Bizantine Capital

Ethereum: 1000x Case

Crypto's Biggest Winner Will Replace Gold as State-Free, Global Money

Gold as a Currency

Some people claim that gold has accrued value due its **usefulness** via jewelry and smartphone manufacturing. However, jewelry is inherently un-useful and the amount of gold used in smartphone production is negligible: $1.82 worth of gold per smartphone, which, at 10bn smartphones, renders $20bn of utility, a far cry from gold's $8trn market cap. Thus, gold's success as the world's **store of value** can be attributed solely to its scarcity: alchemy has proven impossible, and expensive mining expeditions can only inflate gold's supply by 1-2% per year. In fact, it is gold's scarcity that renders its utility in the jewelry business--if there were a more scarce metal, it would likely be more sought after than gold as both a store of value and a watch.

Gold's best-in-class scarcity has allowed it to be a viable store of value for thousands of years: despite equity markets continuously growing in terms of fiat currencies, their growth in terms of gold looks like a somewhat typical sinusoidal graph. Investors flock to gold in times of distress--when both equities and debt show little room for growth, gold subsists as the default option.

However, what would happen if oil, the most world's most useful commodity, had a pre-programmed, guaranteed inflation rate that was not only similar to gold's but also allowed oil investors to earn more oil in interest than the global inflation rate of oil? This is not possible in the physical world, as the supply of the physical world's resources is unpredictable. However, the winning cryptocurrency will assume this role in the digital world.

How Cryptocurrencies Change The Paradigm

The winning cryptocurrency will be a better currency than gold due to it being significantly more useful and, consequently, programmably more scarce.

Digital Oil → Digital Gold

The most useful cryptocurrency will become the most scarce. The logic follows:

The most useful blockchain will accumulate the most amount of fees for miners/validators/block producers (Each chain has a different name for the decentralized group of actors that secure the network.).

The blockchain with the most fees will be able to have a lower inflation rate than any other blockchain while maintaining a greater level of security:
  ● A blockchain's security budget = inflation + fees. The winning blockchain will incur multitudes more fees than competing blockchains. This is due to Pareto distributions, which blockchain usage is very likely to follow, just as search engines, social media, e-commerce, and every other internet business has followed. While blockchains are not

an internet business, they exhibit numerous traits that make them even more likely to follow pareto distributions than digital industries:

- **Strong network effects among builders**: as more tools are built for a blockchain, it attracts more developers, which then attracts more tools. While competing blockchain's can attempt to copy the leading blockchain's virtual machine (consequently allowing all developer tools to be ported to this competing blockchain), it is still unlikely that a meaningful amount of developers would switch blockchain networks because of the network effect of a specific type of tool described below [1].
- **Strong network effects among layer-two protocols**: as more layer-two protocols are built on top of a blockchain, more layer-two protocols will enter that blockchain to benefit from the capabilities of pre-existing ones, which will then attract more new layer-two protocols, etc.. Layer-two protocol code can be easily copied across blockchains, but the liquidity required for a layer-two protocol's functionality cannot. Layer-two protocol liquidity is a blockchain's strongest moat, nearly unforgeable barring extremely low-probability events such as a successful chain attack. Layer-two protocols are the building blocks for applications built on top of blockchains, applications which generate additional network effects.
- **Strong network effects among users**: as more consumers use a blockchain, it attracts more merchants, which then attracts more consumers. The same goes for enterprises: as more enterprises use a blockchain, it attracts more enterprises, which then attracts more enterprises. While it is not difficult for users to interact with multiple blockchains, running nodes/validators is non-trivial and neither is moving value between blockchains. Even if interoperability solutions render it extremely easy to move value between blockchains, the cost will still be non-zero.

Thus, it is likely that the winning blockchain wins by a wide, wide margin, just as a pareto distribution indicates. This wide margin will generate multitudes more fees for the winning blockchain than competing blockchains, which will allow the winning blockchain to implement a lower inflation rate than any other blockchain, while still maintaining a higher security budget than any other blockchain.

The last step in the logic is: the blockchain with the highest security *and* lowest inflation will become global state-free money, also known as digital gold. Digital oil becomes digital gold.

Accelerating Factors

While this may sound fair and reasonable to you, gold has thousands of years of history, an unprecedented moat in its own right. Even as blockchains underpin the internet and

consequently all digital financial transactions and data exchanges, that shouldn't mean that the most desired physical object in human history should suddenly be replaced.

However, either by chance or by the very nature of the scientific revolution, it does: the rise of blockchains coincides with the rise of space faring enterprises.

Humans lack any ability to program the physical world: there exists over a quintillion times more gold in nearby asteroids than on Earth and over a hundred times more gold at the bottom of the ocean. Space faring companies have received significantly more funding than deep sea companies for numerous reasons (Not just because there's so much gold in space, although that may be a byproduct of the larger reason: there exist more resources in space than on Earth.).

Thus, NASA is launching a mission to an asteroid with enough gold to crash the price of gold many times over (The mission takes off in 2022 and arrives at the asteroid in 2026.). Even if this mission is only for scientific purposes and does not involve asteroid mining, it's likely that ensuing missions would involve asteroid mining: it's too lucrative for corporations and governments not to. As Charlie Munger famously said, "Show me the incentives and I'll show you the outcome." If you believe that humans will be space-faring (which we will this decade), the next logical step is to assume gold will be inflated away by space-faring governments and corporations.

Contrary to the physical world, the digital world is fully programmable. The winning cryptocurrency will be able to afford an inflation rate on par or lower than gold's today, without carrying gold's increasing risk of runaway inflation.

Ethereum is the Clear Leader

Ethereum is the clear leader to become the most useful blockchain. However, it does face competition from both above and below.

Competition From Above

While Bitcoin currently has a ~7x higher market capitalization than Ethereum, Bitcoin is and, barring significant changes to the Bitcoin community's culture and roadmap, will continue to be only exceptional at storing and moving only the bitcoin currency. The Bitcoin community acknowledges that this is currently a very small market. They understand that Bitcoin's long-term security is dependent on bitcoin transactions not becoming a very small market. However, massive consumer behavior changes (from paying in fiat currencies into paying with digital gold) is a low probability outcome, and Bitcoin's future security is dependent on it: if transaction demand does not increase on Bitcoin, Bitcoin will be forced to raise its price per transaction significantly to pay miners, which will likely further reduce transaction demand, creating a spiral that ultimately leads to Bitcoin collapsing.

Ethereum's Usefulness

While Bitcoin is only useful for bitcoin transactions, Ethereum's usefulness is derived from its improved efficiencies over current financial infrastructure: the Ethereum blockchain is in the process of significantly reducing both the time and financial costs needed to conduct all types of transactions in fiat currencies. As Ethereum improves its scalability gradually over the next three years, it will continuously subsume more finance use cases, eventually eclipsing the current financial system in terms of usage. While this may seem like a bold assertion now, those in the rabbithole see a clear path for this eventuality. While Ethereum was the first mover of creating 'Turing-complete', fully-expressive blockchains, there have since been a new wave of blockchains that are equally expressive, aiming to acquire market share from Ethereum.

Competition from Below

These competing expressive blockchains have made incremental trade-offs/improvements (depending on your perspective) to Ethereum's design. The greatest benefit that these blockchains have had is, because they have little to no usage, they are able to take riskier decisions than Ethereum can with regards to technical upgrades. However, Ethereum's usage is a double-edge sword: while it limits the risk it can take with each technical upgrade, it also compounds the growth of its developer community. The growth of its developer community has triggered the network effects mentioned above: Ethereum has by far the best tooling for developers; Ethereum's layer-two protocols have over an order of magnitude more liquidity than any of its competitors. These advantages continue to compound for Ethereum, as desirable design improvements integrated from scratch by competing chains have been integrated into Ethereum before competing chains could launch them, due to Ethereum's thriving developer community and despite Ethereum's inability to quickly innovate at its base layer [2].

Because a blockchain is only as strong as the community building on top of it [3], forward-thinking, competing blockchains have gone the enterprise route, targeting a specific use case or region and building tools specifically for their closed-group communities. These blockchains will still accrue value, but have an extremely small probability of usurping Ethereum as the market leader: outside of specific use cases or regions, Ethereum is significantly further ahead than its competitors in enterprise adoption as well.

Ether, The Asset

While I may have convinced you that the most useful cryptocurrency will become the most scarce cryptocurrency, and while I may have convinced you that the most scarce cryptocurrency will succeed gold, and while I may have convinced you that Ethereum is the clear leader to become the most useful blockchain, you cannot actually buy Ethereum. The asset that underpins the Ethereum network, the asset that will become global, state-free money is Ether. Ether's numerous use cases will grow the market of state-free, global money significantly beyond gold's current market cap.

Ether has three use-cases in the Ethereum network:

- Ether is required to pay for transactions or other forms of computation [4]. This renders Ether a **consumable asset** (such as other commodities, like grains, energy products, or precious models). A consumable asset is an asset that can be spent.

- Ether will soon be required to be staked by block producers in order to have the right to propose and attest to blocks (earning the transaction fees and inflation rewards associated with these blocks). This renders Ether a **capital asset** (such as bonds, dividend-producing equities, or real estate). A capital asset is an on-going source of value through income/interest payments. Additionally, the interest paid to Ether miners will very likely be higher than the annual inflation rate of Ether. This renders Ether a **store of value asset** (such as gold, fine art, and deflationary currencies like the Japanese Yen). Store of value assets are scarce assets, meaning that they either have low inflation or deflation. Nearby upgrades will integrate further deflationary pressures into Ether's monetary system (through the burning of a certain percentage of transaction fees).

- Ether is used as collateral for protocols and applications built on top of Ethereum. For example, MakerDAO issues the Dai stablecoin, collateralized primarily by Ether; Synthetix issues synthetic investment products (i.e. Tesla equities), partially collateralized by Ether; Compound, dYdX, and other layer-two protocols built on Ethereum follow the same suit as Maker and Synthetix. While Ether is not the only collateral in these systems, it is the most used one currently, and will likely remain that way, with its greatest competitor being the Dai stablecoin, which, ironically, is also backed by Ether. This is a byproduct of Ether's store of value property; gold is currently used today by numerous parties as collateral for loans or trades.

Ether will become the first triple-point asset: the first asset that can assume all three of these categories. Ironically, when prominent investors lament investing in cryptocurrencies because of their lack of producing cash flow, they fail to see how Ether (or competing expressive blockchains' assets) are becoming capital assets, which gold could never be. These 'digital oil' assets deliver value to their holders based on their fee-generated revenue, just as real-estate dividends or equity dividends. However, unlike equities or real-estate, Ether exists outside the realm of any state or corporation and follows programmatic laws.

From $8trn to $80trn

Gold currently sits at an $8trn market cap, while Ether sits at a $16bn market cap. Isn't Ether's growth thus trapped by gold's current market size (and consequently can't 1000x, even if everything else I wrote is true)? Just as numerous tech companies have grown the market for their respective industries (Uber for taxis, Airbnb for hospitality, etc.), a significantly better gold will likely significantly increase the market for gold. By how much, we do not know, but we

believe there is a strong chance that it is over 2x [5], as Ether's improvements over gold are significant:

- Ether is digital, making it a viable medium of exchange.
- Ethereum has already created a market for Ether to be spent (transaction fees to miners), making it a viable unit of account; additionally, because of how Ethereum works, being a widespread unit of account will no longer be a necessary property of any currency [6].
- Ether can be held without any middleman (making it significantly harder to be confiscated by governments).
- Ether will bear interest higher than its inflation, making it more scarce than gold, and, due to Ether's programmability, investors will not need to worry about runaway inflation; the code will tell them the inflation rate for years ahead.

All of this will unfold over the next decade. It will happen gradually and then suddenly, as most things do.

Endnotes

[1] Additionally, copying one blockchain's virtual machine acknowledges that your competing blockchain was unable to innovate technically enough to merit developers' switching chains. The one caveat would be an innovative consensus algorithm, although consensus algorithm 'innovation' primarily encompasses trade-offs between finality and liveness, not innovation itself. Even if an Ethereum competitor managed to achieve an unforeseen consensus algorithm breakthrough, Ethereum could adopt that consensus algorithm with significantly more ease than developers' independently coordinating a chain switch.)

[2] There is no better example of this than Polkadot, the number one Ethereum competitor. Polkadot's primary design improvement was to allow developers to easily create their 'parathreads/parachains' (similar to layer-two solutions on Ethereum) with customized state transition functions, which, a year ago, would have been a massive design improvement over Ethereum. However, this incremental design improvements at Polkadot's base layer have already been matched by layer-two development on Ethereum, through which third party developers are already launching chains secured by Ethereum but using a different virtual machine than the EVM (instead using a VM more optimized for their specific application). This was Polkadot's greatest design enhancement, and Ethereum's community was able to launch it before Polkadot, despite Polkadot being able to hypothetically move faster and break more things. The compounding nature of Ethereum's developer community will make it nearly impossible for Polkadot and chains like it to assume any significant market share (they still may assume some, based on specific, tailored use cases or industries--that's how Pareto distributions work.).

[3] Although technical innovation can increase community: technical innovation improves brand, which improves community.

[4] However, the end-user, whether a consumer or enterprise, will never need to touch Ether if she does not wish to: wallets, relayers, and dApps are already abstracting the need to pay with Ether away from users.

[5] Uber projected that ridesharing would be a $5bn market because of their analysis of the taxi industry. Today, ride sharing is over a $50bn market.).

[6] Blockchains render units of account meaningless to users, so long as the asset with which the customer wishes to pay has sufficient liquidity through some blockchain based channel, whether an automated market maker or a peer-to-peer exchange.