Economics 325
**Intermediate Macroeconomic Analysis**
**Supplement 1**
Professor Sanjay Chugh
Fall 2011

In the following op-ed, which appeared in the *New York Times* on May 1, 2011, Robert Shiller (Yale Department of Economics) discusses how and why the macroeconomic events of the past few years should motivate collection and widespread analysis of new financial and macroeconomic data, much as how the Great Depression sparked the collection and widespread analysis of data such as GDP, the Federal Reserve's Flow of Funds Accounts, and others that for the past few decades have been considered to be "standard" macroeconomic and financial measures of the economy.

NEW YORK TIMES
MAY 1, 2011

# Needed: A Clearer Crystal Ball

By ROBERT J. SHILLER

THERE were relatively few persuasive warnings during the 1920s that the Great Depression was on its way, and few argued convincingly during the last decade that the most recent economic crisis was near. So it's easy to conclude that because we didn't see these events coming, nothing could have been done to prevent them.

In fact, some people view the recent crisis as just another "black swan event," one of those outliers, as popularized by Nassim Taleb, that come out of the blue. And it's clear that a lot of smart people simply didn't see the housing bubble, the instability of our financial sector or the shock that came in 2007 and 2008.

But the theory of outlier events doesn't actually say that they cannot eventually be predicted. Many of them can be, if the right questions are asked and we use new and better data. Hurricanes, for example, were once black-swan events. Now we can forecast their likely formation and path pretty well, enough to significantly reduce the loss of life.

Such predictions are a crucial challenge in economics, too, and they are why data collection need not be a dull or a routine field. If done correctly, it can be very revealing. The Dodd-Frank Act of 2010 created a Financial Stability Oversight Council with a research arm, the Office of Financial Research, to help confront systemic risks. Perhaps these new organizations will improve our knowledge, mirroring the progress we have seen with hurricanes.

Of course, there was already an organization that looked a bit like a leaner version of the oversight council, yet it did nothing effective to prevent the recent crisis. That is the President's Working Group on Financial Markets, created by President Ronald Reagan after the stock market crash of 1987. The real hope for the new organization is its research office — but only if it is given enough resources. The law charges the new office with collecting data, standardizing it and "developing tools for risk measurement and monitoring." Those tasks aren't as minor and as technical as they may sound.

Armchair scientists will never get far; observation makes all the difference. Think of the advances that came with the microscope and telescope. So it is with measurements in economics, too.

When I wrote the second edition of my book "Irrational Exuberance" in 2005, I produced a century-long series of home prices, which revealed how unusual the housing-price boom was at the time. General talk about the nature of bubbles didn't convince many people that a bubble was forming, but the data I collected did convince at least some that we were in a very risky and historically unparalleled situation.

Donald L. Kohn, the former vice chairman of the Federal Reserve Board, along with the board economists Matthew J. Eichner and Michael G. Palumbo, argued in a 2010 paper that a significant reason the financial crisis was not anticipated was that the board had no reliable information on two important variables. One, it said, was "the underlying credit risk associated with the rapid growth of home mortgages and a consequent increase in the vulnerability of borrowers to a downturn in home prices or incomes." The other was the growth of financial vulnerability outside the traditional banking sector because of "a greater reliance on short-term funding for longer-term financial instruments."

Such acknowledgments of information black spots are familiar. The Depression of the 1930s was blamed on a lack of knowledge, too, but one result was an improvement in our measurement systems.

The government's National Income and Product Accounts data began as a reaction to the Depression. And the term "gross national product" first appeared in an article by Clark Warburton in 1934, amid the Depression's darkest days.

It took years, however, to develop this concept. The new Keynesian economic theory provided the intellectual framework for integrating disparate sources of information. That was no easy task. The Commerce Department didn't start publishing G.N.P. data until 1942 — backdating it to the beginning of the Depression in 1929. (In 1974, it restated it as gross domestic product, or G.D.P.)

The Federal Reserve started work on its Flow of Funds Accounts in the Depression as well. These accounts, which go beyond G.N.P. and show the flow of funds from each kind of financial institution to another, offer a much better picture of the kinds of instabilities

that led to the Depression. This innovation took a long time, too. The Fed didn't begin publishing these accounts until 1955, backdating them to late in the Depression, in 1939.

Eventually, these advances led to quantitative macroeconomic models with substantial predictive power — and to a better understanding of the economy's instabilities. It is likely that the "great moderation," the relative stability of the economy in the years before the recent crisis, owes something to better public policy informed by that data.

Since then, however, there hasn't been a major revolution in data collection. Notably, the Flow of Funds Accounts have become less valuable. Over the last few decades, financial institutions have taken on systemic risks, using leverage and derivative instruments that don't show up in these reports.

Some financial economists have begun to suggest the kinds of measurements of leverage and liquidity that should be collected. We need another measurement revolution like that of G.D.P. or flow-of-funds accounting. For example, Markus Brunnermeier of Princeton, Gary Gorton of Yale and Arvind Krishnamurthy of Northwestern are developing what they call "risk topography." They explain how modern financial theory can guide the collection of new data to provide revealing views of potentially big economic problems.

TODAY, our prosperity depends on finance, and on its associated disciplines of accounting and macroeconomics. The financial crisis didn't demonstrate their bankruptcy, as some would say. We should respond just as we did to the Depression, by starting the long process of redefining our measurements so we can better understand the risk of another financial shock.

The past suggests that this project will take many years to complete. But it will be worth the effort.

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