Can you value the internet? Why bitcoin's value is built on user adoption

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Metcalfe's law states that the value of a telecommunications network is proportional to the square of the number of connected users[1]. Stated simply, instead of going from 1-5 users linearly, the value of the network increases exponentially:

- Linear Example: 1, 2, 3, 4, 5
- Exponential Example: 1, 4, 9, 16, 25

The irony is that in 2024 we spend a lot of our time as investors thinking about the 'Magnificent 7'[2] — many of which have attained the level of US$1 trillion plus in market capitalisation at one point or another — but the foundation upon which a lot of this value is built is the internet. The technology behind the internet was essentially open-sourced, with the biggest slices of the economic pie tending to go towards companies that can organise and process this gigantic mass of data for larger and larger platforms of users.

Is bitcoin our chance to 'Invest in the Internet'?

The way that the internet has evolved has led to the investment opportunity coming in the form of companies using the internet to do something or to allow a user to do something effectively. There are many debates about what bitcoin really is or what it might evolve into, but we keep coming back to the fact that it is really just a network.

Going back to Metcalfe's law — the more users, the greater value and this increase in value does not tend to increase in a linear fashion. Usage and accessibility of the internet is still growing, even today. Bitcoin began in late 2008 with the release of Satoshi Nakamoto's whitepaper, and when people ask us where the value might go, we first tend to think in terms of the evolution of the user base over time.

Figure 1 shows the timeline of internet adoption on the upper horizontal axis, from 1992 to 2006. In 1992, there were 10 million users and the internet was something of a novelty. The average person would have been nervous to put their credit card information out there. In 2006, the internet had cracked 1 billion users, and big companies like Google and Amazon.com were well on their way to extracting their massive slices of economic value. If we go to the lower horizontal axis, we see the bitcoin ownership timeline. It is estimated that there were about 1 million 'owners' in 2016 and by 2022, this figure had gone well past 100 million. The curve, while not exactly the same as internet adoption, is similar.

Figure 1: Comparing the timeline of internet adoption to the timeline of bitcoin ownership

Sources: Our World in Data, based on International Telecommunication Union (via World Bank) and UN (2022). Raoul Pal, Global Macro Investor, Coinshares, WisdomTree, December 2023.

Bitcoin is essentially the unit that allows for the transfer of value around the bitcoin network, constructed in the form of a blockchain. There will only ever be 21 million such units ever created, and more than 95% of this ultimate supply have been created as we are typing these words. Therefore, if we keep seeing an increase in the number of users on the network the demand for these units will increase and push up the price. This is far from guaranteed – maybe another network comes along and performs the function better – but relative to the billions of people currently on earth, 21 million is not a huge number.

Comparing bitcoin's price variations against returns of other asset classes over time

In Figure 2, we wanted to compare calendar year returns of bitcoin's price movements against the known returns of other more traditional asset classes. Currently, bitcoin's price is hovering between $45-50,000, so there has been some rather extreme price appreciation since 2012. However, we also note that people often talk about 'crypto winters', so it's our expectation that it was not necessarily a straight line from a rather low price to the levels we see today:

- In nine out of the 12 years that we show, bitcoin had the strongest overall return, and not by a small margin. In the nine years bitcoin's return dominated the next best asset class.
- In only two out of the nine years where bitcoin dominated did something that was not 'equity' take second slot. Gold was in 2020, returning 24.6%, and Commodities in 2021, returning 40.4%. During these periods, it is clear that bitcoin seemed to move a bit more with equities than the other asset classes.
- The three out of 12 times when bitcoin was not the leader, it was the laggard, delivering the worst returns. The return in these cases was significantly worse than the next best option. 2018 was the worst year, with bitcoin dropping 73.8% in value, meaning that if one had $100, they would have seen that drop to roughly $26. The 'winters' were pretty bleak.

Figure 2: An asset class returns quilt of 12 calendar years

Source: Bloomberg. Bitcoin represents the measure of XBTUSD in Bloomberg. MSCI EM refers to the MSCI Emerging Markets Index. Russell 2000 refers to the Russell 2000 Index. S&P 500 refers to the S&P 500 Index. US Corporate refers to the Bloomberg U.S. Corporate Total Return Index. Gold refers to the London Bullion Market Association (LBMA) Gold Price. Treasuries refers to the Bloomberg U.S. Treasury Total Return Index. Commodities refers to the S&P GSCI Index.

Increasing adoption

We have established the network's benefit from usage and adoption. People don't simply use the internet without reason – they use it to perform specific tasks. We therefore do well to think about the catalysts that might contribute to getting more and more users onto the bitcoin network.

1. **US spot bitcoin ETF approval:** We can place this catalyst within the broader realm of 'positive regulatory developments'. If regulators are signaling a less adversarial stance towards bitcoin, it could help a broader range of users feel comfortable using the network and holding the coins. It is also true that, similar to how trading a gold ETF is easier and simpler than facilitating the movement of physical bars in and out of vaults, trading a spot bitcoin ETF is easier and simpler than needing to manage your own keys.

2. **Bitcoin halving:** Bitcoin is one of few things in this world that operates based on a pre-defined protocol as opposed to any group of people making decisions. Part of the protocol is that the mining reward – the amount of bitcoin awarded to miners for correctly solving for the next block – gets cut in half roughly every four years. This means that less new bitcoin supply is coming online as we get closer and closer to a total of 21 million coins. The 'halving' is a talking point. It's a way to concretely picture a changing supply/demand balance and to think about a market dynamic that could lead to a higher bitcoin price, at least over time. People learning about this might be enticed to participate in the network.

3. **Global payments:** There are countries and regions – for example El Salvador and Lugano, Switzerland – where bitcoin can be used like any other currency. Even if other countries stop short of calling bitcoin 'legal tender', payments infrastructure can evolve in a way that allows people to decide between using a credit card, Apple pay, cash or bitcoin to make purchases. If people think this is crazy, just think back to when contactless payments and credit card payments were not possible. The world is constantly changing how things are paid for and value can be exchanged.

4. **Inflation:** If one is sitting in countries or regions with base currencies such as the US dollar, British pound, euro, yen or Swiss franc, we can say that one is 'lucky'. Many other currencies have not been as stable as these in recent years. Those in Turkey, Argentina, Venezuela or certain countries of Africa would benefit from currencies that can hold their value better. Bitcoin creates an interesting option in this regard. Western countries may not feel the pull of this catalyst, but bitcoin is global and billions of people live outside of western countries.

5. **Remittances:** Have you every tried to send money from one country to another? There are a lot of fees involved. If one used bitcoin, the 'value' would move instantly without a centralised party (like a bank or a 'Western Union') needing to do anything or extracting any value from the transaction. Some countries are bigger in the market for global remittances than others, but the world bank data indicates that the overall remittance market was more than $800 billion in 2022[3].

These are just five reasons why more and more users might be attracted to bitcoin, but we believe they represent an array that are quite significant. There is no 'guarantee' that bitcoin continues to attract attention, but any time the topic comes up we force ourselves to go back to real, verifiable use cases to get beyond the story that we are merely looking at a community of people speculating on a higher price

tomorrow than today. The provision of value will allow for a healthier ecosystem and a diversified array of reasons attracting people to the network—with some speculating, no doubt—and others extracting the value they need in other ways.

[1] Source: https://firstwatchcrypto.substack.com/p/metcalfes-law

[2] 'Magnificent 7' stocks are a group of high-performing companies in the US stock market: Alphabet (GOOGL; GOOG), Amazon (AMZN), Apple (AAPL), Meta Platforms (META), Microsoft (MSFT), NVIDIA (NVDA), and Tesla (TSLA).

[3] Source: https://www.migrationdataportal.org/international-data?t=2022&i=remit_inflows&m=2

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