

THE POTENTIAL OF CRYPTO TECHNOLOGY IN FINANCE



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Exploring the potential of blockchain for finance

Crypto-assets and decentralized finance (DeFi) markets have emerged as disruptors of traditional finance. The Distributed Ledger Technology (DLT) supporting those markets allows for innovative features such as tokenization of securities or smart contracts. Tokenization could make traditional assets such as real estate or private equity more accessible to a wider range of investors. Smart contracts could automate financial agreements, reduce the need for intermediaries and improve the speed of financial transactions. DeFi offers new and particularly challenging and innovative services in potential disruption of traditional players.

The potential for this technology to transform traditional finance is massive,

but some regulatory thinking needs first to be carried out. On the one hand, the absence of a clear regulatory framework has prevented a large number of players from fully jumping into the innovation fray. On the other hand, while blockchain technology is promising, crypto-assets and stablecoins still present significant risks, in particular for investor and consumer protection, for market integrity, money laundering and terrorism financing, or even financial stability and monetary sovereignty.

Therefore, benefits of blockchain technology for traditional finance will be difficult to achieve unless crypto-assets markets are well regulated and supervised. Consequently, France's most recent efforts focused on establishing a robust and harmonized framework within the EU while ensuring that innovation can be fully deployed.

France has indeed been a forerunner in the crypto-asset sector, implementing a registration and licensing regime for digital asset service providers from 2019 with the PACTE bill. The entry into force of the Markets in Crypto-Assets regulation (MiCA), expected before summer, will cover both new players and traditional players wishing to be issuers or service providers in crypto-assets. Thanks to a political agreement reached in June 2021, under the French presidency of the Council, MiCA will provide a comprehensive framework with a common set of rules for issuers of crypto-assets including stablecoins, service providers, and market participants, with consumer protection obligation, governance requirements, reserve and prudential rules applicable.

Europe should be at the forefront of financial innovation.

In addition to the MiCA regulation, the EU has also adopted a pilot regime for market infrastructures based on DLT, which has entered into application in March 2023. It must allow the emergence of European projects experimenting the use of blockchain technology in financial instruments, which is crucial to staying on top of financial innovations on a global scale.

Moreover, France continues to position itself as a hub for blockchain and crypto innovation aligning financial authorities with this objective. One of the components of this strategy is to bring blockchain innovation to traditional finance by fostering closer ties between traditional players, fintech, and new crypto-asset players to create all the necessary synergies.

The challenges to achieve these objectives remain multiple.

In the short term, the implementation of the MiCA framework requires further work both to ensure regulatory compliance and to develop all level 2 standards. More broadly, the alignment of all the texts that affect DLT players will be a key task to embrace this technology.

A real pact of trust between all the players still needs to be created to promote the use of blockchain technology. Public authorities continue to build up expertise to support this objective. The installation of a new BIS Innovation Hub centre in Paris and Frankfurt in March is a clear signal in that direction. This centre will notably allow the exploration of the uses of DLT for CBDCs.

In the longer term, the rise of the crypto-asset markets and stronger ties with the traditional financial system warrant close attention leading to the transmission of new risks. More globally, in order to ensure that there is a real level playing field and that a viable tokenized financial system develops internationally, it is important that each jurisdiction adopts a set of rules following coming FSB high-level recommendations.

The DeFi sector whose development is still largely underway, requires further exploration to understand opportunities and risks. Although premature in MiCA, any regulatory approach will not be able to simply duplicate the rules of traditional finance to regulate DeFi, but to focus on the new risks linked to this sector in order to be appropriate.

In conclusion, although these challenges will be demanding, they are key steps to drive a new wave of digital innovation in the financial sector. Europe should be at the forefront of financial innovation. The integration of new projects, regulatory approaches and appropriate supervision will allow their full development, framing the inherent risks and ensuring our strategic autonomy on these subjects.



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Innovation and risk in digital assets

The adoption of digital asset technologies may represent an historic turning point for financial services. While innovation will be driven by the private sector, the response of policymakers to these technologies will be essential in determining how they will be adopted, how risks are mitigated, and whether the benefits will be fully realised.

The potential for these innovations to reshape financial markets is considerable. Developments in markets for pure crypto assets are of course widely publicly reported, but the potential scope of digital assets is much more extensive. In capital markets, post-trade processing could be radically improved, moving transactions in cash markets closer to real time – therefore potentially avoiding the need to risk-manage these transactions through central clearing, reducing margin and collateral requirements. It could enable real-time transaction matching and automated reporting to regulators or trade repositories.

New types of assets could be created, and existing assets transformed, for example by introducing programmable features. Use of digital assets could help revolutionise financial market

processes, by delivering atomic – instant and simultaneous – settlement, or enabling the operation of markets 24/7.

These technologies have yet to be adopted at scale in regulated markets. The ability to do this will depend on whether the benefits of the technology can be shown to outweigh the costs of adoption, and how risks – including any emergent wider financial stability risks – are managed. The adoption of digital assets will necessitate the creation of new digital financial market infrastructures (FMIs) capable of issuing, trading, maintaining, and settling them.

It is important that regulation across financial services can adapt quickly to new technology. In the UK, we are building a smarter financial services framework, which will repeal legislation that in many cases will be replaced by rules made by our expert regulators – including the Bank and FCA, who regulate FMIs – in order to stay agile and adaptive. We are also taking forward a number of different initiatives, such as consultations on the regulatory framework for cryptoassets and for a retail central bank digital currency in order to ensure that we stay ahead.

Regulation should facilitate innovation but must hold firms to the same standards - especially FMIs.

As some of the most systemically important elements of the financial system, FMIs have, rightly, extremely high standards of regulation. It is essential that digital FMIs prove themselves able to safeguard operational resilience, cybersecurity, financial stability and consumer protections on the same terms as any other FMI. However, regulation is not just about protecting against risk. Regulation also facilitates innovation by creating the trust needed for potential users of FMIs to feel comfortable adopting new kinds of financial products, and in creating the environment for firms to make more informed decisions when investing in new technology.

Given the speed at which technology is evolving, there are already many cases where regulators need to work with innovators to bring their new models within the regulatory framework. In 2016, the FCA launched its “Regulatory

sandbox” to deal with these cases – which has been highly successful. Yet in order to fully explore the transformative potential of digital assets in markets, we will need to look at more fundamental changes to regulation. Doing this in anticipation of the development of technologies is challenging given the breadth of digital innovations. It is not clear at the outset, and may not be clear for some time, how legislation and regulation will need to adapt to facilitate and safeguard these changes.

The UK’s Financial Market Infrastructure Sandbox, the first iteration of which will be implemented this year, should be a big part of the solution. Unlike the existing FCA sandbox, users of an FMI Sandbox will have access to modified legislation that allows them to innovate while continuing to comply with regulatory standards, enabling them to test and scale digital technologies in FMIs where they otherwise could not. If the new practices tested in the Sandbox are successful, HMT will make permanent changes to UK legislation, and participating platforms will be able to continue providing their services outside the Sandbox. The ability to adapt regulation in response to practical experience should be a powerful tool in facilitating innovation whilst vigilantly protecting against risk.

The principle of ‘same risk, same regulatory outcome’ will not change, even in the face of substantial innovation in the digital space. If different regulatory requirements are needed to achieve the same outcomes, then it is important that government and regulators have the ability to facilitate this end. The UK government is looking forward to working with the sector to help realise – safely – the potential of these technologies in the coming months and years.



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Broader adoption of digital assets needs facilitation by institutional players

Compared to the size, activities, and regulatory framework of the financial services industry, Crypto, DLT and tokenization are still in their infancy. Nevertheless, in the last ten years, these technologies have enabled new marketplaces, new business models, new services and already quite a few boom-and-bust cycles. High hopes and deep concerns, underpinned by strong growth and spectacular failings like FTX and Silvergate, or more recently Signature Bank, alternated and led to questions whether these technologies will really transform financial services or not.

However, these are largely questions about the sustainability of the providers concerned rather than the potential of the underlying technologies. The latter are here to stay and will change the way financial services and especially securities services are done. The remaining question is how these technologies will transform the world we operate in and how long it takes.

Institutional adoption of digital assets is a key success factor

A key success factor is the broad acceptance of digital assets by institutional

players since a majority of (retail) clients is unlikely to access digital assets directly for the foreseeable future but will still need intermediaries such as banks or asset managers. Facilitation by regulated and fully licensed players would not only lead to increased adoption and growth by easing retail access to these new technologies, but also significantly help to gain the trust of investors and authorities alike.

However, this requires that not only individual actors deserve trust, but that the standards and safeguards apply along the entire value chain. This is precisely where traditional Financial Market Infrastructures (FMIs) come into play.

Sound risk, compliance, and security standards along the value chain needed to promote trust

At SIX, we follow two approaches to support institutional adoption by creating a secure and stable environment that provides the same level of confidence and security as today's financial market infrastructure:

The first approach is to create new fully regulated and licensed end-to-end FMIs for digital assets which build on the experience and expertise of traditional FMIs. An FMI of this type can cover the whole value chain from listing, trading, settlement, and even custody for the full range of digital assets and benefits from proven and well-established security, risk management, and compliance processes and procedures. The resulting high level of resilience, stability, and security ensures the necessary robustness of the services needed to win the trust of institutional clients.

This approach is also relevant for

Broader adoption and institutionalization demand smart and competitive regulation.

new asset classes such as private equity, carbon credit, or music rights, etc. The new technologies offer the opportunity to improve their liquidity and tradability, and enhance efficiency e.g., through smart contracts. A DLT-based FMI set up as described above can play an important role as "trusted intermediary" since it combines the new technology with the institutional trust built over time. This is what both the issuers and the (often non-

traditional) client base for these new asset classes are looking for.

The second approach is to extend existing services into the DLT or more specifically the crypto space. This allows for fostering the interaction and the embedding of crypto currency related business into the existing financial industry. The provision of clearing services for crypto derivatives is well known. Another example is the data area. The establishment of pure index data for the valuation of crypto products has been improved and expanded to include reference and market data, making it easier to understand and process digital assets by comparing them to traditional products traded on traditional venues. This comparability and connection to the existing financial industry is a prerequisite for the desired institutionalization and professionalization of this developing industry.

Broader adoption and institutionalization demand smart and competitive regulation

The new possibilities, but also broader (institutional) adoption, will call for a regulatory framework that allows for growth and innovation, while ensuring high quality of processes, investor protection, and stability of the entire financial system. While this will certainly be a demanding task that will also require a certain flexibility to adjust to evolving situations, we see a few criteria against which the appropriateness of a future regulatory framework should be assessed:

- Technology-neutral and principles-based
- Appropriate and proportionate
- Open and competitive
- Interoperable and coordinated

It is in the hand of regulators to acknowledge this and consider it in their current and upcoming policies in order to enable financial market infrastructures to continue performing and playing a crucial role in promoting financial stability, facilitating economic growth, and supporting the smooth functioning of the global financial system.



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Digital securities - A tsunami for capital markets?

When assessing the digital development in the financial sector, we should first look at the role and importance of the sector. The purpose of the financial services industry is to provide services that meet the economic needs of society and must not deal with itself. Banks, insurance companies and investment managers essentially have five roles within the economy:

They create money and enable payments, store value, finance companies as well as households, provide investment opportunities and help to manage financial risks. With the emergence of crypto technology and digital asset ecosystems in financial services, fundamental changes are on the horizon and offer new use cases.

Crypto is a very wide range of asset classes and often the discussion gets mixed up between very different types of assets. There are four types of crypto assets: Coins, CBDC, Digital securities, Tokenized assets (securities as well as real assets).

All of these have one thing in common - in order to benefit from all the

advantages, the crypto asset needs to exist on the blockchain technology. Just having a digital documentation of the existing central infrastructure is "digitalization 1.0". The lack of a fair value of coins, as we have seen it in recent history shows that coins do not fulfill any of the purposes of the financial sector. The only exception might be payment in economies that lack a stable and transparent monetary system.

Looking at the advantages of CBDC only from a retail perspective is short sighted. It primarily needs to exist for settling the cash lag of a transaction on the blockchain. By the way European Central Banks should also think about CBDC as a mean to establish an EU DLT infrastructure.

DLT will make the market much more efficient especially for investors as well as issuers

Ultimately, the most important transformative aspect of crypto asset is in digital securities and tokens. Due to considerable cost advantages and efficiency gains, digital securities will become a new standard and their success needs to be driven by issuers.

**Digital securities
have the potential to
strengthen Europe's
position in global
capital markets.**

Issuance costs of a classical bond are estimated at around 75 bps to 100 bps of par. Issuing a bond on a public blockchain and selling it directly to investors however leads to massive cost reductions, as no paper-based documentation is needed and there will be no clearing fees and no margins for distribution through banks. According to ECB there are more than 20 trn EUR of EUR-denominated long-term securities issued, not including equity. Roughly 6 % of the outstanding volume is the gross issue per year - the lever is significant.

Transferring a digital security is just another transaction on the chain and settlement takes place by entry in the registry. Thus, the complexity of the market infrastructure can be reduced significantly. It is not important anymore if the transaction is cross border or not - the mechanisms are just the same. Hence the cost of trading in the secondary market will be much lower.

Finally, handling life cycle events can be much easier through the use of smart contracts. Competition should bring parts of these cost advantages to the end investor. In order to capture the advantages, we will see plenty of tokenization of existing securities.

Is it just efficiency gains or is there a transformational aspect to it?

We have seen many cases where improving market efficiency led to structural changes. The best-known example is exchange traded derivatives which have been made available to more market participants, resulting in a six-fold increase in trading volume. The same is true for digital securities. As issuance costs decrease, capital market-based funding may become available to smaller companies that today need access either to bank loans or venture capital.

In Debt Capital Markets the role of banks will change significantly to a provider of services around digital securities. Investors could also invest directly with the issuer; therefore, the role of intermediaries like broker, clearer or transfer agents will also change significantly.

These new technological opportunities support directly the top EU goals: the single capital markets union, Europe's competitiveness on the global landscape and enabling financing the green transformation.

Initially, the shift to digital securities will be slow - but if you don't see it today that does not mean it is not going to happen. Under the surface, it's already underway and gaining momentum - like a tsunami.

There is no doubt that these enormous technological changes need to be covered by appropriate regulations at EU level - to cover the risks but also to enable the markets to prosper.

EU as well as national regulators have picked up the topic among others through the DLT pilot regime. We should not be too hesitant on these as the US seems to be focused on Coins and Asia somewhat behind.



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Can we securely benefit from blockchain technology?

Blockchain technology is entering different sides of many businesses, with the promise of efficiency gain. As this technology has still not really proven its potential in any industrial use case, we have seen in parallel the rise of use cases based on public blockchain and open protocols.

But this technology is clearly very far from being secured and trustful from a global society perspective (anti money laundering, terrorism financing, frauds, etc.). Moreover, whatever regulation is in place on digital assets service providers, supervisors need also to tackle the underlying infrastructure to make it as secure and trustful as current payment/delivery platforms.

On Digital Assets Service Providers

As many frauds, crimes or money laundering issues have happened on use cases with blockchain technology (especially using the so called crypto-currencies), regulators have globally started to look after those digital assets service providers offering services on blockchain-based assets

and are currently building dedicated regulations. Some countries have already set up the basis for them but one can say that they are still very far from what shall be expected from those players, especially the ones acting with retail flows and crypto-currencies. Those regulations are still missing the operational control organizations, especially if it is compared to what is in place for credit institutions. As a consequence, if a bank were to partner or even to serve those new crypto/blockchain players, it should look at it with a similar set of rules and constraints that a bank is itself facing. Those new players are still very far from the level of control banks have put in place globally.

In a few words, regulation should allow to select only proper and secured player for the good of our society, but it will not happen before at least a few years.

On blockchain as the underlying infrastructure

Once only secured and trustful players will be allowed to manage and transfer blockchain-based assets, the underlying question on the blockchain itself will remain. As a matter of fact, we can distinguish at least three ways to use the blockchain: (i) a private blockchain, (ii) a public blockchain or (iii) a permissioned blockchain.

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Private blockchains are operated by identified players, meaning the technical operations (servers, computation forces) are clearly chosen, mostly with a limited number of nodes and knowingly shared with others. Such operational mode is used by large institutions to test the expected benefits of the blockchain and its associated smart contracts for instance. In such a setup, controls are clearly defined and identified, and it is not fundamentally different from most current operational setups. But many private blockchains separated from each other would make a fragmented and costly framework.

On the contrary, public blockchains rely on multiple players, acting as nodes validators. To make the transactions secured, many players are required.

The incentives given by the system itself is supposed to guarantee the good behaviors of all players, each player acting in its own interest. This is what blockchain is mostly known for. Bitcoin in particular works this way. What is missing here is that it also relies on the supposed good faith of all those players. What is obviously missing here is defining the rules that those players should respect and controlling them effectively.

Permissioned blockchain are somehow in the middle of the road: even if they use public blockchains, only identified players are allowed to manage particular assets using such a blockchain. Sellers and buyers are fully known and identified, but still, the infrastructures used to transfer the assets are completely out of scope of any control.

In short, there is as of today no way to securely benefit from blockchain technology on a large scale. It is of utmost importance for the global financial authorities to address this issue.