

Module #2.1

Bitcoin has no intrinsic value

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In the absence of the gold standard, there is no way to protect savings from confiscation through inflation. There is no safe store of value.

Alan Greenspan

Chairman of the Federal Reserve, 1987 to 2006
from his essay "Gold and Economic Freedom", 1966

"Bitcoin has no intrinsic value" is a statement often used by critics. It sounds intelligent and objective, but it is neither. It is either rooted in deliberate or ignorant semantic confusion or it is an oxymoronic statement of opinion. We explore why.

There seem to exist two separate definitions of intrinsic value which often causes semantic confusion when discussing intrinsic value. One of these we call the 'economics' definition and the other the 'philosophical' definition.

2.1.1 Introduction

In order to make progress we begin with some definitions that should help winnow out some semantic ambiguity and separate economic and philosophical elements.

We define an asset as anything which has a market price or whose value is measured somewhere, for example on a company's balance sheet.

We define an asset as having economic value if the asset has a price, or whose value is measured somewhere, for example on a company's balance sheet.

Note: As we are defining assets as things which have a market price or whose value is measured somewhere, for example on a company's balance sheet, something is an asset if and only if it has economic value.

We define an asset as having economic intrinsic value only if it can be derived mathematically from something other than its price alone. For example in addition to price, flows (in \$), and other calculable or well-defined variables such as time, interest rates and volatility. We make one exception for the case of the measurement unit itself, in this case US\$, which logically must have intrinsic economic value of itself.

2.1.2 Value, intrinsic value, economic and philosophical

The following table lays out whether or how various assets have value or intrinsic value from the economic or philosophical viewpoints.

The following section goes into more detail to explain how we arrive at the answers in the table for the philosophical viewpoint.

ASSETS	Value		Intrinsic Value	
	Economic	Philosophical	Economic	Philosophical
US Dollar	Yes, \$1	Subjective	Yes, \$1	No
Stocks / Shares	Yes	Subjective	Yes	No
An intangible asset on a b/sheet	Yes	Subjective	Possibly	No
Options on securities	Yes	Subjective	Yes	No
Gold	Yes	Subjective	No	No
Shares in gold miners	Yes	Subjective	Yes	No
Gold Derivatives, eg options	Yes	Subjective	Yes	No
Bitcoin	Yes	Subjective	No	No
Shares in bitcoin miners	Yes	Subjective	Yes	No
Bitcoin Derivatives, eg options	Yes	Subjective	Yes	No

NON ASSETS

Oxygen in the atmosphere	No	Subjective	No	No
Water in the oceans	No	Subjective	No	No

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This table shows that there is no logical flow of implication between the two definitions of intrinsic value. Having economic intrinsic value tells you nothing about the philosophical position, although you don't need to know as nothing has philosophical intrinsic value (see the following section).

Since nothing has philosophical intrinsic value and only some things have economic intrinsic value there is no logical implication on the reverse path either. Semantic confusion arises when people suggest that there is some logical flow. Eg. Bitcoin's status as having no philosophical intrinsic value somehow flows logically from, or is caused by, its lack of economic intrinsic value.




Since economic intrinsic value is only defined by and within the bounds of the measuring unit (in this case the US\$), it can tell us nothing about different measuring units such as gold or bitcoin. Although if we were using gold or bitcoin as the measuring unit in another table, they would automatically gain economic intrinsic value due to being the measuring unit. Value measuring units can be thought of as analogous to SI units such as the metre, gram or kelvin. Although other units exist for these physical properties, the definitions and properties of these particular units have qualified them in scientific terms to become the universal standards.

We ultimately expect Bitcoin to become the equivalent of the SI unit for value.

2.1.3 Philosophical Intrinsic Value

You cannot touch or hold the value you place on a friend or family member, even though you can hold their hand. The same is true for a gold coin; you can hold the coin, but not the value itself. No one has ever observed 'value' as a physical entity. No one has claimed that they have found a 'value', or some 'value', lying around. There may be physical things around us that we value, but they are not value themselves.

We may, or may not, at one time or another, individually place value on them. For example we may consider the value of water, essential to sustain life. However, the value we place on water can vary by time and location. Compare its value in these contexts:

-  At home, with taps that can supply a huge supply of clean water when needed (low value at any one moment ?)
-  Crossing a desert, or an ocean, on a journey taking several days (high value mostly?)
-  In the middle of a freshwater lake, at risk of drowning (negative value ?)

Therefore, in the absence of physical evidence we must conclude that 'value' does not exist as an embodied physical entity.

So, if not physical, then value must exist solely in the virtual world of ideas, feelings and opinions. Being a virtual concept, we restrict our argument to the human mind and set aside the concept of other lifeforms' sense of value, if any.

The reasoning and constraint above leads to the observation that only humans endow real physical things with value. Value is a thought, an idea, or an opinion: something virtual. Therefore, value cannot be intrinsic to any physical object or material since intrinsic means “belonging to the essential nature or constitution of a thing” (Merriam-Webster). Your thought, idea or opinion cannot be part of the essential nature of a physical object, since if it were, what of everyone else’s possibly different thoughts, ideas and opinions? If we put the object under a microscope, no matter the level of magnification we would not observe these aggregated thoughts, ideas and opinions anywhere.

If a physical object were to have intrinsic value, then its value would exist independent of the existence of any human being. But, since value itself is endowed only by humans, that would lead to a contradiction. Hence ‘intrinsic value’ is internally contradictory, an oxymoron.

We now consider whether a human or human-created and non-physical item can have intrinsic value. Maybe a human can be said to have intrinsic value, since there is at least one human to endow value: the person themselves. But, what if they feel suicidal, does that mean they no longer value themselves, in which case even humans themselves may not have intrinsic value?

In the case of human-created physical (e.g. machines / art) and non-physical items (e.g. ideas) we imagine a future with no humans around. In such a world there would be no value remaining in anything created by humans since there would be no one to endow that value. So, even human-created objects and ideas are unable to have intrinsic value.

When people use the statement “has no intrinsic value”, either they are unaware that nothing has intrinsic value, and that therefore what they are saying is meaningless, or they’re really saying something else, for example: “I don’t value it”. This is not a supporting argument, it is simply a statement of their view, but wrapped up in a way that strives to make the claim sound cleverer than it is. Actually what it reveals is that the claimant doesn’t understand what value is, intrinsic or otherwise.

There is some irony here; that they could make the claim may demonstrate one underlying reason why they don’t value bitcoin, because they are missing some foundational knowledge about the nature of value.

Another thing that people may mean when they use the statement “bitcoin has no intrinsic value”, is “I don’t think bitcoin has any utility”. It is self-evident that this is a subjective statement of opinion, and many others disagree and think it has a range of utility, make use of it, and can directly evidence many evolving and growing use cases.

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2.1.4 Value, intrinsic value, economic and philosophical

Value and money are not real physical things, they are ideas, they are virtual.

For a more detailed explanation of the motivations and paths of the human development of money see part 1, chapters 1-4 of Broken Money by Lyn Alden.

The next paragraph is a very high level meta description of what happened; we are making no claims that this is how it actually happened, but rather why it happened with the benefit of perspective.

Humans realised early on that through voluntary exchange both parties to a transaction could benefit. Each party for whatever reason valued what the other was prepared to trade higher than the thing they were prepared to trade for it. Ultimately this potential to benefit led humans to innovate an idea related to value which has proved very useful. If a social consensus were to arise whereby certain physical things are widely held to be valuable, then by exchanging these things we could gain more benefits from more trade, transferring value between us in the present and maybe also through time. As mentioned above, we almost certainly did not invent it via the thought process, or for this purpose, more likely it emerged naturally from the market as a consequence of the desire to trade, and we offer the above analysis to explain why it emerged. This idea for measuring and transferring value is now called money.

2.1.5 Money today

For almost the entirety of human existence until 1971 humans were forced to use physical items to 'carry' value and these enabled the value exchanges necessary for the development of complex economies. Then, in 1971, when Richard Nixon suspended the US Dollar's convertibility to gold, we embarked on a historically near unique experiment to see if we could successfully virtualise money by linking it to something else other than a physical good. We had an idea that maybe we could attach value to something virtual, the virtual something was itself an idea that can't be touched or physically held – state power; ***this was the separation of money from stuff.***

This has been done more or less successfully by different countries. At the more successful end, the Swiss Franc lost 78% of its value between 1956 and 2024, whereas the United States Dollar lost more than 91% of its value over the same time period (source: in2013dollars.com). By comparison, the Venezuelan Bolivar lost more than 99% of its value in 2018 alone, this was on top of losing 90% of its value in 2017.

What the difference also highlights is the dependence upon political processes to construct the idea upon which the money rests, and thus how dependent people are on the competence of the state within which they happen to live. Unfortunately, in all countries, political processes are unpredictable, and that's not a great start for underpinning such an important foundation for our economies. Even worse, political processes, driven by humans, are inevitably open to being influenced by the very thing (money) which in this implementation they are supposed to underpin.

This forms a feedback loop which when combined with innate unpredictability generates instability. The ability for the money to influence its own underpinning political processes also creates very perverse incentives for governments and other politically or financially powerful groups or individuals.

These incentives have arguably been causing, but certainly contributing to, a general degradation in politics and a decline in the perceived fairness of the system. The Great Financial Crash of 2008-2009 and its aftermath were a symptom of this decline.

the State is that organization in society which attempts to maintain a monopoly of the use of force and violence in a given territorial area

Murray Rothbard, *Anatomy of the State*

For all its faults, however, at least this underpinning of money is of the same nature as money itself – it is virtual – an idea - namely human belief in state power (or the value placed by humans on avoiding the consequences of breaking the law set by the entity which has the monopoly of violence in that territory). Neither states nor state power are intrinsic to physical reality. In the absence of a human mind there is no such thing as a state or state power. Even the paper money, now a low proportion of money in existence, is clearly just a token of the idea, no one really values the paper itself, and it is not directly underpinned by any physical item anyone values.

In late 2008 / early 2009, based on discoveries in computer science, a new idea emerged that seems to be showing that it is possible to have money that is virtual without relying on political processes to underpin it. A money that is indistinguishable from its value; a money that has no use other than being money; a money whose (virtual) existence is owed entirely to the fact that it is money, and which would cease to exist if it weren't. A money that is underpinned by mathematics and physics, which are substantially more predictable than political processes.

Further, mathematics and physics remain unaffected by the money itself; there is no feedback from money into the mathematics of finite fields, money is no exception to the law of the conservation of energy. This money is the distillation of the idea of value that we imbue into physical things, or that we sought to underpin with unpredictable political processes; *the separation of money from stuff and the state.*

This money is purely virtual, it is indistinguishable from the value placed on it, separated from anything real, but with just enough of an anchor into physical reality to make it secure and scarce. An anchor is required so that despite not being physically present in the universe, the money can nevertheless be constrained by the limits of physical reality. This is a requirement because without it, the money would emerge from an unconstrained environment, while being used to transmit value in the constrained environment of physical reality. The money needs to be constrained to reflect the constraints of nature itself.

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The new anchor to time and energy that emerges from Satoshi's innovation can be seen as the replacement for the mass and spacetime implicit in the previously used physical items, such as gold coins, which could only be located in one place at any one time and thus displayed nature's constraints. Gold acted as an anchor to tie the creation of money to a physical commodity to help maintain its value. However the security, costs and inconvenience of having to transport that Gold from the buyer to the seller over distances proved prohibitive, leading to its storage in vaults and replacement with promissory notes from the bank. Bitcoin instead ties money to physical energy for creation and security, but the value is stored on the network and can be transmitted globally at low cost and replacing physical security with encryption.

This is our money, it is or will be your money, and that of your descendants. This money is bitcoin.

It is remarkable that the implementation of these ideas - embedded within the Bitcoin network and protocol - has remained essentially unchanged since first release and yet has demonstrated exceptional continuous up time. In this way, Satoshi appears to have appreciated the importance of stable design and robustly reliable implementation that encapsulates all essential functions (and properties that enable them) from day one. In this way, Bitcoin appears to resemble a real-time, safety-critical and stress-tested software engineering solution, such as a flight system, where failure comes with considerable human cost and reputational damage.

Bitcoin represents the first form of money that humanity has created that works effectively in the digital world we are rapidly moving towards. It has the potential to replace the 100-year typical transition from one global reserve currency to another that we have seen over the last millennium to be the only currency we need for the next.