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## HARVARD UNIVERSITY

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Littauer Center
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**Undergraduate Studies**:
B.A., Economics and Mathematical Methods in the Social Sciences, Northwestern University, with honors from both departments, 2006

**Graduate Studies**:
Harvard University, 2007 to present
Thesis Title: "Essays on Time-Varying Discount Rates"
Expected Completion Date: June, 2012

References:

John Y. Campbell
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**Teaching and Research Fields**:
Asset pricing, Macroeconomics

**Teaching Experience:**

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| Spring 2010 | Econ 1011b: *Intermediate Macroeconomics* (undergraduate), Harvard University, Teaching Fellow for Prof. Philippe Aghion and Prof. David Laibson |
| Fall 2009 | Econ 1723: *Capital Markets* (undergraduate), Harvard University, Teaching Fellow for Owen Lamont |

**Research Experience and Other Employment:**

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| Summer 2011 | Federal Reserve Bank of New York Ph.D. internship |
| 2006–2007 | Research Assistant to Prof. David Laibson<br>Harvard Economics Department |
| 2003–2005 | Research Assistant to Prof. Robert J. Gordon<br>Northwestern University Economics Department |

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| Summer 2005 | Research Assistant to John Williams and John Fernald<br>Federal Reserve Bank of San Francisco |
| Summer 2004 | Research Assistant to Tara Rice<br>Federal Reserve Bank of Chicago |

**Professional Activities:**

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| Referee | *Review of Economics and Statistics, Journal of Monetary Economics, International Economic Review, Journal of Economic Dynamics and Control, Oxford Economic Papers, Scandinavian Journal of Economics, Journal of Productivity Analysis, American Political Science Review, Social Problems* |
| Invited Presentations | Federal Reserve Bank of New York, 2011; Cornell University, 2011; CESifo Summer Institute, Venice (keynote speaker), 2008; NBER Productivity program 2007; Economic Policy Panel, Lisbon, 2007; Central Bank of Ireland, 2006; NBER Summer Institute, 2006; Northeast Political Science Association Annual Meeting, 2006 |

**Honors, Scholarships, and Fellowships:**

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| 2007–2012 | National Science Foundation Graduate Research Fellowship |
| 2007–2012 | Harvard Economics Graduate Research Fellowship |

**Publications:**

"How Much Sunlight Does it Take to Disinfect a Boardroom? A Short History of Executive Compensation Regulation in America," *CESifo Economic Studies*, 2009, 55(3–4).

"Unresolved Issues in the Rise of American Inequality," with R.J. Gordon, *Brookings Papers on Economic Activity,* 2007 no. 2.

"Where did the Productivity Growth Go? Inflation Dynamics and the Distribution of Income," with R.J. Gordon, *Brookings Papers on Economic Activity* 2005 no. 2.

**Research Papers:**

*"A Model of Time-Varying Risk Premia with Habits and Production"* (Job Market Paper)

This paper develops a new utility specification that incorporates Campbell–Cochrane–type habits into the Epstein–Zin class of preferences. In a simple calibration of a real business cycle model with EZ-habit preferences, the model generates a strongly countercyclical equity premium, substantial equity return predictability, and a stable riskless interest rate, as in the data. Moreover, conditional on the average level of risk aversion, time-variation in risk aversion increases the volatility and mean return of equities. On the real side, the model matches the short and long-term variances of output, consumption, and investment growth. As an additional empirical test, I measure implied risk aversion and find that it has an $R^2$ of over 50 percent for 5-year stock returns in post-war data. Variables that predict stock returns in the data also predict returns in the model with a similar degree of explanatory power.

*"Investment and the Cost of Capital in the Cross-Section: The Term Spread Predicts the Duration of Investment"*

I study the determinants of investment in assets with different depreciation rates. When physical capital is discounted like a bond with a similar duration, a high term spread should be associated with low average duration for investment. I document a strong negative correlation between the term spread and the average duration of aggregate investment, implying an important role for the cost of capital in determining the composition of aggregate investment. The results are robust to including a variety of controls. Consumer durable goods purchases display similar behavior.

*"Bond Pricing with a Time-Varying Price of Risk in an Estimated Medium-Scale Bayesian DSGE Model"*

A New-Keynesian model in which households have Epstein–Zin preferences with time-varying risk aversion and the central bank has a time-varying inflation target can match the dynamics of nominal bond prices in the US economy. The model generates a steady-state term spread of 152 basis points, compared to the sample average of 207 basis points. The fitting errors for individual bond yields are roughly as large as those obtained from a non-structural three-factor model (8 basis points), and two thirds smaller than in restricted models with constant risk aversion or a constant inflation target. The term premium is estimated to have a standard deviation half as large as that of the term spread.

The model delivers rich variance decompositions for the pricing kernel and the real side of the economy. Shocks to risk aversion account for less than 5 percent of the variation in output, consumption, and investment growth at business-cycle frequencies, but 32 percent of the variation in the term spread. There is little connection between priced risk factors and output, consumption, investment, or hours worked in the short run.

*"Essentially Affine Approximations for Economic Models"*

This paper proposes a novel first-order approximation technique for standard economic models with stochastic volatility, risk aversion, or disaster risk. It is identical up to the first order to perturbation, but it includes terms that perturbation would treat as "higher-order" that follow from the use of an essentially affine stochastic discount factor in the Euler equations. I calculate Euler equation errors for the RBC model with time-varying risk aversion, volatility, and disaster risk and find that the essentially affine approximation has accuracy between that of second and third-order perturbations. The equilibrium dynamics take a fully linear state-space form, so models can be estimated with the Kalman filter, rather than a more computationally intensive nonlinear filter. The approximation encompasses a variety of well-known methods specialized for use in particular settings, including general equilibrium models, models of time-varying risk aversion, portfolio choice, and endowment-economy asset pricing.

**Research in Progress:**

*Commodity Inventories and Returns: Stockouts or Time-Varying Discount Rates?* With Deepa B. Dhume

We study the relationship between commodity inventories and expected returns in the context of Deaton and Laroque's (1992) extension of the classic Hotelling (1931) model, and Bils and Kahn's (2000) analysis of convenience yields in industrial inventories. In both models, inventory levels forecast returns on commodity futures. The models are differentiated along a number of dimensions that we examine: they have different implications for the conditional volatility of returns, the relationship between inventories and the price of risk, and non-linearities in the forecasting relationship between inventories and returns. Rather than attempting to accept or reject each of the models, we argue that they can be useful for characterizing different commodities at different times. When inventories are especially low, Deaton and Laroque's model of stockouts applies and commodity returns and volatility are high. When inventories are higher, Bils and Kahn's theory is applicable and inventories are linked to futures returns through variation in market discount rates.