

The Bitcoin Bubble and a Bad Hypothesis

Under the efficient-markets hypothesis, a worthless digital currency should have never gotten off the ground.



The sudden drop in the value of Bitcoins, the hot new Internet currency, has added urgency to the question of whether Bitcoin is the way of the future, or just another bubble. Not to keep readers in suspense, the answer is a bubble, but a particularly interesting example of one. In particular, Bitcoin represents what ought to be the final refutation of the efficient-markets hypothesis, which still guides most regulation of financial markets.

Before going any further, what is Bitcoin? As with any question nowadays, Wikipedia provides a good initial explanation and plenty of references. For our purposes, however, the most important fact is that bitcoins are initially produced by running difficult (but useless) algorithmic calculations. By analogy with gold, the producers are called miners.

The number of bitcoins that can be produced has been set to a predetermined schedule (from 2009 to 2140) by the organizer of the scheme, who uses the pseudonym Satoshi Nakamoto. Since the number of new bitcoins allowed halves every four years, and computers are getting steadily faster, the complexity of the computation required to produce each coin is increasing rapidly.

Once bitcoins have been produced and authenticated, the miners are free to exchange them for U.S. dollars, at the market-determined exchange rate. Alternatively, they may use them to buy goods and services from anyone willing to take bitcoins in return.

It might seem that Bitcoin is just like a fiat currency issued by governments. Writing in the *Wall Street Journal*, Jack Hough says precisely that it's a purely online currency with no intrinsic value; its worth is based solely on the willingness of holders and merchants to accept it in trade. In that respect, it's not so different from fiat currencies like the dollar or Euro, but whereas governments back such money, Bitcoins lack central control.

But this is a misunderstanding of what money does and where it came from. The "fiat" (meaning "let there be") in "fiat money" reflects the power of governments to command and tax. Because of their power to tax, governments can make money by fiat, simply by declaring their willingness to accept that money in repayment of tax debts.

Historically, money arose from, and in conjunction with, this power. (This point has been made repeatedly over the years, most recently in David Graeber's controversial [*Debt: The First 5000 Years*](#), a surprise publishing hit for an anthropologist.)

By contrast, Bitcoin looks more like the "just so" story, commonly told in economics textbooks, in which money arises to simplify what would otherwise be complex and cumbersome barter transactions.

That would be fine if Bitcoin were simply a unit of account, used to keep track of transactions. But all the interest in Bitcoin is in the idea that it is a store of value, one that may be expected to show steady appreciation rather than depreciation. So Bitcoin needs to be evaluated as a financial asset.

Viewed in this way, Bitcoin is perhaps the finest example of a pure bubble. It beats the classic historical example, produced during the 18th century South Sea Bubble of "a company for carrying out an undertaking of great advantage, but nobody to know what it is." After all, the promoter of this enterprise might, in principle, have had a genuine secret plan. Bitcoin also outmatches Ponzi schemes, which rely on the claim that the issuer is undertaking some kind of financial arbitrage (the original Ponzi scheme was supposed to involve postal orders). The closest parallel is the fictitious dotcom company imagined in Garry Trudeau's *Doonesbury*, whose only product was its own stock.

As with any kind of asset used as currency, from gold to tobacco to U.S. dollars, Bitcoin is valuable as long as people are willing to accept it. But in all of these examples, willingness to hold the asset depends on the fact that it has value independent of that willingness. Tobacco can be smoked or chewed, gold can be used to fill teeth or make jewellery, and U.S. dollars can be used to meet obligations to the U.S. government.

This independent value is not fixed and stable. If people give up smoking, or wearing gold jewellery, or if the United States experiences inflation, the external value of these currencies will decline.

But in the case of Bitcoin, there is no source of value whatsoever. The computing power used to mine the Bitcoin is gone once the run has finished and cannot be reused for a more productive purpose. If Bitcoins cease to be accepted in payment for goods and services, their value will be precisely zero.

According to the efficient-markets hypothesis (EMH), which still dominates the analysis of financial markets, this should be impossible. The EMH states that the market value of an asset is equal to the best available estimate of the value of the services or income flows it will generate. In the case of a company stock, this is the discounted value of future earnings. Since Bitcoins do not generate any actual earnings, they must appreciate in value to ensure that people are willing to hold them. But an endless appreciation, with no flow of earnings or liquidation value, is precisely the kind of bubble the EMH says can't happen.

According to the EMH, bubbles are impossible in well-developed financial markets even if the majority of participants are acting irrationally, provided there is a sufficient supply of rational speculators. By selling the asset short, these speculators can burst the bubble, and profit when it returns to its true value (zero, in the case of Bitcoins).

There is a market for Bitcoin derivatives that should allow just such shortselling. It is thinly traded at present, but there is no obvious obstacle to its expansion. And the total value of outstanding bitcoins is \$1 billion, a hefty sum, but well within the reach of a Soros or Buffett.

The problem, it seems, is that it is impossible to time the bursting of a bubble. Famous speculators like Julian Robertson bet too early against the dotcom bubble of the 1990s and lost their money. In the case of Bitcoins, the obvious time to bet on the bursting of the bubble was in 2011, when their value plunged from \$30 to \$2. But, as things have turned out, that would have been a recipe for disaster.

As Keynes is supposed to have said (apparently apocryphally), "the market can stay irrational longer than you can stay solvent." Bitcoins will attain their true value of zero sooner or later, but it is impossible to say when.

The Bitcoin bubble, at \$1 billion, is tiny compared to those that burst in

2000 and 2008. Nevertheless, because Bitcoins are the most demonstrably valueless financial asset ever created, they represent the sharpest ever refutation of the efficient-markets hypothesis.

Financial regulators are said to be considering oversight of the Bitcoin market. They would be better off leaving it to its inevitable demise, and reconsidering the assumptions on which they have repeatedly allowed financial speculation to bring the world economy to the brink of collapse.

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