

# Emerging Regulatory Approaches to Blockchain-based Token Economy

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## Abstract

Blockchain-enabled digital scarcity has opened up a whole new dimension of possibilities for the token economy, particularly with regard to rights and assets that have not been traded electronically before. Blockchain-based tokenization of rights and assets has also brought a new set of legal and regulatory challenges. Regulators and legislators are yet to address many of the issues raised by blockchain-based tokenization, from decentralisation and token characterisation to cross-border harmonisation and regulatory compliance with traditional market infrastructure. Lack of regulatory alignment can undermine many of the benefits of the token economy. Lack of legal certainty may not only stifle innovation and slow down mainstream adoption of blockchain-based tokenization, but can also raise the risks for investors and harm the reputation of the industry. The emerging regulations vary in approach. Liechtenstein became the first country to have a comprehensive technology-neutral regulation of the token economy. Malta and Singapore also represent progressive jurisdictions for blockchain regulation. However, most jurisdictions, including the United States and the European Union, have not yet formed a clear policy for blockchain regulation, and many legal questions remain open. The paper examines whether there is an emerging predominant regulatory approach or prevailing regulatory direction for the future of the token economy. It also highlights the existing regulatory void and divergent approaches to blockchain-based tokenization. Finally, the paper concludes that there is an urgent need to provide a clear legal and regulatory framework if the potential of the token economy is to be realised.

**Keywords:** *token economy, blockchain regulation, blockchain law, securities law, technology law*

**JEL Classifications:** *K20, K22, K23, K24, O31, O38, G28*

## 1. Introduction

According to the European Central Bank, the market capitalisation of cryptoassets reached an all-time high of €650 billion in January 2018 [1]. While the global value of the cryptoassets market is still relatively small compared to the entirety of the financial system, its absolute value is substantial, and as rapid development continues, it is gaining increased attention and market acceptance [2].

Mining native blockchain tokens or digitalizing assets and recording them on a blockchain in a trusted, immutable and reliable way and then trading those digital tokens on peer-to-peer, decentralised and disintermediated networks brings endless possibilities which the industry is only beginning to explore. There are several advantages to blockchain-based tokenization, including the democratisation of the investment market by allowing fractional investment with minimised costs. Executing transactions on a blockchain without intermediaries not only allows cheaper and faster transactions, but also increases market efficiency by removing the time and calendar constraints of the world markets. Blockchain transactions are more easily audited, facilitated by the transparency and

immutability of blockchain records. Blockchain-based tokenization can unlock the value of previously illiquid assets and allow for trading them cheaply and instantly. Initial Coin Offerings (ICOs) in particular, as a form of raising capital, provide unprecedented access to liquidity and capital while minimizing costs and the legal and jurisdictional constraints associated with public fundraising [40].

Blockchain developments have challenged and somewhat overwhelmed regulators, due to both the technological novelty and the speed of this technological innovation and its borderless and decentralised nature. The regulatory response has varied so far, from embracing to prohibiting, from adopting a tentative “wait and see” approach to proactively formulating bespoke regulatory frameworks for cryptoassets. Regulators struggle to formulate a consistent and coherent regulatory regime for blockchain tokenization.

Without focusing on any jurisdiction in particular, this paper aims to analyse the overall challenges and trends in regulation applying to blockchain-based tokenization and contribute to the existing research in this area. The first part of the paper explains the issues related to token taxonomy and the attempts at token

classification. The subsequent section analyses the main challenges facing regulators when confronted with blockchain tokenization. The next part outlines the main emerging regulatory responses with a few examples illustrating different approaches. Finally, the paper offers concluding remarks.

## 2. Token taxonomy issues

A blockchain token effectively constitutes a digital bearer bond, and ownership is determined by the data embedded on the blockchain [5]. Transfer of the ownership of blockchain tokens takes place on a peer-to-peer basis, without the need for approval from any intermediating party. Initially, blockchain tokens were limited to native cryptoassets, protocol tokens, specific to a particular blockchain platform, like Bitcoin. Native tokens function as a crypto-economic [4] incentive mechanism that encourages participation, induces trust and maintains the functioning of the system. The launch of the Ethereum network in 2015 unlocked new opportunities for blockchain tokenization and brought significantly improved utility of blockchain technology in general. The open source, public Ethereum network allowed the building of decentralised applications and permitted relatively easy issuance of tokens. The expansion of blockchain utility beyond native protocol tokens and the flexibility of building decentralised applications on the Ethereum network have notably accelerated growth of blockchain technology beyond the financial application of cryptocurrencies. It has become possible to issue any kind of token, from simple tokens consisting of a few lines of code to sophisticated instruments. While most tokens issued on Ethereum are fungible, ERC-20 standard compliant tokens, since 2017 Ethereum has allowed the creation of non-fungible tokens based on ERC-721 standards. Non-fungible tokens can represent unique non-substitutable assets, like artwork, real estate or collectibles. Introducing non-fungibility into the digital world is quite an extraordinary development. It enables replicating scarcity in the physical world in a digital dimension. A scarce unique asset can now be represented in a verifiable way on a blockchain by a non-fungible token.

The first regulatory hurdle is to establish definitional boundaries. There is no single and commonly agreed definition of a blockchain-based token. Several attempts have been made to classify tokens based on jurisdiction, functions, properties and other characteristics [5], [6], [8]. There are a variety of terms that are used interchangeably with no clear definitional demarcation. Tokens can be understood broadly as including any type of cryptoasset issued on any type of distributed ledger technology. A narrow definition would include only tokens issued on permissionless and open blockchain networks. As such, the term token can take on different meanings depending on the regulatory, legal or business context in which it is being used. Blockchain-based tokens can be distinguished based on their purpose, utility, technical layer on which they are placed, legal status or underlying value [6]. Depending on their purpose, tokens can be divided into cryptocurrencies, network tokens or investment tokens. When their underlying value is taken into

account, blockchain tokens can be grouped into asset backed, network value tokens or share-like tokens representing participation in an enterprise. Tokens can be issued as native to a specific blockchain platform – protocol tokens, or through a decentralised application. They can represent non-financial assets or financial assets, either native like cryptocurrencies or tokenised [7]. The lack of a uniform approach to token classification is challenging for regulators. The most common regulatory approach to the classification of tokens is functional and focusses on the purpose the token serves, rather than its technical specifications or other properties. It distinguishes cryptocurrencies, security tokens (sometimes referred to as investment tokens), utility tokens and hybrid tokens [3], [8], [9].

Currency tokens (like Bitcoin), the original and most straightforward type of blockchain tokens, are created to provide an alternative and decentralised means for the payment of goods and services. Currency tokens do not perform any other function. They are meant to work as a means of exchange and a store of value. Their value depends entirely on the value that users attribute to them.

Utility tokens provide the holders with other functions than just a means of payment, for example, access to services or products directly linked with the platform on which they are issued. They are not mineable and are intended for use within a specific blockchain platform, in contrast to cryptocurrencies, which have a multilateral reach and use beyond their issuing platform. Utility tokens do not embed any ownership or equity rights in anything other than the tokens themselves. Their value derives from their utility.

Finally, security tokens, sometimes referred to as investment, equity or asset tokens, derive their value from external tradeable assets. They are designed as an investment, which means that the motivation for their purchase is the anticipation of future profits, in the form of dividends, revenue share or price appreciation. Tokens classified as securities are usually subject to a heavy regulatory and compliance burden. Many regulators provide guidance or regulatory assistance to facilitate distinguishing security tokens from other types of cryptoassets. In the United States, the famous Howey Test is applied to determine whether a given instrument qualifies as a security. According to the Howey Test, a transaction that is a mere investment in common enterprise made with an expectation of profits from the efforts of a promoter or a third party falls within the scope of the definition of a security. Even though the Howey Test is commonly applied to determine the character of a token, it is not always reliable and, for now, a case-by-case approach is preferred by US regulators. In Europe, security tokens tend to be defined by reference to the relevant EU regulations governing financial instruments [10].

## 3. Regulatory challenges

Cryptocurrencies were the first blockchain tokens that attracted the attention of regulators, due to their rapid increase in value,

widespread presence in the mainstream media and appeal to a wider audience [7]. Consumer protection, money laundering and financing illicit activities were just a few of the main concerns that brought cryptocurrencies onto the regulators' agenda. The main issues and challenges noted by regulators were concerns regarding price and financial stability, impact on monetary policy and the overall integrity of traditional payment systems. One of the first issues examined was the capacity of cryptocurrencies to affect demand for fiat currencies and interfere in the control of the supply of money through open market operations. It has been feared that a potential challenge to central banks' balance sheets could come from widespread substitution of central bank money for privately issued cryptocurrency. If cryptocurrencies ended up dominating the monetary space, central banks could effectively lose their control and influence over money and credit developments. The inherent lack of stability and high volatility of cryptocurrencies could also contribute to the overall financial instability, particularly if traded at high volumes and widely accepted in the economy. In the absence of regulation or public authority oversight, users of cryptocurrencies and participants in cryptocurrency blockchain platforms are exposed to various risks, including credit, liquidity, operational and legal risks [11].

The next wave of regulatory concerns around cryptocurrencies was brought on by the emergence of stablecoins, which retain the main features of traditional cryptocurrencies. They are also blockchain tokens, which apply cryptographic methods of validation, but aim to stabilise their price by linking the value of the coin to an asset or pool of assets. The most prominent stablecoin project is Libra, which caused worldwide consternation among regulators and authorities. Stablecoins created a new set of challenges for regulators. A G7 working group on stablecoins investigated the impact of global stablecoins and identified a long list of risks from stablecoins of any size [12]. The risks relate to legal certainty, governance, the investment rules of the stability mechanism, illicit finance, safety, efficiency and the integrity of payment systems, cyber security, operational resilience and market integrity. Stablecoins are also considered to pose challenges to data privacy and protection, consumer and investor protection and tax compliance. The biggest concerns are raised over global stablecoins, which are feared to be able to affect monetary policy, monetary sovereignty, financial stability, fair competition and the international monetary system overall.

Regulators have also focussed lots of attention on ICOs. These are considered to pose many risks, particularly with regard to retail investors [13]. The risks associated with an investment in the tokens issued through an ICO are much higher than the traditional form of investing in regulated financial instruments. For a start, investors have very limited or no control over promoters. They usually invest in the very early stages of an investment life cycle, only on the basis of a project or an idea, and with the information asymmetry scale tipped heavily against them. The lack of disclosure obligations that accompanied most early ICOs provided limited transparency. ICOs that fall outside any regulation or

corporate governance regime create a legal and regulatory void, in which investors find themselves exposed to high risks and volatility. Investors also have no legal or regulatory protection or recourse, particularly in cases of bankruptcy or project termination.

What proved to be the real challenge for regulators, legislators and supervisory bodies was the lack of clarity in the legal framework applicable to blockchain tokens. On top of that, the borderless, disintermediated and distributed character of blockchain networks hinder any attempts to identify applicable jurisdictions, the location of participants and addressees of potential regulations. Apart from identifying the risks and challenges of a nascent token economy, regulators face the dilemma of balancing risk mitigation measures with enabling innovation and fostering the development of new technology. The regulators have several factors to consider when establishing their regulatory perimeter and mandate. These include public interest, maintaining system stability, market integrity and oversight over business behaviour. They can choose a functional approach to regulation and focus on token products and services, or an institutional approach, where regulations target the providers of products and services [14].

One of the fundamental regulatory questions is whether cryptoassets should be integrated within existing legal frameworks (which could be adjusted if necessary) or provided with a separate bespoke regulatory treatment or, perhaps, even left unregulated [41]. This dilemma has been presented by Mark Carney, the governor of the Bank of England, who stated that the authorities need to decide whether to isolate, regulate or integrate cryptoassets and their associated activities [39]. Regulators must continuously evaluate the "newness" of the technology against the nature and function of financial markets in order to ascertain whether blockchain-based cryptoassets introduce new market solutions beyond innovative technological parameters. Perhaps the very attempt at pigeonholing cryptoassets and grouping them into classifications and definitional parameters would hamper innovation. Equally, providing regulatory legitimacy to a new and rapidly evolving technology could prematurely grant umbrella validation for that technology, not all facets of which have yet passed the tests of time, quality and resilience. On the other hand, not recognising the potential of the technology and not embracing innovation by isolating cryptoassets from existing regulatory regimes can stifle technological development and encourage regulatory arbitrage. Yet, opting for a case-by-case approach to blockchain regulation, to allow unhampered innovation, might be undermined by the lack of legal certainty and the resulting regulatory void.

The Cambridge Centre for Alternative Finance identified [7] several considerations for the regulatory process with regard to cryptoassets. One of the first steps in such a process is to understand the concepts involved, underlying technological infrastructure and associated potential harms and risks. The next regulatory consideration is to understand which part of a

token lifecycle needs regulatory intervention. To this end, it is imperative for regulators to understand issuance, distribution, transfer mechanisms and intermediating activities for tokens and related risks.

Large-scale tokenisation has a number of potential economic and legal implications for financial markets and their participants. Those challenges vary from regulatory and legal questions to technology-related issues of scalability, interoperability or cyber risks. The next section illustrates how regulators have tackled some of these challenges so far.

#### 4. Emerging regulatory approaches

It comes as no surprise that regulators struggle not only to keep up but also to maintain a unified and consistent approach while scrambling to formulate a coherent regulatory response, given the speed of technological advancement, novelty, complexity and the enormous potential of the blockchain-based token economy. What emerges is a piecemeal approach and a regulatory landscape in constant and fluid evolution. It is a major task for regulators to develop a regulatory approach that adequately captures the transition from the existing regulatory system built on the basis of bilateral relationships to an increasingly distributed financial world of blockchain-based tokenization [15]. Among the diverse array of regulatory initiatives, statements and policymaking efforts, few prevailing approaches emerge. Either current laws are applied to blockchain tokens, sometimes with adjustments, including prohibitive modification and specific extensions, or bespoke legal frameworks are enacted [16].

When applying an existing regulatory framework to blockchain-based tokens, often the first regulatory step is to distinguish cryptoassets deemed to be securities from other types of cryptoassets [7]. Guidance and official statements are often issued clarifying whether and which tokens are included within the regulatory compliance regime applicable to regulated financial markets. For example, the Australian Securities and Investments Commission advised that the nature of the asset determines whether it can be considered a financial product falling under the scope of the Corporations Act 2001 and thus subject to several licencing and regulatory compliance requirements on the part of issuers, intermediaries, processes and exchanges [17]. Similarly, in Canada, the Ontario Securities Commission issued a series of notices stating that most of the offerings of tokens, including cryptocurrency offerings and utility token offerings, such as ICOs and initial token offerings (ITO), involve a distribution of securities – usually as investment contracts – and would be subject to relevant regulatory requirements [18], [19]. Even when cryptoassets are not in themselves securities or derivatives, platforms involved in trading these assets might still be subject to securities legislation. Germany is an example of a broad approach to the application of existing legislation to cryptoassets, by recently adopting new rules which provide that cryptoassets qualify as financial instruments. This means that trading and custodian entities may require a licence and

banks and investment firms are subject to specific regulatory requirements relating to financial services and financial instruments. The new definition of cryptoassets is broad enough to include utility tokens, investment tokens and payment tokens, as well as hybrids [20]. The UK Financial Conduct Authority issued comprehensive guidance on cryptoassets, which specified which participants involved in activities relating to security tokens, or to tokens that constitute e-money, or are involved in payment services, should seek authorisation or registration for carrying out a regulated activity [21]. Lithuania also opted to follow this approach by issuing guidelines on ICOs and STOs (security token offerings) stating that any digital asset akin to financial instruments – such as security tokens – must comply with the applicable national and EU regulatory regime [22], [23]. If the issued tokens grant the right to participate in the company management process, receive part of the company's profit or income, receive interest, recover the funds invested including through redemption of the tokens, or sell the tokens to another person, they will most likely be considered security and need to follow strict compliance requirements. In the United States, the Strategic Hub for Innovation and Financial Technology of the US Securities and Exchange Commission (SEC) published in 2019 two documents as guidance on digital assets. In the No-Action Letter [24] SEC's Division of Corporate Finance has stated that no enforcement action would be recommended if the tokens' issuer relied on the counsel's opinion that the tokens are not securities. The second document, "Framework for 'Investment Contract' Analysis of Digital Assets," [25] is intended as an analytical tool helping to determine whether the security laws apply to the offer, sale or resale of particular assets.

Application of the existing regulatory framework to certain cryptoassets potentially leaves other categories of cryptoassets, such as utility cryptoassets, outside the regulatory framework. It remains to be seen whether this approach remains the prevailing tendency or whether the regulators will develop bespoke and comprehensive regulatory solutions as the technology matures and the increasing amount of real case studies provide a valuable learning curve. Some jurisdictions have already introduced such bespoke regulations. Liechtenstein is one of the first countries to adopt a bespoke and comprehensive regulatory framework dedicated to tokenization [26]. Liechtenstein's unique and broad regulatory approach covers all applications of the token economy now and in the future and not only the ones related to financial markets. Liechtenstein's regulators see the potential of the token economy's ability to reproduce the physical world in a digital dimension in a legally certain way. They therefore focus on the two most important levels: the legal certainty of representation of the physical world on a blockchain and the reliability of service providers. In recognition of the vast spectrum of potential applications for the token economy and the limitations of existing definitions of cryptoassets, Liechtenstein regulators introduced a token container model with the abstract construct of a token, being a new, independent legal object recognised under the law as representing all kinds of rights. What is crucial in this model is

that the creation of a token does not create a new right, but only subjects an existing right “uploaded” into the token to the storage and transfer rules of a blockchain network. To ensure the synchronisation of the digital and real world, the disposal of the token equals disposal of the right it represents.

Malta has also proved to be a very proactive jurisdiction in blockchain regulation with its own bespoke legal and regulatory framework in the form of three legal acts aimed at regulating blockchain technology, cryptocurrencies and service providers. These are the Malta Digital Innovation Authority Act, the Innovative Technology Arrangements and Services Act and the Virtual Financial Assets Act (VFAA). The VFAA is one of the first legislative acts in the world dedicated to regulating cryptocurrencies by evaluating the features and rights attached to the tokens through the “financial instruments test”. This classifies tokens into virtual utility – non-exchangeable tokens, financial instruments, e-money and virtual financial assets. The VFAA deals with all blockchain-based assets. It also creates a bespoke regime for virtual financial assets which do not fit under any other category of blockchain-based assets [27].

The state of Wyoming also stands out as a jurisdiction with a novel and bespoke approach. It has passed 13 new acts to provide a comprehensive and blockchain friendly legal framework and to support the blockchain industry in its development. These include recognising direct property rights in all types of digital assets and adopting effective negotiability rules, which ensure digital token liquidity equal to that of money [28]. The state of Wyoming also created a fintech sandbox for up to 3 years to encourage financial innovation [29]. It established a new state-chartered depository for banking services for blockchain businesses [30]. In addition, Wyoming’s new legislation created a new type of qualified digital asset custodian. This will recognise direct ownership of digital assets and clients will retain direct ownership of an asset, unlike in traditional securities custody arrangements, where investors own the securities indirectly and are subjected to the relationship with the custodian [28]. The legal proposition of direct ownership under bailment (giving up only control over an asset) of digital assets is truly an innovative and progressive solution [31].

Bermuda, Gibraltar, Mexico and Mauritius are other jurisdictions with specific regulations aimed at cryptoassets and service providers.

At the other end of the spectrum are jurisdictions, like China, Taiwan, Vietnam or Pakistan, for example, which have, to some extent, restricted blockchain technology activities. China’s approach is particularly interesting as it is not only evolving towards better acceptance of blockchain technology, but it is characterised by a peculiar split attitude towards cryptocurrencies and other applications of blockchain technology. Individuals are not prevented from holding cryptocurrencies, but financial institutions are prohibited from offering cryptocurrency related services, making

cryptocurrency tokens a grey legal area in China. In 2017, China banned all ICOs and all cryptocurrency and token exchanges through an “Announcement on Preventing ICOs Risks”. At the same time the Central bank of China is moving towards launching their Central Bank Digital Currency. In February 2019, China enacted a legal framework for blockchain-based business (Blockchain Information Services Management Regulation), setting out registration and monitoring obligations, reporting obligations and obligations to provide records to authorities on demand. The distinctiveness of this approach consists of blocking specific content from blockchain networks through monitoring obligations and linking users to blockchain content through real name registration requirements. China has increasingly recognised the strategic importance and potential of blockchain technology. President Xi Jinping encouraged accelerating the development of blockchain technology as the core for innovation [32]. In October 2019, China passed a cryptography law and, while still banning cryptocurrency trading, the new law aims to answer regulatory and legal challenges in commercial cryptography and encourage research and development in the field and promotion of coherent blockchain industry standards [33].

Given the wide spectrum of regulatory approaches to blockchain tokens and mindful of cross border risks including money laundering, terrorism finance, tax evasion and regulatory arbitrage, international bodies and organisations have stepped in to address issues, assess regulatory gaps and foster international collaboration on global standards for the blockchain-based token economy.

After issuing a statement in March 2019, setting out high standards for banks engaging in cryptoasset activities, the Basel Committee on Banking Supervision published a discussion paper in December 2019 seeking views on matters related to the regulatory treatment of cryptoassets. These were intended to guide the design of a prudential treatment of banks’ exposures to cryptoassets, including capital and liquidity requirements for high risk exposures [2]. The Committee for Payments and Market Infrastructures is mandated to promote the safety and efficiency of payments, clearing and settlement arrangements to support financial stability. It has been monitoring digital innovation and developing reports and working papers on matters involving distributed ledger technologies [34]. It also closely cooperates with the International Organization of Securities Commissions (IOSCO). The IOSCO closely monitors the cryptoasset market to ensure that risks, issues and key considerations are appropriate. In May 2019, the IOSCO published a report on the issues, risks and considerations relating to cryptoasset trading platforms, in which it defines three core objectives of securities regulation relevant to cryptoassets: protection of investors, fairness, efficiency and transparency of markets and reduction of systemic risk [35]. The Financial Stability Board also closely observes cryptoassets and monitors financial stability, regulatory implications and risks. It has issued a report on financial stability and regulatory and governance implications for decentralised financial technologies [36]. A

number of other international bodies participate in the debate about blockchain technology and its implications for the financial system and the economy in general. The Financial Action Task Force (FATF) expanded the scope of its recommendations to broadly understand virtual assets and virtual assets service providers, who are required to comply with anti-money laundering and combating financial terrorism laws [37]. At the EU level, the Expert Group on Regulatory Obstacles to Financial Innovation (ROFIEG) published several recommendations for the regulation of distributed financial networks and cryptoassets [38]. The ROFIEG recognised the transformational potential of financial innovation and reaffirmed its readiness to establish an accommodative regulatory framework, while maintaining high standards of consumer protection, market integrity and the stability of the EU financial system. It also noted the absence of clear regulation on cryptoassets and distributed ledger technologies and the need for immediate and bold action. Particular recommendations for distributed financial networks and cryptoassets include the need to determine the relationship between participants for regulatory and supervisory purposes, ensure adequate applicability of terms and concepts, communicate regulations to addressees and address issues of operational resilience, exposure to cyber risks and systemic network failures. The ROFIEG emphasises the urgent need to complement and complete existing legal frameworks to address the lack of a common taxonomy for cryptoassets, resolve fragmented national approaches and legislate relevant conflicts of law, among other issues. Against the background of many international reports, notes, studies and recommendations, the European Union has now taken the first step to assume its competence over cryptoassets by launching a consultation on an EU regulatory framework [42]. The objective of the consultation initiative is to provide clarity in relation to cryptoassets within the EU regulatory framework and to lay down a regulatory framework for those cryptoassets to which the existing regulations are not applicable. The consultation is an example of an attempt to find a comprehensive approach to all cryptoassets, those which fall under the existing financial regulations regime (like security tokens) and those which are new to the system (like utility tokens). The EU Commission aims to reduce the risk of regulatory arbitrage, minimise legal barriers, uncertainties and compliance costs and facilitate access to the market. The objective is to contribute to financial stability and market integrity while fostering technological innovation. The EU-wide regulatory framework would consolidate previous initiatives and reports on the subject by various EU and international organisations, standard setting bodies and industry stakeholders and provide much needed harmonisation and clarity across the EU territory. The EU-wide regulations could also provide a benchmark and standard for other regions and could be the first step towards international convergence in regulatory approaches to cryptoassets. The EU initiative illustrates that regulators are starting to approach cryptoassets in a broad sense, analysing all facets of this phenomenon and aiming to assess the whole cryptoasset ecosystem.

## 5. Conclusions

Designing an adequate regulatory framework for the blockchain-based token economy is a major challenge. Embracing the potential of and opportunities within blockchain tokenization while competently addressing new risks and challenges at national levels and across jurisdictions is a considerable task. So far, the technological developments of blockchain tokenization have not undermined the current structure of financial markets. They carry a promise of enormous opportunities for equity issuance, capital raising, efficiency gains and improved liquidity. The current broad array of regulations of blockchain-based cryptoassets and related activities vary considerably across jurisdictions and aim at meeting diverse policy objectives. When existing legal and regulatory frameworks are applied, authorities issue guidance, clarifications and warnings to market participants. Several jurisdictions have banned or restricted specific cryptoasset activities, although attitudes towards blockchain technology are evolving. Overall, more and more jurisdictions adopt a friendly regulatory approach towards cryptoassets by enacting dedicated regulation or by introducing various arrangements to promote blockchain technology, like regulatory sandboxes, for example. Nevertheless, the resulting overall picture is fragmented. This sketchy regulatory landscape is still far from achieving much needed consistency and even further from international harmonisation. Increasing disintermediation and decentralisation brought by blockchain technology warrants a more encompassing approach to regulation of the expanded financial ecosystem. The technology has developed faster than regulators have been able to comprehend and cater for so far. The emerging fragmentary and inconsistent regulatory approaches illustrate this lag of the law behind the technology. There are a few more dynamic and proactive jurisdictions like Liechtenstein and Malta, which have designed leading and creative regulatory solutions for cryptoassets. However, the vast majority of jurisdictions have a more reactive than proactive approach, which is often limited to clarification, guidance or a restrictive stance towards cryptoassets. Such regulatory discrepancies are undesirable for a unique, borderless and fast developing phenomenon like blockchain-powered cryptoassets. The risks to investors, established financial systems and market integrity are increasing with the continuing lack of adequate regulations. At the same time, opportunities can be missed and innovations stifled in the regulatory void. There are, however, some positive regulatory developments. Cryptoassets are no longer in obscure marginal territory, rather their potential has been recognised and they are firmly on the regulatory agenda. The EU regulatory initiative is an attempt at a thorough and comprehensive regulatory assessment of cryptoassets and can potentially represent a pivotal point for cryptoasset regulation. The appropriate recommendation for regulators is to step up, learn from those jurisdictions that have already competently responded and assist the industry, mitigating risks while fostering innovation. Achieving this elusive regulatory balance between embracing innovation and combating emerging risks is a major and urgent regulatory

challenge that requires determination and international cooperation, since blockchain tokenization is designed with little regard to jurisdictional borders.

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