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# Are behavioral asset-pricing models structural? ☆

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## Abstract

The recent increase in interest in so-called behavioral models of asset-pricing is motivated partly by the desire to have models that appear realistic in light of experimental evidence, and partly by their success in moment-matching exercises. This paper argues that the attention given to these two criteria misses perhaps the most important aspect of the modeling exercises. That is, the search for parameters that are invariant to changes in the economic environment. It is precisely this invariance that motivates the use of a tightly parameterized general equilibrium model. Assessing a model on this dimension is difficult and, as the paper argues through the use of suggestive examples, will undoubtedly require strong subjective judgments about the reasonableness of preference assumptions. Such judgments are routinely made about the reasonableness of assumptions about stochastic endowments. The paper suggests that more effort be applied to understanding aggregation in these models and to the exploration of behavioral assumptions in a less flexible but less corruptible time-stationary recursive class of preferences. © 2002 Published by Elsevier Science B.V.

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To put the point less paradoxically, the relevant question to ask about the “assumptions” of a theory is not whether they are descriptively “realistic”, for they never are, but whether they are sufficiently good approximations for the

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purpose in hand. And this question can be answered only by seeing whether the theory works, which means whether it yields sufficiently accurate predictions.

Friedman (1953)

On this general view of the nature of economic theory then, a “theory” is not a collection of assertions about the behavior of the actual economy but rather an explicit set of instructions for building a parallel or analogue system—a mechanical, imitation economy. A “good” model, from this point of view, will not be exactly more “real” than a poor one, but will provide better imitations. Of course, what one means by a “better imitations” will depend on the particular questions to which one wishes answers.

Lucas (1980)

## 1. Introduction

The recent successes of behavioral asset-pricing models provide new hope for the quantitative research program started by Mehra and Prescott (1985) following the theoretical work of Lucas (1978). That is, there is a renewed interest in the ability of a tightly parameterized, representative-agent, general-equilibrium model to explain the salient features of historical asset-market data (e.g., large equity premium, excess volatility, etc.). What makes an asset-pricing model “behavioral” can itself be the subject of debate. For the purposes of this paper, I will lump all asset-pricing models that endow agents with preferences that do not adhere to the assumption of time-stationary expected utility (i.e., “Savage rationality”), into the category of “behavioral”. Many of these preference assumptions are directly motivated by evidence from experimental psychology and behavioral decision theory, e.g., *loss aversion* (Epstein and Zin, 1990; Benartzi and Thaler, 1995; Barberis et al., 1999), or *hyperbolic discounting* (Luttmer and Mariotti, 2000; Krusell and Smith, 2000). Also falling within this broad definition, however, are models that may depart from classical assumption by allowing for state-dependent utility functions, but that are less formally motivated by behavioral evidence, e.g., *habit formation* (Abel, 1990; Constantinides, 1990; Campbell and Cochrane, 1995; Wachter, 2001). These examples are suggestive and are in no way an exhaustive list of behavioral asset-pricing models. Indeed as more experimental evidence filters into economics from various fields of psychology, this list continues to grow at a rapid rate.

This paper takes a sympathetic view of these recent behavioral approaches and tries to identify what these models have yet to accomplish before they can claim success and presumably supplant more traditional approaches. Particular attention is paid to the need for *structural* models, and whether behavioral models are more or less likely to achieve the sort of “deep structural excavation” called for by the rational expectations revolution in dynamic macroeconomics.

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