

Committee for Monetary Research & Education

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June 1, 2013

Are Bitcoins Money?

Yet it is clearly possible that there is no necessity or even advantage in the now unquestioned and universally accepted government prerogative of producing money. Discussion [of privately issued money] cannot begin soon enough. Though its realization may be wholly impracticable so long as the public is mentally unprepared for it and uncritically accepts the dogma of the necessary government prerogative, this should no longer be allowed to act as a bar to the intellectual exploration of the fascinating theoretical problems the scheme raises.

—Friedrich Hayek, *Denationalisation of Money*, 1974

The use of “now” in the second line of the Hayek quotation above is a nuance lost by many. As recently as the 19th century, private banks in the United States issued their own notes against their own collateral, the market allowed to judge each its own worth. In fact, paper money began in ancient China as private warehouse receipts for useful commodities that matured in the future, after the harvest. As the maturity date approached, the receipts would circulate towards the relevant merchants, who would exercise them, and the warehouses would issue new receipts that worked their way back to the general public.

It wasn't long before private corporations began issuing unexpiring receipts for copper coin, and so the first bank note was born. Human nature being what it is, the temptation to issue notes without first taking coin deposits is always too strong. First the private banks do it, and then the state, witnessing the transmutation of paper to specie – or stone to bread, as Keynes put it – insists on its take, wresting control of the money issuing process. The appetite for public works never satisfied, the familiar progression of over-issuance, credit boom, market bubble, and inflationary collapse unfolds.

Aware of the history of money and theory that expounds it, Austrian economists have been predicting the demise of the current government mandated fiat currency system for decades. Finally, as monetary measurements burst their parabolas to the upside, the end seems nigh. It's easy to be a critic, so the more interesting question now becomes what will replace the dollar. Gold is the obvious choice, having been money for thousands of years, but a new, modern contender has appeared: the bitcoin.

Designed by an anonymous group in 2009, Bitcoin is a digital crypto-currency based on an open source, peer-to-peer internet protocol. If you don't know what that means, you're not alone, which is one of Bitcoin's main flaws.

But first its strengths. Bitcoin is completely decentralized. There is no central bank, or even a bank of computers, that services it. Every participant helps keep the system running. This makes the system beyond the control of the meddling state or nefarious bankers. Armed with a small computer file and a random 33 digit encryption code, a user can send or receive any amount of bitcoins from or to anywhere instantly at no cost with complete anonymity.

The identity of each bitcoin is protected by its encryption code, which cannot be cracked using existing technology. Nor can they be counterfeited, though they can be lost. New bitcoins are created at a declining rate through "bitcoin mining" so that the supply of bitcoins will asymptotically approach 21 million, a hard mathematical limit. However, since each bitcoin can be subdivided into 100 million units, the supply for practical purposes is infinite: assuming wide-spread adoption, as the value of a bitcoin slowly increases through loss and natural deflation, users will simply switch to ever smaller denominations.

There are many articles on the internet that describe the details of how Bitcoin works and the system's disruptive potential, as well as delve into the debate as to whether gold or bitcoin is the money of the future. But, few have tested bitcoins against the deeper attributes of what money *is*, a subject upon which every good Austrian must turn to Carl Menger.

Menger was the first to explain why "every economic unit in a nation should be ready to exchange his goods for little metal disks apparently useless as such, or for documents representing the latter." He posited that every good had its own level of liquidity, with most goods being quite illiquid. When an individual comes to market to trade his illiquid good for some other illiquid good, finding a direct barter counterparty is difficult and expensive. Instead, he trades his good not for the good he wants, but for a good more liquid than his own, with which he can trade later for the good he wants.

Menger's definition of money introduces a variety of concepts: first, the concept of "money" is only coherent in the context of trade. There can and have existed societies that do not have money, but such societies cannot have extensive division of labor and therefore must remain poor. Second, money is not exclusively one good, but rather is an attribute in which all goods share in varying degrees. This idea has profound implications when considering the quantity theory of money. Third, the suitability of a good for moneyness is determined by the extent to which it participates in the attributes of liquidity.

Examining these ideas in reverse order, Menger deduced that there are two kinds of liquidity: spatial and temporal. Spatial attributes include practicality (uniformity and divisibility, recognition, and the scope of acceptability) as well as the costs of trade, such as commissions, settlement/transportation costs, spread between bid and ask, and market depth. Temporal attributes include durability, storage costs, stability of value over time,

and stability of value in all market conditions. Spatial liquidity allows non-direct trade to occur contemporaneously at the lowest possible cost, whereas temporal liquidity enables the perfection of trade to be delayed into the future, allowing for savings, the basis of all capital formation.

Gold has been money for thousands of years because it best participates in the various attributes of liquidity. Moreover, gold in its raw form has seen technological improvements over time. The coin boosts recognition and reduces the bid/ask spread by standardizing weight and fineness. The 100% backed, redeemable bank note – and now e-gold systems – improves on coin by enhancing uniformity, allowing divisibility to an arbitrary degree, and eliminating storage costs, but at the added cost of counterparty solvency risk and national regulatory risk.

To opine on whether Bitcoin has a monetary future or is merely the latest computer fad requires analyzing its liquidity profile. The system's advantages are that it purports to reduce transportation and settlement costs to zero, bitcoins have near perfect divisibility, and the encryption system ensures perfect recognition and protection from appropriation. While market depth and scope of acceptability are tiny, these are not conceptual deficiencies since widespread adoption would naturally rectify them.

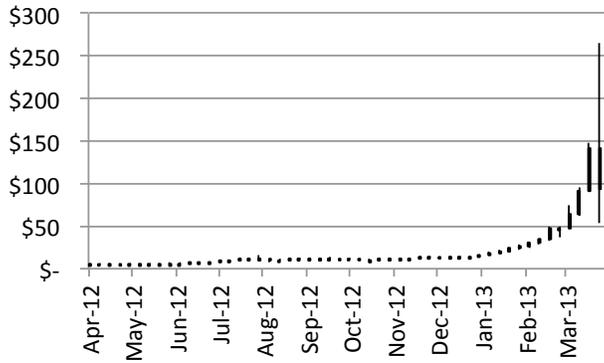
In terms of spatial liquidity, Bitcoin is clearly conceptually superior to physical gold by reducing transaction costs and superior to e-gold systems in the elimination of counterparty and government risk.

However, the temporal liquidity of a bitcoin is very low. Certainly storage costs are zero, but durability is questionable. Most Bitcoin articles provide a light technical overview, while warning the core technology is far too difficult for the layman to understand. This proposition is also the core tenant of Keynesianism – all modern economic papers use advanced calculus to convey even the most basic of ideas in order to scare away the public. It seems incongruous for those who do not trust bearded economics professors to manage money instead to trust anonymous pointy-headed mathematicians to develop the same.

In fact, a cursory search of the internet reveals that the kind of cryptology used by Bitcoin is easily crackable by quantum computers. Quantum computers are not yet technically feasible, and a Bitcoin wiki entry assures the would-be buyer: “Bitcoin's security was designed to be upgraded in a forward compatible way and could be upgraded if [quantum computing] were considered an imminent threat.” But, even assuming quantum computing to be decades off, this entry introduces more concern than it allays: why the passive voice? Exactly who is able to “upgrade” the system – since it's open source software, can anyone upgrade it? Can it be upgraded maliciously so as to destroy the processing systems? And which person(s) wrote the wiki entry? what are his/their qualifications? It is unlike the layman can trust or even understand the responses to these questions from self-appointed experts.

Each potential holder of a monetary unit must opine on its durability. With no advanced knowledge of chemistry or physics, savers can be confident that scientists will not soon be able to turn lead to gold. But, without a deep understanding of cryptology and internet protocols, as well as an awareness of emerging disruptive technologies, it is impossible to hold a deep opinion about the integrity of Bitcoin, without which trust in its durability is problematic.

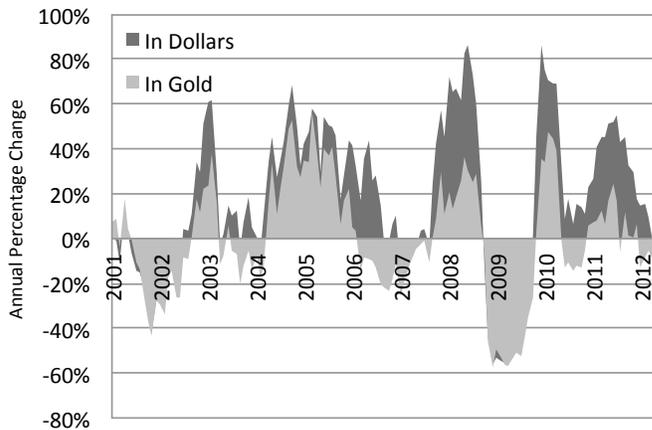
Finally there is stability. Below is weekly chart of a bitcoin's value in terms of dollars over the past year:



Tantalizing for the speculator, but borrowing money in terms of bitcoin is financially suicidal, nor would it be wise to sign any long-term contracts denominated in bitcoin. Even holding bitcoins over the short-term is problematic, as intra-day swings are enormous.

Gold's chart can seem equally volatile when charted in dollars, but changes in gold also reflect changes in the price of oil and other commodities. In other words, using gold as a unit of account squelches volatility (instead of adding to it), which, per Menger, is one of the main attributes of money.

PRICE OF OIL LESS VOLATILE PRICED IN GOLD



Gold's long price history and stability of purchasing power are the attributes that will cause businesses to readopt gold naturally if legal tender laws were ever abolished. Given gold's stable value, primary commodity producers would obtain an advantage by using gold

first as a unit of account and then as a reserve asset. Once a firm is keeping its books and reserves in gold, it would be to its advantage to offer both suppliers and customers discounts for contracts denominated in gold, prompting these firms to adopt gold as a unit of account as well. The practice would naturally spread upwards to the consumer and laterally to the banks.

Bitcoin's promoters claim the current stunning gains reflect the market rewarding the first movers taking the risk of betting on a new currency system, but such volatility penalizes any company using bitcoin as a unit of account, preventing its widespread adoption. Merchants who currently accept bitcoin must program their websites to constantly change pricing to reflect dollar terms, and are unlikely to keep any revenue in bitcoin given its volatility. Converting back to dollars entails a charge even while the money remains at the bitcoin exchanges, where the funds are subject to the same counterparty risks as those deposited at e-gold systems. Converting and withdrawing the funds currently costs more than credit card processing, removing any economic incentive to accept bitcoins.

Nor does it seem likely that adoption would spread from the consumer downwards towards producers. Bitcoin's deficiency of temporal liquidity prevents all but the rank speculator from storing any material wealth in the system for more than an instant, and this is not likely to change for a long time. People save for crises, their old age, and to endow their children: if the measure of man is eighty years, a store of value ought to be stable over at least that time period. Gold's three thousand year history as money assuages the risk of a crash in its purchasing power. For how long does the value of bitcoin need to be stable before users will project forward eighty years of additional stability?

Even assuming, *arguendo*, that Bitcoin's problems with temporal liquidity are rectified to the extent necessary to allow it to become a transactional currency – perhaps through a mysterious “upgrade” – adherents of Austrian economics can nevertheless rely on gold's continuing role in the monetary system.

As Menger pointed out, money is not a thing distinct from other things, but an attribute in which all things share in different degrees. As such, for thousands of years, the differing liquidity profiles of gold and silver suited them for different monetary tasks. Gold, having such high value per unit weight, was primarily used for reserves and capital transactions, whereas silver was used for transactions in goods. To be sure, silver did participate in the attributes of temporal liquidity, just not to the same extent as gold; whereas gold excelled in spatial liquidity for large transactions, but not for small ones. And, of course, the two metals were readily interchangeable.

In the late 19th century, during the heyday of classical liberalism, sovereign bank notes were worthy of the trust placed in them, allowing gold to be infinitely divided and displacing silver from the monetary sphere. The 19th-century gold rushes similarly provided enough gold to supplant silver, without materially diminishing gold's own value.

Since the destruction of the gold-redeemable note by Franklin Roosevelt in 1933, Gresham's Law has demanded that gold be used only for storing value, with depreciating dollars used for transactions. If the dollar were to collapse in a hyperinflationary apocalypse, it is likely that silver would regain its monetary role since, as in ancient times, it would be more convenient to trade in silver with the local farmer than in gold.

Therefore, even assuming the value of bitcoin were to stabilize and the threats to durability were enough distant to allow it to become a transactional currency, it is the dollar and silver's potential role that Bitcoin would supplant. Since gold is not currently used as a transactional currency, such adoption would have little influence on physical gold's role as the supreme store of value.

Returning to the first concept introduced from Menger, the usefulness of money is coherent only with respect to trade, and from this perspective the widespread adoption of Bitcoin is problematic.

Libertarian crypto-anarchists explicitly promote Bitcoin as a way to avoid state control of economic transactions since there is no means to track the payment system. Indeed, Bitcoin seems a natural market reaction to oppressive new tracking by the IRS, such as the new 1099-K form that helps "improve voluntary tax compliance." But, while using Bitcoin would help evade regulations and taxes, such avoidance would remain liable to state sanction. Drug dealers, embezzlers, and tax avoiders also use a non-trackable payment method – physical cash – and are caught nevertheless. By the time tax non-compliance becomes widespread, the state will be collapsing, the need for anonymous systems will diminish, and gold will likely return to being the basis of money *de jure*, with all of its advantages over Bitcoin.

Meanwhile, as the dollar's crash accelerates and banking systems collapse, there is no doubt the state's intervention in the economy will grow, increasing the demand for anonymous payment systems. But, so will the state apparatus for tracking and punishing noncompliance. Since Bitcoin functions only as a transactional currency, to make it work there must be a way to easily exchange bitcoins for something else of temporal value, such as gold, just as gold and silver are readily exchangeable. But, such exchange becomes increasingly difficult in the context of an oppressive state that the bitcoin is designed to thwart.

Moreover, it seems incongruent that a libertarian strategy for maintaining wealth through the collapse of the state should rely on a system that is entirely under the control of state. President Obama recently joined numerous Islamic dictators as well as China and other oppressive regimes in granting himself an internet kill switch. Gold and silver would be most useful during a temporary disruption of civil society, precisely the conditions under which Bitcoin will not be available.

Worse, if the state's march toward totalitarianism causes a lengthy and total collapse of trade, the need for money will necessarily decline. Gold can withstand this development. As pointed out by Professor Antal Fekete, when trade collapsed during the decline of the Roman Empire, the wealthy buried their coins in such numbers that the hoards are still being discovered. Without trade, there is no need for money, but instead of gold's value declining, its monetary supply automatically contradicted. Those holding gold can beat it into chalices to await the emergence of a new liberal order, whenever it might arrive. Those holding bitcoins are likely to discover that by the time civil society reestablishes itself technology has moved on.

As European capital controls – growing slowly for years but accelerating rapidly since the Cyprus deposit seizure – begin to bite rich and poor alike, wealth increasingly desires to escape the overreaching grasp of the state. Financial safe havens such as Switzerland have abandoned

their fiduciary duties to their clients in exchange for license to operate inside oppressive financial regimes engaged in destroying the very wealth they hope to manage. Terrified, capital is flowing to the most unlikely places including, for the moment, to the bitcoin.

Clearly, the age of government induced fiat currency draws to a volatile close. The collapse of government money has happened before, and private money usually replaces it after a chaotic period of barter. Looking at the recent performance of bitcoins versus gold, many adherents of Austrians economics worry they backed the wrong horse. They forget that the purpose of holding money is not to add to wealth, but to store value to facilitate trade. The sudden, dramatic increase in value of bitcoin paradoxically demonstrates that it is not good money and, since it has no other claim to value, must be another of Chairman Bernanke's bubbles.

E-gold systems are likely the "money" of the future. Unlike Bitcoin, the systems are based on a substance with unparalleled temporal liquidity. Competition will lower transaction and storage costs to the vanishing point and will also drive the adoption of controls to mitigate counterparty risk. In the context of a liberal political order that seeks wealth creation through free markets in goods and capital, competition among political jurisdictions will reduce regulatory sovereign risk and enlightened regulation may act to reduce counterparty risk further. In the meantime, physical gold will provide a safe harbor for capital through these turbulent times.

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