# Big picture: Macroeconomic implications of Bitcoin

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- Price gyrations in crypto currencies are suggestive of a bubble. But bubbles, like the earlier tech bubble, are often based on a solid foundation, in this case blockchain technology. Crypto currencies are probably here to stay.
- This bubble is probably a particular manifestation of asset overvaluation caused by global QE and negative rates. The bubble questions the longer-term value of fiat currencies.
- An extended use of crypto currencies could imply a deflationary bias to activity and increased possibilities of bank runs. No lender of last resort is a problem.
- Despite crypto currencies not being securities, regulatory action in several jurisdictions is possible down the road, though effectiveness might need international co-operation.

**Tech is changing how financial systems operate**

We get an increasing number of questions about Bitcoin and other crypto currencies. The issue has caught the public imagination and the technology on which Bitcoin and other crypto currencies are built, blockchain, appears to have far-reaching possibilities in finance and elsewhere. E-currencies may come to be issued by central banks — China has such plans and Sweden is well on the way to becoming a cashless society. Bitcoin, Ethereum, Litecoin and the rest are, therefore, tapping into a potentially rich vein where technology will change the way we live and how the financial system operates.

### What is money and are crypto currencies money?

Economists have an old saying that money is what money does. At various times and in various societies, cigarettes, cowrie shells and gold, amongst other items, have served as money. Basically, money is whatever people accept and does the job as: a unit of account; a means of payment; and a store of value

**Crypto currencies could become money**

Sometimes money has consisted of items that have intrinsic value, such as gold. But currently we have a fiat money system where the notes we handle have no intrinsic value. It is only because people accept them in exchange for goods, services and assets that the notes have any value. The backing of the state and acceptance of currency in paying taxes helps too. If crypto currencies are widely accepted by economic agents, they will become money.

Crypto currencies can perform all of the functions of money identified above. However, at the moment there is a real question about the extent to which they do so. The most problematic is their acting as a store of value. The sometimes wild fluctuations in the price of Bitcoin and others relative to established national currencies like the USD indicates they are not a stable store of value. Limited acceptability in transactions also questions how far along the "money spectrum" they are, though Japan accepts Bitcoin as legal tender and in September officially recognised eleven companies as crypto currency exchange operators. Low usage as a unit of account also questions their money-ness. The fact that we talk about the "price" of Bitcoin or Ethereum rather than the 'exchange rate' suggests they are not yet accepted by the majority of people as an independent currency, though they could become so.

### Is there a bubble?

**Looks, smells and tastes like a bubble**

There seem to be many symptoms of a bubble as far as the price of crypto currencies is concerned. The key feature is that many participants appear to be buying crypto currencies because their price is going up. One of the features that aid the bubble is that there is a hard limit for Bitcoin issuance of 21mn, which is expected to be reached in 2040. There are currently about 17mn Bitcoins. If Bitcoins become more and more adopted, then the price likely will rise substantially as the supply is finite. Limited supply helps to entrench the highly speculative nature of the currency. It's a brilliant feature by the designers.

Just concluding there is a bubble does not mean that the bubble will burst soon. It depends on a host of factors, not least the possibility of self-fulfilling expectations that the price will continue to rise and this will bring in further participants. While the dotcom bubble inflated and burst, the capital that was diverted into the sector facilitated the emergence of some of today's giants like Amazon and Google. We are seeing shift of resources now. Is this a misallocation or the seeds of a really worthwhile shift? Time will tell. We suspect crypto currencies are here to stay.

**Other than people buying crypto currencies on the expectation of making a gain, what does the success of crypto currencies tell us?**

**A distrust of state-backed money began this trend**

Bitcoin came into existence after the financial crisis. Some see it as a symptom of disenchantment with traditional finance and the potential for far lower transaction costs by reducing the role of middlemen like banks. Our view is that, additionally, it is a particular manifestation of a more general asset-price overvaluation driven by exceptionally low real rates and QE. There are currently roughly USD 5trn in fiat currencies in the world, which represents a lot of seigniorage that, effectively, crypto currencies are endeavouring to privatise. With over USD 10trn of bonds yielding negative nominal rates and many trillions of sight and savings deposits at negative real rates, the potential market for crypto currencies that deliver large positive returns is vast. It's all a matter of belief.

The seizure of deposits in Cypriot banks in 2013 was taken as a warning about holding fiat currencies in banks by some economic agents. Negative interest rates are another (which state-backed e-currency would greatly facilitate). Anonymity was an advantage that motivated some of the early adoption, including by tax dodgers and criminals — though the recent extraordinary price gains probably represent a growing popularity amongst ordinary investors.

**Are there monetary consequences?**

**Deflationary**

A finite issuance is clearly disinflationary in a growing economy. The flip side of recent gains in the prices of crypto currencies, against say the USD, is that the prices of goods and services in Bitcoin have been plunging. Imagine if you had financed your house with a Bitcoin mortgage.

**Could add to financial instability**

The existence of private crypto currencies could encourage runs on traditional banks in a crisis. (The same could result from central banks' e-currencies). If fractional reserve banking in crypto currencies were to develop, there would be no lender of last resort, increasing the likelihood of busts. The larger the migration to crypto currencies, the lower the deposit base of the banks, with possible adverse effects on credit. If private crypto currencies were to drive out fiat money, how would monetary policy work and how would central banks steer the economy?

**Will governments move against crypto currencies?**

China has already acted to close down exchanges, though reports suggest that 70% or more of "mining" takes place in China, partly as a result of cheap electricity. The potential threat to central bank seigniorage, worries about money laundering, financial stability, tax avoidance and crime, all make regulatory moves elsewhere possible. On the other hand, the CME plans to launch a futures contract and the possibility of ETFs being listed in the US shows that the market for crypto currencies may take further large steps forward. Moreover, currencies are not "securities" and, therefore, fall outside current regulatory boundaries (some countries treat them as commodities). Japan has granted Bitcoin legal tender status, suggesting it is bidding to be the centre of fintech. Bans elsewhere could drive business to Japan unless there is co-ordination, and a crackdown on VPNs in other jurisdictions, which raises issues of freedom.

**What will the eventual values be?**

**Where will the price of crypto currencies settle?**

Volatility in the prices of crypto currencies makes the forecasting of price movement extremely uncertain. Demand and supply will determine where prices go. On the demand side, the introduction of futures and ETFs suggests some big players are going to work to increase demand. Market-making in crypto currencies by some investment banks may help stabilize prices. On the supply side, the rapid rate of crypto-currency ICOs (Initial Currency Offerings), at 50 to 60 a month, suggests a great number of competitors are entering the fray, attracted by the large excess returns. "Hard forks" in crypto currencies are possible (de facto hard-forks are splitting a crypto currency into two currencies). In the gold market, the price of the stock in the short run is determined by stock supply relative to stock demand. In the long-run, the cost of extraction determines the size of the stock and therefore the price. The same may well turn out to be true for crypto currencies unless first mover advantage lasts. Since these currencies are mined by the private sector, there is no possibility of regulatory blocking of new entrants. The marginal cost of mining is far below the current price of all crypto-currencies, the number of which may mushroom, suggesting the possibility of a longer-term correction. Predicting if and when this might happen is impossible and it is quite possible market prices could rise a lot further beforehand. In a bubble, demand fuelled by speculation typically outstrips supply. The set-up of the currencies with an inelastic supply bakes this in. If one crypto-currency were to establish a dominant and accepted position, new entrants might find this difficult to challenge. A lot about crypto currencies remains to be settled, but a controversial and volatile future looks assured.