Chief economist's comment

What do bubbles mean?

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- The fourth industrial revolution may make financial markets more prone to bubbles. The novelty and uncertainty of a period of structural change increases bubble risks.
- A bubble requires asset prices to trade above fundamental value. A bubble normally occurs when there is novelty in the asset, or in the financial instruments that support the asset – allowing uncertainty about future fundamentals to build. A bubble normally has a delay before real economic value can be realized. Bubbles are relatively easy to define after the fact, because they burst.
- Bubbles transfer wealth from one group in society to another. Generally there are fewer bubble winners than bubble losers, which concentrates wealth. This has economic consequences. Bubble losers increase savings, suffer loss aversion, and may become risk adverse. All of this has economic consequences. Bubbles divert money from economically "good" investments to economically "bad" investments. This has obvious economic consequences.
- Policy makers can mitigate the negative consequences of a bubble. If a bubble is confined to a limited number of people, the economic consequences may also be limited.

There is no clear economic definition of what makes an asset price a bubble. The term is controversial. In broad terms a bubble has four characteristics.

The most obvious characteristic is that a bubble requires an asset price to be above its fundamental value. This is difficult to define because investors will argue about where the fundamental value lies. Economists still argue passionately about the fundamental value in Dutch tulip bulb prices during the early seventeenth century (economists do not get out very much).

A bubble generally has to involve some kind of novelty. It can be the underlying asset that is new. Dutch tulips were new and exotic. Eighteenth century canals were new, on the scale that they were being built. Nineteenth century railways were new. Twentieth century cars and radios were new. Turn of the century internet stocks were new. Cryptocurrencies today are new. Alternatively it can be the financial innovation that is the novelty. Cash-settled futures contracts on Dutch tulip bulbs were new. Large scale joint stock companies in France and England in the early eighteen century were new. Large scale leveraged buyouts in the 1980s were new.

Novelty matters to a bubble, because it makes valuing future fundamentals more difficult. Novelty allows the dread phrase "this time it is different" to be spoken. If fundamental value is to be ignored, there has to be a reason investors forget the rational lessons of history. Novelty helps.

A bubble must promise real world returns at some distant date. If real world returns are expected quickly, the failure to realize those returns quickly will be obvious quickly. It took time for tulip bulbs to become tulips. The Mississippi and South Sea bubbles of the early eighteenth century promised non-existent riches from trade. The non-existent riches were supposed to be earned in the future. The internet bubble promised that we would all be buying pet food online – not immediately, but in the new millennium. The gap between selling financial assets and achieving the real world returns lets irrationality build. The asset price continues to rise because "this time it is different" and bubble buyers believe that returns will come pouring in if only they wait long enough.

The final characteristic of a bubble is that a bubble bursts. The sudden drop in the asset price is the defining characteristic of a bubble. It is the bursting of a bubble that is of most interest to the economist. This conclusive signal comes too late for the bubble buyer, of course. The bubble buyer must suffer the result.

US Nasdaq Equity Index

Source: Haver

Bubbles and the real economy

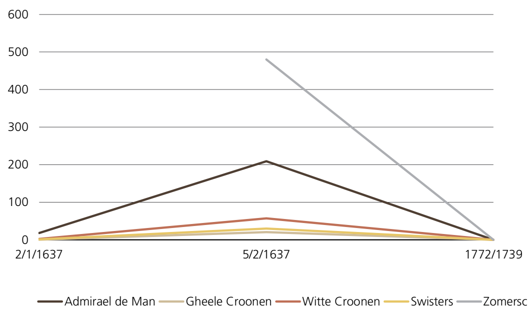
Bubbles in financial assets certainly make for exciting media headlines, but what do they mean for the real economy?

At its simplest, a bubble transfers money from one group in society (asset buyers) to another group in society (asset sellers). Wealth is redistributed, but wealth redistribution of itself need not matter economically.

Bubbles often involve a large numbers of buyers giving wealth to a smaller number of sellers. The South Sea bubble saw a large numbers of middle class shareholders lose their savings. A small number of generally well-connected promoters profited. The 1929 equity market bubble sucked in the general population as buyers. A smaller group sold out in time. Cryptocurrency buyers are larger in number than cryptocurrency miners today. The large number of losers and the small number of winners from a bubble has an economic impact by concentrating wealth in an economy.

If building and bursting a bubble concentrates wealth ownership, consumption patterns will change. Wealthy people buy different things from less wealthy people. It is also generally true (though not universally true) that wealthy people spend less of their income than less wealthy people. Concentrating wealth makes a small number of people more wealthy, and lots of people less wealthy. Shifting spending power from the losers of a bubble to the winners will probably reduce overall consumer spending. That demand shock will lower economic growth, and potentially trigger a recession.

Selected Dutch tulip bulb prices (Guilder per bulb), start of 1637, peak bubble, the following century



Source: Peter Gaber (2000) "Famous First Bubbles, MIT press, table 10.1 pg 66

Bubble buyers will experience a negative wealth effect. As long as a bubble pushes asset prices higher, bubble buyers are likely to feel wealthier. Bubble buyers will have less incentive to save (why save 5% of your paycheck if the bubble is inflating at 5% per month?). In the expansionary phase of the bubble rising asset prices may be matched by rising levels of consumption. This all changes when the bubble bursts. The decline in the value of their assets (often to near zero) will cause bubble buyers to increase their savings. Bubble buyers will cut back on spending to make up for the "savings" that have been lost. This is a negative impact for the economy.

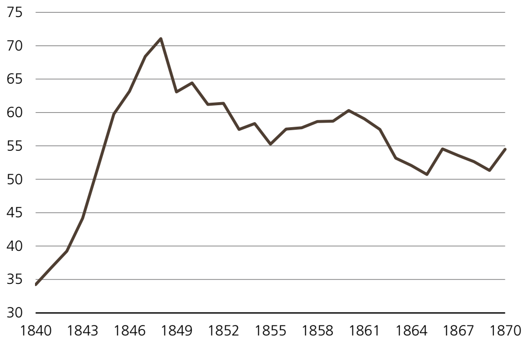
The loss of wealth is made worse by a behavioral economic concept called "loss aversion". People are biased against losing. People dislike the loss of something more than they like gaining something. It is a very ancient survival mechanism, forcing people to run away from danger. Research suggests a loss is twice as important as a gain. We run away from the sabre tooth tiger twice as fast as we run towards a potential meal. Even though the size of bubble losers' losses will equal the size of bubble winners' gains when a bubble bursts, the losses will be more important economically.

Negative wealth effects and loss aversion may change future investment. Direct experience of building and bursting a bubble may make investors more risk adverse in the future. Some studies imply that risk aversion may even be inherited by the children of bubble buyers. A culture of risk aversion can develop as a result of significant losses. Rising risk aversion can change an economy's future investment and innovation. This hurts the trend rate of growth.

While a bubble builds, money is diverted from useful economic activity into less useful economic activity. Because asset prices exceed fundamental value, more money is allocated to the bubble's object than is economically efficient. Investing in a bubble is "bad" investment (economically speaking). That means that parts of the economy that should be getting investment ("good" investment) lose out. This can be negative for longer-term economic growth. Bursting the bubble may help restore the balance of good and bad investment – but risk aversion may lower investment (and growth) overall.

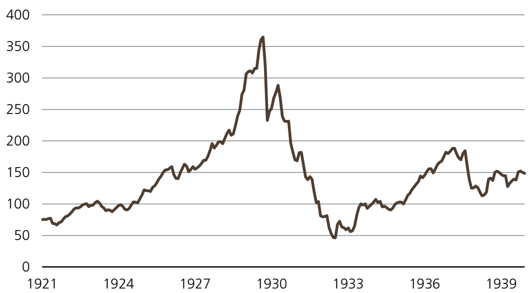
Finally it is worth considering any links between bubbles and banks. Bubbles do not necessarily need banks. On occasion, a bubble will be credit financed. This makes a bigger economic threat than the wealth effects alone. If bank solvency is questioned (e.g. the US Knickerbocker crash of 1907), financial stability may be questioned. That can lead to a classic credit crunch. Areas of the economy not directly involved in the bubble would be hurt.

Market capitalization of UK Railway Shares during the Railway Bubble - £ million



Source: Aecheson, Hickson, Turner and Ye (2009), "Rule Britannia!", Journal of Economic History, 69, 4, pp 1118-1119

US Dow Jones Equity Index



Source: Haver

It does not have to be negative

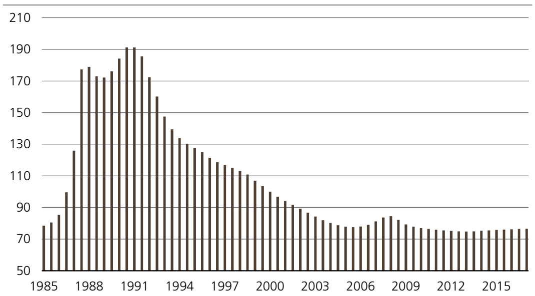
Does a bursting bubble have to have negative economic consequences? It is likely, but not certain. How many people participated in the bubble matters. If a small group of people in a country participate in a bubble, then the economic consequences of the bubble and of the bubble bursting are limited. This is particularly true if the financial sector has remained aloof from the bubble.

Policy makers can attempt to limit the damage. Seventeenth century Dutch officials allowed tulip futures contracts to be terminated by bubble buyers at a fraction of the cost – limiting the worst of the wealth transfers. The economic costs of the South Sea bubble in 1729 were partly offset by the actions of the Bank of England. The US Federal Reserve famously failed to mitigate the effects of the 1929 equity crash, but did offer help after the 1987 equity correction.

Double, double, toil and trouble

Clearly bubbles are unlikely to disappear from financial markets. The changes of the fourth industrial revolution may produce more of the novelty that can fuel bubble creation. Looking for signs that a bubble is building, and understanding the real world consequences, are likely to matter more.

Residential land price index, Tokyo area



Source: Japan Real Estate Research Institute, via Haver

Appendix

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