MONEY WITHOUT MAGIC

Why Bitcoin and Precious Metals actually have value.

by E. Garrett Ennis

Economic theory is based on human interaction. It attempts to model how people in trade goods and services in the real world, and it's been quite successful. Theories from it have played an important role in creating modern society and technology. But not every aspect of these interactions is fully understood, and many of our explanations for economic behavior simply gloss over these gaps. The biggest of which may be in the idea of value.

People seem to spend large amounts of money on things that serve no purpose, like art or jewels. So we often say that the "value of something is what someone has paid for it," "value comes from supply and demand," or that "value and usefulness are separate." And in regards to money itself, it's been said that it's "based on trust," or a "useful fiction," where we collectively *pretend* that it's valuable.

These explanations are likely subconsciously unsatisfying, even if we can't explain why, and also obviously flawed. After all, treating value as what someone paid is great for doing calculations, but doesn't let us know why one person will pay more than someone else. Or why someone paid for something when no one else would.

These ideas are key to understanding not only value and supply-and-demand, but also something equally as fundamental. *Money itself*, and where it comes from. Which people have wondered about for centuries. If we believe money is a sort-of fiction that has no value in itself, we can't explain why one form of money may last, like paper dollars, and another, like seashells, may not.

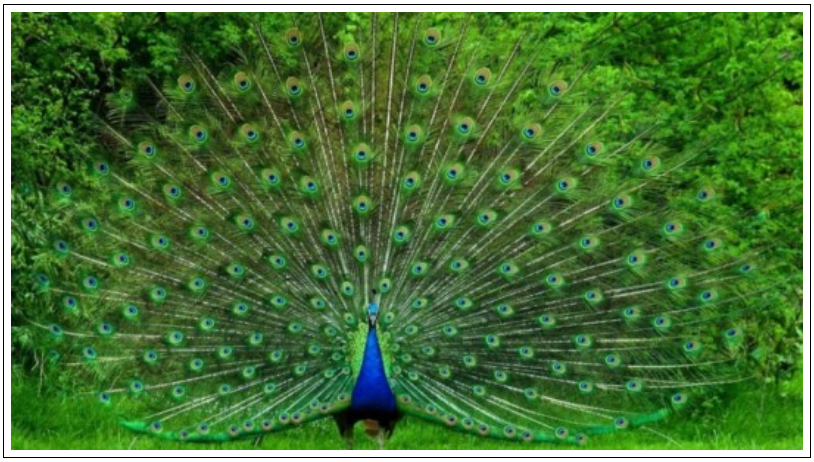
Many old forms of money are now worthless, without a clear cause. (Image: Stephen Lang)

This lack of knowledge is dangerous, since when forms of money appear, like bitcoin currently, we have no way to tell if they'll be valuable, and even if they do, how much value they'll have or how long it will last. And failures of money can be devastating to a society.

The problem seems to be that there's no obvious physical purpose for money in-and-of itself. You can't eat it, chop wood with it, ride it, or otherwise use it to get more of what you want. So there's no clear reason why you would want it to begin with and thus be willing to give up something of value for it. And since we don't know what purpose it would serve, we can't figure out what traits would thus make for good money or bad money.

One solution is to look at the one function money does seem to perform. Specifically, making it easier to trade. The necessary traits for this, mainly, are that it be scarce, accessible, recognizable, evenly divisible, durable, and transferable. And indeed, in history, things with these traits, like gold and silver, almost automatically have become money, and are also valuable. So obviously there's something right about this idea.

But it isn't perfect. Because if we think about it, it uses a form of circular logic. The core claim is that money is *worth trading for* because it's *useful in trade.* Which doesn't explain why it was worth something *before* it was commonly traded. Did some ancient villager find a piece of gold, *check* if it was scarce, divisible, and so on, and *know* it would become traded and keep it? Of course not. Most people don't even know about those traits today.



Displaying fitness to potential partners has real survival value, even if it's unclear at first glance. (Image: Unknown Source)

So why would people want money, or what became it, *before* there was organized barter, or any form of shared belief? There seems to be no clear and satisfying explanation. But *maybe there could be*. Perhaps usefulness and value *are* in fact, the same, but we haven't understood how some things can be useful.

That's what this paper is about. We're going to discuss a simple, logical, and potentially complete theory of where money comes from, and why we value it. Which also suggests that its value will *always* emerge in human societies, with no need for trust or belief.

Part of what we're proposing is that the value of money does come from usefulness. So let's start with the natural objections to that. We'll use gold as the example for now. The most plain one is, "gold has no value if you're alone on a desert island." Which is true. But that *isn't* the situation we live in. In reality, people survive in groups, and have for eons, because it lets us divide and share our labor, and we need others to have children.

But in both of those situations, we must decide *who does what job* and *with whom* we mate. The people who are the most fit, it seems, can do the best or hardest work, and can contribute the most to childbearing.

So those people have more offers for partnership or mating, and get a greater share of the resources when we divide them, to keep them healthy and contributing. All of which means

that *being perceived as capable helps a person survive,* and we thus evolved to want to *show* our fitness and capability to other people.

So let's imagine a scenario. We're looking to bring someone into our group. We must survive together. We don't know anything about the potential people, not their age, name, gender, anything, except for a single detail. One of them *owns a pair of running shoes*.

Obviously, with no other information, we'd choose that person. Because they're *more likely* to be physically fit, or at least mentally aware and upwardly mobile. So, a person's possessions can show potential capability to others, and make them more likely to have friends and mates.

And running shoes are, of course, not the only thing that could do this. Thousands of years ago, people lived in small territories, with limited resources. There were common things then that everyone likely had. Certain tools, weapons, shelters, clothes, foods, and so on.

But, since they were common, those were likely to be things found *in* their known territory. Going *outside* that area was dangerous. One could get lost or face unfamiliar threats. So going there took some degree of curiosity, physical fitness, intellect and so on.

In the video game "Ancestors," leaving the known area causes fear. (Image: Panache Digital Games)

At the same time though, those unfamiliar territories, just outside eyesight or earshot, could yield *unfamiliar items*. New things that people couldn't get by staying safe. Those things *could* have new uses, but they provided value to their possessor even if they didn't. Because they showed that the person had the capability to go to the unfamiliar territory or otherwise acquire these items (we'll discuss the other ways shortly).

But even if a scarce item *doesn't* have an immediate use, we still do well to keep it because it *might* be useful in the future. Similar to the knick-knack drawers almost all of us have in our kitchens. Even online guides to resource-based video games like *Minecraft* specifically list which items are renewable, since players must treat scarce ones differently.

Thus, "intrinsic value" doesn't have to be physical. *Reputational* value is very real. So real that it can be seen in every human society. Any tribal chieftain or monarch can be easily identified by the animal bones, precious metals, rare jewels, furs that they wear.

And of course, where is the most noticeable place to put those things? On your head and around your neck, where they don't block your breathing or vision, but anyone who talks to

you. The hands and wrists are probably second best, given that the items are colorful or shiny and will stand out, which they do.

Human rulers often cover themselves in the most scarce and reputation-enhancing items known to their group. (Image: Jean Ingres)

This instinct is clearly ingrained in us. Not just because of the benefit to the person displaying their scarce items, but because of the benefit to the other people who *preferred* that person as a partner or mate. A preference not purely for jewelry or rare metals, but for anyone who may have unique video game items, special concert tickets, or anything else that others know about but can't have.

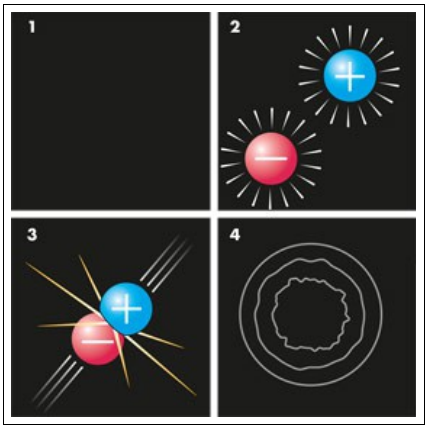
Since the people who chose partners with those things were more likely to get capable mates and friends, they thus survived better due to that preference. Which means it eventually also became programmed into our brains.

And that brings us to a crucial bit of information. Since our innate desire to have those things is based on real principles, the value we place on them, the willingness to exert effort or to trade valuable things for them, is not based on whimsical things like trust, belief, or shared delusion.

Because, even if everyone in a society simultaneously agreed that those scarce but seemingly useless trinkets were pointless, the fact that those items still required fitness to find meant that people who partnered with those who had them were *more likely to survive.* And people would keep those items due to their potential practical use even if they weren't aware of the reputational value. So, inevitably, because those scarce items were typically found in the hands of capable people, we would still eventually develop that instinctive desire to have them and partner with those who did.

In this way, our urge for money, jewels and the like may be compared to vacuum energy in physics, which emerges from the creation of virtual particles in empty space, and which is believed to cause various physical phenomena.

But in the same way that vacuum energy only occurs in certain situations and has certain results, there's another condition necessary for scarce items to acquire value in this way. Which is that the scarcity must be *known*. By anyone who might be expected to want or trade for the item, or want the person who has it.



Money's value inevitably appears in human societies, perhaps like vacuum energy in physics. (Image: Tim Jones)

People who don't know what is and isn't available in their territory wouldn't react to the sight of an exotic item from outside it. And likewise, today, a rare item from an ancient culture isn't worth nearly as much unless the public in general, and enough potential buyers, know about the culture or the scarcity of that item already.

So that's the method by which scarce items in-and-of themselves can have value and be desired. *But how do some of those scarce and desirable items actually become money?*

Here's where the traditional attributes of money come in, so let's describe them. People use different labels, but in general, they're fungibility (being divisible into even parts), durability (not spoiling over time), recognizability (being distinguishable from counterfeits), transferability (the ability to move it from place-to-place or send it from person-to-person easily), availability (the ability to be acquired in enough amounts to be used), and scarcity (which is of course a limitation to the supply).

Anything that functions well as money has all these traits to some degree. But these traits are also often assumed to *all* be necessary for money to be *valuable* in itself. Since they make money useful in easing trade. But as we've discussed, this assumption fails to explain why the *first* trades would happen involving a form of money. Before it was accepted or known as a way of easing trade. We may be able to explain that now.

What seems to happen is that people collect and keep those scarce items for the reputational reasons we've discussed, and then, the scarce items that *happen* to have those other traits end up naturally falling into the role of money.

This starts with those scarce items getting shared or traded around. We do this naturally because we have a tendency to share valuable things with people who are important to us, or to want valuable things from others, and the value of those scarce items, actu lly doesn't only work for the person who originally found them.

When we see someone who has a scarce thing, we may not be sure that the person who has it is the one who went to the strangelands and came back alive. But we at least know that the person who *did* have the ability *liked* that person enough to give them some of the useful things they found.

Furthermore, *even if* that person took the item without permission, *that* still required some degree of strength, skill, or other ability. It's common after all, for warriors to take and display the possessions or even bodies of their enemies.

We can and do transfer things that display fitness, which is key to how money naturally emerges (Image: AP)

So just like we evolved the urge to get and keep those scarce items, we also evolved the urge to *give* those items to certain other people, and to still have a higher opinion of the person who has the item even if they weren't the one who found or made it. We can see this in how often people give gifts to celebrities or powerful people. The largest diamond ever mined, for example, was presented as a gift to King Edward VII in 1907.

But let's also note what happened to the diamond after that. It was cut into several smaller diamonds, which were used in a scepter, crown, and other display items. So that one scarce and high-status item was divided into other items that each were individually able to represent a smaller amount of status.

These are simply natural activities coming from people's desire to have the item and share value. And the divisibility of the item allowed people to easily split into smaller pieces that each could be used (or traded) on their own. Thus, with no need to be fully conscious of what they were doing, we see a scarce item being traded around and divided into smaller pieces that could also be traded.

This process would obviously naturally lead to people starting to use certain things as standard items for displaying status and trading those items back and forth with each other, provided the thing could be divided easily into parts that also had value. Which is, of course, what we now call fungibility.

Likewise, if we want to display an item for status purposes, we'll get the most worth out of things that are durable. We certainly can trade in food, milk, or other perishable items, but those will have to constantly be caught, made or acquired anew. They can't simply be mounted on a wall or worn for long periods of time.

On top of that, we can't trade these items for real value if someone else can easily make a convincing fake version of them, or if it's difficult for us to move the item from one person to another. And there does have to be enough of the item for it to become sent around

commonly. Diamonds (or Minecraft's choice of money, emeralds) don't exist in the real world in enough quantities to become a form of money. But if they did, and could be divided easily like gold, they likely would have.

From this, we can see that each of these traits is simply a natural element that causes certain things to be traded regularly. But we also tend to assume that each of those traits is key to the thing having value. It's true that something being used as money will become more recognizable and thus add more reputational value to it, upping its worth to a small degree. But the crucial initial value, that starts the process, is the item's known scarcity.

Furthermore, that known scarcity creates the *overwhelming* majority of the item's value. After all, the most expensive things in the world are famous, one-of-a-kind paintings and historical artifacts. The Mona Lisa, for example, based on its weight (18 pounds) and insurance value in the early 1960's ($100 million), is worth over $3 million an ounce today. Or, perhaps more accurately, it *would* have that per-ounce price if we could divide it into identical or equally valuable pieces. Given that, and that there'd be enough pieces to make it not too expensive and usable by a large number of people, bits of the Mona Lisa would have naturally become a form of money over time, just as much as anything else we use.

We can also look at something with all the *other* needed traits to be used in transactions, like water. It's easy to store, can last indefinitely, is *very* divisible into identical parts, can be handed to other people easily, and is hard to counterfeit. It even has intrinsic value for drinking and cleaning. But it's not used as money and has little worth in general. This is because it isn't scarce (unless you're away from a source of it or need a huge amount). The same is true for things like dirt or gravel. Known scarcity is the most important trait for value, and those scarce things naturally become money when they have the other traits.

Gold's ability to be easily shaped and divided is part of why it became money and gemstones didn't. (Image: FAC Calgary)

In the normal world, there actually aren't many things that have all those necessary traits. So we don't get as many examples to allow us to see how naturally and consistently money does emerge when the right traits are in place. However, we can see it in other areas. In the online multiplayer video game *Runescape,* for example, players were able to get promotional party hats within the game, which they could keep forever, and they could acquire in large numbers, but which were never produced again after their initial release.

Within a very short period of time, those party hats began being traded on Runescape as a form of money. A simple look at the search engine suggestions for "Runescape party hats" reveals that "price," "price history," "for sale," "buy," and "gold" are all commonly searched

alongside the term. Appropriately enough, the term "shard" is also in the list, which are pieces of a party hat that can be combined to create one. Because, naturally, people want to subdivide their money too in order to trade for less valuable things, and are pursuing whatever means they can there to do so.

But Runescape party hats are not used as money in the real world. It's probably easy to see why if we look at the limitations of its "money traits." For one, the transferability of the party hats is only there for people who play the game. If you haven't gone to the trouble of creating an account, there's no current way for someone to send you a party hat.

Likewise, the scarcity of those party hats is only known among Runescape players. So we don't feel the reputatonal value of having one in everyday circumstances, and other everyday people won't recognize our worth in having acquired a large supply of them.

Furthermore, those party hats have unreliable durability. They will only exist as long as Runescape stays online. This is fine within the Runescape world, but a tremendous limitation on their value outside of it. Thus, we have a form of money that has real value within a certain context, where it has the necessary traits, and little-to-no value outside of the context, exactly where those traits don't apply.

We can also look at other items that had some "money traits" in the past, but not all. Particularly tulips, which were the subject of a speculative bubble in the 1600's. They were newly introduced to the Netherlands at the time, easily transferable from one person to another, difficult to fake, and were known publicly due to their striking appearance.

Bitcoin has been compared to "Tulip Mania," but it has key traits that tulips don't.
(Image: Adam Smith Inst.)

This combined with several other likely factors, like the new financial independence of the Netherlands from Spain, and the banning of short-selling (betting against trends) in the country, to create a sharp rise in their price. But that was followed by a huge crash. There are many reasons fads end, which we've discussed in other videos and papers, but here, I think there were also several key aspects of money that were missing in tulips.

For one, they had limited durability. Flowers are, by their nature, much more fragile than metals or stones, and obviously don't last as long in storage. Secondly, their scarcity wasn't fully known by the public, since there were well over a hundred varieties of them being traded at the time, which stopped their reputational value and the number of potential bidders from reaching its maximum.

On top of that, the tulips were not fungible (divisible into equally valuable parts). As with other things, partial ownership could be sold abstractly through contracts, but that took thought and paperwork, instead of being able to simply physically split them when desired.

But the biggest problem, for what we're discussing, is that tulips' scarcity didn't last. As their market value grew over years, the number of tulips being imported and grown increased also.

This meant that when the economic and emotional dynamics caused the short-term price of the tulips to collapse, there was no fundamental reputational aspect to support a base value for the tulips that they could return to, so they not only were unable to become money, but unable to even survive as a valuable asset.

After their collapse, the main remaining value of tulips was that they were pleasing to see. But aesthetic beauty shows real value to people. Light and spacious views let us navigate easily and see if predators are nearby. Likewise, bright colors and lush vegetation, besides meaning more food and warm temperatures, indicate that there aren't large dangerous animals trampling regularly through that area (and even in an age of air conditioning, light bulbs and walls, we still pay more on average for homes in these types of coastal areas).

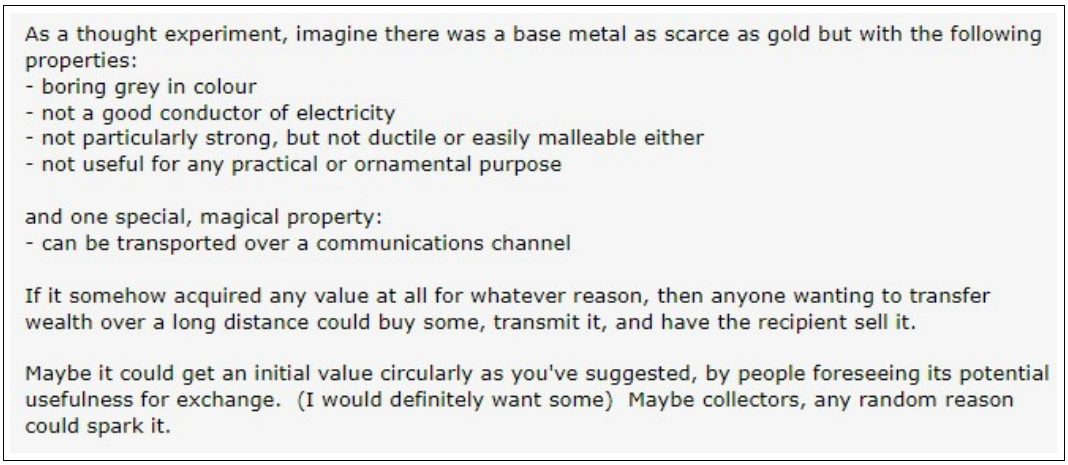
Our attraction to bright warm beaches shows that our ancient instincts still dictate what we value. (Image: Orange County Register)

But aesthetic beauty in objects isn't scarce. While a tulip or gold bar may be pleasing to see, there are many other flowers, like dandelions, that show up in far greater numbers and have the same bright colors and delicate properties, but which we don't value. There are also other things, like pyrite or crystals, that do pleasing things with light. But gold, like silver and platinum, has much higher value because of its known scarcity instead of the visual appeal. And scarcity is what was ultimately lacking in tulips.

It's bold to dismiss visual appeal in this way, but we have other good reasons. Because in the late 2000's, another form of money emerged that had no visual appeal, and in fact no visual element at all, but still gained and kept huge amounts of value. It also gave us other lessons about how money functions, and will likely be crucially important to the world.

We're talking, of course, about bitcoin. The virtual currency invented in 2008. Bitcoin is created and maintained by a network of computers, that anyone can join, with no central controller. But the key is that it uses a new method of recording transactions called

blockchain. Previous attempts to create online money failed because there was no way to stop someone from making fake copies of the money or a fake record of transactions that was indistinguishable from the real thing. These ruined the scarcity of those tokens, and, for the reasons we've talked about, prevented them from fulfilling their purpose.


As a thought experiment, imagine there was a base metal as scarce as gold but with the following properties:
- boring grey in colour
- not a good conductor of electricity
- not particularly strong, but not ductile or easily malleable either
- not useful for any practical or ornamental purpose

and one special, magical property:
- can be transported over a communications channel

If it somehow acquired any value at all for whatever reason, then anyone wanting to transfer wealth over a long distance could buy some, transmit it, and have the recipient sell it.

Maybe it could get an initial value circularly as you've suggested, by people foreseeing its potential usefulness for exchange. (I would definitely want some) Maybe collectors, any random reason could spark it.

Bitcoin's creator knew there could be "non-useful money," though he wasn't sure how its value would emerge. (Post from Satoshi Nakamoto, bitcointalk.org)

Blockchain was the first genuine answer to this problem. It uses cryptography to create a unique code that corresponds to each new entry in its record. These entries record things like money being created for an address (as a reward for running the network), or money being sent from one address to another (with each address having another unique code to identify themselves), and other things.

Each following entry, verified by a group of computers, includes the unique code from the previous entry as part of its text. That following entry is then converted to a code that can only match its exact text, which then is included in the next entry and so on. Thus, nothing else can be "slipped in," and each part of this chain can be verified by anyone at any time.

These entries can also include other text or programming code that someone may wish to include, which creates astonishing possibilities. But for this topic, the important thing about blockchain is that it is an essentially perfect permanent record.

People may scam or threaten each other for their wallet codes, but the network itself is *extremely* resistant to hacking. So much so that the creator's original wallets, from the first year of mining, contain billions of dollars worth of bitcoin which has never been touched. Even though anyone can see their address. And the network itself, as anyone can verify through its open-source code, will only ever create 21 million bitcoins.

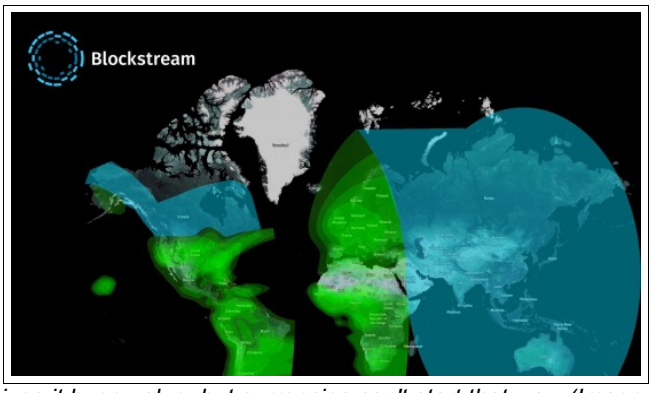
If this holds, it gives bitcoin the most essential property for money that we've been discussing. Scarcity. And in fact, it's the most verifiable and reliable scarcity that any form of money may have ever had. Bitcoins also began gaining dollar value very quickly after their creation, which fits what we've discussed.

As bitcoin gained press coverage and came to represent things like the values or foresight of the owner and social movement around them, and people came to see the many potential applications of the technology, and thus widespread potential adoption of them, the price fluctuated wildly over the following years.

This is a natural result of, among other things, the money and resources entering and leaving the system being larger than the resources staying in it, and thus is to be expected with the value of any small but growing asset. But these price fluctuations reminded many people of the tulip bubble, and many of those people assumed it was the same thing, particularly because there was no apparent "intrinsic value" to bitcoin, which to them meant a tangible, physical purpose, or even a pleasing physical appearance. Thus, statements like "I'd rather have bananas than bitcoin," "Bitcoin is a giant nothingburger," and "Bitcoin is going to zero" were common.

But while bitcoin has remained volatile, its overall value has increased massively since its creation. So much so that the same wealthy people who mocked it have quietly recanted and now almost uniformly own bitcoin and other cryptocurrencies themselves. Some may have bought in out of the urge to go with social momentum or preserve their reputation, but others it seems have actually reconsidered their judgment of its value.

The explanation they often give in that case, which is common in the bitcoin community and, of course, has some truth to it, is that the value of bitcoin is in the large network it now has. It allows you to conveniently send value to many people for a low fee. But this still of course, when closely examined, fails to explain how bitcoin acquired value *before it had* that large network. Which the reputational explanation we've offered here can cover.



Bitcoin's network gives it huge value, but currencies can't start that way. (Image: Blockstream.com)

It's been proposed, of course, that the "money traits" bitcoin has make it useful *as money* and thus valuable. As we've said, those things do make it traded more and thus more recognizable and valuable, but those things do not create value in-and-of themselves.

We can see that they don't with bitcoin as well, because bitcoin has had some problems with its network that limited some of those other "money traits," but hasn't lost significant value because of it. For example, long confirmation times and high transaction fees can occur when the network is crowded with new users. That fee peaked in April 2021 at over $60 per transfer, which was over a day's work at minimum wage in many U.S. states. This reduced the transferability of bitcoin to less than zero in many cases, since the fee was more than you would be spending. Nonetheless, the value of a bitcoin was barely effected, since the actual bitcoin price kept over 98% of its value that month.

It's been argued also that bitcoins are not actually evenly divisible, since the traceability of bitcoin transactions means that bitcoins originally belonging to criminals could potentially be confiscated from whoever has them later. But this potential problem has done nothing

to harm the ascent of the price either, at least so far. And the actual fungibility of bitcoin, its ability to be divided into smaller equal parts, is beyond any previous form of money, down to the hundred-millionth.

It's been claimed that this divisibility somehow means bitcoins are not scarce, but of course receiving half a bitcoin from two sources adds up to one bitcoin in the person's wallet, which they can then exchange for one bitcoin worth of goods and services, so the scarcity and value don't change. This is a matter of simple arithmetic.

Fungibility isn't infinite supply because dividing things doesn't increase their total value. (Image: Monty Python)

The true danger that most agree on would be someone finding a way to artificially increase the bitcoin supply. By hacking, or overpowering the network by having many computers insist on false transactions, or releasing a large number of them into the market.

Hacking is theoretically possible through investing massive amounts of money, on the scale of tens of billions of dollars, and a large coordinated effort. The bitcoin blockchain also requires large amounts of computing power to find and verify the codes that correspond to each block, which means the hypothetical effort and funds that would be required for this attack increases constantly. And as Satoshi Nakamoto pointed out, the person doing so would also be wasting everything they invested, whereas if they simply honestly verified transactions, they'd get paid huge amounts of bitcoin.

There's also the risk of Nakamoto himself (his own online profile said he was a male and an individual), spontaneously "rug pulling" by selling his massive collection of bitcoin. This is obviously possible if Nakamoto is alive and for some reason wanted to do so all at once, but while that would be huge shock to the market in supply-and-demand terms, it would not actually reduce the hard limit on the number of bitcoins that will exist. Thus, the long-term scarcity, the key element, would remain and the price would likely gradually rebound.

Other potential problems, like the durability or transferability of them being ruined, have already been addressed through tools like the Blockstream satellite network we pictured above, which allows transactions to function without the internet, and alternative energy being able to charge smartphones if the electrical grid were to fail.

Furthermore, while other blockchains can be created by simply copying bitcoin's code, they're easy to distinguish from the coins created and recognized by the bitcoin network itself and thus not a threat to bitcoin's value any more than a photocopy of the Mona Lisa

is to the original. One can copy the use of many types of items and harm their value, but the *reputational* gain of having the original stays the same. In fact, as long as people can tell the difference, copies often *increase* how known it is, and thus increase its worth.

The many copies of the Mona Lisa have only made the original more valuable. (Image: Typology.ca)

Similarly, an original Apple I computer costs far more than the latest iPhone. The original is far more scarce, among other factors. And since one currency can be traded for another, the transferability of a coin remains even if it becomes less used. So it's easy to see why bitcoin's price is unharmed by copies or new cryptocurrencies.

But hopefully the main point is clear. The known scarcity of bitcoin is the primary driver of its value, and through that hard-coded trait, and how well it possesses the others, being durable, incredibly divisible, potentially transferable all over the world, and rapidly growing in recognizability, it is extremely useful as money.

It may even be more useful than the money we already have. It's more transferable and divisible than gold, with a more visibly and reliably scarce supply. It's also *far* more reliably scarce than fiat money, which depends on the promises and whims of other people.

We can see too that, though there are and were concerns about governments wanting to shut it down, the decentralized nature of the base network makes this almost impossible, and attempts to attack related services will likely only indirectly create services that are more anonymous and resistant, perhaps similar to how the traffic from Napster simply shifted to the decentralized BitTorrent after governments cracked down on file-sharing.

But perhaps even more interestingly, many of these same governments have actually started *acquiring bitcoin themselves.* This is because it's traits make it the best currency for them to use when *dealing with other governments*, who aren't subject to their laws. So as a result, we've seen multiple conflicts, like the 2022 Russia-Ukraine war, and Venezuela's internal conflicts, where *both* sides have ended up using cryptocurrencies, as well as countries like Iran pivoting from banning bitcoin mining to encouraging it from their citizens. Which means that bitcoin and its children will likely spread far further.

But that brings us to another point. There was a time when Satoshi Nakamoto was literally the only person in the world with bitcoin. We've said that *potential* use and *potential* reputational benefit makes us value scarce things before they're known or wanted by other

people (they may see the strange thing and like it or ask us about it). But there's also additional benefit that Nakamoto, and others who discover or invent valuable assets, would gain as well, which makes them value it even more despite others not yet wanting it.

This value comes from the fact that there's extra reputational benefit in being *first.* As in, the first person to have a certain type of item or to have the *first* of those items.

We can see this everyday, because collectors tend to pay more for first editions of well-known books, or comics with the first appearances of well-known characters, or the first prototype of a well-known invention, and so on. Provided it is the same item that other people got later (early less-skilled works of a painter will fetch a price, but often not as much as the first work in their peak period).

The first appearances of famous heroes often fetch the most money at comic auctions. (Image: WealthyGorilla.com)

It happens because being first in a new area shows additional ability. The strangelands may always provide evidence of fitness in a person if they go there and return alive, and in fact these types of things are common rites of passage for young people in our history. But the person with the *most* fitness is the one who went to the strangelands and survived *before* anyone knew anything about them.

So, a rare flower from the strangelands increases the reputation of the holder, but the person who holds the *first* rare flower gains the *most* reputation. Thus, we perceive others as having more quality when they possess those first items, and as a result, we also will offer more, or ask more, when they're being traded.

Similarly, the *last* item ever produced in a series can be valuable as well, because it presumably has the most scarcity. This may not apply when it comes to comic books like *The Death of Superman*, which obviously was produced in huge numbers given the anticipated sales (and clearly wasn't going to be the last appearance of Superman). But with items or events that genuinely can't be recreated, like the jersey worn by Michael Jordan in his last NBA game. The emotional value is especially high.

Also, it should be noted that there are many other things we could distinguish about an item, like the patterns of dirt on car tires, or other mundane items. But most people won't be able to distinguish one pattern of dirt from another, so that scarcity isn't known. But people often can distinguish if the car itself is rare, or one of a limited number that belonged to someone with a strong reputation, who they value and may want to associate

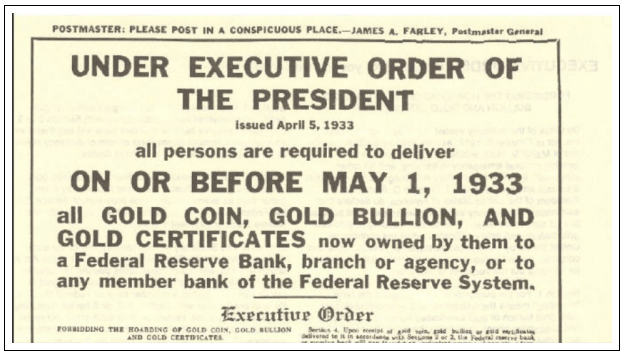
with, or something similar. These would increase its reputational appeal. But again, that known scarce aspect of the item is the ultimate driver of our desire and thus, its worth.

This connection between scarcity, reputation and value is very direct. So one might wonder why it may not have been fully described before. I suspect that it's a matter of the different fields it involves.

People's concern for their reputation is a natural topic in evolutionary psychology, but if we're in that area we may not think much about economics. Likewise, in traditional economics, we don't focus as much on people's emotional mechanisms and why they choose things. Just what they choose and how they gain or lose from it. The link between these belongs more to fields like Behavioral Economics, which is relatively new. Regardless, the knowledge we may gain from seeing this link could be genuinely worthwhile when it comes to how we think about money and judge its viability.

Traditionally, it seems we have very little system by which to judge what makes money worthwhile. Which may have lead to the current situation with the fiat dollar. It used to be pegged to gold, but now is not, and as a result is *not* reliably scarce, since it can be created essentially in any amount at any time. Therefore its value is only as reliable as human error, ego, or whimsy, which is in every person at all levels.

Thus, the fiat dollar can't compete on its own with naturally scarce forms of money. Because even if most people don't know that it isn't scarce, those that do will want the scarce money, which will eventually influence the people who aren't aware, since they will deal with businesses, or customers, or partners who want gold or silver. It was a major reason that the Roosevelt administration tried to seize gold from its citizens in the 30's.


POSTMASTER: PLEASE POST IN A CONSPICUOUS PLACE.—JAMES A. FARLEY, Postmaster General

UNDER EXECUTIVE ORDER OF THE PRESIDENT

Issued April 5, 1933

all persons are required to deliver

ON OR BEFORE MAY 1, 1933

all GOLD COIN, GOLD BULLION, AND GOLD CERTIFICATES now owned by them to a Federal Reserve Bank, branch or agency, or to any member bank of the Federal Reserve System.

Executive Order

FORBIDDING THE HOARDING OF GOLD COIN, GOLD BULLION AND GOLD CERTIFICATES.

Forcing the use of paper money via armed police may be called a lead standard instead of gold.

People naturally do not want fiat money, which is why government forces people to use it. And since fiat is, by force, usable in place of money with reliable value, that reliable money, such as gold and silver, tends to be hoarded. Though many people today have not seen gold used as money in so long that they seem to believe it's simply out-of-date, in reality, the disappearance of reliable money when unnatural alternatives are forced in is part of a known phenomenon in economics called Gresham's Law.

Furthermore, though this system has survived for fifty years, there are few-to-zero examples of unbacked currencies lasting indefinitely. They seem inevitably to be eroded by the greed and foibles of the people who control them, since those people can take extra for themselves or use them to curry favors. And furthermore, the U.S. dollar is currently undergoing record inflation, after being heavily printed to stimulate the economy during the

Covid-19 pandemic. And that inflation can reach runaway levels and do tremendous damage to the economy, savings, and lives of everyone who uses the dollar.

But a problem like this may be easier to avoid with a proper understanding of where actual money gets is value, perhaps like we've outlined here. After all, if we have no core understanding, and think it's based only on trust or shared fiction, then we have no argument when someone wants to replace gold or a reliably-scarce form of money with something that isn't scarce. And particularly, something they can print at will and thus use for their own gain or create a potentially unsustainable framework for society.

A clear understanding helps protect us against bad ideas. (Image: NBC Television)

The argument that money requires certain traits, like fungibility, transferability, durability and so on, is obviously better and helps to intellectually combat this, but it's vulnerable to being labeled as incomplete or circular logic. Which is dangerous when people have to be certain enough in their understanding to fight back against people who want to force in other ideas.

On top of that, we're entering a world where computer networks can produce their own reliable money for the first time. But we *cannot* know that those forms of money are valuable if we don't know what makes money valuable. Which is why there have been so many embarrassing statements made about cryptocurrency, and missed opportunities.

Hopefully, this perspective can help us to avoid those things in the future, with all the change that new forms of money will cause. Among other things, if we know what to trust, and more about what works and doesn't with money, ultimately, we'll all be more safe. Thanks for your time.

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-Garrett Ennis