

# What Happens When Bubbles Pop?

BY ERIC LAROSE

## Highlighted Research

“Asset Bubbles and Global Imbalances.” Toan Phan and Daisuke Ikeda. *American Economic Journal: Macroeconomics*, forthcoming.

For economist Toan Phan, who joined the Richmond Fed in 2017, traveling to Japan frequently and witnessing the economic stagnation of the country’s “Lost Decade” sparked an interest in asset bubbles. During the 1980s, Japan experienced a massive rise in prices of stocks, housing, and other assets. In 1991, these prices began to fall sharply, coinciding with the start of a long period of low growth; annual per capita GDP growth averaged under 1 percent between 1992 and 2000, compared with nearly 4 percent in the preceding 10 years.

During an asset bubble — a sharp rise in the price of an asset that is unsupported by underlying fundamentals — the appreciation of the asset increases buyers’ net worth, which can encourage investment and lead to an expansion of the economy. Eventually, however, the bubble bursts. As the price of the asset comes down, investment may decrease and the economy may contract. Most prior literature on the topic takes a relatively benign view of this trade-off between the expansion and subsequent contraction and, Phan says, “does not necessarily highlight the downside of a bubble collapse.” That is, this literature predicts that when a bubble bursts, the economy will contract only to its pre-bubble trend, leaving the economy no worse off than before.

Historically, however, the bursting of asset bubbles has frequently been followed by deep recessions, such as the Great Recession and Japan’s Lost Decade, that do leave the economy worse off. Many of these recessions share some common characteristics: low inflation (or deflation), low interest rates, and sharp increases in unemployment with little, if any, change in wages. Paying particular attention to these similarities, Phan says his research seeks to “provide theoretical mechanisms as to why collapses of bubbles tend to precede recessions.”

Nominal wage rigidity — the historical tendency of wages not to fall, even in a recession — is one factor that can help explain this historical pattern. In a 2017 article with Andrew Hanson in *Economics Letters* and a 2018 working paper with Hanson and Siddhartha Biswas (both doctoral students at the University of North Carolina at Chapel Hill, where Phan was on the faculty prior to joining the Richmond Fed), Phan and his co-authors embedded wage rigidity into a model of asset bubbles. In the absence of such rigidity, they found that once a bubble collapses, contractions in investment and credit decrease wages while maintaining full employment, consistent with

prior literature on asset bubbles. The presence of wage rigidity, however, leads to unemployment instead of wage decreases. Such unemployment reduces the returns to capital, creating a cycle in which investors’ net worth declines, reducing investment and leading to additional unemployment. This cycle can produce what Phan calls “a long period of unemployment and low growth.”

Low interest rates coinciding with a bubble bursting can also exacerbate the resulting economic downturn. Phan, Hanson, and Biswas showed that overinvestment in capital during a bubble’s expansion can, once the bubble collapses, potentially push interest rates down. If rates go low enough, the economy may reach a liquidity trap in which there is little room for central banks to lower interest rates, greatly reducing the ability of expansionary monetary policy to stimulate the economy. Phan argues that the 2001 recession following the bursting of the dot-com bubble was relatively mild in part because “the Fed had a lot of room to lower interest rates” without entering a liquidity trap.

Additionally, when investment in a bubbly asset is financed through borrowing, as in the case of banks financing mortgage lending through mortgage-backed securities during the U.S. housing bubble preceding the Great Recession, the resulting bubble can reduce economic well-being. In a 2016 article in *Economic Theory*, Phan and Daisuke Ikeda at the Bank of Japan developed a model featuring such “leveraged” bubble investment. Leveraging shifts the risks associated with the bubble collapsing from borrowers to lenders, and the possibility of default can cause borrowers to focus only on the potential gains from investment and ignore possible losses. As the authors show, this risk shifting can make the bubble larger and more risky.

“Overall, it has been surprisingly hard to formalize the idea of a boom-bust trade-off, especially in the case of Japan,” says Phan. “This has motivated me to keep thinking about the effects of bubbles bursting through future work.” He is especially interested in further exploring asset bubbles in an open economy (one shaped by the economies of other countries). In a forthcoming paper with Ikeda in the *American Economic Journal: Macroeconomics*, the two build a framework in which flows of credit between a developing economy, such as China, and a developed one, such as the United States, can lead to a bubble in the developed economy by decreasing its interest rates. “There has been relatively little literature exploring asset bubbles from an open economy perspective,” Phan observes. “But investigating the consequences of large capital flows into the U.S. from China, which occurred during the recent U.S. housing bubble, can further our understanding of how bubbles can form.” EF