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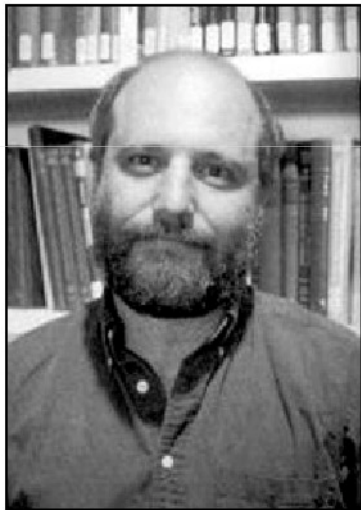
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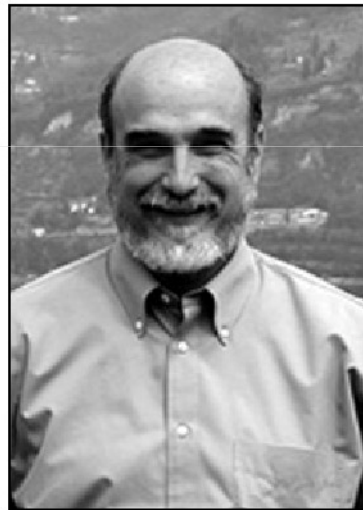
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bubbles

Markus K. Brunnermeier
From *The New Palgrave Dictionary of Economics*, Second Edition, 2008
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Abstract

Bubbles refer to asset prices that exceed an asset's fundamental value because current owners believe they can resell the asset at an even higher price. There are four main strands of models: (i) all investors have rational expectations and identical information, (ii) investors are asymmetrically informed and bubbles can emerge because their existence need not be commonly known, (iii) rational traders interact with behavioural traders and bubbles persist since limits to arbitrage prevent rational investors from eradicating the price impact of behavioural traders, (iv) investors hold heterogeneous beliefs, potentially due to psychological biases, and agree to disagree about the fundamental value.

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arbitrage; asset-pricing models; asymmetric information; autocorrelation; backward induction; bubbles; centipede game; central limit theorems; co-integration; efficient markets hypothesis; fiat money; gains from trade; hedge funds; limited liability; noise traders; overlapping generations model; rational expectations; risk aversion;

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An Euler equation is a difference or differential equation that is an intertemporal first–order condition for a dynamic choice problem. It describes the evolution of economic variables along an optimal path. It is a necessary but not sufficient condition for a candidate optimal path, and so is useful for partially characterizing the theoretical implications of a range of models for dynamic behaviour. In models with uncertainty, expectational Euler equations are conditions on moments, and thus directly provide a basis for testing models and estimating model parameters using observed dynamic behaviour.

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Euler equations

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An Euler equation is a difference or differential equation that is an intertemporal first–order condition for a dynamic choice problem. It describes the evolution of economic variables along an optimal path. It is a necessary but not sufficient condition for a candidate optimal path, and so is useful for partially characterizing the theoretical implications of a range of models for dynamic behaviour. In models with uncertainty, expectational Euler equations are conditions on moments, and thus directly provide a basis for testing models and estimating model parameters using observed dynamic behaviour.

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...any economic problems are dynamic optimization problems in which choices are linked over time, as for ...ample a firm choosing investment over time subject to a convex cost of adjusting its capital stock, or a government deciding tax rates over time subject to an intertemporal budget constraint. Whatever solution approach one employs – the calculus of variations, optimal control theory or dynamic programming – part of the solution is typically an Euler equation stating that the optimal plan has the property that any marginal,

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