

# Reinventing Economics

*Time for a more realistic approach.*

BY ROBERT J. SHILLER

**T**he widespread failure of economists to forecast the financial crisis that erupted in 2008 has much to do with faulty models. This lack of sound models meant that economic policymakers and central bankers received no warning of what was to come.

As George Akerlof and I argue in our recent book *Animal Spirits*, the current financial crisis was driven by speculative bubbles in the housing market, the stock market, and energy and other commodities markets. Bubbles are caused by feedback loops: rising speculative prices encourage optimism, which encourages more buying, and hence further speculative price increases—until the crash comes.

But you won't find the word "bubble" in most economics treatises or textbooks. Likewise, a search of working papers produced by central banks and economics departments in recent years yields few instances of "bubbles" even being mentioned. Indeed, the idea that bubbles exist has become so disreputable in much of the economics and finance profession that bringing them up in an economics seminar is like bringing up astrology to a group of astronomers.

The fundamental problem is that a generation of mainstream macroeconomic theorists has come to accept a theory that has an error at its very core: the axiom that people are fully rational. And as the statistician Leonard "Jimmie" Savage showed in 1954, if people follow certain axioms of rationality, they must behave as if they knew all the probabilities and did all the appropriate calculations.

So economists assume that people do indeed use all publicly available information and know, or behave as if they knew, the probabilities of all conceivable future events. They are not influenced by anything but the facts, and probabilities

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888 16th Street, N.W.  
Suite 740

Washington, D.C. 20006

Phone: 202-861-0791

Fax: 202-861-0790

[www.international-economy.com](http://www.international-economy.com)

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*Robert J. Shiller, a Professor of Economics at Yale and chief economist at MacroMarkets LLC, is the author, with George Akerlof, of *Animal Spirits: How Human Psychology Drives the Economy, and Why It Matters for Global Capitalism* (Princeton University Press, 2009).*

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are taken as facts. They update these probabilities as soon as new information becomes available, and so any change in their behavior must be attributable to their rational response to genuinely new information. And if economic actors are always rational, then no bubbles—irrational market responses—are allowed.

But abundant psychological evidence has now shown that people do not satisfy Savage’s axioms of rationality. This is the core element of the behavioral economics revolution that has begun to sweep economics over the last decade or so.

In fact, people almost never know the probabilities of future economic events. They live in a world where economic decisions are fundamentally ambiguous, because the future doesn’t seem to be a mere repetition of a quantifiable past. For many people, it always seems that “this time is different.”

The work of Duke neuroscientists Scott Huettel and Michael Platt has shown, through functional magnetic resonance imaging experiments, that “decision making under ambiguity does not represent a special, more complex case of risky decision making; instead, these two forms of uncertainty are supported by distinct mechanisms.” In other words, different parts of the brain and emotional pathways are involved when ambiguity is present.

Mathematical economist Donald J. Brown and psychologist Laurie R. Santos, both of Yale, are running experiments with human subjects to try to understand how human tolerance for ambiguity in economic decision-making varies over time. They theorize that “bull markets are characterized by ambiguity-seeking behavior and bear markets by ambiguity-avoiding behavior.” These behaviors are aspects of changing confidence, which we are only just beginning to understand.

To be sure, the purely rational theory remains useful for many things. It can be applied with care in areas where the consequences of violating Savage’s axiom are not too severe. Economists have also been right to apply his theory to a range of microeconomic issues, such as why monopolists set higher prices.

But the theory has been overextended. For example, the “Dynamic Stochastic General Equilibrium Model of the Euro Area,” developed by Frank Smets of the European

Central Bank and Raf Wouters of the National Bank of Belgium, is very good at giving a precise list of external shocks that are presumed to drive the economy. But nowhere are bubbles modeled: the economy is assumed to do nothing more than respond in a completely rational way to these external shocks.

Milton Friedman (Savage’s mentor and co-author) and Anna J. Schwartz, in their 1963 book *A Monetary History of the United States*, showed that monetary-policy anomalies—a prime example of an external shock—were a significant factor in the Great Depression of the 1930s. Economists such as Barry Eichengreen, Jeffrey Sachs, and Ben Bernanke have helped us to understand that these anomalies were the result of individual central banks’ effort to stay on the gold standard, causing them to keep interest rates relatively high despite economic weakness.

To some, this revelation represented a culminating event for economic theory. The worst economic crisis of the twentieth century was explained—and a way to correct it suggested—with a theory that does not rely on bubbles.

Yet events like the Great Depression, as well as the recent crisis, will never be fully understood without under-

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standing bubbles. The fact that monetary policy mistakes were an important cause of the Great Depression does not mean that we completely understand that crisis, or that other crises (including the current one) fit that mold.

In fact, the failure of economists’ models to forecast the current crisis will mark the beginning of their overhaul. This will happen as economists redirect their research efforts by listening to scientists with different expertise. Only then will monetary authorities gain a better understanding of when and how bubbles can derail an economy, and what can be done to prevent that outcome. ◆