# Financial Bubbles, Real Estate Bubbles, Derivative Bubbles, and the Financial and Economic Crisis

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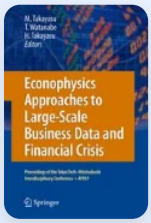


**Econophysics Approaches to Large-Scale Business Data and Financial Crisis**

Didier Sornette & Ryan Woodard



## Abstract

The financial crisis of 2008, which started with an initially well-defined epicenter focused on mortgage backed securities (MBS), has been cascading into a global economic recession, whose increasing severity and uncertain duration has led and is continuing to lead to massive losses and damage for billions of people. Heavy central bank interventions and government spending programs have been launched worldwide and especially in the USA and Europe, with the hope to unfreeze credit and bolster consumption. Here, we present evidence and articulate a general framework that allows one to diagnose the fundamental cause

of the unfolding financial and economic crisis: the accumulation of several bubbles and their interplay and mutual reinforcement have led to an illusion of a "perpetual money machine" allowing financial institutions to extract wealth from an unsustainable artificial process. Taking stock of this diagnostic, we conclude that many of the interventions to address the so-called liquidity crisis and to encourage more consumption are ill-advised and even dangerous, given that precautionary reserves were not accumulated in the "good times" but that huge liabilities were. The most "interesting" present times constitute unique opportunities but also great challenges, for which we offer a few recommendations.

# Notes

1. Currency in circulation + checkable deposits (checking deposits, officially called demand deposits, and other deposits that work like checking deposits) + traveler's checks, that is, all assets that strictly conform to the definition of money and can be used to pay for a good or service or to repay debt.

2. In this respect, note the information from Reuters, Santiago, March 27, 2009, reporting that Chile's President Michelle Bachelet unwittingly embarrassed British Prime Minister Gordon Brown when she said Chile had put aside money during good economic times to help it through the downturn. "I would say that because of our decision during …the good times in copper prices, we decided to save some of the money for the bad times and I would say that policy today is producing good results."

3. The Swiss Economic Circle (Wirtschaftsring-Genossenschaft or WIR) is an independent complementary currency system in Switzerland that serves small and medium-sized businesses. It was founded in 1934 by businessmen Werner Zimmermann and Paul Enz as a result of currency shortages after the stock market crash of 1929 and the great recession. "Its purpose is to encourage participating members to put their buying power at each other's disposal and keep it circulating within their ranks, thereby providing members with additional sales volume." Cited from Wikipedia.

4. See http://en.wikipedia.org/wiki/Financialization.

5. Governments use so-called hedonic regression in computing their CPI to take quality changes into account.

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