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Article

# Rational Asset Prices

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## ABSTRACT

The mean, covariability, and predictability of the return of different classes of financial assets challenge the rational economic model for an explanation. The unconditional mean aggregate equity premium is almost seven percent per year and remains high after adjusting downwards the sample mean premium by introducing prior beliefs about the stationarity of the price–dividend ratio and the (non)forecastability of the long-term dividend growth and price—dividend ratio. Recognition that idiosyncratic income shocks are uninsurable and concentrated in recessions contributes toward an explanation. Also borrowing constraints over the investors' life cycle that shift the stock market risk to the saving middle-aged consumers contribute toward an explanation.

## REFERENCES

Abel, Andrew B., 1990, Asset prices under habit formation and catching up with the Joneses, *American Economic Review Papers and Proceedings* **80**, 38–42.

Web of Science® | Google Scholar

Ait-Sahalia, Yacine, Jonathan A. Parker, and Motohiro Yogo, 2001, Luxury goods and the equity premium, Working paper 8417, NBER.

Altonji, Joseph G., Fumio Hayashi, and Laurence J. Kotlikoff, 1992, Is the extended family altruistically linked? *American Economic Review* **82**, 1177–1198.

Web of Science® | Google Scholar

Anderson, Evan W., Lars Peter Hansen, and Thomas J. Sargent, 2000, Robustness, detection and the price of risk, *Working paper*, University of Chicago.

Google Scholar

Attanasio, Orazio P., James Banks, and Sarah Tanner, 2002, Asset holding and consumption volatility, *Journal of Political Economy* **110**, forthcoming.

Web of Science® | Google Scholar

Attanasio, Orazio P., and Steven J. Davis, 1997, Relative wage movements and the distribution of consumption, *Journal of Political Economy* **104**, 1227–1262.

Web of Science® | Google Scholar

Bakshi, Gurdip, and Zhiwu Chen, 1996, The spirit of capitalism and stock market prices, *American Economic Review* **86**, 133–157.

Web of Science® | Google Scholar

Bansal, Ravi, and John W. Coleman, 1996, A monetary explanation of the equity premium, term premium, and risk†free rate puzzles, *Journal of Political Economy* **104**, 1135–1171.

Web of Science® | Google Scholar

Bansal, Ravi, and Amir Yaron, 2000, Risks for the long run: A potential resolution of asset pricing puzzles, Working paper 8059, NBER.

Google Scholar

Bertaut, Carol C., and Michael Haliassos, 1997, Precautionary portfolio behavior from a life-cycle perspective, *Journal of Economic Dynamics and Control* **21**, 1511–1542.

Web of Science® Google Scholar

Bewley, Truman F., 1982, Thoughts on tests of the intertemporal asset pricing model, *Working paper*, Northwestern University.

Google Scholar

Blume, Marshall E., and Stephen P. Zeldes, 1993, The structure of stock ownership in the U.S., *Working paper*, University of Pennsylvania.

Google Scholar

Bodie, Zvi, Robert C. Merton, and William F. Samuelson, 1992, Labor supply flexibility and portfolio choice in a life cycle model, *Journal of Economic Dynamics and Control* **16**, 427–449.

Web of Science® Google Scholar

Boldrin, Michel, Lawrence J. Christiano, and Jonas D. M. Fisher, 2001, Habit persistence, asset returns, and the business cycle, *American Economic Review* **91**, 149–166.

Web of Science® Google Scholar

Brav, Alon, George M. Constantinides, and Christopher C. Geczy, 2002, Asset pricing with heterogeneous consumers and limited participation: Empirical evidence, *Journal of Political Economy* **110**, forthcoming.

Web of Science® Google Scholar

Brav, Alon, and Christopher C. Geczy, 1995, An empirical resurrection of the simple consumption CAPM with power utility, *Working paper*, University of Chicago.

Breeden, Douglas T., 1979, An intertemporal asset pricing model with stochastic consumption and investment opportunities, *Journal of Financial Economics* **7**, 265–296.

Web of Science® | Google Scholar

Brown, Stephen J., William N. Goetzmann, and Stephen Ross, 1995, *Survival, Journal of Finance* **50**, 853–873.

Web of Science® | Google Scholar

Campbell, John Y., 2001, Asset pricing at the millennium, *Journal of Finance* **55**, 1515–1567.

Web of Science® | Google Scholar

Campbell, John Y., 2002, Consumption-based asset pricing, in George M. Constantinides, Milton Harris, and Rene Stulz, eds.: *Handbook of the Economics of Finance* North-Holland Elsevier, Amsterdam, forthcoming.

Google Scholar

Campbell, John Y., Joao F. Cocco, Francisco J. Gomes, and Pascal J. Maenhout, 2001, Investing retirement wealth: A life-cycle model, in John Y. Campbell and Martin Feldstein, eds.: Risk Aspects of Social Security Reform University of Chicago Press, Chicago.

Google Scholar

Campbell, John Y., and John H. Cochrane, 1999, By force of habit: A consumption-based explanation of aggregate stock market behavior, *Journal of Political Economy* **107**, 205–251.

Web of Science® | Google Scholar

Campbell, John Y., Andrew W. Lo, and A. Craig MacKinlay, 1997, The Econometrics of Financial Markets Princeton University Press, Princeton, NJ.

Google Scholar

Campbell, John Y., and Robert J. Shiller, 1998, Valuation ratios and the long-run stock market outlook, *Journal of Portfolio Management* **24**, 11–26.

Web of Science® | Google Scholar

Claus, James, and Jacob Thomas, 2001, Equity premia as low as three percent? Evidence from analysts' earnings forecasts for domestic and international stock markets, *Journal of Finance* **56**, 1629–1666.

Web of Science® | Google Scholar

Cocco, Joao F., Francisco J. Gomes, and Pascal J. Maenhout, 1999, Portfolio choice over the life cycle, *Working paper*, Harvard University.

Google Scholar

Cochrane, John H., 1991, A simple test of consumption insurance, *Journal of Political Economy 99*, 957–976.

Web of Science® | Google Scholar

Cochrane, John H., 1997, Where is the market going? Uncertain facts and novel theories, *Economic Perspectives Federal Reserve Bank of Chicago* **21**, 3–37.

Google Scholar

Cochrane, John H., 2001, Asset Pricing Princeton University Press, Princeton, NJ.

Google Scholar

Cochrane, John H., and Lars Peter Hansen, 1992, Asset pricing explorations for macroeconomics, in Olivier J. Blanchard and Stanley Fischer, eds.: *NBER Macroeconomics Annual* MIT Press, Cambridge, MA.

Google Scholar

Constantinides, George M., 1990, Habit formation: A resolution of the equity premium puzzle, *Journal of Political Economy* **98**, 519–543.

Web of Science® | Google Scholar

Constantinides, George M., John B. Donaldson, and Rajnish Mehra, 2001, Junior must pay: Pricing the implicit put in privatizing social security, *Working paper*, University of Chicago.

Google Scholar

Constantinides, George M., John B. Donaldson, and Rajnish Mehra, 2002a, Junior can't borrow: A new perspective on the equity premium puzzle, *Quarterly Journal of Economics* **117**, 269–296.

Web of Science® | Google Scholar

Constantinides, George M., John B. Donaldson, and Rajnish Mehra, 2002b, Junior is rich: Bequests as consumption, *Working paper*, University of Chicago.

Google Scholar

Constantinides, George M., and Darrell Duffie, 1996, Asset pricing with heterogeneous consumers, *Journal of Political Economy* **104**, 219–240.

Web of Science® | Google Scholar

Daniel, Kent, and David Marshall, 1997, The equity premium puzzle and the risk†free rate puzzle at long horizons, *Macroeconomic Dynamics* **1**, 452–484.

Google Scholar

Danthine, Jean-Pierre, John B. Donaldson, and Rajnish Mehra, 1992, The equity premium and the allocation of income risk, *Journal of Economic Dynamics and Control* **16**, 509–532.

Web of Science® | Google Scholar

Google Scholar

Dimson, Elroy, Paul Marsh, and Michael Staunton, 2002, Triumph of the Optimists: 101 Years of Global Investment Returns Princeton University Press, Princeton, NJ.

Web of Science® | Google Scholar

Duesenberry, James S., 1949, Income, Saving, and the Theory of Consumer Behavior, Harvard University Press, Cambridge, MA.

Google Scholar

Epstein, Larry G., and Stanley E. Zin, 1991, Substitution, risk aversion, and the temporalbehavior of consumption and asset returns: An empirical analysis, *Journal of Political Economy* **99**, 263–286.

Web of Science® | Google Scholar

Fama, Eugene F., and Kenneth R. French, 1988, Dividend yields and expected stock returns, *Journal of Financial Economics* **22**, 3–25.

Web of Science® | Google Scholar

Fama, Eugene F., and Kenneth R. French, 2002, The equity premium, *Journal of Finance* **57**, 637–660.

Web of Science® | Google Scholar

Ferson, Wayne E., and George M. Constantinides, 1991, Habit persistence and durability in aggregate consumption, *Journal of Financial Economics* **29**, 199–240.

Web of Science® | Google Scholar

Ferson, Wayne E., and Campbell R. Harvey, 1992, Seasonality and consumption-based asset pricing, *Journal of Finance* **47**, 511–552.

Gabaix, Xavier, and David Laibson, 2001, The 6D bias and the equity premium puzzle, in Ben Bernanke and Ken Rogoff, eds.: *NBER Macroeconomics Annual 2001* MIT Press, Cambridge, MA.

Google Scholar

Goyal, Amit, and Ivo Welch, 1999, Predicting the equity premium, Working paper, UCLA.

Google Scholar

Grossman, Sanford J., and Robert J. Shiller, 1981, The determinants of the variability of stoc kmarket prices, *American Economic Review Papers and Proceedings* **71**, 222–227.

Web of Science® | Google Scholar

Guiso, Luigi, Michael Haliassos, and Tullio Jappelli, 2001, *Household Portfolios* MIT Press, Cambridge, MA.

Google Scholar

Haliassos, Michael, and Carol C. Bertaut, 1995, Why do so few hold stocks? *The Economic Journal* **105**, 1110–1129.

Web of Science® | Google Scholar

Hansen, Lars Peter, and Ravi Jagannathan, 1991, Implications of security market data for models of dynamic economies, *Journal of Political Economy* **99**, 225–262.

Web of Science® | Google Scholar

Hansen, Lars Peter, and Kenneth J. Singleton, 1982, Generalized instrumental variables estimation of nonlinear rational expectations models, *Econometrica* **50**, 1269–1288.

Web of Science® | Google Scholar

He, Hua, and David M. Modest, 1995, Market frictions and consumption-based asset pricing, *Journal of*

Heaton, John C., and Deborah J. Lucas, 1996, Evaluating the effects of incomplete markets on risk sharing and asset pricing, *Journal of Political Economy* **104**, 443–487.

Web of Science® | Google Scholar

Heaton, John C., and Deborah J. Lucas, 1999, Stock prices and fundamentals, in Ben Bernanke and Julio Rotemberg, eds.: *NBER Macroeconomics Annual 1999* MIT Press, Cambridge, MA.

Google Scholar

Heaton, John C., and Deborah J. Lucas, 2000, Portfolio choice and asset prices: The importance of entrepreneurial risk, *Journal of Finance* **55**, 1163–1198.

Web of Science® | Google Scholar

Hirshleifer, David, 2001, Investor psychology and asset pricing, *Journal of Finance* **56**, 1533–1597.

Web of Science® | Google Scholar

Ibbotson Associates, 2001, *Stocks, Bonds, Bills, and Inflation Yearbook* Ibbotson Associates, Chicago.

Google Scholar

Ibbotson, Roger G., and Peng Chen, 2001, Stock market returns in the long run: Participating in the real economy, Working paper, Ibbotson Associates.

Google Scholar

Jacobs, Kris, 1999, Incomplete markets and security prices: Do asset-pricing puzzles result from aggregation problems? *Journal of Finance* **54**, 123–163.

Web of Science® | Google Scholar

Jacobs, Kris, and Kevin Q. Wang, 2001, Idiosyncratic consumption risk and the cross section of asset returns, Jorion, Philippe, and William N. Goetzmann, 1999, Global stock markets in the twentieth century, *Journal of Finance* **54**, 953–980.

Web of Science® | Google Scholar

Keynes, John M., 1936, *The General Theory of Employment, Interest, and Money* Hartcourt, Brace and Company, New York.

Google Scholar

Kocherlakota, Narayana R., 1996, The equity premium: It's still a puzzle, *Journal of Economic Literature* **34**, 42–71.

Web of Science® | Google Scholar

Krebs, Tom, 2002, Testable implications of consumption-based asset pricing with incomplete markets, Journal of Mathematical Economics, forthcoming.

Google Scholar

Li, Yuming, 2001, Expected returns and habit persistence, *Review of Financial Studies* **14**, 861–899.

Web of Science® | Google Scholar

Lucas, Robert, Jr., 1978, Asset prices in an exchange economy, *Econometrica* **46**, 1429–1446.

Web of Science® | Google Scholar

Lynch, Anthony W., 1996, Decision frequency and synchronization across agents: Implications for aggregate consumption and equity returns, *Journal of Finance* **51**, 1479–1497.

Web of Science® | Google Scholar

Mace, Barbara J., 1991, Full insurance in the presence of aggregate uncertainty, *Journal of Political Economy*

Mankiw, N. Gregory, and Matthew D. Shapiro, 1986, Risk and return: Consumption beta versus market beta, *Review of Economics and Statistics* **68**, 452–459.

Web of Science® | Google Scholar

Mankiw, N. Gregory, and Stephen P. Zeldes, 1991, The consumption of stockholders and non-stockholders, *Journal of Financial Economics* **29**, 97–112.

Web of Science® | Google Scholar

Marshall, Alfred, 1920, *Principles of Economics: An Introductory Volume* Macmillan, London.

Google Scholar

McGrattan, Ellen R., and Edward C. Prescott, 2001, Taxes, regulations, and asset prices, Working paper, Federal Reserve Bank of Minneapolis.

Google Scholar

Mehra, Rajnish, 1998, On the volatility of stock prices: An exercise in quantitative theory, *International Journal of Systems Science* **29**, 1203–1211.

Web of Science® | Google Scholar

Mehra, Rajnish, and Edward C. Prescott, 1985, The equity premium: A puzzle, *Journal of Monetary Economics* **15**, 145–161.

Web of Science® | Google Scholar

Mehra, Rajnish, and Edward C. Prescott, 1988, The equity premium: A solution? *Journal of Monetary Economics* **22**, 133–136.

Web of Science® | Google Scholar

Merton, Robert C., 1973, An intertemporal capital asset pricing model, *Econometrica* **41**, 867–887.

Web of Science® | Google Scholar

Negishi, Takashi, 1960, Welfare economics and existence of an equilibrium for a competitive economy, *Metroeconomica* **12**, 92–97.

Google Scholar

Pollak, Robert A., 1970, Habit formation and dynamic demand functions, *Journal of Political Economy* **78**, 745–763.

Web of Science® | Google Scholar

Poterba, James M., 2001, The rise of the "equity culture": U.S. stockownership patterns, 1989–1998, Working paper, MIT.

Google Scholar

Rietz, Thomas A., 1988, The equity risk premium: A solution, *Journal of Monetary Economics* **22**, 117–131.

Web of Science® | Google Scholar

Rubinstein, Mark, 1976, The valuation of uncertain income streams and the pricing of options, *Bell Journal of Economics* **7**, 407–425.

Web of Science® | Google Scholar

Ryder, Harl E., and Geoffrey M. Heal, 1973, Optimum growth with intertemporally dependent preferences, *Review of Economic Studies* **40**, 1–43.

CAS | PubMed | Web of Science® | Google Scholar

Siegel, Jeremy J., 1998, *Stocks for the Long Run* McGraw-Hill, New York.

Google Scholar

Siegel, Jeremy J., 1999, The shrinking equity premium, *Journal of Portfolio Management* **26**, 10–17.

Web of Science® | Google Scholar

Storesletten, Kjetil, Chris I. Telmer, and Amir Yaron, 2000, Consumption and risk sharing over the life cycle, Working paper, Carnegie Mellon University.

Google Scholar

Storesletten, Kjetil, Chris I. Telmer, and Amir Yaron, 2001, Asset pricing with idiosyncratic risk and overlapping generations, Working paper, Carnegie Mellon University.

Google Scholar

Sundaresan, Suresh M., 1989, Intertemporally dependent preferences and the volatility of consumption and wealth, *Review of Financial Studies* **2**, 73–89.

Web of Science® | Google Scholar

Vissing-Jorgensen, Annette, 2002, Limited asset market participation and the elasticity of intertemporal substitution, *Journal of Political Economy* **110**, forthcoming.

Web of Science® | Google Scholar

Vuolteenaho, Tuomo, 2000, Understanding the aggregate book-to-market ratio and its implications to current equity-premium expectations, Working paper, Harvard University.

Google Scholar

Wachter, Jessica, 2001, Habit formation and returns on bonds and stocks, Working paper, New York University.

Welch, Ivo, 2001, The equity premium consensus forecast revisited, Working paper, Yale University.

Google Scholar