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# Crypto-currencies: a bubble or the emergence of a new paradigm of decentralised finance?

Confidence  
must be earned

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## Overview

**The proliferation of cryptocurrencies (CCs) and investors' enthusiasm for these assets lead us to question their nature, function, valuation and development potential.** CCs are at the crossroads of technological innovation, finance and monetary policy. While innovation can enable the development of more efficient and inclusive finance, it can also challenge the monopoly of central banks in money management and pose risks for the entire financial system. It is up to the regulators to find the appropriate regulatory framework to take advantage of the development of these assets without putting macro-financial stability at risk.

The development of CCs (and all digital assets) has been the subject of numerous reports over the past few years. Interest in these assets is not new. **While the first CCs developed out of the global financial crisis of 2008, the Covid-19 crisis gave them a spectacular boost** (the value of Bitcoin multiplied by 10 between March 2020 and November 2021). This trend, partly speculative in nature, naturally raises questions about the nature of these assets, their function and their valuation. What are the reasons for this enthusiasm? Is this an excess linked to an excessive interpretation of the scope of this innovation? Or are we seeing the emergence of a new paradigm of decentralised finance and a profound disruption in transaction systems related to technological disruption (blockchain)? Can CCs really “compete” with official currencies in their traditional functions? And if so, is this a risk to global financial stability? Finally, is the spectacular development of non-fungible tokens (NFT) in 2021 a mere corollary of CCs or does it signal a societal paradigm shift?

**There are several very distinct topics within this: the issue of technological disruption, with the search for decentralised and inclusive finance (made possible by blockchains), the growing digitisation of our economies (appetites for a digital currency and new modes of consumption and ownership), and finally the search for new safe havens** in an environment where public debt tends to be monetised in major advanced economies, inflation expectations are rising and a mistrust of the traditional financial system is taking hold. Ultimately, the valuation of CCs crystallises all these dimensions without it being possible to distinguish between them.

There is already a wealth of literature on CCs. The aim of this paper is not to repeat all the debates and controversies, often of a technical nature, but to inform investors about the challenges related to their development and the advantages and disadvantages of holding them.

## A short classification

*“As of today cryptocurrencies (CCs) cannot be considered a form of money as they are neither a proven store of value, nor a recognised unit of account and even less a universal means of payment.”*

**A semantic problem.** From the outset, it should be noted that the usual terminology is a source of confusion: the generic term of cryptocurrency maintains the idea that this is a form of currency. This is certainly a feature that its promoters would like to give it. However, CCs do not possess the three qualities that characterise currencies since Aristotle (a unit of account, a store of value and a means of exchange): in fact, they are neither a *proven* store of value nor a *recognised* unit of account, let alone a *universal* means of payment. Their volatility is much higher than that of traditional currencies. Their liquidity is not always guaranteed, nor is their convertibility (no CC is legal tender, except for El Salvador). It would ultimately be more accurate to talk about digital assets, or even crypto assets<sup>1</sup>.

To illustrate this volatility, we only need to look at prices over the past year. **The total market capitalisation of all CCs equated to approximately \$1,800 billion on 21 January 2022 vs. \$350 billion in October 2020.** This is a spectacular increase. As is the fall: capitalisation reached its peak at the beginning of November 2021 (at \$2,970 billion), when Bitcoin traded at \$65,000. CC capitalisation therefore collapsed by almost \$1,000 billion in just over two months. The term CC hides a number of very different realities. While Bitcoin accounts for about 40% of the total capitalisation of cryptocurrencies (approximately \$1,800 billion), the remaining 60% is made up of a very large number of extremely varied vehicles:

**Table 1. Capitalisation of the top 10 cryptocurrencies (at 8 February 2022)**

	Name		Price (USD)	Market capitalisation (\$bn)	CC market capitalisation (%)	Cumulative market capitalisation
1	Bitcoin	BTC	44033.02	835.7	41.9%	41.9%
2	Ether	ETH	3103.77	371.3	18.6%	60.5%
3	Tether	USDT	1	78	3.9%	64.4%
4	Binance Coin	BNB	426.7	70.6	3.5%	67.9%
5	USD Coin	USDC	1	51.4	2.6%	70.5%
6	XRP	XRP	0.858	41.2	2.1%	72.5%
7	Cardano	ADA	1.19	40.1	2.0%	74.5%
8	Solana	SOL	114.05	36.3	1.8%	76.4%
9	Terra	LUNA	56.62	22.8	1.1%	77.5%
10	Avalanche	AVAX	89.13	21.9	1.1%	78.6%

Source: Amundi Research. <https://coinmarketcap.com/all/views/all/>

**Some direct competitors of Bitcoin similarly have an “official vocation” as a currency**, while today serving above all as a store of value (or as an asset intended to be established as a store of value in the future): this is particularly the case for Litecoin. It fell out of the top 10 in 2021 as a result of a stagnating price, but remained in the top 25 (with a capitalisation of \$9 billion).

**Many other cryptocurrencies may be more comparable to High-Tech sector assets in their own right.** These include CCs used primarily for the payment of transactions on blockchains focused on “smart contracts”, which allow the automatic execution of transactions according to pre-set conditions, as well as digital “tokens” issued by the smart contract protocols themselves. These smart contracts have diverse applications: the fast-growing DeFi (“decentralised finance”, that includes services such as several forms of cryptocurrency lending and borrowing<sup>2</sup>, derivatives similar to those traded on traditional markets, etc.) “play-to-earn” video games, online betting, but can also have more use in the real economy, such as the certification of supply chains or green

*“Most CCs are comparable to High Tech assets, allowing the execution of smart contracts.”*

<sup>1</sup> However, there are crypto-assets of a very different nature: CCs are fungible while NFTs are not, by definition. We will look later at the case of NFTs, which registered spectacular growth in 2021.

<sup>2</sup> Interest rates for CC loans are often very high. Notably, the interest rate on a stablecoin, maintaining a fixed parity with the dollar, can reach around 15-20%, bearing in mind that the investor in turn is exposed to many risks (starting with the possible break of the peg with the dollar).

*“Stablecoins are digital units of value that differ from existing forms of money (bank deposits, e-money etc.) and rely on a set of stabilisation tools to minimise fluctuations in their price against a currency or a basket of currencies.”*

energy. The most important CC in this category is Ethereum, the second only to Bitcoin in market capitalisation with \$377 billion (up by more than 400% in 2021).

Finally, **a third category of CCs consists of “stablecoins” (SCs)**, digital assets that seek to maintain a fixed value relative to traditional currencies through various mechanisms.

SCs are widely used for transactions between CCs, and their features make them also well suited to international transfers. While the largest of these SCs, Tether, only has a capitalisation of \$78 billion, it is frequently first (ahead of Bitcoin) in terms of daily trading volume.

In some respects, these SCs are the most direct competitors for official currencies. Their rapid growth is beginning to draw attention to the risks they may pose to the financial system, particularly in the event that one of them suddenly ceases to be able to maintain its fixed value (see Inset #1).

Central banks have intensified their efforts to develop their own stable digital currencies (central bank digital currencies or CBDCs). However, it should be stressed that CBDCs are by nature not affected by the problems associated with CCs/SCs. By definition, central banks would retain a monopoly on the issuance of CBDCs. However, the latter would benefit from certain advantages of the blockchain technology (e.g. better financial inclusion). We do not discuss CBDCs here.

## #1 - A guide to stablecoins (SCs)

- SCs are different to CCs such as Bitcoin. While SCs are not a novelty (the SC most widely traded today dates back to 2014), recent initiatives are leading to a paradigm shift. In particular, Meta's (ex-Facebook) announcement of its SC project, Libra in June 2019 (renamed Diem in January 2021, and now abandoned), triggered a coordinated response from the G7 in 2019.
- SCs are digital units of value that differ from existing forms of money (bank deposits, electronic money, etc.) and are based on a set of stabilisation tools intended to minimise fluctuations in their price against a currency, or a basket of currencies.
- In order to maintain a stable price, some SCs undertake to hold assets (cash or cash equivalents, in the case of the safest SCs) against which the SCs held may be redeemed or exchanged. Other SCs, known as “algorithmic” SCs, include various mechanisms intended to adjust their own offers and requests and guide investors' expectations.
- As an encrypted asset, SCs do not pose problems for the financial sector and/or the missions of the central banks. In a recent research paper<sup>1</sup>, the Federal reserve clearly acknowledges that SCs may serve as a possible breakthrough innovation in the future of payments and analyses the potential for SCs to broadly impact the banking system. Interestingly, the Fed notes that “*dollar-pegged stablecoins backed by adequately safe and liquid collateral can potentially serve as a digital safe haven currency during periods of crypto market distress*”.
- However, their development as a means of payment or store of value may pose risks to financial stability. The development of SCs can increase demand for safe assets and can have a negative impact on price formation, collateral valuation, the functioning of the money market and thus affect monetary policy. Banks' intermediation capacity could also be called into question.
- Under these conditions, regulators will not remain inactive. Some SC issuers may see some banking regulation imposed on them (some have furthermore already acquired banking licenses).
- Like all CCs, SCs raise legal, regulatory and supervisory issues: legal security, money laundering, terrorist financing and other forms of illicit financing, and cyber security.
- In addition, SCs that acquire a global dimension may pose challenges and risks to monetary policy, financial stability and the international monetary system (substitution of existing currencies).
- The G7 believes that no global SC project (such as Libra) should be implemented until legal, regulatory and supervisory challenges and risks have been adequately addressed. These risks are systemic in nature, particularly in countries with insufficiently developed financial and payment systems.
  - Note that Meta (ex-Facebook) has recently terminated its Diem (ex-Libra) SC project. The intellectual property of the Diem project has been transferred to Silvergate Bank. The abandonment of the Libra is most likely the result of pressure from the US administration.

<sup>1</sup> *Stablecoins: Growth Potential and Impact on Banking, Federal Reserve, International Finance Discussion Paper, January 2022.*

## An increasingly diversified investor base

Demand no longer comes exclusively from retail. More and more companies, institutional investors and investment funds are particularly interested (but not only) in Bitcoin: the most emblematic decision was the one taken by Tesla to buy \$1.5 billion in Bitcoin at the beginning of February 2021, before it stopped these purchases a few months later. Payment platforms (Paypal) are now accepting Bitcoin as a means of payment in certain countries.

These trends naturally fuel expectations of a sharp increase in demand. Companies, particularly in the technology sector, see CCs as an opportunity to strengthen their positioning, by preparing themselves to accept new digital means of payment. It is estimated that S&P 500 companies have \$1 trillion in cash (including more than \$200 billion for the tech sector alone). Demand from these players could provide support for the valuation of CCs. But to what level? Bitcoin offers no intrinsic returns and there is no protection against capital losses. This naturally raises the question of “fair value”.

## An asset with no intrinsic value?

*“CCs have no real economic underlying asset and therefore there is no valuation model.”*

**CCs do not have the usual characteristics of assets.** Unlike other assets (equities, bonds, currencies, real estate, commodities), CCs have no real economic underpinning. **As a result, there is no valuation model.** Most of the time, supply and demand do not depend on the volume of trade in goods and services. Depending on the CC, supply follows various rules (it can have a strict maximum or not) while the determinants of demand may vary over time and depending on the buyers. We may at best identify different reasons for holding them, but cannot prioritise them..

**It is therefore not possible to estimate the potential demand for these “assets”, except to make assumptions about the specific role that will be assigned to them** (or recognised) in the future. It is likely that the observed demand for CCs depends negatively on the level of regulation<sup>3</sup> to which they will be subject. If the equilibrium price is undetermined, it is impossible *ex ante* to anchor investors' expectations on any metric. Regulations are an exogenous risk factor for the buyer.

Recently, the abundance of liquidity and the expectation that the rise will continue (driven by a new category of investors) seem to have been the main reasons to buy (Bitcoin). If this were the case, Bitcoin would be the archetype of a “rational bubble.” This speculative dimension alone does not make it possible to rule out the hypothesis that the expectation of a rise is justified.

<sup>3</sup> <https://www.esma.europa.eu/press-news/esma-news/esma-sees-high-risk-investors-in-non-regulated-crypto-assets>

**Figure 1. The rise in Bitcoin prices**

Source: Amundi Research, Bloomberg. Data as of 8 February 2022.

**Figure 2. Bitcoin price since Q4 2020**

Source: Amundi Research, Bloomberg. Data as of 8 February 2022.

# Neither “true money” or “true asset”, what is it?

## A safe haven?

**CCs developed as a result of the global financial crisis and as central banks resorted to quantitative easing (QE) policies.** They evade central bank control, and thus attract investors who are concerned about the long-term consequences of QE policies and rising debt. Mistrust of centralised institutions is a powerful driver of development.

It is a medium that can compete with gold in some of its functions. If this is the case, the diversification of assets held in the form of gold gives CCs very significant upside potential. For Bitcoin, some believe that its price could still double or even triple from current levels (to reach a target price of between \$100k and \$150k).

For investors, gold offers a hedge against extreme risk and inflation. With little correlation to other asset classes, it is generally considered to be diversifying in a portfolio to hold a portion of its assets in gold (estimated between 5% and 15% according to studies). Gold has these properties because of the symbolic status it has acquired over the centuries (related to its scarcity). Gold also played a key role in the international monetary system in the 20<sup>th</sup> century, to the extent that it is still held in central bank vaults.

For their part, CCs have not proved themselves. They surged during the Covid-19 economic crisis but have not experienced any episode of financial stress. Their correlation with other asset classes is unknown (although, during periods without major news on the CC sector, there seems to be a growing correlation with US tech stocks). Giving them ex ante the same status as gold to estimate their upside potential is questionable.

However, we cannot rule out the possibility that CCs will eventually play the role of “digital gold”, especially for younger generations. CCs are more divisible and storing them is no riskier. The supply of some CCs (though not all) is strictly limited, while the supply of gold tends to increase slowly. CC volatility is not necessarily an obstacle, with gold itself more volatile than most major currencies. But this reference to digital gold is, at best, conjecture that requires verification and, at worst, an illusion.

## A vehicle for decentralised finance?

**It is clear that blockchains represent a major technological innovation that transforms the offering of financial services and products.** Crypto assets were originally designed to reduce transaction costs, avoid intermediaries and provide broader access to financial services. The BIS estimates that 1.7 billion people worldwide do not benefit from banking services or are under-served in financial services. The CC system, which is completely decentralised and disintermediated, can address this by enabling the development of faster, cheaper and more inclusive global payment systems than current payment systems.

**The advantages offered by CC promoters are of a different nature:** to facilitate transactions and asset transfers over a decentralised and secure network, while ensuring transaction confidentiality. To reduce transaction/transfer costs compared to the traditional financial system. To allow free access for anyone with internet access. To limit knowledge of a transaction to only the stakeholders of a transaction (or transfer). To give full ownership of the assets to the owner, guaranteed by an unbreakable key system of which they are the sole holder. Finally, security based on an unbreakable encryption system<sup>4</sup>.

*“CC is a medium that can compete with gold in some of its functions. In this instance, the diversification of assets held in gold could give CCs very significant upside potential.”*

*“A fully decentralised and disintermediated CC system could enable the development of global payment systems that are faster, cheaper and more inclusive than current payment systems.”*

<sup>4</sup> At least given current IT knowledge. Quantum computing could change the game.



*“The exploitation of CCs is very energy-intensive. It is estimated that mining bitcoins consumes more electricity than the entire Belgian economy.”*

**By stating its advantages, the nature of its disadvantages can be better understood:**

- For the authorities, the lack of regulation and anonymity facilitate cybercrime in all its forms (black market, money laundering, tax evasion).
- For users, decentralisation entails new risks: loss of data, non-accessibility of data if a server is physically damaged, is the subject of cyberattacks or is permanently disconnected from the global internet (a risk in non-democratic or war-torn countries); non-convertibility (not legal tender)<sup>5</sup>, irreversibility of transactions<sup>6</sup>, volatility. Not to mention the risk of hacking.

**In addition, for society, CC’s perceived environmental impact is the focus of much criticism.** The operation of some CCs is extremely energy intensive. According to estimates, Bitcoin mining consumes more electricity than the whole of Belgium. Low-carbon energy sources, sometimes highlighted, only account for part of the mining. However, almost all the most recent CCs use a different, much less energy-efficient creation process (Ethereum is expected to make a transition in 2022).

**The main obstacle, in the authorities’ view, is the risk of financial instability.** Indeed, the multiplication of CCs is reminiscent of the “free banking” experience in the United States in the 19th century: banking and financial crises marked this century until the creation of the Federal Reserve in 1913 (see inset #2). Central banks obviously do not intend to abandon their role as lender of last resort: history has shown that they alone can maintain financial stability and prevent deflationary crises. They will not allow “CC-means of payment” to proliferate without regulating them.

However, we can imagine that crypto assets (whose uses and functions would be precisely defined) will coexist with the digital currencies that central banks plan to issue in the coming decade. What remains to be done is to find the right link between these crypto assets, which support faster, more fluid and inclusive decentralised finance, and national central banks, which are alone capable of guaranteeing financial stability.

<sup>5</sup> There is by nature no public guarantee. In general, only the most popular CCs - those with the highest market capitalisation, in terms of dollars - have dedicated online exchanges that allow direct exchange for fiat money. This is not always the case for others, which makes them less attractive.

<sup>6</sup> In the event of an error, the user does not have the option of cancelling their transaction (to be reimbursed). However, traditional payment processors and credit card networks (Visa, MasterCard, PayPal) can resolve transaction disputes. Their policies are specifically designed to prevent fraud.

## #2: When the multiplication of CCs recalls the competition between private currencies in the US in the 19<sup>th</sup> century

- **The proliferation of CCs recalls the free banking experience of the United States (1837-1862).** Then, banks were able to issue their own currency, all called the “dollar”, with sometimes (but not systematically) a counterpart in gold or silver. The coexistence of several currencies was a source of great financial instability.
- In 1837, there were 712 banks. Banks’ lifespan was short. About half of banks failed and 30% went out of business because they could not redeem their notes. Currency conversion between them was not guaranteed, which complicated transactions. Clearing houses were created to remedy this situation.
- **The National Banking Act of 1863 put an end to the period of free banking, but not financial instability.** A more regulated system of national banks was created. Most state-owned banks were converted into national banks (there were more than 1500 in 1865!). To finance the civil war effort, all national banks were forced to hold Treasury securities against the currency issued. Banks were then obliged to accept each other’s currencies at par value, eliminating the risk of loss in the event of one of them defaulting.
- **Backing federal debt solved convertibility problems but not liquidity problems.** The absence of a lender of last resort led to recurring liquidity crises and bank runs, the most severe of which was the financial panic of 1907. It was ultimately not until the creation of the Federal Reserve in 1913 that the financial system was stabilised.



# Non-fungible tokens (NFTs): emergence of a new societal paradigm

**CCs should not be confused with all applications made possible by blockchains.** As we have seen, the former aim to compete with or even replace the central bank currency or traditional stores of value such as gold, or to promote the development of decentralised finance. However, blockchain applications go beyond the monetary and financial framework in the strict sense. **During the pandemic, they enabled the spectacular development of the NFT market**, at least in the sub-sectors of art, gaming and collectibles, which probably signals the emergence of a new societal paradigm: individuals, in search of freedom, are seeking to break the channels of trade intermediation, to make assets liquid and transferable, when until now they had little, to give free rein to their imagination and creativity, and to avoid the constraints of the physical world, by developing new modes of consumption, and by choosing new methods of distinction, with ultimately a reinvention of the means of collecting and investing (art).

## NFTs: what are they?

**NFTs are digital tokens that certify the ownership of goods or an asset, each copy of which is unique** (non-fungible). NFTs are by nature all different from each other, as are most of the goods we own (works of art, jewellery, movable or immovable property, land, collectibles, etc.).

**This non-fungibility characteristic therefore sets NFTs (at least those discussed in this section) apart from other assets** such as equities, bonds, options, commodities, bank notes or even CCs, which are all by nature fungible.

They are associated with digital (most often) or physical assets. It should be noted that the NFT itself is distinct from the object to which it is associated, even if both are often confused in the case of digital assets.

**NFT ownership is managed by blockchain.** NFT transactions are continuously and transparently recorded on blockchains (the most common being the Ethereum blockchain); these records enable the ownership or authenticity of the associated assets to be identified<sup>7</sup>.

**The most well-known applications of NFTs are now in the areas of:**

- **digital art.** There is growing appetite for this support by traditional artists, including the most well-known, because their creativity is no longer limited by physical or financial constraints<sup>8</sup>.
- **digital collectibles** (including collections of characters images with various characteristics and derivative products for fans and supporters of athletes and artists)
- **video games and metaverses** (persons or equipment with unique characteristics, land and other assets in virtual worlds). With the constraints of the Covid pandemic, users, particularly those belonging to younger generations, are

*"In theory, an NFT can be associated with any unique physical asset."*

<sup>7</sup> There are many specialised exchange platforms, the most important being OpenSea.

<sup>8</sup> The reasons for the art world's enthusiasm for NFTs go beyond artistic considerations. First, NFTs guarantee the authenticity of a work, in a market where there are many, difficult to detect, fakes. Artists can also ensure with NFTs that they systematically receive payment when selling their work on the secondary market (it is enough for them to include this condition in the NFT); this type of remuneration was previously reserved for leading artists, who alone were able to require a clause in their initial sales contract. The resale right is certainly a legal obligation in Europe (collected by auction houses), but it is necessary for the work to be put up for sale in a traditional auction...! Finally, with NFTs, collectors can exchange works, without an intermediary, without any transport or storage costs and instantaneously. So there is no longer a security problem, apart from that related to the technology itself.

increasingly looking for immersive experiences. And it is in metaverses<sup>9</sup> that these can be deployed most easily<sup>10</sup>.

By nature, NFTs cannot be copied identically. And if they are, the copy has little more value than that of a fake work of art or a bank note. Applications for real assets are less developed so far, but there are applications for physical art or collectibles (e.g. digital ownership titles for collectible clothing). In theory, an NFT can be associated with any unique physical asset.

### NFTs: why such enthusiasm?

**Immersion, fluidity of exchange, lack of intermediaries** (and taxes for now) – in a world where physical constraints are set to play a growing role amid climate transition – point to a rapid development of these digital media, which provide individuals with new opportunities for ownership, distinction, financing and revenue sharing without relying on trusted third parties. The attractiveness of NFTs can also be explained by a well-known cognitive bias that leads individuals to assign more value to a property when they own it (“the endowment effect”). If, for whatever reason, ownership is not possible or no longer possible in the physical world, the fact that it is in a virtual world gives the object a use value and a social utility that is greater than its exchange value. There is undeniably a major change under way in society, which is likely to see a growing drain on consumption at the expense of the “real world”.

**The evolution of the market in 2021 testifies to the enthusiasm:** market transactions peaked in early September 2021 at around \$1.5 billion per week (versus less than \$100 million in H1). Since then, it has fallen back to approximately \$600 million/week (source: nonfungibles.com). Note that a record price for a digital artwork associated with an NFT was reached in March 2021 (work by the artist Beeple, sold for \$69 million<sup>11</sup>), followed by another in December 2021 (work by the artist PAK, sold for \$92 million, albeit in fragments to many buyers). Collections of character portraits (CryptoPunks, Bored Apes) were also auctioned by Christies for millions of dollars. Ultimately, this market grew from less than \$1 billion at the beginning of 2021 to nearly \$41 billion by the end of the year, making the market for digital artworks and collectibles almost as important in value terms as the global art market (estimated at about \$50 billion)<sup>12</sup>.

Clearly, the younger generations today show the most appetite for NFTs. Their development goes hand in hand with that of the CCs: NFT trades are usually settled in the form of CCs. The development of NFTs supports that of CCs, which in turn makes it possible for the NFT market to grow further. The entanglement between NFTs and CCs adds to the complexity of the blockchain-related digital ecosystem.

**In addition, NFTs also interact with DeFi (Decentralised Finance).** Thus, certain automated protocols allow NFTs to be deposited as collateral to borrow CCs. Ultimately, there are similar problems with NFTs as there are with CCs (risk of money laundering, fraud, anonymity of buyers and sellers, tax evasion). Their valuation depends on a process of supply and demand, largely undetermined *ex ante*.

**To date, regulation in this area is non-existent, but this will not last.** The status of NFTs is ambiguous: is it a digital asset, a work of art or a property deed for a tangible asset? NFTs can be assigned to one of these three categories with different taxation, especially if the NFT is associated with a real asset. The future of NFTs will therefore depend on the authorities' position. Of course, the authorities do not want to oppose societal change and/or consumer choice. Nevertheless, they have the role of imposing constraints to prevent criminal abuse. Finally, the authorities

*"The digital art market reached over \$40 billion by the end of 2021, an amount close to the value of the global art market."*

<sup>9</sup> Metaverses are distinct parallel worlds in which it is possible to acquire all types of property (land, housing, etc.). These are also new convivial spaces.

<sup>10</sup> Owning property in metaverses can be socially rewarding. Nike, which has understood this well, recently announced that it had acquired a virtual shoe company to make virtual trainers!

<sup>11</sup> Even though this artist never previously managed to sell his physical works for more than \$1000! This example makes most artists dream.

<sup>12</sup> How NFTs became a \$40bn market in 2021, *Financial Times*, 31 December 2021.

must ensure that these transactions do not evade tax collection. They will therefore have to clarify their legal status.

**Regulation may slow the expansion of NFTs, but it will not prevent it.** Regardless of CC regulation, the NFT market is set to grow significantly, and new categories of NFTs could certify ownership and facilitate the financing and exchange of many asset classes.

**Ultimately, we cannot rule out that NFTs<sup>13</sup> will also become investable assets for all type of investors and, as such, end up being ranked in the real assets category(!),** in which case investors should gradually become interested in them as a diversifying asset and value-creator (beyond the purely speculative...).

## #3 - 2021 in perspective

### Main events in the CC market in 2021

- The announcement by Paypal that its US customers can pay through Bitcoin, Ethereum and Litecoin – March
- IPO of Coinbase (first centralised exchange platform for CC in the US) – April (followed by the first market peak)
- Chinese restrictions:
  - Ban on CC mining - June
  - Ban on CC transactions - September
- Tesla calls a halt to its Bitcoin purchases (initiated in February), May
- The adoption of Bitcoin as the official currency by El Salvador (September)
- Launch of the first Bitcoin ETF (ProShares, futures only) in the US – October (followed by the second peak in the market)\*

(\*) *The SEC has still not approved the launch of physical Bitcoin ETFs, but they exist in other countries (at least Canada and Brazil).*

### Key market developments in 2021

- The very strong performance of the “Layer 1&2” CCs, competing with or complementary to Ethereum: Cardano and Polkadot (especially at the beginning of the year), then Matic, Solana, Luna, Fantom...
- The continued expansion of DeFi (Decentralised Finance): the total amount of CCs used rose more than x10 in 2021 (from approximately \$20 billion to \$250 billion+)
- The simultaneous expansion of stablecoins, whose value rose from around \$30 billion at the end of 2020 to \$150 billion at the end of 2021).
- The explosion of the NFT market, with the biggest transaction volumes reached in September-October, the increase in play-to-earn applications and the interest in metaverses (driven by Facebook’s change of identity in October).
- The rise of the Web3 theme, consisting of decentralised applications (DAO: Decentralised Autonomous Organisations), whose users are also co-owners via their governance tokens (CC giving a voting right). Web3 is supposed to follow Web 1 (before 2005: mainly reading) and Web 2 (since 2005: social networks and mobile apps, but controlled by centralised companies).
- The growing interest of institutional investors in the CC market. There are no global figures, but this interest is visible through announcements (launch of a Bitcoin fund by Fidelity, which is also trying to get an ETF approved, use of Bitcoin futures by a large Blackrock fund, etc.), figures disclosed by some centralised platforms on their retail/institutional client breakdown, and a large number of reports and conferences on the topic aimed at institutional audiences.

<sup>13</sup> *It is not taken into account here that the NFT registration/trading principle can be applied to already investable asset classes (such as real estate)*

- The rather timid approach of regulators in advanced countries, both because of their difficulty in understanding the challenges raised by CCs and their care not to put too much of a brake on potentially promising innovations against a backdrop of international competition. Even on the a priori particularly sensitive subject of stablecoins (the most direct competitors of traditional currencies), there is no desire to prohibit them altogether.

**Note that there were also flops:**

- Tokenised stocks (tokens replicating the price of traditional equities, especially FAANGs) were removed from large centralised platforms that offered them (apparently due to fear of regulatory crackdown), and were not very successful on DeFi protocols.
  - After the interruption of Tesla's purchases, **the use of Bitcoin as a cash asset** by companies made little further progress (the exception is Microstrategy, a company known for having turned itself into a de facto Bitcoin ETF through the conversion of a large part of its cash, but it is the only one).

**Key events expected in 2022**

- The switch from **Ethereum** to a quicker, cheaper and less polluting "proof-of-stake" mining process.
- The launch by **China** of a fully operational **central bank digital currency** (for now, it is still an advanced prototype).
- The possible approval of a first **physical Bitcoin ETF** in the US (and perhaps that of an **Ethereum ETF**).
- The adoption of **Bitcoin as an official currency** by other countries (Panama, Paraguay and the Tonga Islands are frequently mentioned).
- In terms of trends, **NFTs, play-to-earn and Metaverses** are still expected to have the wind in their sails.
- Infrastructure for DAO development is also expected to grow.
- **Regulation** could tighten, albeit moderately (it could include, among other things, the requirement for stablecoins to be supervised like banks, and the obligation for some players to adopt KYC procedures).

## Conclusion: distinguishing the wheat from the chaff

Promoting faster, more reliable and cheaper payment systems, both nationally and among nations, is a common goal for most governments and central banks. It is clear that blockchains offer many new opportunities in this regard, including as a way of improving financial inclusion.

But **while CCs have the power to change global finance for the better, their use as a means of payment is potentially destabilising, with systemic risk a possibility:**

- because in the medium to long term, they are likely to call into question the monopoly of central banks (and nation states) on money production and monetary policy;
- because the operational resilience of decentralised systems is still in question.

Anonymity and legal immunity appear to have played a central role in the development of these assets, at least initially. G7 regulators are therefore firmly intent on regulating the CC ecosystem.

To date, more than 80%<sup>14</sup> of the world's central banks are engaged in pilots or other CBDC activities. And it is clear that regulators do not want CCs to undermine CBDC development projects in the coming years.

<sup>14</sup> *Third BIS survey on central bank digital currency, Bank for International Settlements, BIS Papers, number 114, January 2021.*



With what impact? It is likely that regulations will initially lead to a price adjustment, possibly severe (buyers do not always properly price in regulatory uncertainty, so volatility is likely to remain high)<sup>15</sup>.

**But once the regulatory environment is clarified and the main risks are removed, CCs are likely to experience a new boom, based this time on the needs of a more inclusive economy and finance.** And this is without counting the development of NFTs, which will further push in this direction. Under these conditions, the appetite of companies, institutional investors and investment funds for digital assets is sustainable, although it will of course be necessary to closely monitor the development of technical risks (IT risks, vulnerability to hacking) associated with them.

Knowing how to capture the benefits of innovation while controlling abuses is the challenge facing regulators/central banks in the 21<sup>st</sup> century.

**It is only once the regulatory universe has been stabilised, and the relationship with central banks' digital currencies clarified, that asset managers will be able to recommend digital assets as safe investment vehicles.** CC investments may be promising, but they remain primarily speculative by nature. As for the spectacular development of NFTs (some of which could become fully investable assets), this should not obscure their vulnerability (lack of robust valuation methods, lack of regulation).

<sup>15</sup> We can draw an analogy with carbon-emitting companies, which risk seeing rules (or taxes) imposed, reducing their market value.

## Notes

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