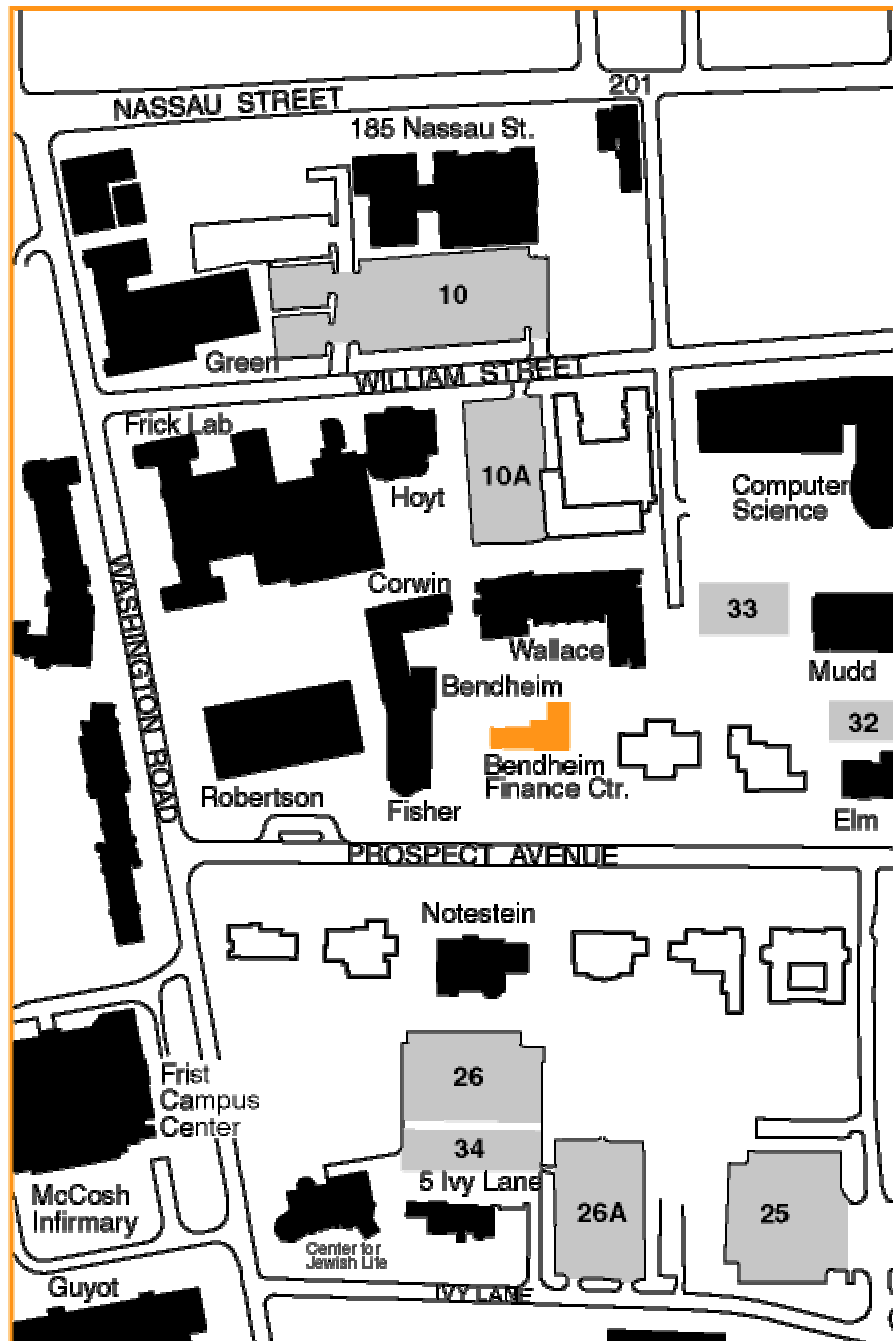# Princeton – Cambridge Conference
September 16 – 17

Bendheim Center for Finance

Dial Lodge
26 Prospect Avenue
Princeton University
Princeton NJ 08540-5296

Participants:

Princeton

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Cambridge

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Accommodation for the Cambridge Participants:

Palmer House (609) 258 3715   http://www.princeton.edu/palmerhouse/

John Eatwell
Mardi Dungey
Mette Jamasb
Hashem Pesaran
Chris Rogers
Vanessa Smith
Demosthenes Tambakis
Wolf Wagner

Nassau Inn (609) 921 7500   http://www.nassauinn.com/

Peter Friz
Michael McKenzie

Private Accommodation:

Michael Dempster
Elena Medova

Pre-arranged transportation
to/from Newark Airport

Noble Limousine   (609) 921-0030

Princeton University
Bendheim Center for Finance

Cambridge-Princeton Conference

This conference brings together faculty from Princeton's Bendheim Center for Finance and the Cambridge Endowment for Research in Finance, thanks to generous support from William H. Janeway. The conference will take place on **September 16-17, 2005** in room 103 at the Bendheim Center. Attendance is by invitation only.

Friday September 16

12:30 - 14:00	Lunch (Bendheim Center for Finance)
	Session Chair: Rene Carmona
14:00 - 14:45	**Wolf Wagner** (joint with Benedikt Goderis): Credit derivatives and sovereign debt crises, Abstract Discussant: **Jose Scheinkman**
14:45 - 15:30	**Wei Xiong** (joint with Harrison Hong and Jose Scheinkman): The Road to a Technology Bubble is Paved with Good Intentions: A Model of Advisors and Asset Prices, Abstract Discussant: **John Eatwell**
15:30 - 16:00	Coffee Break
	Session Chair: Chris Rogers
16:00 - 16:45	**Mardi Dungey** (joint with Demosthenes Tambakis): The US Treasury Market in August 1998: Untangling the Effects of Hong Kong and Russia with High Frequency Data, Abstract Discussant: **Yacine Ait-Sahalia**
16:45 - 17:30	**Markus Brunnermeier** (joint with Christian Julliard): Money Illusion and Housing Frenzies, Abstract Discussant: **Demosthenes Tambakis**
19:00	Conference Dinner at Mediterra Restaurant, 29 Hulfish Street

Saturday, September 17

	Session Chair: Mark Watson
9:00 - 9:45	**Peter Friz**: Volatility Derivatives and the Implied Volatility Smile, Abstract Discussant: **Robert Kimmel**
9:45 - 10:30	**Vicky Henderson**: The Curious Incident of the Investment in the Market: Real Options and a Fair Gamble, Abstract Discussant: **Michael McKenzie**
10:30 - 11:00	Coffee Break
	Session Chair: John Eatwell
11:00 - 11:45	**Chris Rogers** (joint with Arnaud Jobert and Alessandro Platania): A Bayesian Solution to the Equity Premium Puzzle, Abstract Discussant: **Chris Sims**

Jianqing Fan (joint with Yacine Ait-Sahalia and Hong Peng):

11:45 - 12:30	**Jianqing Fan** (joint with Yacine Ait-Sahalia and Heng Peng): Nonparametric Transition-Based Tests for Diffusions, Abstract Discussant: **Peter Friz**
12:30 - 14:00	Lunch
	Session Chair: Chris Sims
14:00 - 14:45	**Vanessa Smith** (joint with Hashem Pesaran): Exploring the International Linkages of the Euro Area: A Global VAR Analysis, Abstract Discussant: **Mark Watson**
14:45 - 15:30	**Burton G. Malkiel** (joint with Atanu Saha): Hedge Funds: Risk and Return, Abstract Discussant: **Hashem Pesaran**
15:30 - 16:00	Coffee Break
	Session Chair: Bill Janeway
16:00 - 16:45	**Elena A. Medova** (joint with M. Dempster, M. Germano, M.I. Rietbergen, F. Sandrini and M. Scrowston): Managing Guarantees, Abstract Discussant: **Robert Vanderbei**
16:45 - 17:30	**John M. Mulvey** (joint with Koray Simsek, Zhuojuan Zhang, Frank Fabozzi, and Bill Pauling): Assisting Defined-Benefit Pension Plans, Abstract Discussant: **Michael Dempster**

Princeton Papers

1. Markus Brunnermeier (joint with Christian Julliard):*Money Illusion and Housing Frenzies*
Discussant: Demosthenes Tambakis

This paper shows that a reduction in inflation can fuel run-ups in housing prices. Against that suffer from money illusion by not properly taking into account that inflation lowers future real mortgage payments, make systematic mistakes in evaluating real estate. After empirically decomposing the price-rent ratio in a rational component and implied mispricing, we find that (i) inflation and the nominal interest rate explain a large share of the time-series variation of the mispricing, (ii) the run-up in the housing prices starting in the late 1990s is reconcilable with the contemporaneous reduction in inflation and nominal interest rates, (iii) the tilt effect cannot rationalize these findings.

2. Jianqing Fan (joint with Yacine Ait-Sahalia and Heng Peng): *Nonparametric Transition-Based Tests for Diffusions*
Discussant: Peter Friz

We develop a specification test for the transition density of a discretely-sampled continuous-time diffusion process, based on a comparison of a nonparametric estimate of the transition function to the parametric transition function assumed by the null hypothesis. Using the closed form expansions for the transition density of Ait-Sahalia (2002), we are able to consider a direct comparison of the two densities for an arbitrary specification of the null parametric model. Using three different discrepancy measures between the null and alternative transition density functions, we simultaneously test the model's assumptions on the drift and diffusion functions and, in the case of many financial time series, such as interest rates or currencies, we avoid the near non-stationarity that can affect tests based on the marginal density of the process.

3. Vicky Henderson: *The Curious Incident of the Investment in the Market: Real Options and a Fair Gamble (http://www.orfe.princeton.edu/%7Evhenders/curious.pdf)*
Discussant: Michael McKenzie

In this paper we study an optimal timing problem for the sale of a non-traded real asset. We solve this problem for a risk-averse manager under two scenarios: firstly when the manager has access to no other investment opportunities, and secondly when he may also invest in a continuously traded financial asset. We construct the model such that the financial asset has zero risk premium and thus represents a fair gamble, and such that it is uncorrelated with the real asset, so that it is not useful for hedging. In the absence of the real asset, the manager would not include the financial asset in his optimal portfolio. Although the problem is designed such that naïve intuition would imply that the optimal strategy is the same irrespective of whether the manager is allowed to invest in the financial asset or not, curiously we find that for certain parameter values this is not the case. Access to the fair gamble improves the manager's expected utility in some situations, and reduces the probability that the real asset is ever sold. Our work has

implications for modelling of portfolio choice problems since seemingly extraneous assets can impact on optimal behaviour.

4. Burton G. Malkiel (joint with Atanu Saha): *Hedge Funds: Risk and Return (http://www.princeton.edu/~ceps/workingpapers/104malkiel.pdf)*
Discussant: Hashem Pesaran

Constructing a database that is relatively free of bias, this paper provides measures of the returns of hedge funds as well as the distinctly non-normal characteristics of the data. We provide risk-adjusted measures of performance as well as tests of the degree to which hedge funds live up to their claim of market neutrality. We also examine the substantial attrition to hedge funds and analyze the determinants of hedge fund demise as well as perform tests of return persistence. We conclude that hedge funds are riskier and provide lower returns than is commonly supposed.

5. John M. Mulvey: *Optimizing Merger and Acquisition Decisions: When is the Best Time to Act?*
Discussant: Michael Dempster

This research involves the design of optimal strategies for merging/acquiring two public organizations. We extend the Bermuda option in conjunction with Z. Chen's fair value model. The overall approach is based on an ERM model. Empirical results illustrate possible benefits of the proposed methodology over ad hoc procedures.

6. Wei Xiong (joing with Harrison Hong and Jose Scheinkman): *The Road to a Technology Bubble is Paved with Good Intentions: A Model of Advisors and Asset Prices*
Discussant: John Eatwell

Many asset price bubbles occur during periods of excitement about new technologies. We focus on the role of the advisors and the communication process with investors in explaining this stylized fact. Advisors are good-intentioned and want to maximize the welfare of their advisees (like a parent for a child). But only some understand the new technology (the tech-savvys); others do not and can only make a downward-biased recommendation (the old-fogies). While smart investors recognize the heterogeneity in advisors, naïve ones mistakenly take whatever is said at face value. Tech-savvys inflate their forecasts to signal that they are not old-fogies since more accurate information about their type improves the welfare of investors in the future. A bubble arises for a wide range of parameters and its size is maximized when there is a mix of smart and naïve investors in the economy. Our model yields a number of additional testable implications.

Cambridge Papers

1. Chris Rogers, Arnaud Jobert and Alessandro Platania, *A Bayesian solution to the equity premium puzzle*
http://www.statslab.cam.ac.uk/~chris/papers/EPP.pdf
Discussant: Chris Sims

This paper presents a solution to the equity premium puzzle based on the following observation. In the original paper of Mehra & Prescott, a simple discrete-time model was taken of an economy, with a single representative agent. The log consumption values were assumed to follow a Gaussian random walk, with known values of the mean and variance, and the agent invested accordingly. However, in practice it is impossible to form a good estimate of the rate of growth of consumption, so we change the model so that the agent has a prior distribution over the parameters, and then acts optimally relative to his posterior distribution at all times. We use particle-filtering techniques to estimate the posterior for the parameters, and find that the coefficient of relative risk aversion implied by the data under this model is between 2 and 5 with very high probability.

2. Peter Friz: *Volatility Derivatives and Implied Volatility Smile*
http://www.newton.cam.ac.uk/preprints/NI05033.pdf
Discussant: Robert Kimmel

We present some results on the pricing of Volatility Derivatives. At least in the zero-correlation case the volatility smile contains all the information needed. (Joint work with J. Gatheral). This and everyday calibration issues in the industry make it necessary to understand extrapolation of the implied volatility smile. We present some asymptotic techniques related to Roger Lee's moment formula (Joint work with S. Benaim)

3. Vanessa Smith (joint with Hashem Pesaran): *Exploring the international linkages of the Euro area: A global VAR analysis*
Discussant: Mark Watson

This paper presents a global model linking individual country vector error-correcting models in which the domestic variables are related to the country-specific variables as an approximate solution to a global, common factor model. This global VAR is estimated for 26 countries, the Euro area being treated as a single economy. There are two important extensions of previous research: First, the theoretical framework of the GVAR is derived as an approximation to a global unobserved common factor model. Also using average pair-wise cross-section error correlations, the GVAR approach is shown to be quite effective in dealing with common factor interdependencies and international co-movements of business cycles. Second, in addition to generalised impulse response functions, we propose an identification scheme to derive structural impulse responses. We focus on identification of shocks to the US economy, particularly monetary policy shocks, and consider the time profile of their effects on the Euro area.

4. Wolf Wagner (joint with Benedikt Goderis), *Credit derivatives and sovereign debt crises*
Discussant: Jose Scheinkman

An important part of recent financial development has been the rise of a large secondary market for emerging market bonds, which now covers most of the developing world. However, recent crises in Russia and Argentina have highlighted some disadvantages in this development, arising in particular from the increased dispersion of sovereign debt that arose with the emergence of liquid global markets. Recently, the development of credit derivatives has added a new dimension to the issues raised by the restructuring of sovereign debt. This paper studies the impact of sovereign credit derivatives, (which allow for the purchase of credit protection on emerging market debt) on sovereign crises. We find that credit protection improves government incentives to prevent crises ex-ante by increasing the outside option of creditors. Credit protection also has important implications for the resolution of crises ex-post. Depending on its duration, protection increases or reduces the willingness of creditors to accept a restructuring offer, which has non-trivial welfare implications. We also find that credit derivatives play a role in improving government incentives to reveal information about the fundamentals, and thus facilitate conditionality in crisis resolution. Finally, we examine the implications of credit derivatives for the likelihood of litigation in a crisis.

5. Mardi Dungey (joint with Demosthenes Tambakis): *The US Treasury Market in August 1998: Untangling the effects of Hong Kong and Russia with high frequency data*
Discussant: Yacine Ait-Sahalia

In the third quarter of 1998, Russia defaulted on its GKO obligations, and the Hong Kong Monetary Authority intervened in equity markets to defend its currency peg. Both these events contributed to volatility in the US treasury bonds market. Widening spreads on emerging market debt also caused problems for hedge funds and monetary policy changes were implemented to help prevent a liquidity crisis. Using high frequency data we provide a detailed analysis of the US treasury market during this period. A theoretical framework explains how one might use the expandable limit order book operating in the inter-broker market for US treasuries to explain some key properties of the data. We analyse the micro-structure of the US treasury market during the period, including location of trade, volume, depth, price, price impact, realised volatility and spreads across the term structure. The results show that the brunt of the impact of the crisis was absorbed in higher prices, wider spreads and increased excess demand for these securities.

6. Elena Medova (joint with M. Dempster , M. Germano, M.I.Rietbergen, F. Sandrini and M. Scrowston): *Managing Guarantees*
Discussant: Robert Vanderbei

In recent years there has been a significant growth of investment products aimed at attracting investors who are worried about the downside potential of the financial markets. This paper introduces a dynamic stochastic optimization model for managing products with a nominal or real guarantee. An optimal dynamic portfolio allocation strategy combined with risk management allows us to provide the best possible portfolio returns that fit clients' risk aversion. The implementation of our investment strategy is illustrated on real market data and back-tested through the period 1998-2004.