gabriela Cohen-Nofal, Xu Da Tan |

Fellowships Awarded

The Gerhard R. Andlinger '52 Graduate Fellowship in Finance was awarded to Gabriela Cohen-Nofal. Gabriela came to us from the Universidad Torcuato Di Tella in Argentina and interned as an Advisor to the Vice-President of Banco Central de la Republica Argentina.

The Bendheim Graduate Fellowship in Finance was awarded to Bradley Ayres. Bradley came to us from Cornell University and he interned as a Summer Senior Analyst at Lehman Brothers in New York.

The Mossavar-Rahmani Graduate Fellowship in Finance was awarded to Anne-Gabrielle Laboureau. Anne came to us from the Ecole Nationale des Ponts et Chaussées and worked as an analyst in project finance at Dexia Crédit Local in France.

MFin Math Camp/Boot Camp

For the second year, we conducted a two-week “math camp” program. This year it was taught by Boyan Kostadinov, an incoming student who had been an Assistant Professor of Mathematics at UCLA prior to joining our MFin program. The purpose of the math camp is to enrich the finance mathematics background of the incoming students so that they are ready for the mathematical rigors of the program.

We continued our three-day “boot camp” program which was developed for the incoming students prior to the beginning of classes in September. The camp focuses on a refresher of various finance topics, the types of careers for which the MFin degree prepares students and some useful information on interviewing skills. The boot camp presenters came from the BCF faculty, MFin alumni, and the financial services industry. This program was very well received by the incoming students, particularly those who would have to begin interviewing for permanent jobs less than six weeks after starting the program. In September 2006, the program’s agenda was as follows:

Monday, August 28, 2006

8:30 to 9:00 a.m. Welcome – Continental Breakfast at Bendheim Center
Sign up for resume writing sessions with Kathleen Mannheimer, Graduate Career Services and interviews with David Blair and Swati Bhatt

9:00 a.m. to Noon Math Camp

1:00 to 3:30 p.m. Math Camp

Tuesday, August 29 to Saturday, September 2

Same schedule as above, except Saturday math camp ends at noon

Friday, September 1 through Thursday, September 7

Appointments with David Blair, Swati Bhatt and Kathleen Mannheimer

Tuesday, September 5 through Thursday, September 7

Same as Monday, August 28 math camp schedule

Friday, September 8

8:30 to 9:00 a.m. Welcome – Continental breakfast at Bendheim Center

9:00 to 10:00 a.m. Introduction – Yacine Aït-Sahalia and René Carmona

10:00 to 11:00 a.m. Structure of Modern Investment Bank – David Blair

11:00 to Noon Introduction to Career Services and Placement Resources plus – Do's and Don'ts – A Short Guide to Employment Etiquette, David Blair, Swati Bhatt and Kathleen Mannheimer

1:00 to 1:30 p.m. Economic and Finance Library Resources – Bobray Bordelon

1:30 to 3:00 p.m. Career Presentation by John Massad, Managing Director, Blackrock, on career issues in fixed income

3:00 to 5:00 p.m. Career Presentation by John Shapiro, Managing Director of Morgan Stanley's commodities trading desk, on career issues in commodities trading

Saturday, September 9

9:00 to 10:00 a.m. Presentation by executive recruiter, John Gramer of Spherion on an executive recruiter's perspective on MFin careers

10:00 a.m. to 12:30 p.m. Panel Discussion among recent graduates on interviewing techniques and job search methodology (Dave Steckl, John Naud, Gaetan Ciampini, Chad Shampine and Amar Sujjanani)

1:15 to 2:45 p.m. First Group Applied Interviewing Techniques – Syntaxis

3:00 to 4:30 p.m. Second Group Applied Interviewing Techniques – Syntaxis

Monday, September 11

9:00 to 10:30 a.m. Presentation by Brian Fullerton, Managing Director of Merrill Lynch Investment Managers, on career issues in Asset Management and Risk Management

10:45 a.m. to 12:15 p.m. Presentation by Amitabh Arora, Managing Director, Lehman Brothers, on career issues in fixed income trading and research

1:30 to 2:30 p.m. Concluding remarks and final Q&A on career issues

3:00 to 6:00 p.m. Appointments with David Blair, Swati Bhatt, and Kathleen Mannheimer

Tuesday, September 12

Appointments with David Blair, Swati Bhatt and Kathleen Mannheimer

Wednesday, September 13

Appointments for videotape interview training with Kathleen Mannheimer

New graduate student sign-in, Frist Campus Center, 9 a.m. to noon

Thursday, September 14

First day of classes

Final form of resumes submitted electronically to David Blair

Advisory Council

The Advisory Council for the Bendheim Center is comprised of a group of distinguished leaders in the financial industry. The Council meets on campus once a year. In 2007, the meeting took place on May 30-31. We continued our format of including a dinner the night before the morning meeting to enable the Council members to exchange ideas in a more informal setting.

Mr. Gerhard R. Andlinger
Chairman of the Board
Andlinger & Company, Inc.

Mr. John K. Hepburn
Advisory Vice Chairman
Morgan Stanley & Co.

Mr. Hamid Biglari
Managing Director
Citigroup Global Markets, Inc.

Mr. Kenneth Hersh
Managing Partner
Natural Gas Partners

Mr. John C. Bogle
President
Bogle Financial Markets Research Center
Vanguard

Mr. William H. Heyman
Vice Chairman & Chief Investment Officer
The Travelers Companies, Inc.

Mr. John L. Cecil
Senior Advisor
Lehman Brothers

Mr. John A. Mayer, Jr.
Chief Financial Officer (Retired)
J.P. Morgan & Company

Mr. Christopher A. Cole
Managing Director
Goldman Sachs & Co.

Mr. Michael McCaffery
Founder
Makena Capital Management

Mr. E. Robert Cotter, III
General Partner
Merritt Capital LP

Ms. Heidi G. Miller
Executive Vice President & Chief Executive
Officer
JP Morgan Chase

Mr. Howard E. Cox, Jr.
General Partner
Greylock Management Corporation

Ms. Sharmin Mossavar-Rahmani
Managing Director
Goldman Sachs & Co.

Mr. David A. DeNunzio
Vice Chairman, Mergers and Acquisitions
Crédit Suisse

Mr. Jeffrey M. Peek (Chair)
Chairman and Chief Executive Officer
CIT Group, Inc.

Mr. J. Michael Evans
Partner and Managing Director
Goldman Sachs & Co.

Ms. Lynn Thoman
Managing Partner
Corporate Perspectives

Mr. Benjamin Griswold
Senior Partner
Brown Advisory

Mr. Paul M. Wythes
Founding General Partner
Sutter Hill Ventures

Corporate Affiliates Program

The annual Corporate Affiliates Program offers companies an opportunity to build a significant relationship with the BCF faculty and students. Corporate affiliates gain a strong presence and visibility in the BCF, interact with faculty and students, learn about important faculty research, and secure a competitive recruiting advantage.

2006-07 Partners

Barclays Capital
Citadel Investments Group
Citigroup
Crédit Suisse
FreddieMac
Global Environmental Fund
Goldman Sachs
JP Morgan Chase
Lehman Brothers
Merrill Lynch
Moody's Corporation
Morgan Stanley

Benefits

- Annual Report of the BCF
- Opportunity to advertise internships and employment opportunities to both Undergraduate Certificate in Finance (almost 260 in 2006-07) and Master in Finance students (32 in 2006-07)
- Opportunity to use the BCF facilities to host recruiting events
- Access to the BCF Director of Corporate Relations as a resource for recruiting
- Recognition in the publicly disseminated materials of the BCF, including the Center's reports and website which both list corporate affiliates, as well as a hyperlink to each member's website
- Access to all research authored by the Center's affiliated faculty within the academic year
- Access to BCF faculty for internal or client presentations or for sponsored research

- Opportunity to work with BCF faculty and staff to create customized training programs and to design and access distance learning courses and events such as special lectures and conferences
- Invitation to deliver a guest lecture on campus or to participate as a presenter at BCF sponsored conferences
- Invitation and two reserved seats for all public events hosted by the Center

Gift Opportunities

Early in 1998, a \$10 million gift from the Lowenstein Foundation enabled Princeton to launch the Bendheim Center for Finance. To establish the University as a national resource for innovative thinking on finance and finance-related topics, the BCF brings together leading experts in teaching and scholarship in financial economics. But to realize this vision, significant support beyond the generous Bendheim gift is needed for faculty, curriculum development and facilities. True excellence in financial economics requires a critical mass of finance researchers, approaching the size of a finance department in a leading business school, as well as important educational initiatives in a state-of-the-art setting.

Academic Personnel

| | |
|--|-------------|
| Endowed Professorships (five committed, two additional needed) <i>To support the appointment of a distinguished senior faculty member</i> | \$4,000,000 |
| Endowed Visiting Professorship (one needed) <i>To support a distinguished senior visitor who provides expertise in a particular area of study</i> | \$2,000,000 |
| Postdoctoral Fellows (one needed) | \$1,500,000 |
| Junior Faculty Fellow (one committed, one additional needed) | \$1,500,000 |

Fellowships

| | |
|--|-----------|
| Graduate Fellowships (three committed, seven additional needed) <i>To support a new generation of scholars concentrating in finance</i> | \$250,000 |
|--|-----------|

Support of Financial Research and Teaching

| | |
|--|---------------|
| Research and Course Development Funds <i>Endowed funds to support research and course development</i> | \$50,000 min. |
|--|---------------|

Physical Space

| | |
|------------------------|-----------|
| Director's Office | \$100,000 |
| Graduate Student Suite | \$100,000 |

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