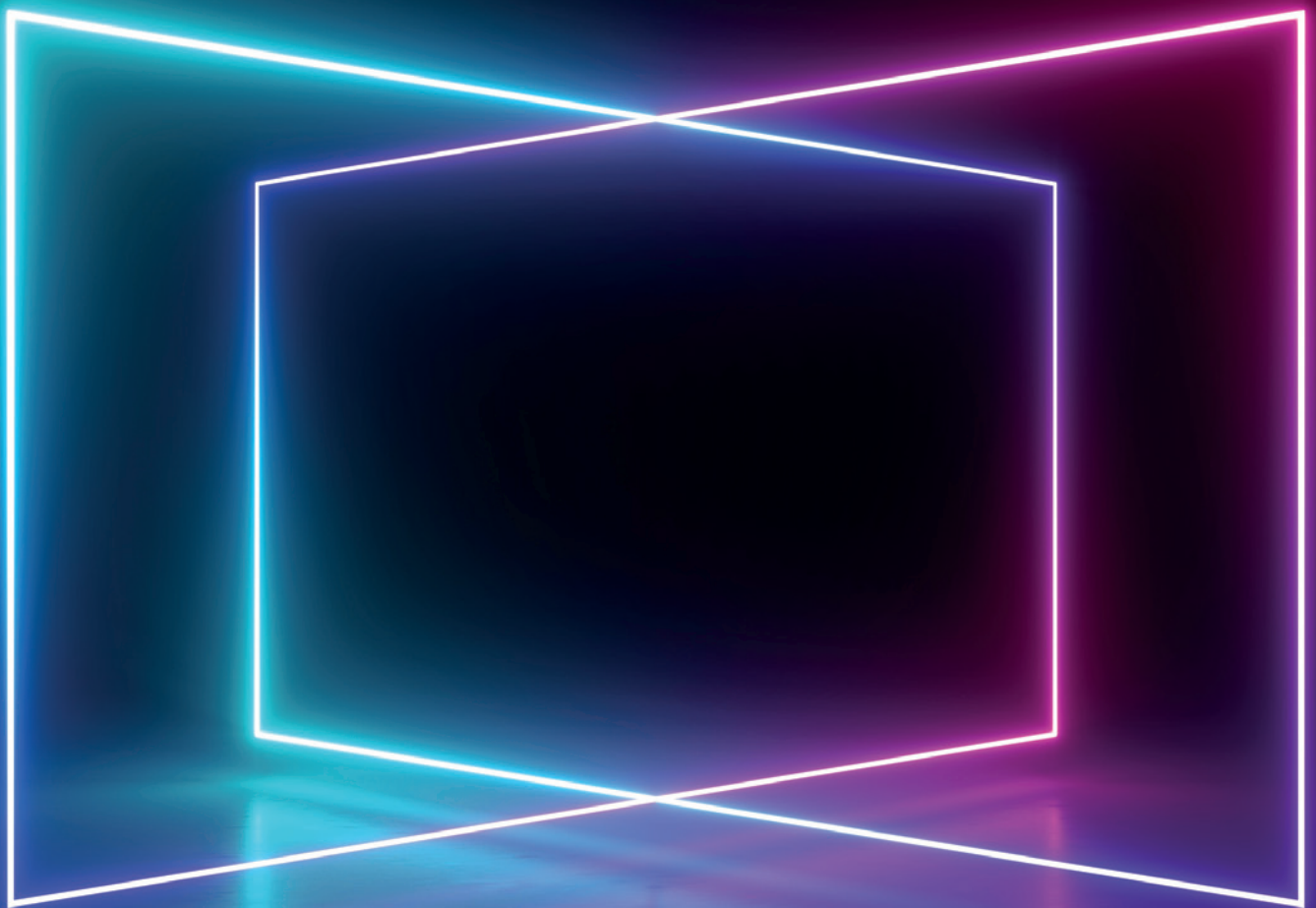


SPECIAL EDITION 2022

TOKEN MAGAZINE



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SOCIETE GENERALE
Securities Services

THE CRYPTO MARKET ON THE CUSP OF ADOPTION

SGSS published its first magazine related to blockchain, its opportunities and challenges 6 years ago. 3 years later, our second magazine focused on current use cases, including Initial Coin Offerings (ICO). SGSS Token Magazine in 2022 will naturally focus on the technology's adoption. In 6 years, the crypto market capitalisation has grown from 80 billion dollars to more than 2 trillion dollars¹, a 25-fold increase. Our magazines therefore naturally follow the Gartner maturity curve; from the peak of unrealistic expectations via the abyss of disillusionment through to adoption (the plateau of productivity).

ADOPTION IS NOW

2021 and 2022 have seen the massive arrival of institutional investors and corporate clients into the world of digital assets. In the United States (US), companies like Microstrategy and Tesla have converted part of their cash into Bitcoin. Hedge funds and even traditional funds are looking for exposure to this new asset class. A country like El Salvador recognises Bitcoin as legal tender. All of these factors have helped increase adoption and thus strengthen the ecosystem. However, we note differences between continents, with the US remaining dominant on the cryptocurrency scene and Europe positioning itself more on the appeal of security tokens. As a reminder, security tokens are financial assets created on a blockchain. **Societe Generale is a driving force in this field, notably through its subsidiary SG Forge, which has already tokenised bonds and structured products.**

This gap was already confirmed in the surveys that SGSS conducted in February 2021², as well as in market data. The Chainalysis index confirms to us the skyrocketing adoption of cryptos, and the number of Bitcoin holders has increased 10-fold in the last 6 years³.

Recent developments in central bank digital currencies, which have already become a reality in China with the Digital Yuan, will undoubtedly help transform our market towards a token market.

A REGULATORY LANDSCAPE THAT IS TAKING SHAPE

If adoption has been possible, it is undoubtedly because the regulatory framework in all jurisdictions has provided clarity in all segments. **France has been a pioneer on the subject, notably with the PACTE⁴ law, but also by setting an example through the Banque de France's experiments,** which allowed new technologies to be tested in future frameworks.

In Europe, it is also the turn of Germany, Luxembourg and more recently Italy to show the example. In summary, it is possible to invest in crypto in a professional world but with specific conditions. We will go deeper into this subject during the articles in this magazine.

We've been talking about countries, but what is Europe's position?



LAURENT MAROCHINI

Head of Innovation - Societe Generale Securities Services Luxembourg

Head of Innovation at SGSS Luxembourg, Laurent is also Blockchain Leader for the SG Group since 2018. Prior to joining SGSS, Laurent held various management positions in the banking sector at BNP Paribas Securities Services and Credit Suisse Private Banking. He joined Societe Generale in 2006 as a risk manager. Laurent is highly involved in the Fintech ecosystem: Co-Chairman of the ALFI Working Group Blockchain & Cryptocurrencies and member of the Fintech & Digital Executive Committee, President of the taskforce Blockchain and crypto at the LHoFT (Luxembourg House of Financial Technology) and Vice Chairman at ABBL (Luxembourg Banks and Bankers Association) for the Fintech and Innovation Committee.

Cryptocurrency and stablecoins are the subject of the MiCA (Markets in Crypto Assets) regulation, which aims to establish a European regulatory framework applicable to digital asset service providers. The regulation is expected to come into effect in 2023.

As far as security tokens are concerned, the Pilot Regime will be the one to facilitate the exchange and settlement of financial instruments issued in the form of crypto assets. The regime will allow testing in a "sandbox" environment by obtaining exemptions from the rules normally applicable to financial instruments.

ESG CONSIDERATIONS SHOULD NOT BE OVERLOOKED

In a world where global warming is at the top of countries and companies' agendas, taking Environmental, Social and Governance (ESG) criteria into consideration is not a "nice to have" but a "must have". Blockchain and cryptos cannot ignore this phenomenon given rising media criticism. It is important to remember that criticism of the energy consumption of cryptos is related to the "Proof of Work" protocol that underlies cryptos like Bitcoin or Ether. This protocol consumes a lot of electricity with a very high carbon footprint. The use of renewable energies allows these remarks to be tempered, but it could be used for other purposes. **The alerts received on a potential ban within the framework of MiCA will undoubtedly accelerate the transition towards less energy-consuming protocols such as the Proof of Stake.**

It is in the challenges that we develop opportunities. It's a resourceful and creative market. Without dwelling too much on Decentralised Finance (DeFi), Non-Fungible Tokens (NFTs) or Metaverses, we realise that despite the maturity that we are observing, we always have new things being added.

Our experts will share their views on all these elements, whether from a regulatory, adoption or use case standpoint, as well as on the ESG aspect.

Pleasant reading and welcome to the world of Tokens.

(1) coinmarketcap.com, data as of April 2022. (2) <https://www.securities-services.societegenerale.com/en/insights/views/news/sustainable-investment-history-the-move/> (3) <https://fr.statista.com/statistiques/665756/nombre-detenteurs-portefeuille-bitcoin-sur-blockchain-monde/> (4) Action Plan for Business Growth and Transformation



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THE PARADOX OF CRYPTO ASSETS AND ESG

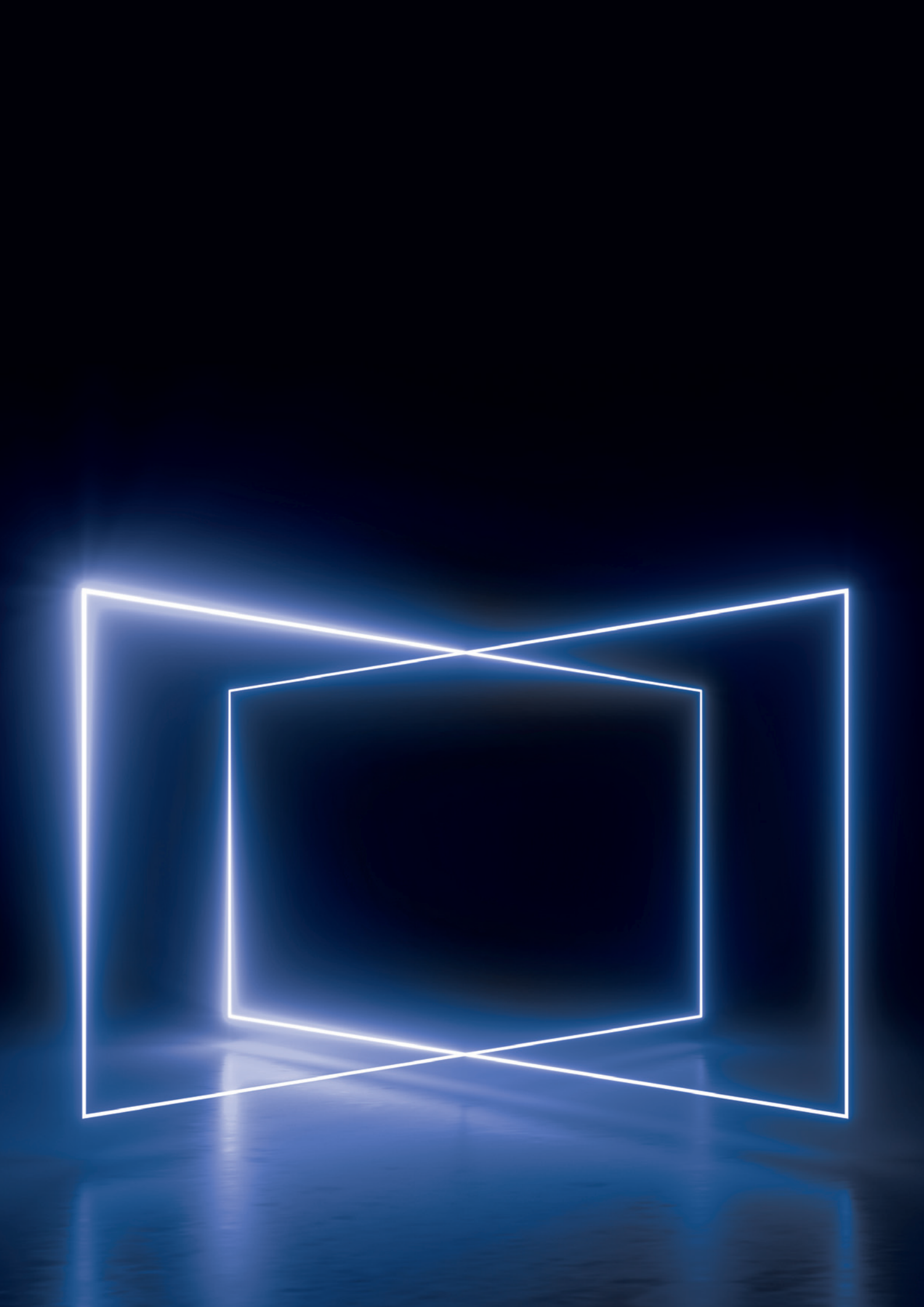
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**HOW DOES THE NEW
EUROPEAN REGULATORY
FRAMEWORK **CREATE**
OPPORTUNITIES FOR
FUND DISTRIBUTION?**

IS THE ASSET MANAGEMENT INDUSTRY POISED TO EMBRACE CRYPTO ASSETS?



THOMAS CAMPIONE
Blockchain & Crypto assets
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SETTING THE SCENE

To say that the subject of crypto assets is a “polarising topic” is an understatement. On one side stand those who claim the level of volatility is unacceptable, who decry the “absence” of an investment rationale, who fear the threat to climate change or the terrorism financing risk (or more recently, how crypto assets could allow some to circumvent financial sanctions) and use these as practical expedients to dismiss the topic. Some would argue that this side of the critics includes organisations or supranational bodies whose sovereignty, financial rent or relevance might theoretically be put at risk by the emergence of a decentralised and disintermediated crypto assets based financial system. On the other hand stand those who emphasise the inherent benefits of crypto assets such as accessibility, inclusivity, efficiency and their role as catalysts for economic transformation.

In the middle of this battle of public opinions stand national and supranational regulators concerned about customer protection and financial market stability while also being conscious of the role of crypto assets for the future competitiveness of their financial sector. Does this put them between a rock and a hard place? While it would be simplistic to propose which side is right or wrong, **the market test occurring now is an interesting proxy towards understanding what is really happening and where we are headed.**

MARKET SNAPSHOT

In order to assess a realistic view of the current situation and propose a potential outlook, it is essential to consult the current market figures. With a global market capitalisation of \$2Tn¹, 300M² users, and more than 1,300 deals closed last year for \$25Bn³, with in excess of \$100Bn⁴ locked in DeFi protocols, a multi-trillion opportunity in the metaverse and not a single day without an established financial player announcing plans in the space, crypto assets seem to have crossed the mark to become a lasting phenomenon that could structurally impact the global economy.

CRYPTO ASSETS AS A NEW ASSET CLASS

This being said, what’s the objective of having crypto assets as a new asset class, and what will its potential bring in the broader asset management industry?

Driven by this question, in February 2022 PwC Luxembourg released the “Crypto assets: Paradigm shift or short-term trend?”⁵ report, a joint initiative with the LHoFT⁶ and the active support of ALFI⁷. It looks into the growth drivers, as well as the opportunities and challenges, in order to help Luxembourg market participants form their decisions on how to approach crypto assets. The report is based on a survey performed in Q4 2021 with more than 120 respondents based in Luxembourg.

KEY LEARNING FROM PWC’S CRYPTO-ASSET MANAGEMENT REPORT

Potential and readiness

Our results suggest a mix of enthusiasm and hesitation around crypto assets within Luxembourg’s financial services landscape. On the one hand, 18% of respondents already consider crypto assets as a strategic priority for their business, while 43% expect them to become a strategic priority in the coming two years. Additionally, 39% see some potential on crypto assets from an investment strategy standpoint, while 28% see high potential. On the other hand, **a significant portion of respondents remain hesitant, with 39% having no real plans to engage in crypto asset activities for the time being.**

While the level of maturity varies greatly across surveyed entities, a majority of respondents (61%) said they are embarking or planning to embark on their crypto journey – either assessing, developing or already providing crypto-asset products or services. That said, 22% are still assessing the opportunity, while 39% have no plan to engage in the asset class. From a prospective view, a strong majority (88%) of respondents expect crypto assets to impact their business with close to 30% of them expecting a significant impact. To bring further perspectives on the current market potential, it should be noted that professionally managed crypto assets represent less than 3% of the total market capitalisation as of today.

“CUSTOMER DEMAND SATISFACTION IS THE MAIN DRIVER BEHIND THE DEVELOPMENT OF CRYPTO-ASSET PRODUCTS”

Attractiveness

When asked about the most attractive crypto-asset features from an Asset Management perspective, respondents mainly agreed on its innate diversification potential, with 77% of them highlighting it as the most valuable attribute.

Other attributes such as the asset class’s inflation hedging properties and the risk-adjusted return potential have also been recognised by 38% and 23% of respondents, respectively.

Motivations

Perhaps unsurprisingly, **70% of respondents affirmed that customer demand satisfaction is the main driver behind the development of crypto-asset products.** That demand stands, however, at a variable level of importance depending on respondents’ sectors. Other main reasons to develop crypto-asset products include to stay at the forefront of financial innovation (45%) and to build a competitive edge (31%).

Product roadmap

In order to meet customers demand, our results suggest that **the focus should be on direct/indirect exposures, custody services and access to more advanced crypto assets products or services like DeFi, NFTs or stablecoins.**

Outlook

While the structural elements for a future crypto-asset management industry are already established, further regulatory developments will be key in making market participants more comfortable with the topic. In the European Union (EU), we can expect the upcoming MiCA regulation, which aims to level the playing field across crypto-asset issuers and service providers and bring them in line with traditional financial players, to materialise regulations on crypto-asset management further. The legislative process is ongoing and the implementation of the regulation is expected in the second part of 2023.

In the US, the situation was less clear until it materialised into something more concrete in early March, when President Biden signed the expected executive order on digital assets. This development is an important step, as it sets the mood for how the US wants to handle crypto moving forward, and also – and perhaps more importantly – because **it’s the first time a national policy is outlined**

in a whole-of-government approach with a precise agenda and due dates.

Both events are of critical importance for the entire crypto-asset ecosystem and, assuming they indeed commit to support financial innovation, will play a structural role in the growth of a sound crypto-asset management industry.

(1) coinmarketcap.com, data as of March 2022. (2) crypto.com, data as of March 2022. (3) State Of Blockchain 2021 Report, CB Insight. (4) Defillama and DefiPulse, data as of March 2022. (5) <https://www.pwc.lu/en/blockchain-and-crypto-assets/crypto-assets-2022.html> (6) Luxembourg house of Financial Technology. (7) Association of the Luxembourg Fund Industry.

DOES BITCOIN ANSWER AN ECONOMIC NEED?



YVES CHOUEIFATY
President and Chief Investment
Officer - TOBAM

IN THE END, WHAT EXACTLY IS MONEY?

Money finds its value in scarcity.

The economy is about the creation, exchange, storage and use of wealth, be it labour, goods, services, innovations, contracts. One should never confuse wealth creation with money issuance. It is often, in fact, the opposite: money issuance tends to imitate but ultimately delay and impede wealth creation.

In his book “The denationalisation of money” (1975), Friedrich Hayek¹ exposes a theory that whenever a group of people owns the monopoly of money supply, eventually they abuse it, and this results in cataclysmic crises that potentially cause millions of deaths and decades of delayed development. He suggests that to get rid of those crises, we need to get rid of the monopoly of money issuance.

Theory generally finds its motivation in the modelling of reality. Theory, an articulated discourse, is most often based on one or a set of tentative definitions.

One of the oldest definitions of money is Aristotle’s, which recommends that, **for an object to be considered as money, it must have the following three functions: store of value, unit of account and medium of exchange.**

Aristotle does not invent money when saying this. Money preceded him by many thousands of years. There is little doubt that flint arrowheads served empirically as a store of value as early as the Palaeolithic.

MONEY AND TIME: AN ORGANIC BOND

In the language of patents, the three functions of Aristotle’s definition are not “independent claims”. It is, in fact, because the object is a store of value that it becomes a unit of account and/or a medium of exchange. The independent claim is “store of value”. To put it simply, the fundamental function of money, the one that founds the others, is the transport of labour over time. We work for compensation, in the hope that this reward will give us access, in the future, to others’ labour. **One of the most important contributions of money to the history of the economy is the possibility of saving labour, the possibility of transporting value over time.** It can or should be distinguished from investment, which supposes risk.

If a “monetary” issuing institution sets itself an inflation target, say, of an official 2% per year, by definition it renounces on the transportation of value across time. One could speak of “melting” money to qualify this object, but in fact it is an object that no longer meets Aristotle’s definition of money. In this, the issuing institutions have given up issuing “money”. The case becomes even more difficult if we consider the real cost of living rather than only the Consumer Price Index (CPI). Apart from effective housing costs, one of the major costs of living components ignored by CPI is the increasing cost of government²⁻³. Public goods and services though a non-merchant good still have a cost to the consumer⁴ that is not limited to levies but also comprises huge deferred taxes and costs (public debt)⁵.

Money failing to transport value over time gives way to a vacuum, and “nature abhors a vacuum”. At least subconsciously, populations will try to store value somewhere other than in improperly managed or issued “money”. We will no longer “save” in “money”, but by acquiring a home, stocks, art... or new digital assets. We will even frequently borrow for this, putting ourselves “short” the currency, thus integrating, at least subconsciously, that the repayment will be in a devalued currency... We are in fact adopting the same strategy as the sovereign by borrowing now and paying back in devalued assets.

A “rational” investor in the sense of financial theory is an investor seeking profits. **This investor is necessary to the existence of an “efficient” market.** An efficient market can be described in brief as a market where prices are “justified” by fundamentals. When a price is higher than justified by fundamentals, the rational investor will sell the asset, thereby lowering the price until it converges towards the price justified by fundamentals, and vice versa in the case of an undervaluation.

What rational investor would be ready to lend an asset to be reimbursed in devalued assets several decades later? None, except when... constrained by some (funny?) regulations. This is why **the main lender has become the central bank itself, which is not driven by the search for profit and therefore not a rational investor.** The central bank will target other self-attributed “goals”. These new objectives come at the expense of the Aristotelian function of money. When a Central Bank sets itself the task of encouraging growth, saving a banking system, funding impecunious states, or financing the energy transition, the question is not whether these goals are good or bad, but whether they are being pursued at the expense of the fundamental function of money: to transport value over time.

Money finds its value in scarcity.

Bitcoin’s value proposal is “There are 21,000,000 of it”.

(1) Nobel prize economic science 1974. (2) Social security and social expenses included. (3) The usual argument that taxes are not a cost as there is a counterpart to taxes does not hold, indeed there is also a counterpart to the price of a car: the car itself! (4) ... or the taxpayer. (5) In the same way that if you buy a car at a price of 100, paying 10 in cash and borrowing 90, the real cost of the car is still 100.

**“IF YOU WAIT FOR
BITCOIN VOLATILITY TO
BE MUCH LOWER BEFORE
INVESTING, YOU WILL
PROBABLY HAVE TO PAY A
MUCH HIGHER PRICE”**

ON BITCOIN’S VOLATILITY

There is an obvious investment thesis for Bitcoin. And there is an anti-thesis...

Some see the 2025 price of Bitcoin lower than a single euro, and some see it North of half a million; this fight is driving Bitcoin’s extreme volatility. Bitcoin is an extremely risky asset. However, this is never a rational reason not to consider investing in an asset. For example, one drop of Chlorine could make a glass of water drinkable, while in excess it could poison it. It’s the same for Bitcoin. Risk is only relevant in the context of size. A \$1 million investment in the S&P 500 is far riskier than an investment of \$50,000 in Bitcoin...

The price and the volatility of Bitcoin will be intertwined with its adoption. The higher the adoption, the higher the price and the lower the volatility. If you wait for Bitcoin volatility to be much lower before investing, you will probably have to pay a much higher price.

CRYPTO ASSETS: TOWARDS MORE LEGISLATION AND REGULATIONS?



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THE CHALLENGES OF THE REGULATION: FROM INNOVATIVE PRACTICES TO AN EVOLUTION OF THE LAW

• On the surge in crypto-asset transactions and the diversification of practices

Public interest for crypto assets is currently growing from the buying of bitcoins to the trends of NFTs. Within this context, numerous new projects are being developed by both private and public actors. For example, we could mention, on one side, the development of numerous new NFTs by luxury brands and, on the other side, the development of central bank projects or experimentations with crypto assets. The use and creation of new crypto assets and new crypto-asset services are currently being driven by innovative tech and crypto companies but also by traditional actors and new entrants from the banking and financial sphere.

• From national to regional regulations: the need to standardise market practices and set competition rules

From the creation of national status...

In recent years, at European level, some countries have legislated on crypto-asset activities such as Germany, Luxembourg and Estonia.

In France, the legislator took up the issue of the supervision of crypto-asset activities in 2019. A specific status has been created, that of digital asset service providers (DASP). This status includes (1) mandatory registration for certain services, namely custody, buying or selling of crypto assets into fiduciary money, conversion of crypto assets and operating a digital exchange of crypto assets (failure to register is punishable by fines and imprisonment) and (2) optional licensing for the provision of other services on crypto assets. That initiative was successful. To date, there are 30 companies registered as DASP. None are yet DASP-licensed.

...To the project of a European regulation on crypto assets

At European level, the European Commission has published a proposal for a regulation on crypto-asset markets (MiCAR). This text will harmonise the rules applicable to services on crypto assets at European Union (EU) level. Only providers licensed as crypto-asset service providers will be able to provide services linked to crypto assets. EU MiCAR will impose new rules on stablecoins (which may be qualified as asset-referenced tokens or e-money token or e-money) and will limit/prohibit some DeFi market practices and offers (lending, borrowing giving access to rewards for clients) for asset-referenced tokens. To date, the text is still being discussed by the European Parliament. Notably subject to stormy debates are new requirements on Proof of Work protocols (such as bitcoin), while EU policymakers have always argued that European legislation should be technology neutral. The text is awaited by the markets' players, as it will offer new opportunities but may also restrict some existing practices. At least the text will harmonise practices within the EU and help, at regional level, to fight against unfair competition practices.

On the other EU regulations impacting crypto-asset services

The Pilot regime is part of a European Commission package of measures to unlock and enhance the full potential of digital finance for innovation and competitiveness. The digital finance package provides a new digital finance strategy for the EU financial sector to embrace and lead the digital revolution, with the help of innovative European companies, so that the benefits of digital finance can be delivered to European businesses and consumers. The text on the Pilot regime regarding the marketing of security tokens (i.e., financial instruments issued and/or registered into a DLT/Blockchain) was adopted, allowing regulatory barriers to the issuance and trading of financial instruments on blockchain networks to be removed.

On regulations regarding anti-money laundering and counter terrorism financing (AML-CFT)

To date, at the French level, DASP are subject to the French AML-CFT rules. At European level, the European Commission published, in July 2021, four propositions of regulations regarding AML-CFT, and in particular a draft amendment to EU Regulation 2015/847/EU on money transfers to include specific obligations on crypto-asset service providers, directly related to the recent work of the Financial Action Task Force (FATF). That text will make it possible to harmonise the requirements applicable to crypto assets and avoid forum shopping practices aimed at avoiding AML-CFT rules.

TOWARDS MORE REGULATING OF THE NEW ACTIVITIES?

• On the question of NFT

Non-fungible tokens have been in the media spotlight over the past few months, with significant projects developed in various industries. Theoretically, an NFT is a digital and cryptographic asset recorded on a blockchain, representing digital or physical items, which - unlike other digital assets that are usually interchangeable and fungible - has a non-fungible nature. The purchaser of the NFT is given a digital encrypted certificate that makes it possible to connect in a unique way to a smart contract realised on a blockchain platform and to subsequently access various prerogatives (such as access to a digital product, a physical product or specific services). In France, legislation does not explicitly provide for dedicated rules applicable to NFT, nor does it exclude them specifically from existing regulatory regimes currently in effect. Therefore, the regulatory analysis of NFT projects under French law primarily depends on the legal qualification of the NFT in question. At EU level, the MiCAR project may exclude NFT from its scope unless they are (i) issued for an investment purpose and (ii) listed on trading venues that may impact several ongoing projects.

• On the creation of new services on crypto assets

Some actors of the crypto-asset sphere are developing and marketing new products. On the model of traditional banking and financial services, some DASP and fintechs are conceiving new products. We could mention the following, for example:

- the crypto-asset bankbook: a client agrees to implement monthly savings materialised by the purchase of crypto assets;
- the staking of crypto assets: a client makes a deposit of crypto assets in exchange for crypto-asset gains ("rewards"). The product looks like an account but using crypto assets, for which, in practice, there is no guarantee of a return of the initial deposit;
- the lending of crypto assets: a client agrees to lend their crypto assets to decentralised protocols or centralised counterparties in exchange for rewards.

All these new products and services are very similar to those proposed by traditional asset servicers of financial instruments offering clients repo, lending and other hedging strategies to optimise the financial return of a given portfolio. For the time being such DeFi and CeFi services are excluded from the scope of EU MiCAR. (1) Centralised Finance.

THE LEGISLATION AND REGULATION OF CRYPTO ASSETS IN THE EU, TO DATE:

- is highly divergent within the EU;
- will be harmonised within the EU, avoiding forum shopping practices and enabling all EU crypto-asset providers to be placed on an equal footing;
- is facing new challenges, resulting from new practices, requiring the adaption of the existing applicable rules and legislation, in particular regarding NFT and DeFi/CeFi practices;
- and could, if too restrictive, lead many actors and projects to relocate to more favourable jurisdictions (Dubai, Cayman Islands, Jersey, United Kingdom, Singapore).

EUROPEAN PILOT REGIME: EXPERIMENTAL REGULATIONS TO FOSTER INNOVATION



ALAIN ROCHER
Head of Knowledge
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A FIRST IN EUROPE TO RECONCILE EXPERIMENTATION AND REGULATION

At the beginning of 2023, Europe should officially launch a major experiment to test the blockchain and distributed ledger technology (DLT) on the financial markets, a technology that was born with the now famous and sometimes controversial Bitcoin. In addition to the very high volatility of its price, Bitcoin has the extreme singularity of not having an identifiable issuer and yet being able to validate the exchanges and transfers of ownership of this new digital asset without an intermediary.

This experiment, called the Pilot Regime, should last at least 3 years (renewable once) and will allow the European authorities in charge of market regulations to better understand the supposed benefits of this new technology, but also and more importantly the potential challenges to existing regulations and infrastructures. As investor protection and market integrity have so far been based on the regulating of issuers and intermediaries, the potential absence of both is a huge challenge for market authorities.

However, we should keep in mind that the Pilot Regime is not intended to deal with Bitcoin and other cryptocurrencies that are covered by the MiCA¹ regulation, but only financial instruments as defined by MiFID² regulations and therefore supposed to have an issuer. That means **it will be necessary to first decide on the role and responsibility of the issuer when it chooses to deposit its securities in a blockchain**. It is also essential to mention that the Pilot Regime is essentially focused on listed financial securities, as only issuers of listed securities are legally obliged to deposit their securities with a CSD³, while issuers of unlisted securities remain fully responsible for the record-keeping of their securities and are therefore free to choose the underlying technology.

DISTRIBUTED LEDGER VS CENTRALISED LEDGER: A TOTAL PARADIGM SHIFT

The first level of the Pilot Regime text was mainly aimed at reducing the risks of the experiment by limiting the volume of tokenised issues and by requesting from participants the implementation of an “exit strategy” to be able to terminate the experiment in case of failure. The other key feature of the Pilot Regime is the introduction of the concept of DLT SS (Settlement System) and not DLT CSD. This is indeed important because if the CSD is also an SS operator, it also ensures a notary function by centralising the issuing account of listed securities. By recognising that these two CSD functions can now be dissociated in a Distributed Ledger, the legislator is implicitly challenging the systematic transfer of the record keeping of listed securities to a trusted third party such as a market infrastructure.

While the Pilot Regime seems to question the relevance of some intermediation constraints imposed by current regulations, it does not mention other types of intermediation such as those freely chosen by market participants.

In its recent guide on DLT, the French Association of Securities Professionals (AFTI) also addressed the subject of disintermediation in post-trade activities. According to its analysis, **it would be the intermediaries imposed by current regulations that would mainly be impacted by the new technology, i.e. the CSD but also the custodians**. These imposed intermediaries have two essential roles to play in securing the transfer of ownership of listed securities: to “centralise” the record keeping (centralised ledger) for issuers or investors; and to operate a settlement system, the first role appearing until now to be a sine qua non condition for the exercise of the second, both of which then allow these intermediaries to offer a wide range of value-added services (tax, reporting, corporate transactions, collateral, etc.)

According to the guide, the transition from a “centralised ledger” approach to a “distributed ledger” approach should make it possible to better secure record keeping and thus enable the issuer to retain responsibility for the record keeping of listed securities in the same way as for unlisted securities. **In theory, it would then be possible to have a single legal regime for all financial securities in a Distributed Ledger, whether they are listed or unlisted.**

FRENCH ASSETS TO COMPETE FOR POLE POSITION IN THE PILOT REGIME

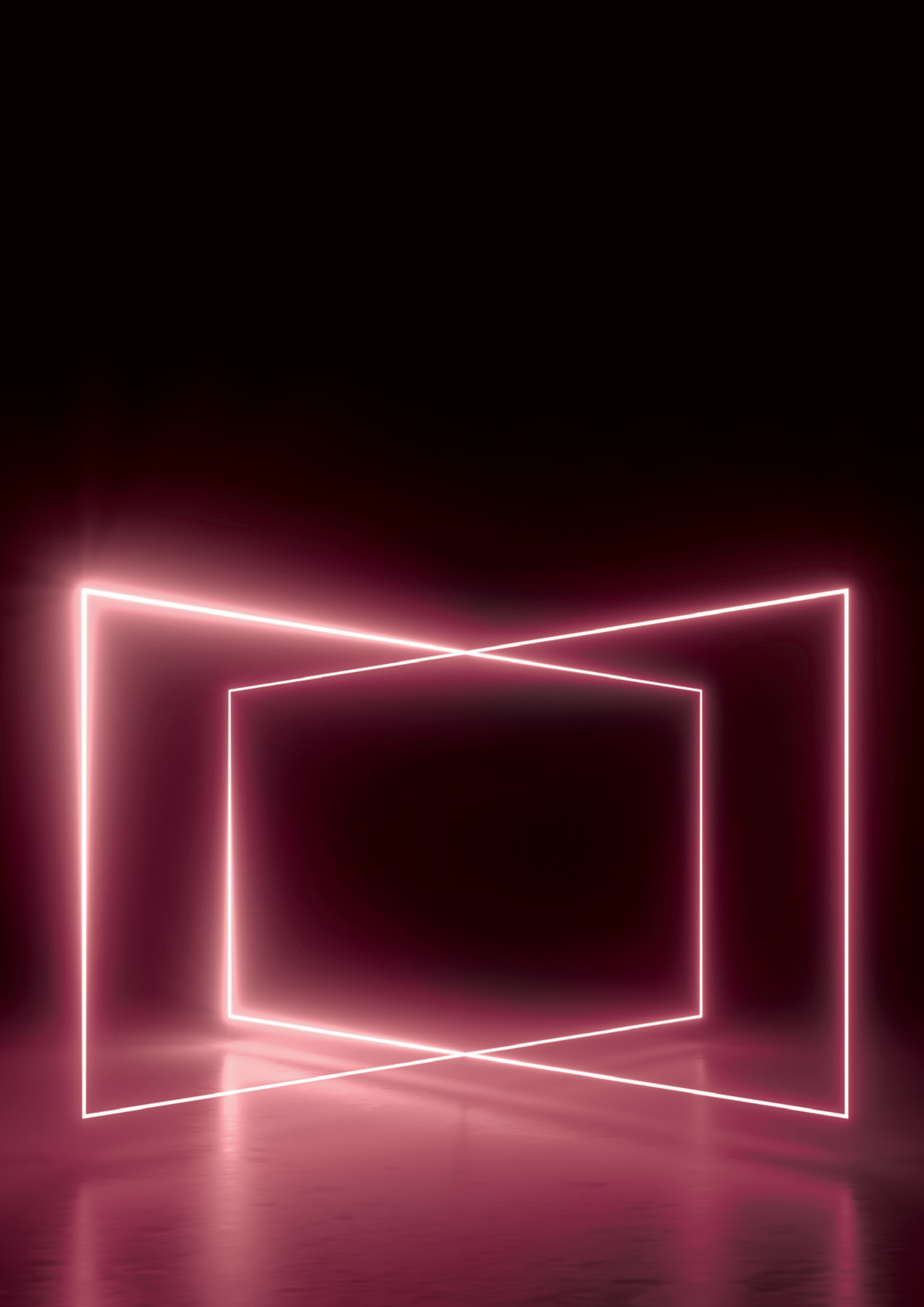
This single regime appears to be very close to the French model of “essentiellement nominatif” securities, which already allows for a single form of securities, the so-called Registered form, for listed and unlisted securities. In this model, it is the issuer of the securities and not the CSD that is responsible for record keeping and custody of registered securities. For these securities, the CSD must only ensure the role of Settlement System (SS) operator, similar to what the Pilot Regime has planned with its DLT SS.

If this regime for essentially registered securities has not been a huge success in France so far, it is mainly because of current technology limitations. The use of the Distributed Ledger could therefore completely change the situation and eventually make the current distinction between bearer and registered securities obsolete. Indeed, **registered securities deposited in a Distributed Ledger could combine the current advantages**

of registered securities (knowledge of investors by the issuer) and bearer securities (ease of settlement) without any additional cost for participants with even probable cost reductions. CSDs and custodians would continue to perform their current role for these listed registered securities, i.e. operator of an SS for the CSD and administration service (“nominatif administré”) for the custodians, while of course continuing to offer all the value-added services mentioned above.

In the end, **this European Pilot Regime appears to be a wonderful opportunity to rethink, simplify and optimise the management of market operations**, and in particular the entire post-trade segment. It also appears that the French market is particularly well placed to make the most of this experiment. Firstly, because its current model seems to be able to converge fairly easily with that of the Pilot Regime, but also because it took an interest in the subject very early on, which enabled certain French players to acquire real expertise that they should be able to use during the Pilot Regime experiments.

(1) Markets in Crypto assets regulation. (2) Markets in Financial Instruments Directive. (3) Central Securities Depository.



CRYPTO ASSETS:
A MATRIX FOR
UNLIMITED CREATION
OF NEW FINANCIAL
PRODUCTS

A PLATFORM DESIGNED BY ENTREPRENEURS, FOR ENTREPRENEURS



BILAL EL ALAMY
Co-Founder and Chief
Technical Officer - Equisafe

The world of private equity is continuing to grow. This asset class is becoming more and more attractive as it has the advantage of being an investment that is easy to understand, that contributes directly to the real economy and also to innovation. Private equity therefore seems to be the ideal instrument for building the economy of tomorrow.

Nevertheless, the administrative management of these instruments still requires manual intervention and paper. **The tokenisation of the economy, which places private equity at the top of the list of candidates, would allow these instruments to benefit from the expected advantages of greater efficiency, speed and accessibility to assets to make this market even more attractive.**

In this context, Equisafe has developed a digital tool that facilitates the creation and management of investment vehicles. The platform allows one to structure an investment vehicle, raise funds, deploy them to a target company and lastly delegate the entire management of the vehicle. Equisafe thus vertically integrates the entire value chain of non-listed equity / private equity investment from the back to the middle office.

This service allows entrepreneurs and investors to focus solely on the segment where they generate the most value: the sourcing and auditing of high-potential deals and future nuggets.

The company has obtained two approvals, in order to provide a secure environment, thus meeting regulatory requirements. The management of financial flows is secured via the Payment Service Provider Agent approval issued by the Banque de France ACPR⁽¹⁾, which ensures a robust infrastructure, in every respect equivalent to that of a traditional banking institution. Equisafe and its partner LemonWay are also responsible for the identification of all the parties involved in the operation (investors, target company, managers/founders) through a Know Your Customer (KYC) process and lastly for Anti-Money Laundering & Counter Terrorism Financing (AML/CFT).

WHAT IS “SPV-AS-A-SERVICE”?

SPV-as-a-Service is a range of turnkey digital services to create and administer SPVs, or Special Purpose Vehicles, in record time. The sole purpose of the SPV is to aggregate an investor base through a share issue. The funds raised are then invested in a target company by acquiring part of its capital.

These services are used by various clients: Family Offices, Business Angel Clubs, Private Deal Clubs, etc. This offer gives entrepreneurs and financing professionals the optimal infrastructure to create their own SPVs, raise funds and monitor their investments efficiently. The offer ranges from administrative formalities with the Registry to the provision of a peer-to-peer marketplace, including electronic signatures, the provision of an escrow account and the onboarding of all investors.

In short, the platform allows one to aggregate investors by offering them an opportunity to subscribe to securities issued by the SPV. The neo-business bank thus replaces, in part, lawyers, accountants or administrators.

THE ELECTRONIC SHARED REGISTRATION SYSTEM

The possibilities offered by the Sapin 2 law and the Pacte law open up a new path for non-listed financial securities. One of the main value propositions of the platform is the maintenance of the Register of Securities Movements in DEEP⁽²⁾ format. This “digitised” registry disrupts the traditional paper-based registry model, which is prone to human error and falsification. **The foundation of blockchain-based record-keeping brings together the potential of private equity, and its potential gains, while ensuring the smooth and secure operation of securities exchanges between partners.** The technology developed by Equisafe is based on the Blockchain using “Smart-Contracts”. These Smart-Contracts, called NYX, executed on the Tezos blockchain, which is a blockchain using the energy-efficient proof-of-stake protocol, allow the automation of the rules for the transfer and issuance of financial securities in several European jurisdictions. This way, **it is thus possible to obtain some liquidity on previously very illiquid assets.**

The completion of the tokenisation of the AnnA mansion in 2019 by the Equisafe platform, which was the first transaction of its kind in Europe using this technology, is a good illustration. All related documentation was recorded on the blockchain. In addition to the transparency in this case, the documentation sharing really showed its potential with immediate and tangible benefits.

**“IT IS CLEAR THAT IN
A WORLD PRONE TO
CHANGE AND INNOVATION,
THE TOKENISATION OF
PRIVATE EQUITY TYPE
ASSETS IS OF GREAT
INTEREST”**

A WEB3.0 VENTURE STUDIO

Focusing on the new challenges of Web3.0 and Decentralised Finance (DeFi), the creation and development of the Venture Studio named PyratzLabs is a natural extension of the Group’s strategy. This new entity, entirely dedicated to the acceleration of start-ups developing Web 3.0 products, responds to the new challenges brought about by the emergence of disruptive technologies by reinventing digital property and value creation. The studio already has a dozen or so incubated projects, with different maturity levels.

It is clear that in a world prone to change and innovation, the tokenisation of private equity type assets is of great interest.

(1) Prudential Supervisory and Resolution Authority. (2) Electronic Shared Recording Device.

DIGITAL ASSETS: A REAL ASSET FOR PORTFOLIO DIVERSIFICATION



ERON ANGJELE
Co-Founder and CEO -
Arquant Capital

Initially considered an epiphenomenon by asset management professionals, cryptocurrencies are now attracting 293 million users worldwide¹, including a growing number of private and institutional investors.

In 2021, the first ETFs (Exchange Traded Funds) on cryptocurrencies listed in Canada were launched, following the dazzling success of Grayscale Investments' funds, whose assets under management grew to several tens of billions of USD in 2020.

First Morgan Stanley and now Goldman Sachs are offering their clients access to Ethereum investing via the Galaxy Digital fund. Goldman Sachs started listing the first NDOs (non-deliverable options) on cryptocurrencies in March.

So, let's try to get a clearer picture of the underlying motivations of institutional investors in this article by looking at the **good reasons to include cryptocurrencies in your asset allocation**.

BOOSTING PORTFOLIO RETURNS

Since the 2008 crisis, accommodative monetary policies by central banks have led to an unprecedented decline in interest rates making it increasingly difficult to offer positive returns on traditional asset classes (stocks and bonds). Today, under the pressure of tighter monetary policies and inflation at a 30-year high, financial assets are under severe pressure.

In this context, cryptocurrencies are benefiting as a whole from investors' infatuation with so-called "alternative" asset classes and their ability to deliver alpha over the long term, with 8% of French people having already invested in them².

More specifically, digital assets represent one of the few asset classes still capable of **boosting a portfolio's return per unit of risk** when intelligently integrated into a diversified investment strategy.

According to Fidelity's September figures, a 5% allocation to Bitcoin in a diversified portfolio of 60% stocks and 40% bonds improves the Sharpe ratio from 1.03 to 1.43.

REDUCING RISK EXPOSURE THROUGH DIVERSIFICATION

All other things being equal, the more diversified an investment portfolio is, and the more the assets in it are decorrelated from each other, the lower the specific risk of each asset.

Where traditional asset allocations simply diversify their portfolio with stocks, bonds, commodities and currencies, modern asset allocations take diversification a step further by also incorporating digital assets such as cryptocurrencies.

By adding this new asset class to one's allocation, it is thus possible to **build an investment portfolio that is more resilient to financial market fluctuations**. According to Fidelity, a 1% to 5% allocation to Bitcoin would appear to be optimal for managers who want to diversify their portfolio while limiting their exposure to sharp corrections. If integrated wisely and in the right proportions, cryptocurrencies have their place in a wisely managed portfolio.

What's more, cryptocurrencies offer a far more liquid diversification option than most alternative investments. Today, this asset class has a market capitalisation of USD 2 trillion³, surpassing the telecom industry. Indeed, it is clear that selling or buying back cryptocurrencies to rebalance your investment portfolio is much more practical and economical than doing the same with art or collectibles, for example.

PROTECTING YOUR WEALTH FROM INFLATION

Getting a positive return is not enough to increase the value of your assets. Indeed, in order to grow richer, the nominal return obtained must be higher than inflation.

While most government-issued "fiat" currencies lose value over time due to inflation, cryptocurrencies generally escape this inflationary penalty. And for good reason, unlike traditional currencies, these digital currencies are by nature deflationary, like Bitcoin (the quantity of units in circulation being planned in advance and limited), or not very inflationary, like Ethereum, which has a mechanism for the continual destruction of Ethereum, the "gas burn".

Thus, while currencies may fall in value as central banks create money to continually fund economic stimulus packages, cryptocurrencies such as Bitcoin can take advantage of their "safe haven" status and play their full role as a "store of value".

Although assets such as equities are by nature already relatively immune to inflation, investing a fraction of one's monetary holdings in a basket of cryptocurrencies can avoid the European Central Bank's 2% inflation target, and at the same time protect against any risk of inflationary spiral.

Of course, commodities also offer good protection against inflation, and gold has been incorporated into many investment strategies because of the insurance it offers against the loss of currency value. Unfortunately, when a commodity is not perishable, its storage cost often replaces all or part of the negative effects of inflation.

With cryptocurrencies, however, the storage costs and problems associated with commodities disappear because of their digital and highly secure nature. Put another way, holding digital assets allows you to hedge against inflation without incurring large management fees.

Whether you want to boost your portfolio's return, reduce your risk exposure through better diversification or protect your wealth from inflation, whatever your primary motivation, the Specialised Professional Funds managed by Arquant Capital and structured with SGSS are the solution to facilitate your investments in digital assets!

(1) ADAN & KPMG study Crypto in France: sector structure and adoption by the general public. (2) Ibid. (3) coinmarketcap.com, data as of April 2022.

FINDING A NEEDLE IN A CRYPTOSTACK



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Cryptocurrencies have experienced massive gains generating strong interest in related companies. We explored the current mining landscape to understand what factors drive the value of crypto miners and arrived at a two-fold conclusion: mining efficiency and the quantity of mined assets on the balance sheet make up only part of the total value; factors such as energy source, quality of mining fleet, hosting ability, and the quality of cooling make up the remaining part.

A HARD TO IGNORE ASSET CLASS

Investors looking for exposure to digital assets without necessarily initiating a crypto position may, for example, invest in crypto exchanges, banks, or miners. However, it is the latter that solely provides the most correlated exposure to the value of Bitcoin. The only caveat is that **finding a miner that will keep up with the growing global mining rate of Bitcoin and remain profitable is like finding a needle in a haystack.**

ATYPICAL SOURCES OF VALUE

The value of a crypto mining company comes mainly from two sources: the amount of crypto holdings on its balance sheet and earnings capacity based on its efficiency. The first depends on the mined cryptocurrency and its price. The second is a mathematical output determined by the company's and network's hash rates. Hash rate measures computational power per second.

A higher hash rate means more calculations can be performed, increasing the probability of mining a crypto block and earning the reward. Theoretically, the value differential between two companies with similar mining capacity would further come from the operational and financial costs. However, we find that the energy source, type of financing, additional revenue streams and quality of mining rigs may significantly influence the company's value proposition.

Energy source matters!

Mining companies running on fully sustainable resources have significant advantages. Renewable energy is a natural hedge against rising energy prices. Running carbon-neutral mining operations also opens the doors to institutional investors, who are becoming heavily ESG-focused. Some companies even go beyond carbon neutrality, directly targeting zero-emission sources.

Quality of mining rigs – a key to cost control and higher efficiency

Since the total cost of running a crypto mining facility has three main components – the cost of electricity, SG&A¹, and depreciation – investing in more efficient, easier-to-operate machines with longer lifespans is critical for effective cost management and operational profitability. For instance, investing in the best available mining equipment (like the Antminers S19XP) may improve cost efficiency beyond the industry average. If operated in a well-managed and temperature-controlled facility, it may last 50% longer. However, the 5-7 years promised lifespan also comes with months of lead time due to chip shortages and supply-chain bottlenecks.

“Mine and hold” strategy

Each mined Bitcoin may be sold, leveraged, or kept on the company's account. Keeping Bitcoin on the balance sheet is a natural hedge against speculatively priced mining equipment.

Financial discipline

Given that Bitcoin mining requires a continuous upgrade of the mining fleet, miners' financing and corporate structure remain essential factors to consider. Miners must aggressively invest in their mining fleet to outgrow the market. **Investors appreciate miners with stronger financial discipline and the ability to mine Bitcoins in-house.**

Additional sources of value

Some miners are purely focused on mining, others like Riot Blockchain and Core Scientific also provide hosting infrastructure. It isn't easy to separate the costs relating to hosting from those linked to mining. Valuation metrics may indicate a company as expensive in terms of “high cost per mined Bitcoin”. Still, by scaling down its hosting business, its mining activities could end up being more valuable. Moreover,

infrastructure that can be owned or outsourced also impacts valuation. Owning or outsourcing comes with value trade-offs – who is the company outsourcing to, what type of energy is the company using, how much does it contribute to global emissions and how much control does the company have over its outsourcing costs?

Looking through a clearer lens

We have developed a simple tool to explore the current industry landscape by mapping miners on three metrics adapted from the well-established industry ratios:

- “Price over the expected hash rate in twelve months” shows how much investors pay today per unit of the expected hash rate. The higher the y-axis, the more expensive the company's expected mining rate is.
- The “premium” the company is currently trading at versus its Bitcoin holdings and mining capacity. The former is usually valued at market price. The latter is a function of Bitcoin price, the total cost of mining a Bitcoin, additional expected mined Bitcoin in the next twelve months, and the efficiency of the mining fleet.
- The “market share” the company expects to control in twelve months in proportion to the global network.

Such a tool makes understanding value drivers and spotting outliers much easier. In our investment universe, this would correspond to Hut 8 Mining and BIT Mining. While having reasonable mining costs, they do not plan to significantly increase their hash rates in the next twelve months, leading to their higher price to (lower) expected future hash rate.

WHAT YOU NEED TO REMEMBER

Financial tools and metrics, while helping to identify the outliers, hardly distinguish the major players, as they fail to show the complete picture. They do not consider the atypical sources of value such as energy source, hosting capabilities, cooling efficiency, and other revenue streams like hosting. Looking only at financial metrics may prevent investors from choosing the most attractive risk-reward investment. The atypical accounting nature of mining operations skews most financial metrics and obscures potentially exciting investments. Only by analysing all the unorthodox factors we have covered in the article may investors have the full picture of whether a miner has real potential.

To conclude, crypto miners are not the only way to have exposure to crypto assets. **Our approach to managing our portfolios aims at increasing the potential risk-reward by diversifying crypto exposure across the entire value chain, from miners to financial institutions.**

(1) Sales, General and Administration.

TOKENISING THE WORLD



DAVID DUROUCHOUX
Deputy CEO - Societe
Generale Forge

Tron (1982), The Lawnmower Man (1992), The Matrix (1999) and now the Metaverse: the fascination for the digitisation of bodies and minds is not new. With the arrival of the Internet, information was digitised and transmitted without limit and almost instantaneously. Markets have seized this opportunity to grow exponentially, resulting in the landscape we know today. In Europe, France was one of the pioneers of this adventure with SICOVAM, which digitised securities and transactions as early as the 1980s. It should be noted that the digitisation of transactions was much faster on “front” market activities (transmission of simple information: ISIN¹, quantity, price) than on securities settlement activities (exchanging securities for “physical” cash via multiple intermediaries and disparate systems), with some markets still using paper in 2020 (pure registered shares in France; certain notes in Germany; multi-iCSD² issues).

This tremendous progress took existing schemes (securities banks, paper transactions, financial intermediaries) as a model to digitise and scale them quantitatively but without profoundly changing the structure and operational models. This innovation was incremental and accompanied the globalisation of exchanges, while maintaining strong local ties (CSD, custodian, stock exchanges), adapted to regulations.

The arrival of blockchain technology, and particularly cryptocurrencies (Bitcoin in 2009 and Ethereum in 2014), has brought to light another way of conceiving value exchange. This technology, originally designed to eliminate the trusted third party that is the basis of financial transactions, is so disruptive that it is still impossible to grasp its full potential and risks.

This new way of doing finance is changing 3 fundamental aspects of the very structure of capital markets:

- 1 - The trusted third party that stores the securities (formerly paper and now electronic) is disappearing**, being replaced by a decentralised and automated network similar to the Internet that obeys computer code rules valid all over the world and does not require a legal contract between the trusted third party and the user of the service. The computer code embedded in the digital security, or “smart contract”, is replacing registration in the securities account and the associated legal contract that are the basis of all securities law.
- 2 - The emergence of decentralisation in the validation of operations:** computer nodes of “mining” validate transactions in return for payment. These nodes are in competition with each other but, once the transaction is validated, they store it and immediately distribute the information in the network, ensuring the immediate transfer of the securities to the buyer, and this all over the world in the same way, unlike the private and therefore geographically constrained networks of traditional market intermediaries. It should be noted that this unique and natively global mechanism (like the internet) can be used to transfer units of account, securities, digital art representations, etc. in the same way, and can therefore be used to transfer currency instantly from one end of the planet to the other, unlike traditional banking mechanisms also limited to a geographical area, hence the debate on “digital currencies” issued only by a sovereign state.
- 3 - Centralising assets as a token makes them exchangeable** in a seamless and automated way. Clearing, arbitrage or liquidity management mechanisms can thus be automated in the form of “smart contracts” of “decentralised finance” and thus improve the behaviour of markets that are inherently imperfect. The removal of certain intermediaries would limit fees for customers while maintaining an equivalent quality of service. The management of liquidity pools and over-collateralisation rates would be outweighed by more frequent and automatic margin calls, reducing capital requirements and improving LCR³ ratios.

This new way of handling securities would effectively align the level of digitisation of “physical” securities settlement

activities (post-trade) with that of market activities handling information very quickly and easily. This would have several visible commercial impacts:

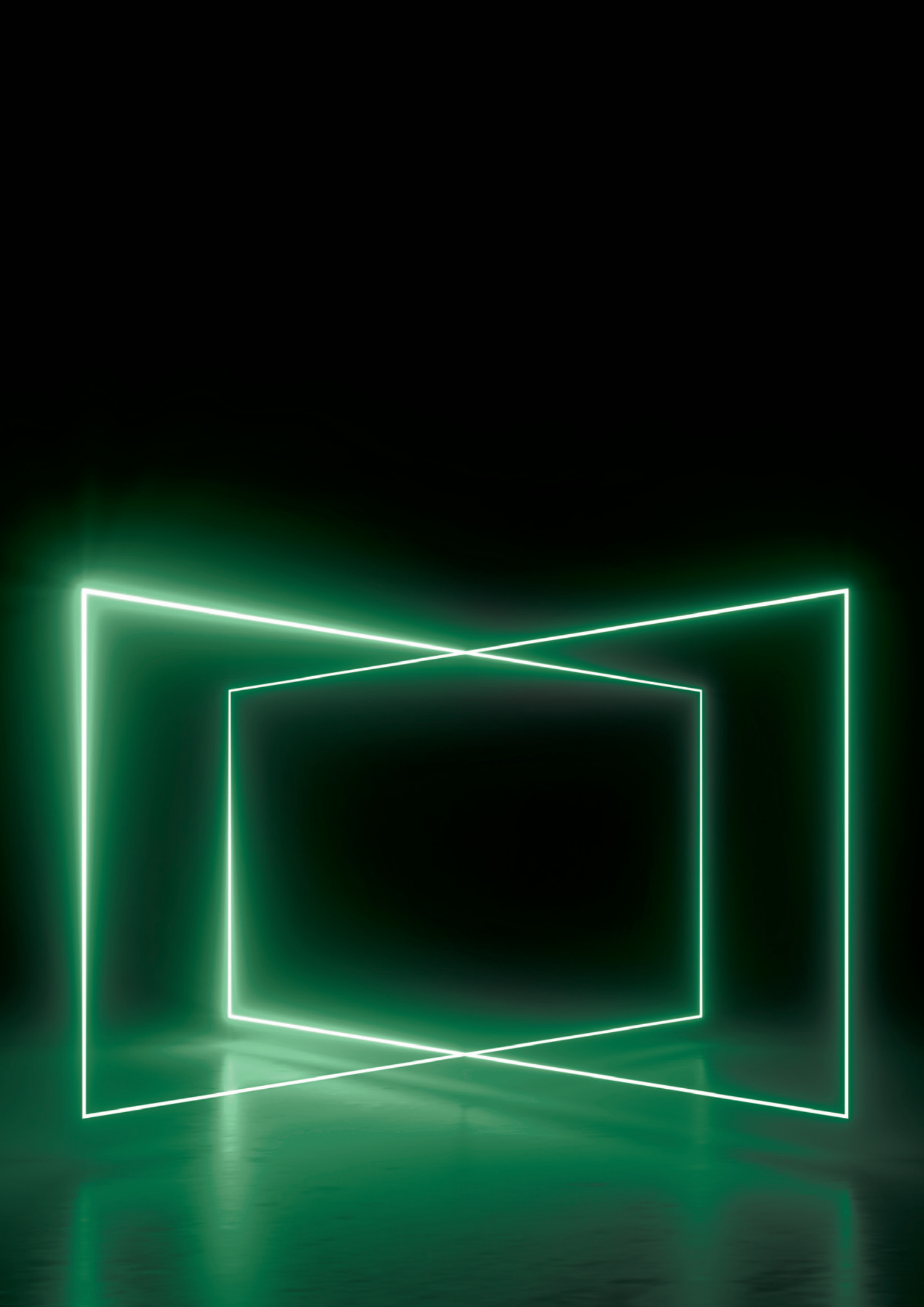
- The centralisation of cash and securities on the same technology substrate (which is not the case today) would **reduce reconciliations between counterparties and internal and external actors in complex transaction processing chains**. This would thus have an impact on financial institutions’ fixed costs and therefore lead to a restitution of this margin to customers and participants in these activities (employees, shareholders, etc.)
- Distribution channels would be **truly global, allowing sales teams to distribute products industrially and identically everywhere**. Reaching a new customer would be technologically easy, even in countries with the least well-equipped market infrastructures, and only limited by regulatory aspects. This would boost financial inclusion and make it possible to have smaller nominal values while preserving margins if the structural cost reductions are indeed achieved.
- The use of public blockchain combined with the registered share regime would **speed up client onboarding procedures** (opening the equivalent of a securities account takes a few minutes and is done online for free, without any specific tool) and to guarantee a detailed knowledge of the Final Beneficial Owners, which is critical for anti-money laundering operations as well as for the marketing use of investors’ identities.
- The use of blockchain securities would be **a step towards platformisation** similar to that seen in e-commerce, with multi-product platforms allowing cross-asset investment solutions, the easy sale of products bundles (a bond and a hedging derivative, for example) and value-added services (market data, marketing data, alerts, etc.)

**“THE ARRIVAL
OF BLOCKCHAIN
TECHNOLOGY, AND
PARTICULARLY
CRYPTOCURRENCIES
(BITCOIN IN 2009 AND
ETHEREUM IN 2014),
HAS BROUGHT TO
LIGHT ANOTHER WAY
OF CONCEIVING VALUE
EXCHANGE”**

To conclude, the appeal of these solutions is that **they are compatible with a gradual implementation**, without the big bang that every finance professional fears because of the operational risk involved.

France and Europe have been pioneers in this dynamic by establishing a flexible and non-trivial regulatory framework, with the PACTE⁴ law and then the MiCA⁵ and Pilot Regime regulations. Countries such as Luxembourg and Germany have quickly followed. This in-depth understanding, particularly within the regulatory teams (AMF⁶, ACPR⁷, Banque de France), is an intangible asset that each player can benefit from and allows our financial centre to have a significant lead on the world stage: **now it is up to our companies to make the most of it.**

(1) International Securities Identification Numbers. (2) International Central Securities Depository. (3) Liquidity Coverage Ratio. (4) Action Plan for Business Growth and Transformation. (5) Market in Crypto Assets. (6) The French Financial Markets Authority. (7) Prudential Supervisory and Resolution Authority.



THE PARADOX **OF CRYPTO ASSETS** **AND ESG**

THE PARADOXICAL ROLE OF CRYPTO ASSETS IN PURSUING ESG GOALS



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While there has been increasing institutional interest in digital assets, such as Bitcoin, some hesitancy in adopting this new asset class remains. A significant contribution to this hesitancy stems from concerns about compatibility with ESG goals. This article takes a look at the seemingly paradoxical role crypto assets play in pursuing ESG goals.

AN ENVIRONMENTAL IMPACT NOT AS BLEAK AS YOU MAY THINK

Let's rip off the band-aid. This point has been heavily debated in the past year, with some arguing that digital assets are fundamentally incompatible with environmental goals. There is no doubt that the Proof of Work (PoW) consensus mechanism consumes a considerable amount of electricity and generates vast amounts of e-waste. Bitcoin mining in particular is the best example of this problem. However, PoW is what makes Bitcoin so secure, which provides tremendous value regarding the S and G elements of the ESG goals, as will be discussed later.

As paradoxical as it may seem, PoW is in some ways supporting a shift to more environmentally sustainable infrastructure in the long term. Firstly, the constant demand for more efficient ASIC (Application Specific Integrated Circuit) mining chips has led to an incredible amount of innovation. ASIC chips are also used in artificial intelligence and machine learning. Efficiency gains in mining are translatable to other industries. Furthermore, **Bitcoin is enabling a shift towards cleaner energy by making solar and wind energy economically feasible and creating a use for energy that would typically be wasted, such as overproduction and flare gas.** Additionally, the possibility of on-chain carbon credits would bring a great amount of transparency and allow CO₂ offsets to be directly integrated into the value chain, for example in machine-to-machine payments.

As it stands right now, we encourage institutions with exposure to CO₂-intensive digital assets such as Bitcoin to calculate their footprint and offset accordingly. The paper "Bitcoin: CO₂ Emissions From An Investor Perspective And How To Compensate Them"¹ is a good starting point for such calculations.

A BEACON OF LIGHT FOR THE SOCIAL DIMENSION OF ESG

Social causes are where digital assets shine. The permissionless nature of public blockchains allows anyone with a smartphone and an internet connection to partake in a globally standardised financial system. This is important not just because more people worldwide own a smartphone than have access to a bank account, but for a variety of other reasons as well.

Digital currencies promote financial inclusion by allowing anyone to participate. They promote equal opportunities, as monetary policies are standardised depending on the digital asset, not depending on geographical borders. This can provide protection from inflation, particularly to those in lesser economically stable countries. A common practice in developing countries involves a family member moving abroad to work in high wage countries and sending a large portion of their salary home to support their family. Such transfers are called remittances. Traditional payment facilitators charge a significant fee on remittances, with the total remittance market being valued at over \$700Bn in 2020². That is billions of dollars each year being charged to some of society's most vulnerable members. Digital assets, such as Bitcoin, enable direct international money transfers without middlemen or percentage fees.

Crop production is the livelihood of many farmers in developing nations. Due to lacking infrastructure, insurance companies typically don't offer crop insurance in these places, leaving farmers vulnerable to an increasingly volatile climate. Etherisc takes a decentralised approach to insurance, allowing farmers to sign up via their smartphones and automating payouts based on Weather Satellite data. While this is just a single application, **decentralised approaches promise to greatly reduce risk all across the developing world,**

"BITCOIN IS ENABLING A SHIFT TOWARDS CLEANER ENERGY BY MAKING SOLAR AND WIND ENERGY ECONOMICALLY FEASIBLE AND CREATING A USE FOR ENERGY THAT WOULD TYPICALLY BE WASTED"

improving investability and, by extension, economic development. Another significant challenge regarding socioeconomic development is the protection of land and property rights. According to the World Bank, only 30%³ of the global population has legally registered rights to their land and homes. This is problematic, as it may lead to the seizure of land, food insecurity, and generational livelihoods being wiped out. This isn't so much a problem in the developed world, but in lesser developed countries, where populations are already most vulnerable, it is. Blockchain technology provides a technical foundation that can be used to build an accessible, incorruptible, and standardised system for recording and verifying land ownership.

Overall, traditional institutions such as banks, insurance providers, etc. have not been accessible to a majority of the world population. Rather than waiting for legacy infrastructure to reach these places, **digital assets enable a decentralised approach that anyone can opt in to regardless of location, documentation, and physical access.**

A BENCHMARK FOR TRANSPARENCY IN TERMS OF GOVERNANCE

Governance, in the context of ESG goals, is centred around transparency, reliability, and fairness in the decision-making process. There is a significant overlap between these attributes, and what is offered by a decentralised public ledger. **Digital currency protocols, like Bitcoin and Ethereum, are exceptional examples of fair and transparent governance.** Fundamentally, there is a democratic process influenced by contribution and community standing. It is fully open for anyone to join, audit or criticise.

This form of decentralised governance is further becoming accessible by the use of Decentralised Autonomous Organisations (DAOs). DAOs are essentially a smart-contract structure consisting of a shared treasury and voting shares. They can be used for a practically limitless number of applications. Examples include collaborative businesses, sports clubs, political activism groups, and investment funds. DAOs are already very much a reality today, though in relatively primitive form.

CONCLUSION

In conclusion, the **ESG goals and the ambitions of some of the main use cases of Blockchain technology are very much aligned, making the world more equitable, transparent, and fair.** There is still work to be done on the environmental side of things, and there are concerns about blockchain being used for nefarious purposes. Nonetheless, we are optimistic about its overall contribution to our world.

(1) <https://www.forbes.com/sites/philippsandner/2021/11/19/bitcoin-co2-emissions-from-an-investor-perspective-and-how-to-compensate-them/?sh=eb711d28c1ca>
(2) Credit Suisse, January 2020. 'Payments, Processors, & FinTech If Software Is Eating the World... Payments Is Taking a Bite'. (3) Source: World Bank, March 2019.

BLOCKCHAIN: BEHIND THE NOISE, THE SILENT REVOLUTION?



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Behind the glowing or acerbic newspaper headlines, technical terms and a lot of noise lies a revolution that is still poorly understood by the general public.

Introduced in 2008 by ideologists advocating a libertarian capitalism where private property has no limits and where everything can be exchanged or owned, the blockchain has gradually imposed itself, sometimes drifting from this original vision and often finding an echo in unexpected use cases.

The technology, which was used to fuel many deceptive proofs of concept in 2017-2018, has evolved a lot and has been enriched with new features. Need speed of execution? Solana is closing in on Visa's level of performance. Need to exchange anonymously? The Zero-Knowledge Proof (ZKP)¹ rollups will allow you to exchange data confidentially. Fees too high? A Layer 2² like Polygon will solve the problem. According to CoinMarketCap, there are now about a hundred Layer 1 assets that are the basis for more than 18,750 crypto assets traded daily. Proportionally speaking and with the exception of relatively low project quality, the blockchain has made it possible to list more projects in less than three years than Euronext since its creation.

HOW CLEAN IS YOUR BLOCKCHAIN?

The hidden sides of this revolution, however, are not always honourable. While technology has evolved, so have its ecological considerations. Even though Bitcoin maintains a consensus by Proof of Work (PoW)³, Ethereum has begun its transition to Proof of Stake (PoS)⁴, almost as secure but a lot less energy-consuming. It is estimated that Bitcoin consumes the equivalent of several nuclear reactors, but that a PoS technology like Tezos consumes the equivalent of only 17 households for a higher value offer (elaborated smart contracts, on-chain governance, etc.) **Like traditional industries, blockchains and miners are also beginning their transition from Chinese coal to decarbonised energy** as well as the recovery of wasted energy. Forward-thinking, miners share the same cost structure as hydrogen production stations (low-carbon or wasted electrical energy at the lowest possible cost). Similarly, PoW protocols are either disappearing or beginning their transition, like Ethereum.

WHAT IS THE STATUS OF THE TECHNOLOGY ADOPTION?

This evolution of technology has been supported by an ever-growing community of developers. A meta-analysis conducted on the code-sharing platform GitHub estimates the number of blockchain developers in 2021 at more than 105,000 people (+63% compared with 2020). The profiles are therefore rare yet becoming more numerous. This community, supported by a massive inflow of money, has allowed technology to move fast. Very fast. So much so that following the blockchain requires meticulous monitoring, which benefits "crypto influencers".

WHERE IS THE REVOLUTION?

Although Bitcoin allows for simplified smart contracts, it was Ethereum that introduced a so-called "Turing-complete" environment⁵. This was followed by the development of DApp (decentralised applications)⁶ and the appearance of the first DEX (decentralised exchanges)⁷.

Thanks to these DEX, it is now easier to buy a crypto asset than a Peugeot share. If we talk about figures, listing an asset on a DEX costs between 5 and 200 euros (depending on the network), and access to market data is free if we host a node ourselves, or less than 50 euros per month if we go through a node provider⁸ like Exanode.

Just as SpaceX has decreased the cost of access to space fivefold, making projects like Starlink economically viable, DeFi⁹ and DEX are disrupting the status quo. So much so that the listing of small and medium enterprises (SME) and

private equity fund assets are being considered. Startups are already offering to digitalise account keeping and to issue securities directly on the blockchain. Others suggest the possibility of making liquid what today is not, such as assets held by private equity funds. **The blockchain, thanks to its standards and robustness, is becoming a "turnkey" tool for listing and trading assets.**

WHAT IMPACT FOR THE BANK?

Taking the logic and philosophy to its extreme, the new investment bankers will be the advisors in ICO¹⁰, the clearing houses will be the blockchain, organised markets will be DEX and interfaces like Bloomberg will be node providers.

The blockchain is continuing its relentless progress, with regulation playing both with and against it. **While the ecosystem is flourishing, consolidation is undeniable**, but behind Non-Fungible Tokens (NFT) or questionable ICO projects, there will always be this technology that will profoundly change our way of understanding the exchange of goods... and by extension our currency.

- (1) Zero-Knowledge Proof (ZKP) is a method used in cryptography to prove that a statement is true without having to provide additional proof of its truth, making it possible to anonymise part of the information.
- (2) Layers (1 or 2) are basic concepts of "blockchain"-type architectures; a "Layer 1"-type blockchain does not need an additional infrastructure or network to validate or finalise a transaction. A "Layer 2" protocol will need a "Layer 1" network to manage its security and allow the establishment of a consensus to validate a transaction.
- (3) Proof of work (PoW) is the basic consensus algorithm in a blockchain. To validate a transaction listed in a blockchain and confirm transactions in order to produce new blocks in the chain, the participants (the "miners") are pitted against each other to solve an equation, and subsequently be rewarded by the attribution of the cryptocurrency thus created. This method is very energy intensive.
- (4) Proof of Stake (PoS), on the contrary, requires the user to prove possession of a certain amount of cryptocurrency (their "stake" in the cryptocurrency) to be able to validate additional blocks and receive the reward if there is one.
- (5) A "Turing-complete" environment is a computer environment that can perform basic algorithmic operations and execute computer code, whatever that code is.
- (6) Decentralised Application (DApp): an application developed according to the standards of distributed consensus protocols (Bitcoin, Ethereum, etc.). These applications are deployed on blockchains and shared across large peer-to-peer global networks. They are operationally transparent, robust and above all impossible to stop or censor, which makes it possible to remove the intermediaries necessary to put two actors in contact.
- (7) A DEX system works so that all its transactions are carried out directly on a blockchain. The DEX operates on the basis of so-called "smart" contracts that contain all the information needed to carry out the transaction (including liquidity).
- (8) A node provider gives access to a readable copy of the entire blockchain registry. Node providers are facilitators that host a copy of the registry and make it easily accessible to third parties (traders, Web Application, etc.). They are the "infrastructural" heart of the blockchain, alongside the miners who add the blocks.
- (9) Decentralised Finance (DeFi) is an emerging financial technology based on secure distributed books, which eliminates the control that intermediaries (banks and financial institutions) may have over money, financial products and related financial services.
- (10) Initial Coin Offering (ICO) is a method of raising funds, operating through the issuance of exchangeable digital assets (usually in exchange for cryptocurrencies) during a project's start-up phase. These items will be called "tokens" and may cover several types of assets with the objective of becoming easily exchanged, thus improving the asset's liquidity.

BLOCKCHAIN - THE PERFECT TOOL FOR SUSTAINABILITY MEASUREMENT AND INVESTMENT?



ALEXEY SHADRIN
Co-Founder and Managing
Partner - Evercity

IS DLT A WAY TO DO SUSTAINABLE INVESTING?

Sustainable finance is currently too complicated and expensive for SMEs. It is also unclear how much impact on Sustainable Development Goals it really makes. One of the main advantages of sustainable finance digitalisation is the reduced transaction and intermediation costs resulting in higher levels of accessibility for people and communities. Low-cost transactions bring more available instruments and more opportunities for projects and communities to get investments, and more transparent, fast and direct finance flows for more people affected by climate change.

At the same time, financiers will not invest in projects simply because this is the right thing to do morally. They will do it if there is enough trust and economic sense. Blockchain increases speed, reduces time and eliminates intermediaries, enabling the issuance of fully programmable and traceable sustainable finance instruments. Digital finance also brings new revenue opportunities through the tokenisation of real assets or securities (equity, debt, revenue sharing instruments, etc.) as well as enabling their fractional ownership and usage. Finally, blockchain provides a golden source of truth regarding financial and impact data for all stakeholders involved.

However, this tremendous potential may only be unlocked by the introduction of clear governmental regulations in the digital finance sector and the emergence of regulated platforms for secondary trading.

BLOCKCHAIN IS THE PERFECT TRACEABILITY TOOL FOR ESG IMPACT CALCULATION

Due to the geographical distance and outdated IT infrastructure, investors don't have access to the physical sustainability risk and impact data of financed projects. This causes problems: lack of trust between investors and SMEs, lack of accuracy and transparency in impact measurement and reporting as well as greenwashing.

The integration of blockchain with monitoring tools such as satellites, drones and Internet of Things (IoT) enable higher transparency, traceability and immutability of impact data. It also helps to assess sustainability risks and automate impact reporting. Once collected directly from the project site, the impact data would answer the question of whether corporates and financiers are really changing their investment practices, promoting a long-term thinking approach, increasing reporting transparency and public accountability for real targets behind the ESG policies.

More than that, a combination of blockchain and monitoring technologies allow new types of highly automated instruments such as sustainability-linked debt instruments to be issued. With such bonds or loans, the financial parameters are linked to real-life impact measurements. This allows investors to track and manage the finance and impact flows with unprecedented accuracy and transparency, solving the greenwashing issue.

ARE BLOCKCHAINS STILL VORACIOUS CONSUMERS OF ENERGY?

There is a lot of speculation about this, because no one so far has undertaken credible holistic research comparing the carbon footprint of various blockchains vs. the traditional financial system. All we know for sure is that the carbon footprint of Bitcoin, Ethereum and blockchains that are based on the Proof of Work consensus mechanisms is very high and, on the contrary, the blockchains that use Proof-of-stake consensus have a very low carbon footprint. A good example here is Polkadot blockchain that has been recently named as the most low-carbon blockchain by the Crypto Carbon Ratings Institute.

“A COMBINATION OF BLOCKCHAIN AND MONITORING TECHNOLOGIES ALLOW NEW TYPES OF HIGHLY AUTOMATED INSTRUMENTS SUCH AS SUSTAINABILITY-LINKED DEBT INSTRUMENTS TO BE ISSUED”

To unlock the potential of digital tech for climate finance and figure out all the pros and cons, the United Nations Framework Convention on Climate Change (UNFCCC) has established two flagship initiatives:

1. Climate Chain Coalition that unites more than 300 members from 60 countries who are exploring the implementation of blockchain for sustainable development.
2. UN Climate Change Global Innovation Hub that was recently launched at COP 26 in Glasgow.

Another interesting initiative by private actors is the Crypto Climate Accord.

At the same time, we should bear in mind that blockchain is still a young technology and has just started its wide-ranging industry adoption. **Chances are high that we will see more sustainable blockchains as well as encouraging use cases that can bring us closer to the attainment of the UN Sustainable Development Goals.**

WHAT IS THE ROLE OF AN ASSET SERVICER LIKE SGSS IN THE CRYPTO-ASSET REVOLUTION?

We are coming to the end of this second Token Magazine dedicated to digital assets, and we hope that everyone was able to find the answers to the questions initially asked by Laurent Marochini in his introduction: have we reached a real level of maturity in our industry enabling the end-to-end management of digital assets as a new asset class, similarly to the equities, bonds, derivatives and traditional or alternative funds that are our daily business?

FROM THE PRECEDING ARTICLES WE CAN DRAW THE FOLLOWING CONCLUSIONS:

- First of all, as Karima Lachgar and Maia Steffan mentioned, **the publication of new regulations at the European level is likely to reassure us about the framework within which the initiatives of the main players in this market must be based**, and above all likely to arouse the interest of institutional or private investors, with full knowledge of the risk to which they are exposed.
- However, it is still necessary to classify the digital asset according to the category to which it belongs, and Alain Rocher reminds us how slight the differences are between the scope covered by MiCAR on crypto assets and the Pilot Regime, which is mainly aimed at issuers of listed securities. Similarly, the ability to identify or not the issuer of a security deposited in a blockchain will ensure a functioning that is close to listed securities, which is not the case of securities directly exposed to cryptocurrencies like Bitcoin. This highlights the role of intermediaries in this new ecosystem, as one of the objectives of DLT technology is to be able to simplify the mechanisms for placing orders and holding securities by being able to do without a CSD guaranteeing the integrity of transactions and the strict maintenance of the ledger. Nevertheless, **the role of the custodian remains important in this new Eldorado, as it allows issuers and investors to be assured that the investment is rigorously maintained** and that the flexibility in “Delivery vs. Payment” movements, as presented by David Durouchoux, is not incompatible with the security of transactions provided by the use of smart contracts and perfectly identified actors (as allowed by PACTE regulations in France, and the equivalent in Luxembourg and Switzerland). Indeed, it is the scheme proposed by EQUISAFE and its partner LemonWay, which makes it possible to increase the liquidity of non-listed assets issued by SPVs by relying on a platform regulated in full compliance with the French Prudential Supervision and Resolution Authority (ACPR) thanks to DEEP (Electronic Shared Registration Device).
- Eron Angele also allows us to understand that we now have the opportunity to diversify portfolios in order to offer attractive returns in the face of a rather sluggish bond market. This is confirmed by Thomas Campione and PwC, whose study on the Luxembourg market confirms that the main players have gone from the stage of questioning to that of showing a marked interest in crypto assets in the short or medium term. And if we follow through with this reasoning, we come to the same conclusion as Yves Choueifaty, who poses the question of the parallel to be drawn between the value of an asset and its correspondence in the real world, giving a tangible dimension to the trade in a market that would thus have become “efficient”. This makes it possible

to question, as Karima Lachgar and Maia Steffan suggest, the new assets that are NFTs, whose primary characteristic is to be unique “assets”, but also whose not-fungible characteristic has thus far excluded them from the MiCAR regulation.

LASTLY, A FEW UNANSWERED QUESTIONS REMAIN:

- The first concerns the **energy consumption** represented by this new economy. It would appear, as Equisafe indicates, that simply changing the Memorandum of Understanding and Evidence from “Proof-of-Work” to “Proof-of-Stake” would be sufficient to reduce a transaction’s consumption in a ratio of 1 to 100, thus removing any residual doubts and rapidly complying with the UN Sustainable Development Goals these emerging technologies must swiftly meet.
- The second point concerns the **taxation of these trades**, which is not yet explicitly mentioned in supranational regulations. That is why the OECD is proposing a consultation that we all hope will address tax transparency issues and their impact on financial markets¹.
- The third point relates to the **identification of the actors and transactions**, which we can hope that the Pilot Regime trial will provide an answer to, but it will take another 3 years to do so; and we will then have more information on the implementation of the European Central Bank digital currency and how it can be used in digital asset trades, in addition to the assets that rely on cryptocurrencies today.

As a custodian, depositary, transfer agent or trustee, an actor such as Societe Generale Securities Services must fully master this regulatory and tax framework, but also propose solutions adapted to the needs of asset managers and investors. **In collaboration with SG Forge, and other technology players who have responded positively to the transparency and security requirements of this new market, we are now ready to support all players wishing to embark on the “crypto” adventure.** And we anticipate that after the American market, all the conditions have now been met on the European market to allow the emergence of new products and services bringing efficiency and economies of scale, if it provides a certain interoperability of solutions and a favourable framework, tested by actors recognised for their innovation ability and the professionalism of their teams. In any case, we are ready and will be back in 2 years to present the many initiatives proving that the authors of this magazine were right!

(1) Crypto-Asset Reporting Framework and Amendments to the Common Reporting Standard (OECD – 22 March – 29 April 2022).



YVAN MIROCHNIKOFF
Head of Digital Solutions - Societe Generale Securities Services

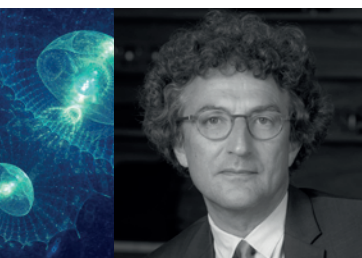
After the development of a start-up and European research programmes related to e-Learning, Yvan Mirochnikoff joined Societe Generale as a senior consultant, then coordinated the internet development and supervised SwiftNet and other projects for international retail banks. He held many positions (senior auditor, COO, IT head of Architecture, Infrastructures & Security) for the retail banking and financial services worldwide, and currently supervises digital transformation for SGSS. Yvan holds an MBA from the University Paris I Sorbonne (IAE), and a Master’s in Multimedia and Telecommunications. Since 2000, he is associated Professor at Paris-East University, where he manages the Master’s in Digital Economy, after creating the E-Commerce department.

AUTHORS' BIOGRAPHIES



THOMAS CAMPIONE
Blockchain & Crypto assets Leader - PwC Luxembourg

As part of his involvement in the PwC network, Thomas is the Luxembourg representative in the PwC Crypto Accounting Working Group, the PwC Global Crypto Committee, and the Global Blockchain Community. He is also a regular speaker and content creator on the Luxembourg blockchain and crypto-asset scene. Thomas started his career in 2008 as auditor and counts more than 13 years of experience in advisory and assurance services to both local and international financial institutions and multinational corporations. Thomas holds a master's in finance, is a CFA Charter holder, and successfully went through the Blockchain Technologies Executive programme from MIT School of Management.



YVES CHOUIEFATY
President and Chief Investment Officer - TOBAM

Notably recognised as “CIO of the Year” in 2015 (Funds Europe) and “Asset Management Leader of the Year” in France in 2016 (AGEFI), Yves Chouiefaty is a member of The 300 Club, whose mission is to raise awareness about the potential impact of current market thinking and behaviours. Mr Chouiefaty graduated in 1992 from ENSAE in Statistics, Actuarial studies, Finance, and Artificial Intelligence. Mathematician and Former CEO Of Credit Lyonnais Asset Management, having spent there over 10 years in diverse senior roles (CIO, Head of Financial Engineering and Quantitative Investment Management), he left in 2004 and founded the Maximum Diversification® approach as well as TOBAM in 2005.



KARIMA LACHGAR
Partner - Osborne Clarke

Before joining Osborne Clarke in 2021, Karima had experiences in the banking and financial sector as a lobbyist and professional association executive before becoming in 2016 a lawyer specialised in banking and financial law. She leads the Regulatory Financial Services, Fintechs and Crypto-asset practice in Paris. She advises French and international clients on their legal and compliance issues. She holds a Master of Arts in European Public Policy (SBU London), a master's degree in European Law (Université Paris I) and one in Business Law (Université Paris X Nanterre) and followed a programme on entrepreneurship and innovation at Paris Mines Tech.



MAIA STEFFAN
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Maia Steffan advises credit institutions, finance companies, payment institutions and electronic money institutions on the legislative framework applicable to their activities and intervenes in financial litigation proceedings. She deals with questions relating to the structure of those institutions, banking monopoly, investment and payment services, the distribution of banking and financial products, or the establishment of internal procedures. Maia also assists regulated institutions in their disciplinary disputes (AMF and ACPR). She holds a master's degree in International Trade Law from the University of Paris X Nanterre. She has been a lawyer since 2019 and joined Osborne Clarke in 2022.



ALAIN ROCHER
Head of Knowledge Management - Strategy and Market Infrastructure - SGSS

A graduate of the Ecole Centrale of Paris, Alain Rocher began consulting in various financial IT services companies before joining Societe Generale in 1991. After working on large IT projects, he took on the supervision of Back Office Services at SG Asset Management before joining SGSS in 2003 as Analysis, Methods and Quality Director, and then Quality and Compliance Director. In 2011, Alain joined SGSS/SMI as head of Knowledge Management. Since 2017, he has been monitoring regulations and management related to digital finance and new technologies. He is also a member of the Innovation & New Technologies group of the French Association of Securities Professionals (AFTI).



BILAL EL ALAMY
Co-Founder and Chief Technical Officer - Equisafe

With a degree in Science and Management, Bilal is passionate about entrepreneurship, innovation, and technology. After a short period in the world of private equity and consulting, he quickly decided to create Equisafe, a regulated platform based on blockchain technology to simplify financial transactions. Based on Tezos blockchain, the company provides 150 clients on all continents, 20,000 users for a capitalisation of €1.2 billion digitised mainly in real estate and private equity. Today, the company wants to diversify into other asset classes.



ERON ANGJELE
Co-Founder and CEO - Arquant Capital

With 20 years of experience in financial markets and asset management and 3 years in digital asset management, Eron started his career trading interest rate and FX derivatives and structured products at the Caisse des Dépôts et Consignations. In 2001, he joined La Banque Postale Asset Management (LBPAM) where he managed structured funds, benchmarked and absolute return bond funds. Between 2007 and 2017, he managed diversified funds in the asset allocation team, and oversaw strategy and management of currency positions. In 2019, Eron co-founded Arquant Capital, of which he is also the CEO. Eron holds an Executive MBA from HEC Paris, a master's degree in Economics and Finance from the University of Tirana, Albania, and a DESS in Strategy and Financial Expertise from the CNAM in Paris.



MARK TEMNIKOV
Portfolio Manager and Financial Analyst - AtonRâ Partners SA

Mark Temnikov is a portfolio manager and a financial analyst at AtonRâ Partners SA, where he conducts quantitative and fundamental research in the context of thematic investments. Prior to AtonRâ, Mark was a strategist and economist at Mirabaud Asset Management where he developed quantitative tools used for multi-asset allocation, and econometric models for tactical asset allocation. Mark won the CFA Institute Research Challenge in 2018. He holds a BSc. in economics, an MSc. in finance from the HEC Lausanne business school and is a CFA Charterholder.



DAVID DUROUCHOUX
Deputy CEO - Societe Generale Forge

David Durouchoux is the Deputy CEO of the subsidiary Societe Generale - Forge created in 2020, Public Limited Company regulated as an Investment Company by the ACPR since 2021. David is in charge of customer relations with bankers/advisors as well as of the entity's business development with institutional and corporate clients. He is also responsible for relations with central banks and digital currencies.



PHILIPP SANDNER
Head of the Frankfurt School Blockchain Center (FSBC) - the Frankfurt School of Finance & Management

Prof. Dr. Philipp Sandner has founded the Frankfurt School Blockchain Centre (FSBC). From 2018 to 2021, he was ranked as one of the “top 30” economists by the Frankfurter Allgemeine Zeitung (FAZ), a major newspaper in Germany. He also belonged to the “Top 40 under 40”—a ranking by the German business magazine Capital. Since 2017, he has been a member of the FinTech Council of the Federal Ministry of Finance in Germany. He is also on the Board of Directors of FiveT Fintech Fund, 21E6 Capital and Blockchain Founders Group - companies active in venture capital financing for blockchain start-ups and crypto asset investment management.



CEDRIC HEIDT
Research Associate - the Frankfurt School Blockchain Center (FSBC)

Cedric Heidt is a research associate at the Frankfurt School Blockchain Centre (FSBC) at the Frankfurt School of Finance & Management and an all-around crypto enthusiast. His main focus is currently on sustainability aspects of Bitcoin, play-to-earn gaming, and decentralised finance in general.



VIVIEN SAYVE
Head of Finance and Strategy - Exaion

Passionate about blockchain and IT, Vivien joined Exaion as Head of Finance and Strategy at the beginning of the adventure. He oversees blockchain and financial management of the company. For him, cloud and blockchain technologies represent a significant progress that will deeply change the interactions within our society.



ALEXEY SHADRIN
Co-Founder and Managing Partner - Evercity

In 2011, Alexey founded a carbon fund with his co-founder Liza. In 2016 they started digital impact tech R&D by supporting the DAO IPCI project. It achieved a historical milestone in 2017: the world's first carbon credit transaction on the blockchain. Alexey and Liza then founded Evercity.io, a blockchain platform for impact measurement & investment. Using WEB 3 and Industry 4.0 technologies, it raises the accountability, transparency, and liquidity of sustainable finance to attain the UN 2030 Agenda. Alexey also participates in high-level events and has co-authored an Elsevier-published book, “Transforming Climate Finance and Green Investment with Blockchains”, and currently holds the position of finance group leader within the Climate Chain Coalition.

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SGSS provides a toolbox of solutions and innovative, value-added securities services that allow clients to meet the burden of regulatory change and concentrate on their core business. SG Markets, the Group's online BtoB platform, provides a variety of digital tools to manage, control and steer their operations.



4,000
EMPLOYEES



4,586 BN EUR
ASSETS UNDER CUSTODY

697 BN EUR
ASSETS UNDER ADMINISTRATION

Source: SGSS internal report - data as of 31.12.2021

For more information, please visit <https://www.securities-services.societegenerale.com/>



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SGSS AT THE HEART OF AWARENESS



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SOCIETE GENERALE

SOCIETE ANONYME WITH A SHARE CAPITAL OF €1,046,405,540 AS OF 1ST FEBRUARY, 2022.

THE SHARE CAPITAL IS DIVIDED INTO 837,124,432 FULLY PAID-UP SHARES, EACH WITH A NOMINAL VALUE OF 1.25 EURO.

PARIS TRADE REGISTER NO. 552 120 222

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