

[Bubbles, Crashes, and Ups and Downs in Economic Growth: Theory and Evidence](#)

CFM-DP2021-19

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A decade after the Great Recession, economic observers seem to agree on a few points. First, an asset price bubble emerged in the years leading up to the crisis. Second, the implosion of this bubble triggered a financial crisis, resulting in severe contraction. Third, the recovery has been lackluster, with GDP growing about 1 percentage point slower after the crisis. The U.S. experience is far from unique. Recent empirical studies find that these features are common to other financial crises, and moreover these bubble-driven financial crises are not extremely rare but repeat over time with an interval of a few decades in many cases. Motivated by these empirical findings, we construct a model with recurrent bubbles, crashes, and endogenous growth that can account for the aforementioned features and that can be taken to the data for structural estimation.

Theoretically, infinitely lived households expect future bubbles, which crowds out investment and reduces economic growth. For realized bubbles crowd in investment, their overall impact on economic growth and welfare crucially depends on both the level of financial development and the frequency of bubbles. If bubbles do not appear frequently and the economy's financial market is severely under-developed, the standard crowding-in effect of realized bubbles could still dominate. On the other hand, if the financial market is relatively developed, the crowding-out effect of future bubbles can dominate. In this case, recurrent bubbles reduce average growth and welfare over the long run. Importantly, if bubbles emerge more frequently, the crowding-out effect becomes stronger. Therefore, high-frequency bubbles can be undesirable even in financially under-developed economies.

Empirically, we estimate the model using the U.S. data for the period 1984-2017. We identify bubbles by exploiting the model's robust predictions that both GDP growth and the stock-market-to-GDP ratio are high when bubbles exist. Using these observables, we find that at least two bubbly episodes are very likely in our sample: the first one from around 1997 to 2001, and the second one from around 2006 to the onset of the Great Recession. Both the asset market and GDP growth were strong in these periods, which our model attributes to the emergence of bubbles. But not all the booms are estimated to be bubbly. For example, our model attributes the strong GDP growth in the mid-1990s to favorable productivity shocks, for the stock market was not strong enough to justify the existence of bubbles.

A counterfactual simulation reveals that the U.S. economy significantly benefited from the realized bubbles for two reasons. First, it directly enjoyed bubble-driven output booms. Second, investment

booms during the bubbly episodes permanently raised the output level even after bubbles had been gone. We estimate that the two bubbly episodes combined permanently raised the level of U.S. GDP by about 2 percentage points. However, another counterfactual simulation suggests that the U.S. economy could have grown even faster. That is, if the economy were in a different equilibrium in which bubbles never arose and were never expected to emerge, GDP growth would be higher than the actual on average. This is because the crowding-out effect of future bubbles is absent.