

THE FUTURE OF CRYPTOCURRENCIES: A BEARISH & BULLISH VIEW*

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I can say almost with certainty that cryptocurrencies will come to a bad end.
- Warren Buffett (in 2018).

Virtual Currencies may hold long-term promise, particularly if the innovations promote a faster, more secure and more efficient payment system.
- Ben Bernanke (Chairman of the U.S. Federal Reserve 2006-2014).

Abstract

Despite its potential, the future of cryptocurrencies has been hindered by volatility, regulatory uncertainty, limited adoption, as well as issues like hacking, fraud, and scams. The high volatility of cryptocurrencies has made their value unpredictable. Institutional investors have largely stayed clear of the crypto market. Lack of a central authority and cross-border trading has made regulation challenging. To ensure the long-term adoption of cryptocurrency technology the issue of excessive energy consumption must be addressed. On the positive side, organizations worldwide are working to establish regulatory frameworks for cryptocurrencies and reduce uncertainty. The emergence of CBDCs may lead to greater acceptance of cryptocurrencies, despite privacy concerns. Cryptocurrencies face scalability challenges, but developers are addressing them with improved algorithms and alternative energy sources. With lower fees and increased privacy, cryptocurrencies offer viable financial opportunities to millions globally.

* Any opinions, findings, and conclusions expressed in this paper are solely those of the author. The information presented in this paper is not intended as, and shall not be understood or construed as, financial advice.

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Introduction

Cryptocurrencies and the blockchain are truly new technologies. These don't come along very often. Most "new" technologies are simply built on, or are extensions of, what existed previously. We do not live very differently from a 100 years ago. We still live in regular houses, drive a car (1885), take the train (1825), or an airplane (1910). The history of computers ("mechanical calculating machines") goes back over 200 years.

The Internet could be considered a genuinely new technology, which has revolutionized the computer and communications world like nothing before. The first ideas for an "internet" date back to the 1960s, but real development came between 1970-1990. (Leiner, et al., 1997). The WorldWide Web was first introduced in 1991. Without the Internet and the WorldWide Web, the creation and transfer of digital assets (e.g., cryptocurrencies) would be impossible.

What is a cryptocurrency? A cryptocurrency refers to a virtual, or digital form of currency that utilizes cryptography for secure transactions. Unlike traditional (fiat) currencies, it operates through a decentralized system, lacking a central authority for issuance, or regulation. It is a peer-to-peer digital payment system, where transactions are verified through a distributed public ledger, known as a blockchain, and recorded as digital entries in an online database.

Cryptocurrency can be acquired through mining by solving mathematical problems with computer power, or (as most do) by purchasing them from exchanges. Holding cryptocurrency is not like owning a tangible asset, but instead, grants access to a key that enables the transfer of a digital record, or unit, from one entity to another without the need for a trusted third party.

The name cryptocurrency is derived from the use of encryption in verifying transactions, providing added security and privacy through advanced coding techniques in the storage and transmission of data between wallets and public ledgers.

The first cryptocurrency was Bitcoin, which was founded in 2009 and remains the best known today. After the creation of Bitcoin, the number of cryptocurrencies has exploded. As of this writing, there are an estimated 22,444 cryptocurrencies, with a total market capitalization of \$1.06 Trillion, traded on 544 exchanges, according to CoinMarketCap¹

¹ <https://coinmarketcap.com/all/views/all/>

The purpose of this paper is to examine the future of cryptocurrencies from both a negative (bearish) and positive (bullish) perspective. We will discuss some of the (real, or perceived) negative aspects of these assets, like market volatility, limited acceptance, lack of intrinsic value, and regulatory uncertainty, among others. There are also reasons to feel more optimistic about the future, like more effective regulation that is imminent, greater concern for the environment, and the development of a more globally inclusive financial system.

A Bearish outlook on Cryptocurrencies

The following are factors (perceived, or real) that may have a negative effect on the future of cryptocurrencies.

Volatility.

One of the most negative characteristics of cryptocurrencies is their volatility. After all, would anyone use a medium of exchange, or hold a store of value, that fluctuates wildly over time?



Fig.1 Crypto Volatility Index (CVI) 2020-2023.

Source: <https://cvi.finance/>

Figure 1 (above) shows the fluctuations of cryptocurrencies according to the Crypto Volatility Index (CVI). "The index tracks the 30-day implied volatility of Bitcoin and Ethereum. The index ranges between 0 and 200 and is based

on a Black-Scholes option pricing model, which computes the implied volatility of cryptocurrency option prices together with analyzing the market's expectation of future volatility." (<https://docs.cvi.finance/cvi-index/cvi-index>)

The value, or price, of cryptocurrencies has experienced high volatility for several reasons. First and foremost because they have no intrinsic value and because of their limited acceptance and adoption. An argument can be made that crypto's value is simply based on how much people are willing to trade for it—in goods, other cryptocurrencies, or in fiat. People who buy and sell crypto currencies are thought to do so on the basis of the "greater fool theory": the idea that one can sometimes make money through the purchase of an overvalued asset in the hope that it can later be resold at an even higher price – to a greater fool!

The high volatility of cryptocurrencies is making their value highly unpredictable in the short-term and thus a risky investment for many.

Regulatory Uncertainty.

People are hesitant to embrace cryptocurrencies due to uncertainty in regulation. Governments and financial institutions are still figuring out how to best regulate the nascent industry, which has faced issues such as hacking (theft), fraud, scams, mismanagement of funds, and company failures.

Regulation provides clarity and certainty for traditional financial institutions entering the digital asset space, but crypto-native firms may need to expand their regulatory expertise and compliance oversight. To regain trust in the industry, regulation must be clear, terminology consistent, and firms must improve their risk management and procedures. It is a work in progress.

Despite the fact that several countries and institutions are preparing effective regulation of the crypto market, there are several challenges. Cryptocurrencies lack a central issuing or regulating authority, making it difficult for governments to monitor and control their use. They can be easily traded across borders, making it challenging for governments to regulate and enforce their laws. The true identity of cryptocurrency users can often be hidden, making it difficult for authorities to track and prevent illicit activities. And finally, the technical aspects of cryptocurrencies, such as blockchain technology and cryptography, can be difficult for regulators to fully grasp and effectively monitor.

As of this writing, there are reports in the financial press that banking regulators have become increasingly concerned about the involvement of

regular banks in crypto companies and are aggressively pursuing the bigger players in the industry.¹ Ostensibly, the goal is to target instruments that may be used for financial crime. The second priority is consumer protection. For example, according to the SEC, crypto intermediaries must comply with securities laws by providing the necessary disclosures and safeguards when offering investment contracts in exchange for investors' tokens. This has caused banks to re-evaluate their exposure to the crypto sector, leading some to reduce or cut ties altogether. As a result, crypto businesses are struggling without access to bank accounts, which they need for payments and transfers. Banks are also becoming more cautious when it comes to offering services to customers with potential connections to the industry. Such aggressive actions by regulators are a major threat to the crypto industry. Interestingly, unlike Europe and Singapore, which have come up with new rules, the U.S. has so far relied on existing regulations.

Safety.

Safety is another concern. Ever since cryptocurrencies started gaining value, hackers have targeted crypto exchanges. A total of \$3.8 Billion of crypto assets were stolen in 2022, according to a report by Chainalysis² (see Figure 2 below).

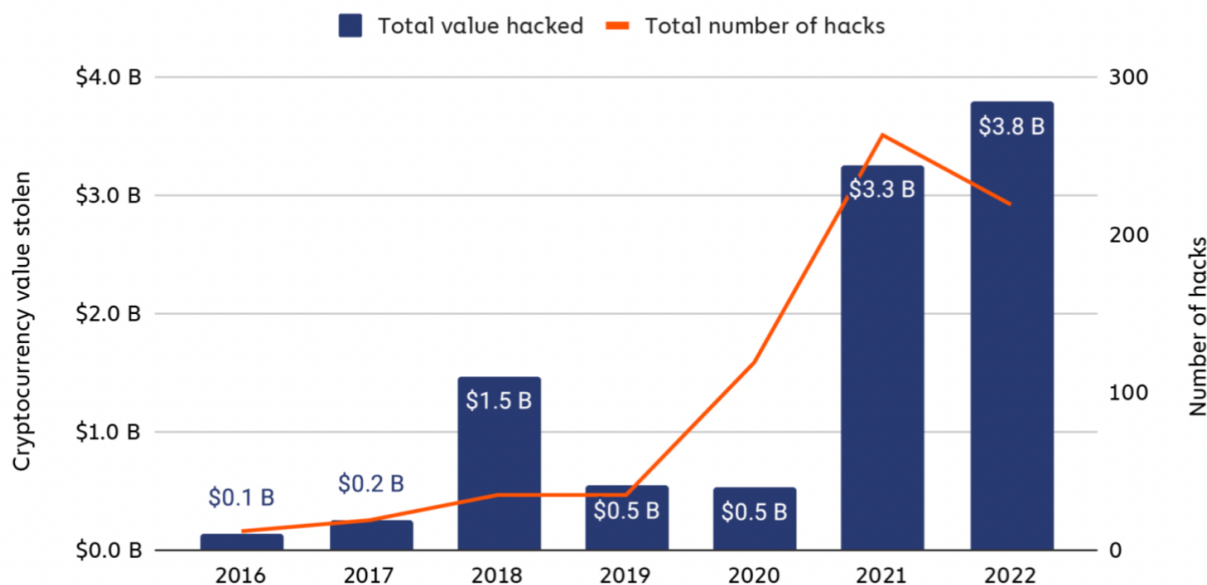


Fig. 2. Total value stolen in crypto hacks and number of hacks, 2016-2022. Source: Chainalysis.

¹ <https://www.wsj.com/articles/banks-are-breaking-up-with-crypto-during-regulatory-crackdown-22de1832?mod=djemwhatsnews>

² <https://blog.chainalysis.com/reports/2022-biggest-year-ever-for-crypto-hacking/>

There have been plentiful scams in the cryptocurrency market, such as fake exchanges, Ponzi schemes, phishing attacks, fake Initial Coin Offerings (ICO's) among others. These scams can result in the loss of funds for unsuspecting investors.

There have also been numerous reports of lost, or stolen private keys. Private keys are the keys to access a cryptocurrency wallet, and if they are lost or stolen, the funds in the wallet can be gone forever.

It has been suggested that crypto platform developers replicate the safety features of traditional banks to raise the level of security of their platforms. Financial regulators can play an important advisory role here. Holders of crypto assets are always advised to keep them in a personal wallet and not on an exchange.

A potentially very costly safety issue is so-called Ransomware: This is a type of malware that encrypts users' files and demands payment in (almost always) cryptocurrency to restore access. There were 236 million Ransomware attacks during the first half of 2022, according to a *SonicWall* report.¹

Ransomware is not the only thing contributing to the negative perception of crypto. The use of Bitcoin for illegal activities has been widely reported, particularly in its early days. Despite this, it is important to separate the use of Bitcoin as a medium of exchange from its specific applications. Before crypto, criminal activities were funded through other difficult-to-identify means, including fiat money (cash), diamonds, and gold. The conflation of Bitcoin with illegal activities can severely bias the narrative. (Treiblmaier, 2022).

Lack of Intrinsic Value.

A common argument against holding crypto assets among investors is their lack of intrinsic value. Intrinsic value is one measure of what an asset is worth. The metric often used for calculating intrinsic value is Discounted Cash Flows (DCF). As such, Intrinsic Value is distinct from the current market price of an asset.

Cryptocurrencies do not have intrinsic value in the traditional sense, as they do not generate any cash flow, are not backed by any physical asset, or by the government. Their value is derived from supply and demand dynamics,

¹ Mid-Year Update to the 2022 SonicWall Cyber Threat Report | Threat Intelligence. (2022, July 25). SonicWall. <https://www.sonicwall.com/2022-cyber-threat-report/>

as well as their perceived utility, scarcity, and level of trust among users. Ultimately, the value of cryptocurrencies is subjective and determined by the market and can therefore be subject to extreme fluctuations.

Treiblmaier (2022) suggests three alternative propositions: (1) Avoid using the term “intrinsic value” for the valuation of cryptocurrencies, (2) Refer to the total sum of all properties that could potentially qualify them as money, and (3) consider the amount of capital and energy that is needed to create them.

Supply & Demand Asymmetry.

Supply and demand imbalances are a situation resulting from an excess of buy or sell orders for a specific cryptocurrency on a crypto exchange, making it impossible to match the orders of buyers and sellers. The limited supply of some cryptocurrencies can lead to large price swings when demand suddenly spikes or drops.

Speculation.

Cryptocurrencies are often subject to speculative buying and selling. Speculation can be defined as the buying of an asset with the hope that it will become more valuable in the near future. Crypto speculators focus purely on price movements as most cryptocurrencies have no fundamental value. This can cause prices to become overvalued or undervalued in the short term. Speculation here involves trading cryptocurrencies taking high risks, while expecting significant returns. The aim is to take maximum advantage from fluctuations in the market. Speculators are active in markets where price movements are frequent and volatile, such as the crypto market.

Competition from Traditional Finance.

The overwhelming presence of regular financial institutions and the fierce competition from legacy payment systems (fiat currencies, credit card networks) have a significant influence on the viability of cryptocurrencies. Legacy payment systems have been in use for decades and enjoy a well-established reputation for reliability and security, whereas cryptocurrencies are still relatively new and untested.

Legacy payment systems are widely adopted and welcomed by merchants and individuals, while cryptocurrency acceptance is still very limited. Credit cards can be used in conjunction with a variety of other payment systems (e.g., *PayPal*), whereas cryptocurrencies are often limited to a specific ecosystem. Legacy payment systems are subject to government regulations, providing consumers with legal protection and recourse in the event of loss,

or disputes, while cryptocurrencies operate in a largely unregulated environment.

Scalability.

Scalability refers to the ability of a system to adapt to increased demand. This is another major issue facing cryptocurrencies, as their popularity and usage increases causing limited transaction processing capacity. Also, the size of the blockchain can become unwieldy as it grows. Cryptocurrencies are designed to be decentralized, i.e., transactions are verified by a distributed network of nodes. However, this very structure can make it difficult to scale the network to meet growing demand.

Energy Consumption.

The process of verifying transactions, known as mining, requires a significant amount of computing power and energy, making it difficult for cryptocurrency networks to scale without increasing their energy consumption.

Excessive energy consumption is a major issue. The market capitalization of Bitcoin increased from \$70 billion to over \$1 trillion between November 2018 and November 2021, leading to a four-fold increase in its annual global energy consumption, reaching more than 200 terawatt-hours (TWh). This means that the energy used to validate a single Bitcoin transaction has a greater carbon footprint than 1.8 billion Visa transactions. Furthermore, over 70% of the energy used to mine Bitcoin is derived from non-renewable sources like coal and gas. In order for the technology to be adopted in the long run and on a larger scale, its advocates will need to take the issue of energy consumption seriously and work towards reducing it. (Kohli, et al., 2022).

Adoption by Institutional Investors.

A crucial issue for cryptocurrency adoption is determining the extent to which retail investors, or institutional investors, dominate holdings and trading volume. Increased involvement from institutional investors could indicate a more widespread acceptance of cryptocurrencies in general.

The *CoinTelegraph* 2022 survey of professional investors¹ shows that only 7% of cryptocurrency holdings are Institutional and 93% is Retail. Out of the 84 respondents from the survey more than half reported that they are not

¹ <https://cryptoresearch.report/wp-content/uploads/2022/10/Crypto-Research-Report-Institutional-Demand-Report-2022.pdf>

currently owning cryptocurrencies. Out of those, two-thirds reported that they do not plan to ever invest in cryptocurrencies. That is hardly positive.

What accounts for this very low participation rate? Most institutional investors have a fiduciary duty to their clients and manage their clients' investments in accordance with the clients' best interests. That includes the effective management of risk. These include liquidity risks, operational risks (technological risks), cybercrime and fraud, regulatory risks, and market risks (volatility). Cryptocurrencies are thought to be subject to all of these risks and therefore ill-suited for institutional investment.

For institutional investors the uncertain regulatory environment, and the opaque tax implications of holding cryptocurrencies on their balance sheet, are serious impediments. No pension fund, no money manager and no savings & loan bank will invest considerable sums into digital assets without regulatory clarity. The *CoinTelegraph* survey found that price volatility was a major barrier to cryptocurrency adoption, followed by a lack of fundamentals to measure value and concerns about market manipulation. Until there is more clarity and improvement about these issues, institutional investors will remain on the sidelines.

Central Bank Digital Currencies (CBDCs).

Finally, a major development is underway regarding the creation of so-called Central Bank Digital Currencies (CBDCs). Central Bank Digital Currencies (CBDCs) are digital versions of a country's fiat currency, issued and backed by the central bank of that country. CBDCs aim to combine the convenience of digital payments with the stability and security provided by a central authority. Unlike cryptocurrencies such as Bitcoin and Ethereum, CBDCs are not decentralized and are not intended to replace existing fiat currencies, but rather to complement them.

CBDC's could potentially compete with cryptocurrencies by offering similar benefits, but with the added security and stability provided by a central authority. Just like established digital currencies like Bitcoin, CBDC's can be used for a wide range of financial transactions, including retail payments, cross-border transfers, and interbank settlements. They also offer faster and cheaper cross-border transactions, improved financial inclusion for underserved populations, and increased security through the use of encryption and blockchain technology. These similar factors could reduce demand for regular cryptocurrencies.

As of this writing, 114 countries, representing over 95% of global GDP, are exploring a CBDC. 60 countries are in an advanced phase of exploration (development, pilot, or launch). As of December 2022, all G7 economies

have now moved into the development stage of a CBDC and 18 of the G20 countries are now in the advanced stage of CBDC development, according to the *Atlantic Council "Central Bank Digital Currency Tracker"*¹

The negative impact of CBDCs on the development and adoption of cryptocurrencies like Bitcoin and Ethereum, will likely depend on several factors, including how widely they are adopted, how they are regulated, and how they compare to cryptocurrencies in terms of benefits and drawbacks.

To summarize this part, there are several factors that have had a negative effect on the future of cryptocurrencies, such as their volatility, regulatory uncertainty, and limited adoption and acceptance, among others. People are hesitant to embrace cryptocurrencies due to uncertainty in regulation, which has faced issues such as hacking, fraud, scams, mismanagement of funds, and company failures. The use of Bitcoin for illegal activities has been widely reported, particularly in its early days. The high volatility of cryptocurrencies is making their value highly unpredictable in the short-term, and thus a risky investment for many. This is especially true for institutional investors who have mostly stayed clear of crypto. Regulation of the cryptocurrency market is a work in progress due to several challenges, such as lack of a central issuing or regulating authority, easy trading across borders, and difficulty monitoring technical aspects. For the crypto technology to be adopted in the long run, its advocates must take the issue of energy consumption seriously and work towards reducing it.

A Bullish Outlook on Cryptocurrencies

The following are factors that may have a positive impact on the future of cryptocurrencies.

First of all, let us not forget that the first cryptocurrency, Bitcoin was introduced in 2009, in response to the systemic failures laid bare by global financial crisis of 2008. Arguments were made that the currently broken system - where centralization is the rule making it possible for large legacy players to wield an extraordinary level of influence - needs to be replaced by something else. It needs to be replaced, the argument goes, by a system that prioritizes inclusiveness over exclusion, relies on agreement instead of dictation, is censorship-resistant, and encourages deliberate and active

¹ <https://www.atlanticcouncil.org/cbdctracker/>

involvement rather than passiveness. The development of such a system continues unintermittedly and is still very much a work-in-progress.

Regulation.

The PwC Crypto Regulation Report 2023¹ provides insights on regulatory developments in 25 jurisdictions and finds that the pace of these developments is accelerating. Organizations such as the Financial Stability Board, the Basel Committee on Banking Supervision, and the Financial Action Task Force are all working towards establishing effective regulatory frameworks.

In the European Union, new regulatory standards for markets in crypto assets is being finalized. Dubai is setting up a virtual asset authority and the UK intends to regulate crypto assets as financial instruments.

The US is also making progress in advancing digital asset legislation, but the timing remains uncertain. The uncertainty is, in part, caused by whether crypto regulation should be the responsibility of the Securities & Exchange Commission (SEC), or the Commodity Futures Trading Commission (CFTC). The SEC has argued that some cryptocurrencies are “securities” and therefore can be regulated by it. On the other hand, the U.S. Senate has introduced a bill that would put the CFTC in charge of regulating crypto. The latter also happens to be the crypto industry’s preference.

Volatility.

Cryptocurrency volatility has been declining over the past 2 years (see Figure 3 below). This can be attributed to the fact that cryptocurrencies are becoming more mature, thereby diminishing the “power of sentiment”. Moreover, progress is being made to lower legal, political, institutional, and technological uncertainty.

¹ <https://www.pwc.com/gx/en/new-ventures/cryptocurrency-assets/pwc-global-crypto-regulation-report-2023.pdf>

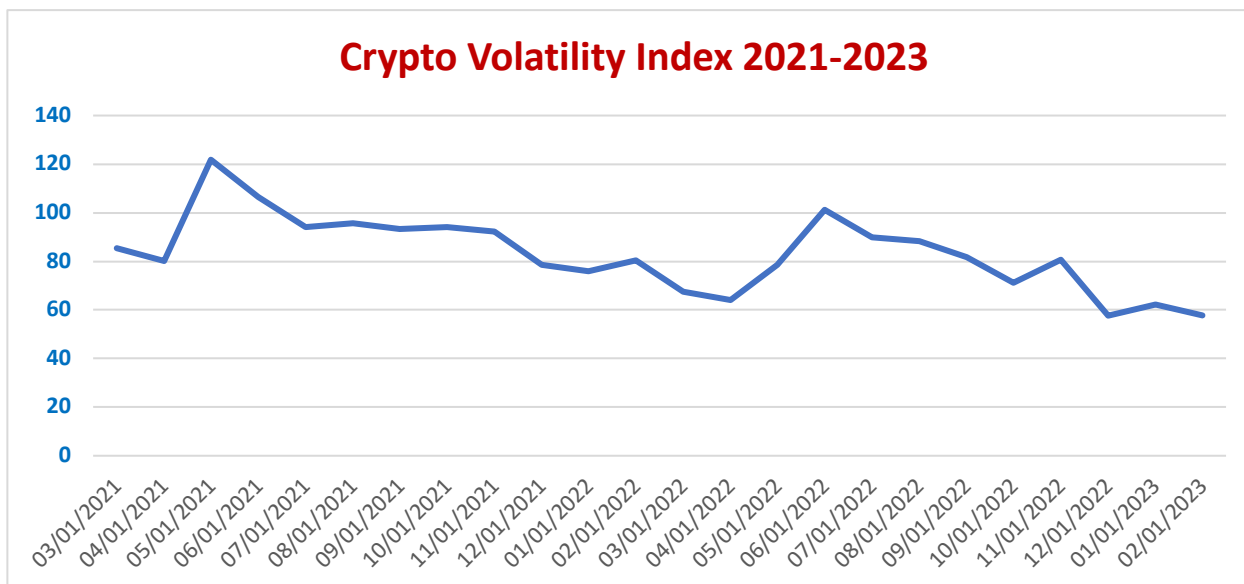


Fig. 3. The Crypto Volatility Index 2021-2022 (Monthly).

Source: Investing.com

Central Bank Digital Currencies (CBDCs)

Above, we mentioned Central Bank Digital Currencies (CBDCs) as a factor that could possibly have a negative effect on the future of regular cryptocurrencies, like Bitcoin.

However, CBDCs also raise several questions, not only on how they will impact monetary policy, the banking sector, and financial stability, but also concerns about privacy and the potential for financial surveillance by governments. A CBDC system could potentially be used to monitor financial transactions in a way that is not possible with cryptocurrencies.

The widespread adoption of CBDCs could also lead to increased recognition and legitimacy of digital currencies in general, including cryptocurrencies. This could help drive the adoption of cryptocurrencies by making them more widely understood and accepted. Furthermore, the infrastructure and technology developed for CBDCs could potentially be leveraged by cryptocurrencies, making it easier for people to use and transact with them.

Thus, while CBDCs may have an impact on the growth of cryptocurrencies, they can never be a replacement for e.g., Bitcoin or Ethereum. Those who are concerned about decentralization and greater anonymity will always prefer the latter. In fact, CBDCs are the complete opposite of Bitcoin, which was designed to decentralize the financial system and give people financial independence, as well as protect them from excessive government intervention. The goal of Bitcoin is to create resistance to censorship and

enable people to transact anytime, anywhere, through a decentralized system, lacking a central authority for issuance, or regulation. In contrast, CBDCs do not offer the same benefits.¹

Competition from Traditional Finance.

Cryptocurrencies offer several important advantages over legacy payment systems, including lower transaction fees, faster payment processing, and greater privacy and security. As the cryptocurrency ecosystem continues to evolve and mature, it will be interesting to see how it competes with legacy payment systems in the future.

Electronic funds transfers and credit cards were never a danger to the financial industry. Instead, they brought added value by offering greater security and convenience compared to carrying cash. In the future, digital wallets will store routing and account numbers and offer access to regulated financial services worldwide. This evolution is referred to as “the Internet of Value”, or “Web3”, and is likely here to stay. It is crucial that traditional financial institutions and governments support and promote this innovation, or they may become irrelevant as the next generation of the internet emerges. (Disparte, 2022).

But as Sibert (2022) points out, any currency is subject to a network externality. The concept of a "network externality" or "network effect" (often referred to as Metcalf's Law) is a situation where the usefulness or benefit a user gains from a product, or service, is dependent on the number of people using similar products. The adoption by a new user has two impacts: 1). It raises the value for all existing users (the "total effect"); and 2). it also stimulates the motivation of non-users to start using the product (the "marginal effect"). “Network externalities mean that most cryptocurrencies will fail, but some will probably reach a tipping point where their wide acceptance ensures their survival.” (Sibert, 2022). In the words of Michael Saylor²: “... the solution is Bitcoin; the rest is noise.”

Energy Consumption.

Scalability is a major challenge facing cryptocurrencies as they seek to become widely adopted as a means of payment. However, cryptocurrency developers are actively working on solutions to address these scalability

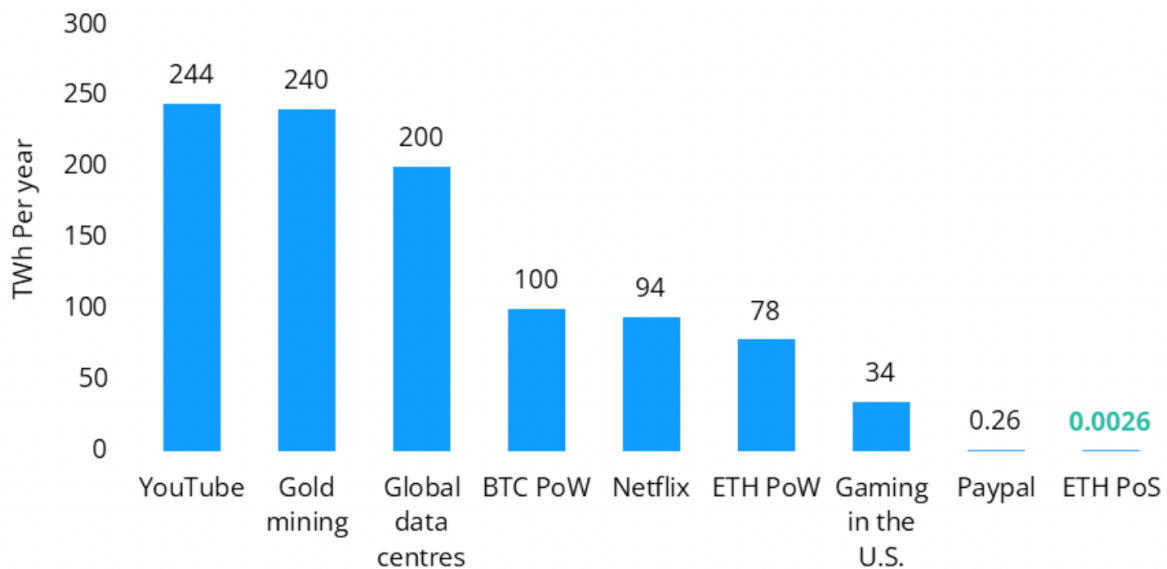
¹ <https://finance.yahoo.com/news/cbdcs-coming-why-worry-030400830.html>

² Michael J. Saylor is co-founder of MicroStrategy, a business analytics software company. MicroStrategy reportedly owns about 130,000 Bitcoins as of September 2022. At that time, Saylor also personally owned over 17,000 bitcoins.

issues, including the use of second-layer solutions, such as the Lightning Network, and the adoption of more efficient consensus algorithms. The consensus mechanism is the biggest contributor to the energy consumption in current cryptocurrencies that use Proof of Work (PoW). Kohli et al., 2022) have suggested a number of alternative consensus mechanisms, redundancy reduction techniques, using a different mining device, and greater use of renewable sources of energy to reduce the excessive carbon footprint of PoW consensus methods.



Estimated Energy Consumption: Ethereum vs. Other Industries



As of September 2022 Sources: Ethereum.org, Crypto.com Research

Fig. 4. Estimated Energy Consumption of Various Industries vs. Ethereum. Source: Crypto.com

Figure 4 (above) shows the energy consumption of various industries. A notable example here is Ethereum’s energy consumption, which dropped by 99.95%, as it switched from PoW consensus to PoS consensus. The PoS Ethereum blockchain’s energy consumption is estimated to be roughly 1% of PayPal, and orders of magnitude smaller than PoW networks.¹

Energy consumption and other environmental aspects are also becoming part of the new regulations. Regulatory bodies are developing new frameworks and regulations for financial services that consider environmental, social, and governance (ESG) factors, including those related

¹ <https://crypto.com/research/2022-review-2023-ahead/>

to digital assets such as cryptocurrencies. For instance, European policymakers will be prioritizing the environmental impact of crypto-assets during negotiations for the proposed EU Markets in Crypto-Assets (MiCA) regulation. The goal is to incorporate these regulations into the larger sustainable finance regulatory framework.

Decentralized Finance (DeFi).

DeFi refers to a financial system built on blockchain technology that operates on a decentralized, open-source platform, allowing for peer-to-peer transactions without intermediaries such as banks. DeFi aims to make financial services more accessible, transparent, and inclusive by leveraging smart contracts and blockchain technology to create decentralized applications and protocols for financial services, such as lending, borrowing, trading, insurance, and more. The goal of DeFi is to offer financial services without the need for central intermediaries, providing greater security, privacy, and accessibility to users on a global scale.

Financial inclusion is a vital element for development. Globally, in 2021, 76% of adults had an account at a bank, or regulated institution, such as a credit union, microfinance institution, or a mobile money service provider, according to the World Bank.¹ That means that 24% of the world's adult population, or more than 1 billion people do not have access to financial services.

The good news is that anyone possessing a smartphone and stable internet connection can establish a digital wallet and carry out international transactions with significantly reduced transaction fees compared to traditional banking systems. Cryptocurrencies offer individuals the unique chance to act as their own bank.

By offering more decentralized financial products, such as cryptocurrency loans and the option to pay bills with crypto, people who are unbanked can join in online transactions. This not only expands their access to financial services but also streamlines processes and reduces costs compared to traditional banking systems. Transactions can also be faster, eliminating the need for extensive approval processes, offering millions of people access to new financial opportunities. The widespread adoption of cryptocurrencies has the potential to become one of the biggest and quickest events in the history of international finance if they prove to be a viable solution.

¹ <https://www.worldbank.org/en/publication/globalindex>

Institutional Adoption.

To rectify the poor institutional adoption rate, several steps are being taken to make cryptocurrencies more acceptable to institutional investors:

First and foremost, exchanges will be better regulated: Institutional investors prefer to trade on regulated exchanges that follow strict security protocols and adhere to anti-money laundering (AML) and know-your-customer (KYC) regulations. This gives them peace of mind and protects their investments.

They also need secure and insured storage solutions for their cryptocurrency holdings. A number of companies have emerged that provide institutional-grade custody solutions, which are increasingly being adopted by institutional investors.

Institutional investors are often required to hold assets that are insured, to protect against loss. Some insurance companies now offer coverage for cryptocurrency assets, which has made cryptocurrencies more appealing to institutional investors.

Institutional investors need deep and liquid markets to trade large amounts of assets. Cryptocurrency exchanges are working to increase the liquidity of their markets, which will make it easier for institutional investors to trade cryptocurrencies. The development of infrastructure such as stablecoins, decentralized finance (DeFi) protocols, and security token offerings (STOs) is making it easier for institutional investors to invest in cryptocurrencies. These advancements also provide more opportunities for institutional investors to generate returns. By addressing these concerns, the cryptocurrency industry is working to make cryptocurrencies more appealing and accessible to institutional investors.

In summary, several organizations are working towards establishing effective regulatory frameworks. Volatility of cryptocurrencies has been declining as they become more mature, and progress is being made to reduce legal, political, institutional, and technological uncertainty. To increase institutional adoption rate of cryptocurrencies, steps are being taken to make them more appealing: exchanges will be better regulated and secure, insured storage solutions will be provided. Insurance coverage for crypto assets has also made them more attractive to institutional investors.

CBDCs raise questions about privacy and government surveillance, but could potentially lead to increased recognition and acceptance of cryptocurrencies. They offer advantages over traditional finance systems such as lower fees, faster processing and greater privacy/security.

Cryptocurrencies face scalability issues, but developers are actively working on solutions such as more efficient consensus algorithms, redundancy reduction techniques, different mining devices, and greater use of renewable energy sources to reduce its carbon footprint. Cryptocurrencies enable anyone with a smartphone and internet connection to carry out international transactions, offering millions of people new financial opportunities.

Conclusions.

It is clear that today cryptography and blockchain technology have an image problem, mainly because of the issues discussed above. However, in the near future, the perceived complexity of blockchain technology *per se* will become less relevant, triggering a comprehensive overhaul of the financial infrastructure that would facilitate and stimulate the transfer of value globally. The shift will, initially, be about providing more options for payment and banking systems, rather than replacing them. (Disparte, 2022).

Cryptocurrencies are still far from a common form of payment. As of November 2022, the number of identity-verified crypto asset users stands at 400 million.¹ The need for a stable store of value has sustained gold (with no real intrinsic value) for thousands of years. It is not inconceivable that cryptocurrency will replace gold in this regard.²

The year 2022 was a challenging one for those investing in cryptocurrency and for the industry as a whole. However, it also provided valuable lessons that have helped the sector to become more cognizant of its shortcomings. Despite the setbacks, many successes were achieved - from Bitcoin's resilience and future promise to Ethereum's new opportunities for developers, and the continued progress made in DeFi and stablecoins. This clearly shows that this is an enduring market with much potential for future acceptance and growth. Not a phenomenon that is gradually fading away.

The widespread adoption of crypto has the potential to be one of the most significant and rapid events in international finance. In fact, it could be argued that crypto in general, and Bitcoin in particular, represent a

¹ <https://www.statista.com/statistics/1202503/global-cryptocurrency-user-base/>

² <https://www.project-syndicate.org/onpoint/is-crypto-in-terminal-decline?barrier=accesspaylog>

*Paradigm Shift*¹ in the way we think about money, property, and energy. Such a shift represents a departure from the current accepted viewpoint and is necessary when new technologies create anomalies that challenge the current paradigm. This digital transformation enables faster, cheaper, more secure and inclusive financial transactions, among other benefits. Paradigm shifts can be so profound that we may not even realize they are happening, since they challenge our long-held assumptions about, for example finance.

During the initial stage of this new paradigm, there are early adopters who embrace the change and those who resist it. There are typically only two circumstances that may lead to a paradigm shift when resistance continues: Death of the older generation and the younger generation (who “get it”) takes over, or when a major crisis occurs. As both events are unavoidable, a bright future for crypto would seem inevitable.

¹ The notion of a paradigm shift was first introduced by Thomas Kuhn, an American physicist and philosopher, as a concept in the philosophy of science. Although he originally defined the term in relation to the natural sciences, it has since been applied to various non-scientific fields as a means of describing a significant shift in a fundamental model, or perception of events. Kuhn presented his theory of a paradigm shift in his influential book, *The Structure of Scientific Revolutions* (1962).

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