



# CRYPTOCURRENCY IN 2022

Critical concepts, risk,  
regulation, and the road ahead

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## INTRODUCTION

Blockchain technology is now being referred to as “critical for our nation’s future” by former SEC chairman Jay Clayton<sup>1</sup>. Harnessing the capabilities offered by this technology are critical to advancing the state of the financial system, bank the unbanked, and generally improve a centuries-old industry rife with convoluted, inefficient processes.

Since the introduction of the cryptocurrency Bitcoin around 2009, the concepts of blockchain and cryptocurrency have increased in popularity – and controversy. To many, it’s a ponzi-like “get rich quick” scheme with no value. To others, it’s the beginning of a new technology paradigm that will impact how we represent, store, and exchange value across the globe. However you see it, there are tangible technology advancements occurring at a rapid pace

that are outshined by the very real scams and speculation occurring on top of these systems. But make no mistake about it – blockchain is here to stay in one form or another.

Here, we analyze the dominant themes of the crypto-sphere as we move into 2022, but this is by no means comprehensive. New ideas, projects, applications and entire blockchains appear every day, which is why it is such an incredibly fast-paced environment.

1. <https://www.wsj.com/articles/america-future-depends-on-blockchain-crypto-bitcoin-payments-transfers-federal-reserve-11639668586>

# CRYPTO – THE CRITICAL CONCEPTS

What *is* cryptocurrency and the supporting blockchain technology?

As a (very) quick primer, the term “blockchain” refers to a type of distributed ledger system that publicly records transactions between participants within the system in such a way that transactions are **verifiable** and **immutable**. Transactions are **verifiable**, such that anyone can download a copy of the blockchain ledger and confirm the accuracy and validity of each and every transaction that has been recorded. Transactions are **immutable** in the sense that once they are written to the blockchain, they are cryptographically ensured to be unalterable; this property also makes transactions irreversible.

A cryptocurrency represents the value being transferred on the blockchain, typically referred to as a “coin” or “token.” For example, if Alice “sends” one bitcoin to Bob, all she is doing is telling the network to make an entry in the globally shared ledger. At a very high level, because everyone on the network has the transaction history, they will verify Alice has at least one bitcoin to spend, debit her account and credit the recipient (Bob). In this way, the blockchain acts as a settlement layer that allows this transfer to occur in a “trustless” manner. There are two primary types of tokens: **fungible** and **non-fungible**. Think of fungible as digital currency (like your Starbucks points) and non-fungible tokens as unique items (like character skins in a video game).

While the concept may seem simple, this type of entirely digitally-native value transfer (i.e., currency) introduces a powerful enabling force: *programmability*.

An **address** on the blockchain can be thought of as loosely analogous to a bank account, in the sense that an individual or entity is able to send and receive funds through the address. When funds are transferred in a **transaction**, effected through an update to the blockchain ledger, the receiving address is credited while the sending address is debited the amount being transferred. Funds are “locked” to an address and subsequently controlled through the use of cryptographic keys. While access to the **private key** is required to move or otherwise control (i.e., send) funds to a different address on the network, anybody can view the transaction history of a particular address given the verifiable, open, and immutable nature of the blockchain<sup>3</sup>.

The evolution of different blockchains over the past few years have led to an impressive amount of technological progress, building on this property of programmability. For example, the well-known Ethereum blockchain was built from the ground up with the idea that entire programs can be deployed to the system and run independently of human intervention.

Think of Ethereum as a special kind of computer “in the cloud<sup>2</sup>” – it serves as the infrastructure layer that runs code that you can send money to.

This opens an entirely new way of thinking about, interacting with, and utilizing money. We’re now applying the blisteringly fast pace of software development and innovation to money itself.

To give you a sense of the potential opportunity, return to Jay Clayton’s article, which notes the “credit and securities markets that exceed hundreds of trillions of dollars in asset value” are “ripe for functional change”. He goes on to say that “end-to-end tokenization of sovereign currencies, securities, loans, real estate, mortgages, pledges, and related payments and credit” can also be executed using blockchain technology.

2. <https://www.wsj.com/articles/america-future-depends-on-blockchain-crypto-bitcoin-payments-transfers-federal-reserve-11639668586>

3. This applies to most blockchains today, but others such as Dash and Monero are designed to be private

# Other important crypto concepts

## LAYER 1S

Layer 1 refers to the “base layer” of the system – the blockchain itself – and the native “token” that can be transferred on that blockchain. Bitcoin, Ethereum, and Solana are all examples of a Layer 1.

### Bitcoin

The innovation that kicked off an entire industry, Bitcoin is the largest cryptocurrency by market cap and has been around the longest. Its effectiveness as a cryptocurrency comes down to its simplicity: it is just one big ledger of transactions. Through a globally distributed network of computers, this ledger is constantly updated and agreed upon by its participants in a verifiable way. The breakthrough achieved by the pseudonymous creator Satoshi Nakamoto was this ability to achieve consensus between a network of strangers on the internet in a novel way. Hard-coded into the software is a cap of 21 million Bitcoin; no more will ever be created in the current system.

Some compare Bitcoin to a digital gold. As an asset, Bitcoin has no cash flows, which is why many successful investors don't understand it, won't invest in it<sup>4</sup>, or dislike it so much they call it “rat poison squared”<sup>5</sup>. Most valuation methodologies rely on discounting **cash flows** over a period of time, so of course the absence of this signals to traditional investors and analysts that there is no inherent value. A bitcoin is not a share of a company, a claim on future cash flows, and is generally not considered a productive asset.

However, if you expand your view of “value” to be that of what is important to the holder, you can derive some, at times admittedly nebulous, value from Bitcoin and cryptocurrencies in general, as outlined in the table below.

Only slightly less than  
**21 MILLION**  
Bitcoin will ever be in existence



Whether these properties of Bitcoin are worth a nearly \$800 billion market cap today is a subject of constant debate; only time will tell. But don't forget those in relatively unstable countries, those who may use Bitcoin as a way to escape runaway inflation, capital controls, or repressive regimes who confiscate the wealth of their citizens. All you need to cross a border with Bitcoin is a few memorized words<sup>8</sup>.

## ADVANTAGES ESPOUSED BY PROPONENTS INCLUDE:

<b>Store of Value (or HODL<sup>6</sup>):</b>	While the original Bitcoin whitepaper <sup>7</sup> notes the original design was to create “peer-to-peer version of electronic cash,” it has evolved into primarily a store of value. While the ability to conduct peer-to-peer transactions of course remains, its use as a cash substitute has not materialized in any significant way. There are innovations such as the Lightning Network attempting to make cheap payments a reality but have yet to catch on in the mainstream.
<b>A non-sovereign money:</b>	There is no entity in direct control of Bitcoin, and it is not associated with a particular nation state. Governments can ban it, regulate it, make it illegal to transact with, but cannot influence the supply or global operation of the network.
<b>Hard money:</b>	Only 21 million bitcoin will ever be in existence and one bitcoin = one bitcoin. While there are derivatives and similar instruments that represent “claim” on bitcoin in other markets, on the Bitcoin network you can only transact with bitcoin.
<b>Bearer instrument:</b>	For better or for worse, users custody their own assets through the use of private keys. Crypto assets are bearer instruments in the sense that if you have the private key, you effectively “control” the assets locked to that address. Funds are not locked away in a bank vault or on the books of a third party financial institution.
<b>Global, resilient network:</b>	The infrastructure is <i>global</i> ; you don't need to wait until your bank opens on Monday to transfer value to someone anywhere in the world. Only an internet connection is needed to transact with the network. There is a direct transfer of value between participants with no middle-men facilitating the transaction (which often incurs additional fees).

4. <https://www.cnn.com/2021/10/12/investing/jamie-dimon-bitcoin/index.html>

5. <https://www.cnbc.com/2018/05/05/warren-buffett-says-bitcoin-is-probably-rat-poison-squared.html>

6. For the uninitiated, “hodl” – a play on the word “hold” – is used throughout the community to refer to being (and staying) long a particular token. Hold On for Dear Life for those with “diamond hands,” as they say

7. <https://bitcoin.org/bitcoin.pdf>

8. A mnemonic phrase – typically 12 to 24 words – can be used to derive a private key instead of remembering a string of random numbers and letters

## 2 Ethereum

The other major Layer 1, Ethereum, arrived in 2015 seeking to build on the ideas of Bitcoin in a big way. Fundamentally, Ethereum follows the same principle: a ledger of all transactions between participants in the network. But Ethereum is also programmable.

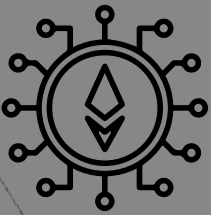
The “money” in this case is the native currency used to power Ethereum transactions: ETH. You can think of Ethereum as one giant distributed computer that uses money to operate. Ethereum has unlocked a wave of innovation, and it enables anyone in the world to create novel programs that leverage the unique properties of a distributed, immutable compute layer. The Ethereum network serves as the “infrastructure layer,” allowing developers to build applications that interact with each other on the network.

Ethereum is the technology platform that has enabled the explosion of new cryptocurrencies and projects that live “on top of” the infrastructure that it provides. It’s behind the infamous NFT craze, which are special tokens that are one-of-a-kind, or ‘non-fungible,’ that you can mint and own on Ethereum. Because of its programmability, innovation thrives and developers continue to flock to the system and those like it. An entirely new industry is beginning to emerge, on its way to engulf aspects of gaming, finance, computing, media, and more.

## 3 Others

There are many other emerging Level 1s, including Solana, Avalanche and Polkadot, that seek to offer benefits over the “original” systems like Bitcoin and Ethereum. Transaction throughput, interoperability, and lower fees are just a few examples of the advantages of these alternative blockchains.

The crypto ecosystem is quickly coalescing around the idea of a multi-chain world that allows various siloed Level 1s or other systems to talk to each other. Only time will tell how this will play out.



Anyone in the world can deploy code to

# ETHEREUM

that others can then interact with by sending data or money to the contract, which will execute some pre-determined logic.

## LAYER 2S

Layer 2s are just beginning to emerge, so will not be covered in detail here, but know that there are multiple competing efforts to increase the scale and throughput of these Layer 1 systems, with the primary focus on scaling Ethereum.

Layer 1s are often slower and have less throughput due to design choices that keep them secure. Layer 2s attempt to solve this problem by creating “side chains” that record transactions that eventually settle to Layer 1. They play by slightly different rules, which allows them to record transactions at a much faster pace. Some examples of Ethereum Layer 2s include Polygon, Optimism and Arbitrum, but there are many more.

The industry is moving towards a “multichain” future focused on exchanging data **between** blockchains such that developers can leverage the advantages of different solutions. This space is just starting to evolve and will be an interesting one to watch.

# TODAY'S CRYPTO LANDSCAPE

## Scams, waste, and status symbols

The elephant in the room is worth addressing up front: much of crypto today is absolutely rife with scams, speculation, hacking, hand-waving, contradictions, and naivete.

Due to the open nature of the blockchain, a copycat project can be created, deployed, and promoted with little effort. Scammers regularly take advantage of novices in the space, tricking innocent people into divulging their wallet's password to steal their funds. Hackers identify and exploit bugs in smart contracts, draining them of the assets under their control. And proponents of the space produce excellent and informative podcasts, essays, and videos full of impressive, albeit optimistically futuristic, ideas – but they sometimes fail to grasp basic economics or acknowledge inherent limitations in the logic of their arguments.

There is significant waste in the system, as the space has attracted some bad<sup>9</sup> actors, leading to many instances of lost funds<sup>10</sup>. There are even crypto “yield farming” pools claiming to offer 1,000% APY. This is evidence of a nascent, growing, but still very immature industry, which seems like a natural byproduct of the central innovation being financial in nature. If this was simply developers playing with a novel database technology, it wouldn't get nearly the same level of attention and no one would care, and scammers may not be as attracted to the space. But because we have moved from “magic internet money” to “this could threaten the U.S. financial system<sup>11</sup>”, the entire space has increased in popularity, for better or worse.

Many people have become incredibly rich from the rise in cryptocurrencies over the past few years, which leads to an almost religious zeal about the tokens that yielded this wealth. NFTs have become not only a status symbol, but an asset worth hundreds of thousands to millions of dollars. For example, an NFT from the “Bored Ape Yacht Club” recently sold<sup>12</sup> for 93 ETH, worth approximately \$350,000 USD. In 2021, the \$SHIB token rose 3,413,999,900%; Dogecoin rose 3,602%. Projects with little substance are often “pumped to the moon” with little to no concept of any inherent value. However, beyond the extremes, there are things worth paying attention to.



For example, an NFT from the “Bored Ape Yacht Club” recently sold for 93 ETH, worth approximately **\$350,000**

Because we've moved from “magic internet money” to “this could threaten the U.S. financial system”, ...

**THE ENTIRE SPACE HAS INCREASED IN POPULARITY**  
for better or worse.

Many of the market dynamics we see in the crypto ecosystem provide examples of why we have many financial regulations in the first place. Wash trades, market manipulation, and lack of liquidity are common. Many find themselves rediscovering the downsides of an unregulated marketplace in a very volatile market.

9. <https://www.cnn.com/2021/12/20/crypto-news-7-billion-dollars-stolen-in-crypto-scams-in-2021-radioshack-defi.html>

10. <https://www.thedenverchannel.com/news/contact-denver7/denver-man-loses-1-6-million-in-new-pig-butcherer-cryptocurrency-scam>

11. <https://www.cnn.com/2021/07/27/elizabeth-warren-presses-yellen-financial-regulator-to-manage-crypto.html>

12. <https://opensea.io/assets/0xbc4ca0eda7647a8ab7c2061c2e118a18a936f13d/6434>

## Emergence as an asset class

That being said, at the time of writing the global market capitalization of cryptocurrencies is \$2 Trillion USD<sup>13</sup>. That's more than the market caps of: JP Morgan, Bank of America, Wells Fargo, Morgan Stanley, Charles Schwab, RBC, Goldman Sachs, and HSBC— combined. That number is likely inflated due to the lack of liquidity in many of these markets, but even halving that number shows crypto's staggering presence. Ethereum and Bitcoin, two of the most liquid, combine for approximately \$1.2 trillion. Volatility aside, returns over time (for the established assets) have been surprisingly impressive.

Bitcoin, for example, has performed exceptionally well, handily beating all asset classes, albeit over a short timeframe of approximately 10 years. Naturally, an asset starting at \$0 and rising to approximately \$60k will outperform just about anything, yet the annualized returns are just as impressive, returning 230.6% on an annual basis. The below table from Twitter user CharlieBilello captures the dominance<sup>14</sup> well.

This has caught the attention of retail, institutions, and companies alike. Crypto assets under management have grown from \$190 million in 2016, to \$59.6 billion, as of October 2021<sup>15</sup> and is not likely to stop any time soon. Crypto companies are putting their marketing budgets to work as well – see FTX Area (where the Miami Heat play) and the renaming of the legendary Staples Center to the Crypto.com Arena. Even U.S. sports superstars like Tom Brady, Kevin Durant, and Steph Curry are getting involved, either appearing in commercials or participating in the crypto community itself.

We've also seen "experimentation" with holding digital assets on corporate balance sheets. In perhaps an extreme example, MicroStrategy holds approximately 122,478 BTC on its balance sheet; Tesla has also famously held Bitcoin on its books. Public miners such as Marathon Digital and BitFarms have entire business models dedicated to generating revenue from cryptocurrencies.

Volatility in the space will remain as crypto becomes more mainstream, new entrants emerge, and projects are built. Lots will fail, but many will succeed. The inherent volatility and "wild west" nature of the space should not prevent us from having an open mind and learning more about realizing the potential of a new technology.

**FIGURE 1: ASSET CLASS TOTAL RETURNS OVER LAST 10 YEARS (AS OF 3/13/21)**

ETF	ASSET CLASS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021 YTD	2011-21 CUMULATIVE	2011-21 ANNUALIZED
N/A	Bitcoin (\$BTC)	1473%	186%	5507%	-58%	35.0%	125.0%	1331.0%	-73.0%	95.0%	301.0%	109.0%	20037142%	230.6%
QQQ	US Nasdaq 100	3.4%	18.1%	36.6%	19.2%	9.5%	7.1%	32.7%	-0.1%	39.0%	48.6%	0.5%	541.3%	20.0%
SPY	US Large Caps	1.9%	16.0%	32.2%	13.5%	1.2%	12.0%	21.7%	-4.5%	31.2%	18.0%	5.4%	282.4%	14.0%
IWM	US Small Caps	-4.4%	16.7%	38.7%	5.0%	-4.5%	21.6%	14.6%	-11.1%	25.4%	20.0%	19.1%	244.7%	12.9%
VNQ	US REITs	8.6%	17.6%	2.3%	30.4%	2.4%	8.6%	4.9%	-6.0%	28.9%	-4.7%	7.9%	147.7%	9.3%
TLT	Long Duration Treasuries	34.0%	2.6%	-13.4%	27.3%	-1.8%	1.2%	9.2%	-1.6%	14.1%	18.2%	-13.5%	88.7%	6.4%
PD	Preferred Stocks	-2.0%	17.8%	-1.0%	14.1%	4.3%	1.3%	8.1%	-4.7%	15.9%	7.9%	-0.6%	76.3%	5.7%
EFA	EAFE Stocks	-12.2%	18.8%	21.4%	-6.2%	-1.0%	1.4%	25.1%	-13.8%	22.0%	7.6%	4.6%	76.3%	5.7%
HYG	High Yield Bonds	6.8%	11.7%	5.8%	1.9%	-5.0%	13.4%	6.1%	-2.0%	14.1%	4.5%	-0.2%	71.0%	5.4%
LQD	Investment Grade Bonds	9.7%	10.6%	-2.0%	8.2%	-1.3%	6.2%	7.1%	-3.8%	17.4%	11.0%	-6.4%	69.4%	5.3%
EMB	EM Bonds (USD)	7.7%	16.9%	-7.8%	6.1%	1.0%	9.3%	10.3%	-5.5%	15.5%	5.4%	-5.8%	62.4%	4.9%
TIP	TIPS	13.3%	6.4%	-8.5%	3.6%	-1.8%	4.7%	2.9%	-1.4%	8.3%	10.8%	-2.1%	40.3%	3.4%
EEM	EM Stocks	-18.8%	19.1%	-3.7%	-3.9%	-16.2%	10.9%	37.3%	-15.3%	18.2%	17.0%	4.5%	39.8%	3.3%
BND	US Total Bond Market	7.7%	3.9%	-2.1%	5.8%	0.6%	2.5%	3.6%	-0.1%	8.8%	7.7%	-3.7%	39.5%	3.3%
GLD	Gold	9.6%	6.6%	-28.3%	-2.2%	-10.7%	8.0%	12.8%	-1.9%	17.9%	24.8%	-9.5%	16.4%	1.5%
BIL	US Cash	0.0%	0.0%	-0.1%	-0.1%	-0.1%	0.1%	0.7%	1.7%	2.2%	0.4%	0.0%	4.8%	0.5%
DBC	Commodities	-2.6%	3.5%	-7.6%	-28.1%	-27.6%	18.6%	4.9%	-11.6%	11.8%	-7.8%	18.5%	-34.9%	-4.1%
<b>Highest return</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>	<b>VNQ</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>	<b>BIL</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>	<b>BTC</b>
<b>Lowest return</b>	<b>EEM</b>	<b>BIL</b>	<b>GLD</b>	<b>BTC</b>	<b>DBC</b>	<b>BIL</b>	<b>BIL</b>	<b>BIL</b>	<b>BTC</b>	<b>BIL</b>	<b>DBC</b>	<b>TLT</b>	<b>DBC</b>	<b>DBC</b>
<b>% of asset classes positive</b>	<b>65%</b>	<b>94%</b>	<b>41%</b>	<b>65%</b>	<b>41%</b>	<b>100%</b>	<b>100%</b>	<b>6%</b>	<b>100%</b>	<b>88%</b>	<b>47%</b>	<b>94%</b>	<b>94%</b>	

13. <https://www.coingecko.com/en>

14. <https://twitter.com/charliebillello/status/1370722188739891202>

15. <https://cryptofundresearch.com/cryptocurrency-funds-overview-infographic/>



## Web3: A new paradigm

While the markets may be volatile, it is an indication of a thriving and engaged community that is excited about the future. The good **and** the bad are amplified because we're talking about a new technology; one that has the potential to fundamentally alter how we interact with the financial system, so controversy inevitably follows.

Regardless of what you think of the space, the pace of innovation is impressive. By its nature, the blockchain is open, transparent, and able to be built upon by anyone. This allows rapid innovation **in the open** and naturally allows other interested parties to observe, iterate, adapt, and evolve that much more quickly than other industries. There are questions surrounding the real-world use cases for the technology that still need to be worked out.

However, the innovation of blockchain has led to a new term becoming synonymous – perhaps overtaking – the concept of cryptocurrency: **Web3 (or Web 3.0)**.

To many, the internet is evolving once more: starting with simple websites (1.0), to major FAANG corporate-owned platforms (2.0), to an emerging user-owned distributed paradigm (3.0).

Web3 embodies the concept that users own their identity and their assets in a way that is portable. A crypto wallet can send and receive funds, sometimes across multiple blockchains. As a user your crypto wallet acts as your identity. Web3 services allow you to connect your wallet and then look up additional information about that wallet on the blockchain. In effect, this inverts the traditional web 2.0 model by moving ownership from the service to the user. A commentator notes that “one of the main attractions of web3 vs. web2 **is that the user is no longer the product being sold, but a network participant being rewarded** for their active contributions.”<sup>18</sup>

As a concrete example, the assets in your wallet can be used to customize the user experience – if you recently bought an NFT from Adidas<sup>19</sup>, the avatar could be used in a future video game or other website to reflect this purchase. If a consumer wants to read an article, they can pay the creator immediately using an integrated wallet at the click of a button. They can also register an “ENS” name, a kind of domain name for web3 that is then used by these services to further customize the experience.

The following description of the evolution has been mentioned elsewhere<sup>16</sup>, yet it bears repeating because it boils down the fundamental shifts we're seeing into a few key concepts:



**WEB 1.0**  
Read



**WEB 2.0**  
Read/Write



**WEB 3.0**  
Read/Write/Own – or Execute<sup>17</sup>

### MAJOR CONCEPTS ARISING OUT OF CRYPTO AND WEB3 INCLUDE:

#### 1 Tokens

There are thousands of tokens listed on sites like coingecko.com, which track the price and market capitalization across exchanges. There are the “layer 1” tokens, like Bitcoin and Ethereum, but also a slew of others that have been built **on top of** blockchains themselves. Take, for instance, USDC or Wrapped BTC (WBTC), both of which live on the Ethereum blockchain. These tokens follow the “ERC-20” standard, which allows participants in the system to interact with them in the exact same way – the benefits we'll see in a moment with DeFi.

Anyone can create a token simply by deploying a contract to the Ethereum blockchain. One can define how many tokens should exist (the total supply), who can own or receive them, and generally add any type of functionality they wish. The ease by which one is able to create tokens has certainly led to scams (known as “rug pulls”), manipulated marketplaces, and pump-and-dumps. But it has also led to the emergence of some promising, special purpose, tokens that can be used throughout the crypto-ecosystem.

16. <https://twitter.com/cdixon/status/1459036992050716697>

17. One could argue Execute because you can deploy and run your own logic on a global computer for anyone to use that also interacts with anyone else's code. “Ownership” is merely a byproduct of the underlying capabilities enabled by the system

18. <https://blknoiz06.substack.com/p/quarter-i-2022>

19. [https://www.adidas.com/into\\_the\\_metaverse/mint](https://www.adidas.com/into_the_metaverse/mint)

## 2 Decentralized Finance (DeFi)

Arguably the main engine of growth over the past two years has been the impressive growth of decentralized finance (DeFi). DeFi is an ecosystem of smart contracts that provide financial tools such as borrowing, lending, trading, and other yield-producing mechanisms. DeFi is powered by, among other things, decentralized exchanges (DEX). These DEXs are smart contracts deployed to the blockchain that cannot be otherwise changed or interfered with. As a simple example, these contracts allow you to trade any digital asset for another, e.g., swapping ETH for USDC and vice versa. The following chart from the Bank of International Settlements captures the growth from essentially \$0 to over \$240 billion “locked” in DeFi applications.

Because at its core a blockchain is a settlement layer, DeFi has the potential to change how individuals and entities interact with each other. In a sense, one could argue it’s a pure example of a capitalistic free market. Everything is transparent: trades across DEXs, leverage in the system, sometimes individual positions. But this new way of thinking has the potential to unlock new ways of transferring, building, or settling value.

Platforms like Aave and Yearn allow for supplying or borrowing liquidity in different tokens. The non-custodial<sup>20</sup> DEX called dYdX allows for leveraged trades using synthetic derivative financial instruments. Synthetix is a “derivatives liquidity protocol providing the backbone for derivatives trading in DeFi.” Yield farming services aggregate many different DeFi building blocks together to maximize yield across the ecosystem.

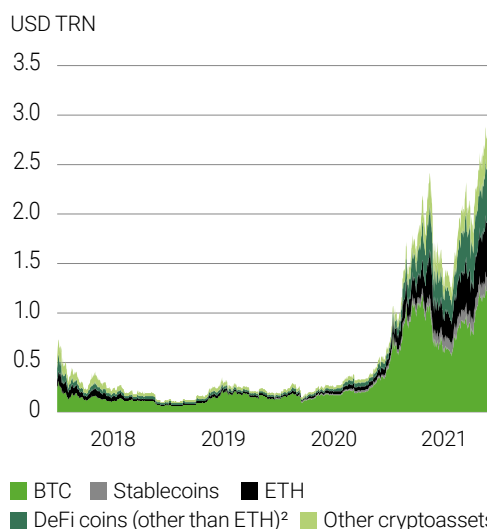
Automated market makers (AMMs) such as Uniswap create markets for token pairs, e.g., USDC and ETH. Individuals can become “liquidity providers,” supplying assets to a swap pool in return for a cut of the fees when a swap occurs, generating yield.

And all of this functionality is enabled through the use of smart contract programs. Once deployed, there are no humans involved to facilitate these interactions.

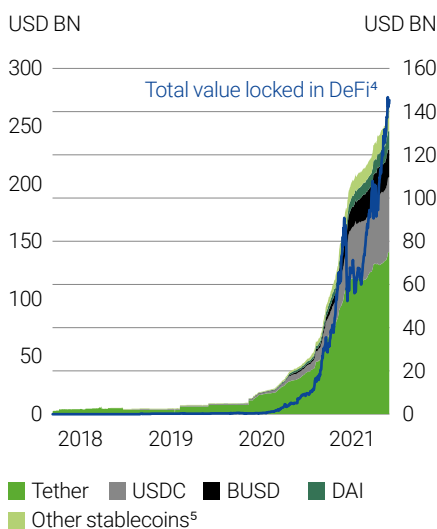
There are criticisms that much of the space is circular in nature, i.e. that yield comes from swapping tokens amongst each other or that yields are synthetically derived from unstable pools of liquidity. There’s also “Miner Extractable Value” (MEV), which is the ability for cryptocurrency miners to order transactions in such a way to create arbitrage opportunities. “Searchers” will pay miners a fee for accepting a set order of profitable transactions – often at the expense of an innocent user who will quite often lose money or not get the same amount of funds they were expecting. Entirely new market dynamics are emerging that take advantage of the unique opportunities offered by this new technology that is not well understood, and even less regulated.

**FIGURE 2: DEFI UNDERPINS THE RAPID GROWTH IN CRYPTO ACTIVITIES**

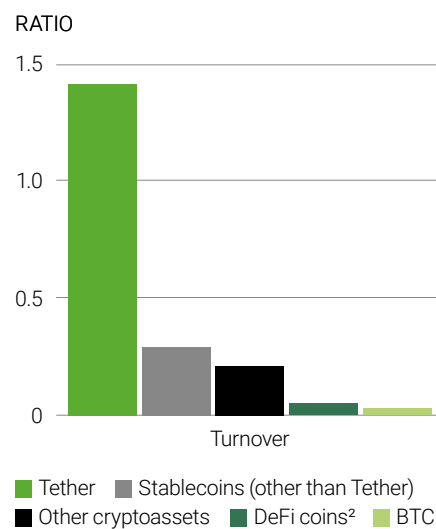
Market cap of cryptoassets surges, boosted by DeFi-related coins<sup>1</sup>



Stablecoins gained ground as capital in DeFi apps climbed<sup>3</sup>



Turnover of stablecoins dwarfs that of other cryptoassets<sup>6</sup>



1. Market capitalisation of top 100 cryptoassets as of 15 November 2021 (seven stablecoins, 36 DeFi coins and 55 other cryptoassets).
2. Cryptoassets issued by DeFi platforms.
3. Stacked areas plot stablecoins’ value in circulation. The selected stablecoins are those ranked as the top four by market capitalisation as of 15 November 2021.
4. Total value locked refers to the size of capital pools underpinning DeFi protocols. The sample includes 679 protocols.
5. Includes 57 other stablecoins.
6. Based on the top 20 cryptoassets by market capitalisation as of 15 November 2021 (three stablecoins, 10 DeFi coins and seven other cryptoassets). Turnover is the monthly average of the daily volume-to-market capitalisation ratio from 15 October to 15 November 2021.

Sources: Bank for International Settlements (full publications are available on the BIS website free of charge at [www.bis.org](http://www.bis.org)); CoinGecko; Defi Llama; authors’ calculations

20. Non-custodial means you retain control of your assets, unlike a centralized exchange such as Coinbase



# \$32 MILLION PER DAY

## Peak trading rate on NFT collectable platform NBA TopShot

### 3 Stablecoins

Stablecoins are special tokens intended to provide price stability, typically pegged to the U.S. Dollar. The U.S. Treasury puts it succinctly: “stablecoins are generally created, or ‘minted,’ in exchange for fiat currency that an issuer receives from a user or third-party. To maintain a stable value relative to fiat currency, many stablecoins offer a promise or expectation that the coin can be redeemed at par upon request.”<sup>21</sup>

This allows you to remain within the crypto ecosystem while preserving capital or generally dampening the effects of volatility in other native assets like ETH. Stablecoins such as Tether and USDC are issued by real-world entities that, in theory, should back each issued coin with a USD cash equivalent in their reserve. However, there have been allegations<sup>22</sup> against certain issuers that claim this isn't always the case.

Interestingly there are also **algorithmic** stablecoins, such as RAI or FEI, which utilize pools of liquidity or actual mathematical equations coded into smart contracts that attempt to hold the peg to the U.S. dollar. The robustness of these mechanisms under considerable pressure has yet to be proven.

Their use continues to grow: at the time of writing the total value of circulating stablecoins is approximately \$150 billion<sup>23</sup>. Stablecoins are likely high on the list of regulators to address first, since they are effectively “printing” money, as we'll explore later.

### 4 NFTs

**A non-fungible token**, known as NFT, is a scarce or unique digital asset that you can own (and transfer) with your crypto wallet. They can be used to prove ownership, establish governance, provide access and membership perks to a community, or

serve as a collectable. Much like a limited edition playing card or sports car, a creator can “mint” a limited number of NFTs on the blockchain. From then on, everyone on the blockchain can see how these assets are transferred and which wallets own them. The popularity and value come from the “legitimacy” that you own a “real” one because **your** address **demonstrably** owns that asset; ownership is recorded in the blockchain.

Profile picture (PFP) NFTs like “CryptoPunks” or the “Bored Ape Yacht Club” are the posterchild of speculation at the moment, with pixelated pictures being sold for hundreds of thousands of dollars. Some see these as a cultural status symbol, with big names like Steph Curry and Shaq getting involved. Others point to these sales as a prime example of the ridiculousness of the market. For the more popular ones, we simply don't know whether it'll turn out to be as valuable as a collectable LeBron James card or a repeat of the Beanie Baby fad. For many of the copycat projects, it would appear closer to the latter.

The idea is catching on in the sports world. Tom Brady recently launched autograph.io, a platform dedicated to creating NFTs as collectable sports memorabilia. There's also NBA TopShot, which at its peak was trading some \$32 million per day<sup>24</sup>.

But behind the speculation really is a potentially useful technology that can be applied in all sorts of novel ways that haven't been explored yet. It can be used to unlock new potential in membership, ownership, representation, badging, etc.

One potential use case (ignoring significant regulatory, industry, and technical challenges) would be ownership of a stock. Much like you may have stock certificate #1234 of Acme Co, you could digitize that into an NFT with dividend payments being dispersed automatically to all holders of the NFT. We're already seeing companies explore paying dividends with Bitcoin<sup>25</sup>.

Gary “Vee” Vaynerchuk is using<sup>26</sup> NFTs as a kind of collectable crossed with a ticket gaining exclusive access to future events. NFTs in this sense can be used to signal community, status, or be used for more utilitarian purposes such as tickets.

Finally, the Ethereum Name Service (ENS) uses NFTs to establish ownership of a new kind of domain name. Instead of registering google.com with ICANN and multiple other intermediaries, you can register your own .ens name and use that as your identity. With web3 services, your ENS name becomes a human-readable form of your actual crypto address.

21. [https://home.treasury.gov/system/files/136/StableCoinReport\\_Nov1\\_508.pdf](https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf)

22. <https://decrypt.co/88250/tether-accused-unlawful-deceptive-practice-class-action-lawsuit>

23. <https://www.theblockcrypto.com/data/decentralized-finance/stablecoins/total-stablecoin-supply-daily>

24. <https://decrypt.co/58473/nba-top-shots-sees-32-million-of-trading-volume-in-a-day>

25. <https://www.coindesk.com/business/2022/01/05/blockchain-firm-btcs-to-offer-dividend-in-bitcoin-shares-surge/>

26. <https://veefriends.com/>

## 5 DAOs

DAO stands for a Decentralized Autonomous Organization, which can be thought of as a type of online collective where participants from around the world coalesce to advance a common goal. DAOs often have large treasuries of “donations” or funds from users, which grant them access to participate in the DAO. Because they’re built on the rails of crypto, DAOs have a built-in financing mechanism that allow anyone to contribute funds to the DAO’s treasury, and then vote as a collective on how to utilize the funds.

While the original concept of a DAO was devoid of humans altogether, today they’ve evolved into more of a collective construct. Typically, a small team of creators will launch a DAO, write code of applicable smart contracts, and manage the community. Members of a DAO may also receive tokens specific to that DAO, called “governance tokens,” or leverage NFTs to signal (and enforce) membership.

Governance tokens are somewhat analogous to shares in a company, in the sense that community members are able to vote on proposals to the DAO. If a proposal receives enough votes, the DAO adopts the changes in the proposal in accordance with the community vote. In some circumstances, this process is automated, such that code is deployed upon approval of the vote. As an example, governance proposals for DeFi protocols may choose to divert some fee revenue to token holders, increasing the value of the token in turn.

Two recent examples show the breadth of ideas out in the market: First, the ConstitutionDAO was a collection of individuals with one goal: buy one of the remaining thirteen copies of the U.S. Constitution that was recently put on sale at Sotheby’s. It raised **over \$40 million**<sup>27</sup> but was just outbid by Ken Griffin.

Similarly, recently launched LinksDAO has sold NFTs to fund the purchase and operation of a golf course, in an effort to create a “modern golf and leisure club.”

Some say DAOs may represent the future of capital formation and individual organization; to others, these efforts look suspiciously similar to the 2017 ICO boom or the proliferation of unregistered securities.

Only time will tell to see how effective these DAOs are compared to more traditional organizations.

## 6 Gaming

Play-to-earn games have emerged as a type of hybrid on-and-off chain experience, where players interact with characters that they own on the blockchain. Instead of winning points in the traditional sense, they receive an in-game currency that is then tradable on the Ethereum blockchain using the DeFi protocols mentioned before. NFTs are used to represent in-game items like avatars, clothing, or other collectables.

The popular example of this is Axie Infinity, which at its peak exceeded one million users and was generating \$364,000 in just **one month**<sup>28</sup>. Through September 2021, the AXS token native to the game had increased 14,155% giving it a total market cap of \$5.12 billion USD, although it has since come down considerably.

## 7 Currency

Ray Dalio defines a money<sup>29</sup> as a portable medium of exchange and storehold of wealth, most useful when recognized in multiple countries. One could argue Bitcoin and Ethereum satisfy these properties and are already a form of new alternate money.

The day-to-day use of crypto assets as a money to buy something like groceries has not taken hold in the mainstream, but there are advancements such as Bitcoin’s Lightning Network that are being built to make this a reality.

Dalio also makes the case that, because of the depreciated value of existing fiat currencies caused by the incredible amount of money that has been printed by Central Banks, we will begin to see a competition for alternate moneys emerge. Whether that happens at scale remains to be seen, but the tools are there for cryptocurrencies to become an “alternate money” on the global stage.

El Salvador, perhaps controversially, has declared Bitcoin a legal tender that requires all businesses in the country to accept it. The Lightning Network and new emerging technologies are being deployed to onboard the millions of users in the country.

Even Sotheby’s, the esteemed auction house, recently quoted<sup>30</sup> prices of items in ETH.

One could see a natural extension of this technology be applied to securities as well. While nearly all securities transactions today are digital in nature, there’s a complex web of brokerages, market makers, clearing houses, and other regulated entities that facilitate the transfer and distribution of securities and dividends.

We’ve even seen a well-regarded financial institution, Societe Generale, submit a proposal<sup>31</sup> to a DAO to refinance a bond represented as a digital asset on Ethereum. The industry is just beginning to experiment with these new ways of representing and transferring value.

27. <https://www.theverge.com/22820563/constitution-meme-47-million-crypto-crowdfunding-blockchain-ethereum-constitution>

28. <https://nairametrics.com/2021/09/06/axie-infinity-generates-364-million-in-august-highest-revenue-since-inception/>

29. <https://www.youtube.com/watch?v=TISMidxZoc?t=4587>

30. <https://twitter.com/adamscochran/status/1461472758353870860>

31. <https://forum.makerdao.com/t/security-tokens-refinancing-mip6-application-for-ofh-tokens/10605>

# THE ENVIRONMENTAL IMPACT OF CRYPTO

Satoshi Nakamoto's invention of Bitcoin relied on a novel way of achieving consensus on this network of strangers, which is famous for its perceived "waste" of resources: proof of work. At a high level, proof of work is the process by which transactions are added to the blockchain. The novel mechanism devised by Nakamoto secures the network by having "miners" continuously expend compute power in search of a solution to a mathematical puzzle. Because all miners are doing this simultaneously, no one knows who the next miner will be to successfully solve the puzzle. While this is great from a security perspective, the process was intentionally designed to continuously utilize compute resources that incentivizes securing the network instead of attacking it, but isn't exactly energy efficient. Ethereum uses a different algorithm, but still relies on the same Proof of Work concept as Bitcoin.

Recent studies have pegged Bitcoin's energy usage at around 110 Terawatt Hours per year, which is roughly equivalent to the energy usage of Sweden<sup>32</sup>.

There have been many articles written on the potential environmental implications of cryptocurrencies that use proof of work. However, not all of them tell the full story. According to Bitcoin proponent Nic Carter, many of these articles misunderstand<sup>33</sup> Bitcoin or make unfair comparisons. Because Bitcoin itself is a self-enclosed monetary settlement

system, he argues, energy comparisons to single companies like Visa are unfair, since they in turn rely on other financial intermediaries to eventually settle the transactions. This is an ongoing debate in the community, but is one that requires a nuanced understanding.

Bitcoin has also spurred innovation in the energy sector. Take, for example, natural gas producers, who have recently teamed up with Bitcoin miners<sup>34</sup> to harness excess gas that is normally "flared" (or burned off). Bitcoin miners are capturing what would otherwise be completely wasted energy.

Miners who move to low-cost energy providers may act as a "buffer" for extra energy that isn't of immediate use to the grid, such as in West Texas, where an explosion of solar projects actually produce more energy than is needed. This has led to Bitcoin miners "acting as a kind of shock absorber [where] they buy up excess energy when it's not needed, then shut down their mining rigs when demand surges."<sup>35</sup>

Another interesting, albeit optimistic, example is El Salvador, where they are planning to harness energy from a local volcano to mine Bitcoin<sup>36</sup>. Whether this comes to fruition remains to be seen, but it is a taste of the type of ideas being explored in the space.

To address similar concerns, the Ethereum development community is actively developing an alternative to proof of work, known as "Proof of Stake." In this model, miners "stake," or escrow, their digital assets as they participate in the transaction validation process. If they act maliciously, such as approving an invalid transaction, the funds they have in escrow are taken by the network. This incentivizes good behavior without the need for extensive computing power. By some estimates, the move to Proof of Stake will reduce energy consumption by 99.95% compared to today's network<sup>37</sup>.

Other ideas are being explored as well. Solana uses a "Proof of History" that develops consensus using provenance of time and order of events instead of expenditure of computing power. Others are being developed and will continue to do so as the market matures and the environmental impacts are better understood.



By some estimates, the move [from Proof of Work] to Proof of Stake will **REDUCE ENERGY CONSUMPTION BY 99.95%** compared to today's network

32. <https://hbr.org/2021/05/how-much-energy-does-bitcoin-actually-consume>

33. <https://www.coindesk.com/markets/2021/02/08/what-bloomberg-gets-wrong-about-bitcoins-climate-footprint/>

34. <https://www.reuters.com/business/sustainable-business/oil-drillers-bitcoin-miners-bond-over-natural-gas-2021-05-21/>

35. <https://www.forbes.com/sites/christopherhelman/2021/08/02/green-bitcoin-mining-the-big-profits-in-clean-crypto/?sh=2fa52dab34ce>

36. <https://www.bbc.com/news/world-latin-america-59368483>

37. <https://blog.ethereum.org/2021/05/18/country-power-no-more/>

# THE REGULATORY ENVIRONMENT

Cryptocurrency has certainly caught the attention of governments and regulators around the world. China is among some eight countries that have banned it outright<sup>38</sup>. Others are putting restrictions on the use, transfer, or mining of crypto.

Still others are more amenable to the technology, such as Portugal, where cryptocurrency has been exempt from capital gains and VAT<sup>39</sup>.

In the U.S., there's an interesting jurisdictional battle unfolding between the SEC and CFTC. Early on, CFTC effectively claimed jurisdiction of major cryptos (e.g., Bitcoin and Ethereum) by designating them a commodity<sup>40</sup>. Other players, such as Treasury, the Fed, and OCC will become increasingly involved as they work through issues and better understand the technology. Ultimately, it's very likely the Financial Services Oversight Council (FSOC) will have an outsized role in up driving much of the policy response and implementation, having members from the Federal Reserve, SEC, OCC, FDIC, CFPB and others.

There are very real risks that must be sorted out, as summarized by industry figure Ryan Selkis<sup>41</sup>:



## EXCHANGE RISKS

Lack of insurance, liquidity risks, hacks



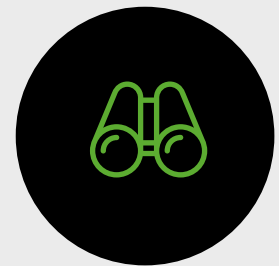
## STABLECOINS

Unregulated money printing, draining of liquidity, market stability



## BANKING INTEGRATION

Unclear "rules of the road" that serve as the on/off ramps to crypto



## AML

Pseudonymous nature of crypto makes enforcement and surveillance more difficult



## TAX EVASION

Coin mixing services, unlimited wallet creation, esoteric decentralized services make tax enforcement and visibility difficult and surveillance more difficult



## SECURITIES FRAUD

The open nature has attracted scammers and grifters taking advantage of the system. Esoteric decentralized services make tax enforcement and visibility difficult and surveillance more difficult



## USER PRIVACY

Due to its inherently open nature, blockchain technology can be at odds with the push for global privacy. There remain open questions on regulations around tying real-world identities to individual addresses

38. <https://fortune.com/2022/01/04/crypto-banned-china-other-countries/>

39. <https://www.forbes.com/sites/kellyphillips/2019/09/19/portugal-tax-authorities-clarify-that-buying-or-selling-cryptocurrency-is-tax-free/?sh=66902f7e77e3>

40. <https://www.coindesk.com/markets/2019/10/10/cftc-chairman-confirms-ether-cryptocurrency-is-a-commodity/>

41. <https://messari.io/pdf/messari-report-crypto-theses-for-2022.pdf>

## Regulatory developments

Arguably the biggest regulatory development over the past year was the Infrastructure Bill that pushed through requirements widely seen in the community as detrimental and, in some cases, unrealistic. An analysis by Gibson Dunn<sup>42</sup> captures this concern; for many DeFi services “there is no way for a business that receives a digital asset from a liquidity pool to trace the asset to particular individuals or entities.” It also shows that the Bill requires reporting of any digital asset transaction over \$10,000, which in practice may be impossible for some DeFi services because they run in a completely decentralized manner completely devoid of human intervention. It also expands the definition of “broker” to potentially include software developers, wallet manufacturers, DeFi services, and others.

Industry advocacy groups are beginning to emerge to fix the problem: the Blockchain Association, led by Kristin Smith, is a coalition of major players in crypto and has done a great job of promoting practical and reasonable legislation. Coin Center, Fight for the Future, the Crypto Council for Innovation, and the Chamber of Digital Commerce are still more examples of DC groups emerging to promote smart crypto policy. Investors are getting involved too: a16z, the well-known VC fund, has stepped up lobbying efforts; Paradigm, a crypto-focused fund, has also gotten into the mix.

In the U.S., crypto-friendly jurisdictions are also emerging. Wyoming<sup>43</sup> has created a “special purpose depository institution” provision allowing chartered banks to deal with crypto assets. This allows for a state-regulated entity to deal with crypto assets such as Bitcoin directly, although the provision requires assets to be “fully reserved and generally prohibits lending using customer deposits of fiat currency.” The state even passed a law recognizing DAOs<sup>44</sup> as a legal entity for any “limited liability company whose articles of organization contain a statement that the company is a decentralized autonomous organization.”

## Stablecoins

Stablecoins are likely the first target for serious regulation because they are, in effect, money printers. Private entities such as Tether and Circle (which manages the USDC coin) mint tokens that are pegged to the U.S. dollar for use in the crypto economy.

The SEC is maneuvering for control over this area. In recent testimony to Congress<sup>45</sup>, SEC Chairman Gensler mentioned “stable value coins” as a focus of the Commission, a potential nod towards their existing authority to regulate stable value **funds**.

Similarly, a joint report<sup>46</sup> from the President’s Working Group on Financial Markets, the FDIC, and OCC notes multiple regulatory gaps and risks relating to stablecoins. Similar to traditional markets, stablecoin issuers are vulnerable to a “run” on assets that, if are not managed appropriately, could lead to the collapse of the stablecoin and a loss of billions in (perceived) value.

**As stablecoin issuers continue to grow, they may well represent systemic risks: first to the crypto market, and possibly others as well.**

As the report notes, “if insured depository institutions lose retail deposits to stablecoins, and the reserve assets that back stablecoins do not support credit creation, the aggregate growth of stablecoins could increase borrowing costs and impair credit availability in the real economy”. Currently there’s a dislocation in the market, where traditional banks are not the issuers of stablecoins, and thus these tokens are created “outside” the traditional financial system. While the report notes a valid concern of liquidity being taken away from banks (which then should lend out for productive uses of capital), we’re still a long way off from impacting markets in this way.

Certainly, uninformed participants who view stablecoins as “cash” with the same guarantees as an FDIC-insured bank account may not fully understand the financial, technological, and other risks that they are taking on.

The fact that “95% of stablecoins by value” are pegged to the U.S. dollar could be seen as an opportunity to incorporate digital assets into the U.S. financial system. Crypto assets already represent a universal, global settlement layer, albeit not exactly compatible with the traditional financial system. Complementary technical and regulatory advancements are needed to make this a reality. As Clayton observes, “primacy of the U.S. dollar is by no means certain.” Just ask Ray Dalio<sup>47</sup>.

## Looking ahead

Referring back to Jay Clayton’s piece, because it so succinctly captures many important concepts including his perspective on regulation, he says that “[r]egulation is essential to our financial markets, and there is no doubt that tokenized financial assets should be regulated to ensure financial stability, promote capital formation, prevent illicit activity, and protect consumers.” While there may not be many crypto-maximalists enamored by the idea of government intervention or regulation, it is a necessary component of any successful mainstream adoption of the technology. It is simply impossible to operate outside the bounds of existing regulatory frameworks and thrive as an industry.

This is why direction and clarity from regulators is so important. The industry has been seeking a better understanding of the rules of the road for some time now, and regulators are beginning to do their research.

42. <https://www.gibsondunn.com/infrastructure-bills-new-reporting-requirements-may-have-sweeping-implications-for-cryptocurrency-ecosystem/>

43. <https://www.reuters.com/breakingviews/cryptocurrencys-wild-west-is-wyoming-2021-07-07/>

44. <https://www.wyoleg.gov/Legislation/2021/SF0038>

45. <https://www.banking.senate.gov/imo/media/doc/Gensler%20Testimony%209-14-21.pdf>

46. [https://home.treasury.gov/system/files/136/StableCoinReport\\_Nov1\\_508.pdf](https://home.treasury.gov/system/files/136/StableCoinReport_Nov1_508.pdf)

47. <https://fortune.com/2020/09/16/ray-dalio-us-dollar-global-reserve-currency/>

# INSTITUTIONAL ADOPTION

Because of volatility, regulatory uncertainty, and general lack of understanding, many institutions have been unable or hesitant to participate in a meaningful way. This arena is clearly volatile, still has a stigma, and is not well understood. Many legal questions remain unresolved and have yet to be tested in court.

There is also a lack of public financial instruments (in traditional markets) that provide the type of exposure that many may want, or be required, to hold. The first Bitcoin ETF application was 2013<sup>48</sup>, but as of this writing no cryptocurrency spot ETF has been approved. There are financial products that provide exposure through an open-ended private trust, purchased by accredited investors who can then sell them on secondary markets (e.g. GBTC), but these are not a long-term solution. Jurisdictional questions remain between SEC, CFTC, Treasury, OCC, DoJ, among others, which will serve to contribute to regulatory uncertainty until these are resolved.

That being said, an eye-opening study from Fidelity Digital Assets<sup>49</sup> shows that “70% of all investors surveyed had a neutral-to-positive perception of digital assets” and that “nearly 8 in 10 investors surveyed felt digital assets have a place in a portfolio.” While “44% of investors surveyed shared that the lack of fundamentals to gauge appropriate value as a barrier to investment,” “nearly 9 in 10 investors surveyed said they found digital assets appealing.” The digital asset space is certainly an exciting one to watch as institutional investors begin to dive in to learn more.

## Risk management

Regulatory questions aside, financial institutions need to better understand the risk profile of these assets. Because these systems are global in nature, traditional AML/KYC systems and transaction monitoring systems won't work. If this is going to serve as the financial rails of the future (still a big if), there will inevitably need to be significant work done to integrate blockchain data with legacy monitoring and risk systems. The industry will need transaction monitoring, sanctions enforcement, and generally new ways of thinking about mitigating illicit financial activity.

Thankfully, in 2021 only 0.15% of cryptocurrency transaction volume was illicit, according to Chainalysis<sup>50</sup>.

Many questions remain in this area, as banks and financial institutions will need to decide which blockchains to support, use for settlement, and how far “down the rabbit-hole” to go.



Do they host nodes directly, or use third party data providers?

How do we track and classify “bridged” assets across blockchains?

What about blockchain forks?

Hacked funds?

“Dust” transactions from sanctioned parties?

All of these questions and more will need to be reconciled before crypto assets are used as an “approved” method of financial exchange. But it is coming.

48. <https://dealbook.nytimes.com/2013/07/01/first-name-in-the-first-fund-for-bitcoins-winklevoss>

49. [https://www.fidelitydigitalassets.com/bin-public/060\\_www\\_fidelity\\_com/documents/FDAS/2021-digital-asset-study.pdf](https://www.fidelitydigitalassets.com/bin-public/060_www_fidelity_com/documents/FDAS/2021-digital-asset-study.pdf)

50. <https://blog.chainalysis.com/reports/2022-crypto-crime-report-introduction/>





## CONCLUSION

There is much more to crypto than simply scams, ponzis, and criminals (although those certainly exist as well). There is meaningful progress being made in cryptography, financial technology, and arguably, economics and money as we know it. Crypto is an example of our world becoming increasingly digital at an increasingly rapid pace. No one knows what is just around the corner, but the pace of innovation thus far is promising for what this industry will produce next, with work ongoing in identity, banking, and payments, to name just a few.

Commissioner Clayton may be on to something – America’s (and the West’s) acceptance of blockchain technology and what it offers could be critical to our collective success.

The regulatory landscape will continue to evolve, and as it does, we should see continued adoption of “real” use cases of the technology. Illegitimate projects will get washed out, the scammers caught, and companies becoming defunct. However, continued digitization of the world’s financial system will continue to evolve, and chances are blockchain technology will be involved.

Many questions remain, but one thing is certain: the pace of technological innovation is accelerating. So keep an open mind, dive in, and continue to learn.

No one knows what is just around the corner, but the pace of innovation thus far is promising for what this industry will produce next, with work ongoing in identity, banking, and payments, to name just a few.

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AlixPartners, a global management consulting firm, works with clients when it really matters on issues that materially affect the future of the organization(s), often in situations of extreme pressure and high stakes. The firm offers a full range services in the cryptocurrency space, including litigation and investigatory consulting services, such as expert witness testimony, computer forensics, AML/KYC advisory, forensic accounting, damages and valuation services and high-volume analytics. In addition to litigation services, our digital consulting experts regularly advise companies and investors on digital asset innovation, cyber security, and program risk management.



## ABOUT US

For more than 40 years, AlixPartners has helped businesses around the world respond quickly and decisively to their most critical challenges – circumstances as diverse as urgent performance improvement, accelerated transformation, complex restructuring and risk mitigation.

These are the moments when everything is on the line – a sudden shift in the market, an unexpected performance decline, a time-sensitive deal, a fork-in-the-road decision. But it's not what we do that makes a difference, it's how we do it.

Tackling situations when time is of the essence is part of our DNA – so we adopt an action-oriented approach at all times. We work in small, highly qualified teams with specific industry and functional expertise, and we operate at pace, moving quickly from analysis to implementation. We stand shoulder to shoulder with our clients until the job is done, and only measure our success in terms of the results we deliver.

Our approach enables us to help our clients confront and overcome truly future-defining challenges. We partner with you to make the right decisions and take the right actions. And we are right by your side. When it really matters.

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