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COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

**Proposal for a Regulation of the European Parliament and of the Council
on Markets in Crypto-assets and amending Directive (EU) 2019/1937**

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1. INTRODUCTION: POLITICAL AND LEGAL CONTEXT

1.1. Political context

As President von der Leyen stated in her Political Guidelines for the new Commission¹, it is crucial that Europe can reap all the benefits of the digital age and that it strengthens its industry and innovation capacity in a safe and ethical way. Digitalisation and new technologies are transforming the European financial system and the way it provides financial services to Europe's businesses and citizens. Two years after the Commission adopted the FinTech Action Plan², the actions set out have largely been implemented. The socio-economic impacts of the COVID-19 crisis have also highlighted the importance of digital finance and the need to allow business to be conducted remotely and through innovative digital technologies, wherever possible.

As part of the Commission's overarching agenda of making Europe ready for the digital age, the Commission is undertaking considerable work in the area of digital finance in an effort to both enable the financing of the digital transformation and ensuring that the financial sector can make the most of the opportunities the digital age presents and become competitive globally. The digital finance strategy will set out the direction of travel for digital finance in the EU, focussing for example on access to data, artificial intelligence and digital identities. Additionally, as part of the digital finance strategy, the Commission will publish underpinning proposals on crypto-assets, as part of the work on ensuring the EU framework allows for innovation while mitigating the risks, and digital operational resilience, as increased digitalisation means increased cyber threats. As regards blockchain and distributed ledger technology (DLT), the Commission has a stated and confirmed policy interest in developing and promoting the uptake of this transformative technology across sectors, including the financial sector³.

¹ Ursula von der Leyen, Political Guidelines for the next European Commission, 2019-2024.

² Commission Communication: 'FinTech Action Plan: For a more competitive and innovative European financial sector (March 2018).

³ For instance, the recent Communication on a new SME strategy for a sustainable and digital Europe (COM 2020/103/Final) emphasizes that Fintech innovation can enable SMEs to issue crypto assets and digital tokens and includes an action for the Commission to launch a blockchain-based initiative enabling the issuance and trading of SME bonds across Europe.

Crypto-assets are one of the major blockchain applications for finance. Since the publication of the FinTech Action Plan, the Commission has been examining the opportunities and challenges raised by crypto-assets. In that Action Plan, the Commission mandated the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA) to assess the applicability and suitability of the existing financial services regulatory framework to crypto-assets. The advice⁴ issued in January 2019 clearly pointed out that while some crypto-assets could fall within the scope of EU legislation, effectively applying it to these assets is not always straightforward. Moreover, the advice noted that provisions in existing EU legislation that may inhibit the use of DLT. At the same time, EBA and ESMA underlined that – beyond EU legislation aimed at combating money laundering and terrorism financing – most crypto-assets fall outside the scope of EU financial services legislation and therefore are not subject to provisions on consumer and investor protection and market integrity, among others. In addition, a number of Member States have recently legislated on issues related to crypto-assets leading to market fragmentation.

The inherent cross-border nature of internet-based products and applications and in particular those leveraging distributed networks, such as crypto-assets, require strong international cooperation in order to be regulated properly. The Commission has consistently participated actively in all relevant fora working on crypto-assets over the past years to promote cooperation and a common approach. The Commission continues to follow and participate in the relevant work, done in particular by the FSB and FATF on ‘stablecoins’. The current development of high-level principles by FSB, will form a solid basis for jurisdictions to build potential regulation on and will be taken into account in the EU framework.

A relatively new subset of crypto-assets – the so-called “stablecoins” - has emerged and attracted the attention of both the public and regulators around the world. While the crypto-asset market remains modest in size and does not currently pose a threat to financial stability⁵, this may change with the advent of “stablecoins”, as they seek wider adoption by incorporating features aimed at stabilising their value and by exploiting network effects⁶.

Given the developments in the crypto-asset market in 2019, President Ursula von der Leyen has stressed the need for *“a common approach with Member States on cryptocurrencies to ensure we understand how to make the most of the opportunities they create and address the new risks they may pose”*⁷. Executive Vice-President Valdis Dombrovskis has also indicated his intention to propose new legislation for a common EU approach on crypto-assets, including “stablecoins”. While acknowledging the risks they may present, the Commission and the Council also jointly declared in December

⁴ ESMA, Advice on ‘Initial Coin Offerings and Crypto-Assets’, 2019; EBA report with advice on crypto-assets, 2019.

⁵ FSB Chair’s letter to G20 Finance Ministers and Central Bank Governors, 2018.

⁶ G7 Working Group on Stablecoins, Report on ‘Investigating the impact of global stablecoins’, 2019.

⁷ Mission letter of President-elect Von der Leyen to Vice-President Dombrovskis, 10 September 2019.

2019 that they “are committed to put in place the framework that will harness the potential opportunities that some crypto-assets may offer”⁸.

The purpose of this document is to assess the case for action, the objectives, and the impact of different policy options for a European framework for markets in crypto assets, as envisaged by the 2020 Commission work programme⁹.

1.2. Market and legal context

1.2.1. Distributed ledger technology (DLT) and the different types of crypto-assets

Crypto-assets are a type of assets that depend primarily on cryptography and DLT. DLT is essentially records, or ledgers, of electronic transactions, very similar to accounting ledgers. Their uniqueness lies in the fact that they are maintained by a shared or ‘distributed’ network of participants (‘nodes’) and not by a centralised entity. It therefore avoids the downside faced by central storage systems of representing a single point of potential failure. The key aspect of DLT systems is that they allow for the decentralised processing, validation or authentication of transactions or other types of data exchange. Typically, records are stored on the ledger only once the participants have reached consensus¹⁰.

DLT can be divided into two categories: permission-based and permissionless. Permission-based DLTs are closed systems where only identified participants can propose and validate ledger updates. In permissionless DLTs, any entity can access the database and, depending on the specific validation method used, may be able to contribute to updating the ledger. The bitcoin’s innovation was to build a decentralised network that has no central, trusted authority and is open to anyone. In contrast, most of the DLT platforms being developed for use in the financial sector are permission-based.

Another important feature of distributed ledgers and crypto-assets is the extensive use of cryptography, i.e. computer-based encryption techniques such as public/private keys and hash functions¹¹, to store assets and validate transactions. In this context, the public key (and the public address, which is a shorter form of the public key¹²) is publicly known and is essential for identification. They are similar to a user account number. The public address is a balance and can be used for depositing and

⁸ Joint Statement of the European Commission and Council on ‘stablecoins’, 5 December 2019.

⁹ https://ec.europa.eu/info/publications/2020-commission-work-programme-key-documents_en.

¹⁰ There are various consensus mechanism types that depend on the DLT set-up (see section 7). However, all of them aim to tackle any tampering with the information stored on the ledger and to avoid any manipulation by a single entity.

¹¹ A hash function is an algorithm that transforms large random size data to small fixed size data. The data output of the algorithm is called the hash value. Hash functions operate in a one-way manner, which means that it is impossible to compute the input from a particular output. For instance, it is impossible to infer the public key from the address or to infer the private key from the public key. Meanwhile, the entire network can derive the public key from the private key and therefore authenticate a given transaction.

¹² The address is a cryptographic hash of the public key. Example of a public address: 1EHN6Q4Jz2uvNExL497mE43ikXhwF6kZm8

receiving crypto-assets. The private key¹³ (akin to a password needed to unlock a user account) is used for authentication and encryption. It grants a user the right to dispose of the crypto-assets at a given address and is needed to authorise a movement of crypto-assets. Losing the private key is equivalent to losing the right to move assets around, hence the need to save it in a secure location.

Files that are written onto the ledger are given a unique cryptographic signature and will usually be timestamped. This allows participants to view the records in question, providing a verifiable and auditable history of the information stored.

DLT networks and crypto-asset activities are supported by ‘smart contracts’. A smart contract is a piece of software that runs directly on DLT and can replicate a given contract’s terms. It effectively implements the terms of an agreement (e.g. payment terms and conditions) into computational material to automate the execution of contractual obligations. For instance, in the case of an offer of crypto-assets, a smart contract can guarantee that the funds will be returned to investors if the offer does not reach the minimum subscription target¹⁴.

Thousands of crypto-assets have been issued since bitcoin was launched in 2009. In February 2020, there were more than 5,000 crypto-assets worldwide¹⁵. There is also a wide variety of crypto-assets. There is no official categorisation of crypto-assets in use in the EU or at international level. However, a commonly used classification comprises four main categories of crypto-assets¹⁶:

- **Payment/exchange/currency tokens** (often referred as virtual currencies or crypto-currencies). These tokens are used as means of exchange (e.g. to enable the buying or selling of goods/services by someone other than the token issuer). They can also held for investment purposes, even it is not their intended function. Examples of payment tokens include Bitcoin or Litecoin. The “stablecoins” are a relatively new form of payment tokens with particular features aimed at stabilising their value. “Stablecoins” are typically backed by real assets or funds (such as short-term government bonds, fiat currencies...) or by other crypto-assets. They can also take the form of algorithmic “stablecoins” (with algorithm being used as a way to stabilise volatility in the value of the coin).
- **Investment tokens** may provide rights related to companies (e.g. in the form of ownership rights and/or entitlements similar to dividends).
- **Utility tokens** have two main functions. Some of them enable access to a specific current or prospective service or good (similar to a voucher). Some are issued to reward operators for maintaining the DLT, for validating and recording transactions.

¹³ Example of a private key: 5Kb8kLf9zgWQnogidDA76MzPL6TsZZY36hWXMssSzNydYXYB9KF

¹⁴ For instance, as of 26 December 2017, there were 970,898 smart contracts running on the Ethereum blockchain alone. See: Wolfgang Ahrendt, Gordon J. Pace, Gerardo Schneider, Smart Contracts – A Killer Application for Deductive Source Code Verification, 2018.

¹⁵ Trade website Coinmarketcap.

¹⁶ See, for instance, the EBA report with advice on crypto-assets, 2019.

Like payment and investment tokens, some utility tokens can be traded on secondary markets¹⁷. One example of utility token is Filecoin¹⁸.

- **Hybrid tokens** have features at issuance that enable their use for more than one purpose.

Some crypto-assets could already be covered by EU financial services legislation, but the majority of them would not be¹⁹. When considering whether EU financial regulation applies to crypto-assets, an important question is whether the crypto-asset in question constitutes a ‘financial instrument’ or ‘electronic money’.

Some crypto-assets, especially some “investment tokens” or some “stablecoins”, could qualify as “financial instruments” under the Markets in Financial Instruments Directive (MiFID II)²⁰. Under MiFID II²¹, “financial instruments” are *inter alia* ‘transferable securities’ (such as shares, bonds and any other securities giving the right to acquire or sell any such transferable securities), ‘money market instruments’, ‘units in collective investment undertakings’ and various derivative contracts. In so far as a crypto-asset qualifies as a financial instrument under MiFID II, a full set of EU financial rules (including the Prospectus Regulation, the Transparency Directive (TD), the Market Abuse Regulation (MAR), the Short Selling Regulation (SSR), the Central Securities Depositories Regulation (CSDR) and the Settlement Finality Directive (SFD)) are likely to apply to their issuer and/or firms conducting activities related to them.

Other crypto-assets, especially some other types of stablecoin, could qualify as electronic money under the Electronic Money Directive II (EMD2) if they satisfy all elements of the definition, notably by giving users a direct claim on the reserve backing the ‘stablecoin’²².

The current EU legal framework on anti-money laundering and countering the financing of terrorism (AML/CFT) also applies to some providers of services (wallet providers and crypto-to-fiat exchanges) related to ‘virtual currencies’²³. The EU AML/CFT framework

¹⁷ This, however, presupposes that the utility token is technically enabled for trading at issuance and that there is also enough demand (liquidity) for utility tokens to be traded. This may not be the case where utility tokens are conceived to function within in a single data ecosystem, only.

¹⁸ Filecoin is a decentralised storage network that turns cloud storage into an algorithmic market. Filecoins can be spent to get access to unused storage capacity on computers worldwide. Providers of the unused storage capacity in turn earn filecoins, which can then be sold for cryptocurrencies or fiat currency.

¹⁹ ESMA, Advice on ‘Initial Coin Offerings and crypto-assets’, 2019; EBA report with advice on crypto-assets, 2019.

²⁰ Market in Financial Instruments Directive (2014/65/EU).

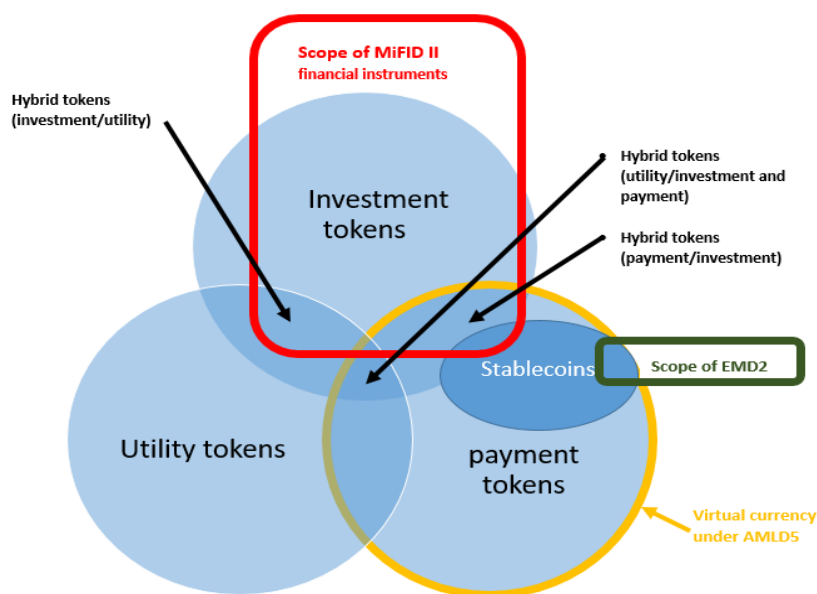
²¹ Article 4(1)(15) and Annex I C.

²² Electronic money is defined as ‘electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of [the Payment Services Directive 2], and which is accepted by a natural or legal person other than the electronic money issuer’.

²³ Under the Anti-Money Laundering Directive (Directive 2015/849/EU) as amended by AMLD5 (Directive 2018/843/EU, a ‘custodian wallet provider’ is defined as an entity that services to safeguard private cryptographic keys on behalf of its customers in order to hold, store and transfer virtual currencies. Fiat-to-crypto exchanges are ‘providers engaged in exchange services between virtual currencies and fiat currencies’. The notion of ‘virtual currency’ is defined as ‘digital representation of value that is not issued

provides for the registration and supervision of these two types of service providers without regulating them as such. The EBA's report and advice on crypto assets published in 2019 recommended to have regard to the latest recommendations, standards and guidance issued by the Financial Action Task Force (FATF) as part of a holistic review of the need, if any, for action at the EU level to address issues relating to crypto-assets²⁴. The new standards adopted by the FATF in October 2018 introduced a definition of virtual asset²⁵ (which is broader than 'virtual currency') and cover services not currently within the scope of the AMLD (notably crypto-to-crypto exchanges and financial services related to an issuer's offer and/or sale of a virtual asset).

Figure 1: Interactions between EU financial services legislation and the different types of tokens



1.2.2. The crypto-asset ecosystem

The crypto-asset market encompasses a range of activities and different market actors that provide trading and/or intermediation services. Many of these activities and service providers are currently not subject to any regulatory framework on financial services, either at EU level (except for AML/CFT purposes) or national level.

The crypto-asset issuer or sponsor is the organisation that has typically developed the technical specifications of a crypto-asset and defined its features. In some cases, their

or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically'.

²⁴ In their Advice on 'Initial Coin Offerings and Crypto-Assets', ESMA referred and agreed with the EBA's recommendation in their Report with advice for the European Commission on crypto-assets, to review the scope of AMLD based on the updated FATF recommendations.

²⁵ The FATF defines 'virtual assets' as: 'a digital representation of value that can be digitally traded or transferred, and can be used for payment or investment purposes, and that does not include digital representations of fiat currencies, securities and other financial assets that are already covered elsewhere in the FATF Recommendations'.

identity is known, while in others, they are unidentified. Some are still involved in maintaining and improving the crypto-asset's code and underlying algorithm, while others are not²⁶.

Crypto-asset trading platforms act as a marketplace bringing together different crypto-asset users that are either looking to buy or sell crypto-assets. Trading platforms match buyers and sellers directly or through an intermediary. The business model, the range of services offered and the number and type (e.g. crypto-to-fiat or crypto-to-crypto) of trading pairs vary across platforms. Most of the trading platforms currently operating are 'centralised platforms' controlled by a central operator. 'Decentralised platforms' are a recent phenomenon. They have no central entity and operate through the use of smart contracts. Centralised platforms hold crypto-assets on behalf of their clients, while decentralised platforms do not. Another important distinction is that trade settlement typically occurs on the books of the platform ('off-chain') for centralised platforms²⁷, and not at each transaction, while it occurs on DLT for decentralised platforms ('on-chain').

Crypto-asset brokers/dealers (or exchanges) are entities that offer exchange services for crypto-assets, usually for a fee (i.e. a commission). By providing broker/dealer services, they allow users to sell their crypto-assets for fiat currency or buy new crypto-assets with fiat currency. Some brokers/dealers are pure crypto-to-crypto broker/dealers, which means that they only accept payments in other crypto-assets (for instance, bitcoin). In contrast with trading platforms, exchanges engage in the buying and selling of crypto-assets themselves on own account and act as the counterparty to users.

There would be currently around 200 to 500 trading platforms and exchanges operating in the world, although trading is concentrated on a handful of them²⁸. The largest platforms by volume and value of transactions are currently located in Asia and in the US²⁹. Anecdotal evidence suggest that around a third of those platforms would be in the EU³⁰.

Crypto-asset wallets are used to store public and private keys and to interact with DLT to allow users to send and receive crypto-assets and monitor their balances. Crypto-asset wallets come in different forms. Some support multiple crypto-assets/DLTs, while others are crypto-asset/DLT-specific³¹. DLT networks generally provide their own wallet functions (e.g. bitcoin or ether). Some wallet providers, for example custodial wallet providers, not only provide their clients with wallets, but also hold their private keys on their behalf. They can also provide an overview of the customers' transactions.

²⁶ Study from the European Parliament on 'Cryptocurrencies and Blockchain', July 2018.

²⁷ The transaction is recorded on the blockchain when the users leaves the platform.

²⁸ ESMA, Advice on 'Initial Coin Offerings and Crypto-Assets', January 2019.

²⁹ See Satis Group, 'Crypto-asset market initiation coverage'; see also Bruegel, 'The economic potential and risks of crypto-assets: Is a regulatory framework needed?', 2018.

³⁰ Based on a sample of 51 exchanges, Hileman et al. (2017) find that 37% of exchanges are based in the EU. The EU is followed by Asia-Pacific (27%) and North America (18%).

³¹ There are software/hardware wallets and cold/hot wallets. A software wallet is an application that may be installed locally (on a computer or a smartphone) on the service provider's network or run in the cloud. A hardware wallet is a physical device, such as a USB key. Hot wallets are connected to the internet, while cold wallets are not.

Information on the number of crypto-asset users is limited. However, some estimates suggest that the user base has expanded from the original tech-savvy community to a broader audience³². An online consumer survey seems to suggest that 9% of European individuals would have owned crypto-assets, with huge variations across countries³³. However, actual figures are likely to be lower³⁴. Anecdotal evidence also show that only a limited number of merchants accept payment tokens³⁵.

1.3. Opportunities and challenges

The market for crypto-assets remains fractional compared to the market for traditional financial assets. From the peak in January 2018 of around €760 billion, the total market capitalisation of crypto-assets had fallen to around €250 billion by February 2020³⁶. The market has historically been prone to leverage, operational risks and high volatility. For instance, following the COVID-19 outbreak, the price of bitcoin dropped significantly (by 42% vs. 19% for the S&P500, from 1 to 16 March 2020), before recovering. Fraud, hacking, thefts, money laundering and cyber incidents have plagued crypto-asset markets as many crypto-asset trading platforms, exchanges/brokers/dealers and wallet services operate without proper cyber security arrangements³⁷.

Almost all national authorities as well as international standard-setting bodies have issued warnings about the risks related to certain crypto-assets, but have also issued positive statements about the potential of the underlying technology (DLT). The European Commission has itself identified DLT as a transformative and foundational technology, including in the financial sector.

Crypto-assets could deliver many benefits to the economy. When used as a means of exchange, payment tokens can enhance competition in the payment market and increase the efficiency of payments (especially cross-border) in terms of cost, speed, security and user-friendliness by limiting the number of intermediaries (such as banks). The issuance of utility tokens can represent a cheaper and less burdensome source of funding for start-ups and early-stage companies by streamlining the capital-raising process and not diluting the ownership capital of entrepreneurs. They also have the potential to connect the token issuer with a wide initial customer base. If they were properly regulated, crypto-assets could also widen investment opportunities for investors (see sections 2.3.1. and 2.3.2). In theory, any asset can be tokenised, and rights to such assets can be

³² ESMA, Advice on ‘Initial Coin Offerings and Crypto-Assets’, January 2019.

³³ ING, ‘Cracking the code on cryptocurrency: bitcoin buy-in across Europe, the USA and Australia’, 2018. Significant disparities exist between Member States (4% in Luxembourg vs. 12% in Romania).

³⁴ Some studies, based on online surveys, suggest that between 2% and 10% of the population of developed economies own crypto-assets (University of Cambridge, 2nd Global Crypto-asset benchmarking study, 2018; HM Treasury, Financial Conduct Authority and Bank of England, Crypto-asset task force report, 2018). Another study estimates that there are around 10.1 million people trading crypto-assets (including the UK and Russia – see Chappuis Halder report, ‘How many active crypto traders are there across the globe?’, 2019, i.e. less than 2% of the EU population).

³⁵ The Coinmap.org site shows that 13,000 merchants worldwide accept payment tokens. In the UK, for instance, only around 500 independent shops, bars and cafés accept bitcoins (Bank of England, ‘Evidence submitted by the Bank of England – Treasury select committee on digital currencies’ 2018).

³⁶ Crypto-asset data is taken from CoinMarketCap.com.

³⁷ FSB, Crypto-asset markets ‘Potential channels for future financial stability implications’, October 2018.

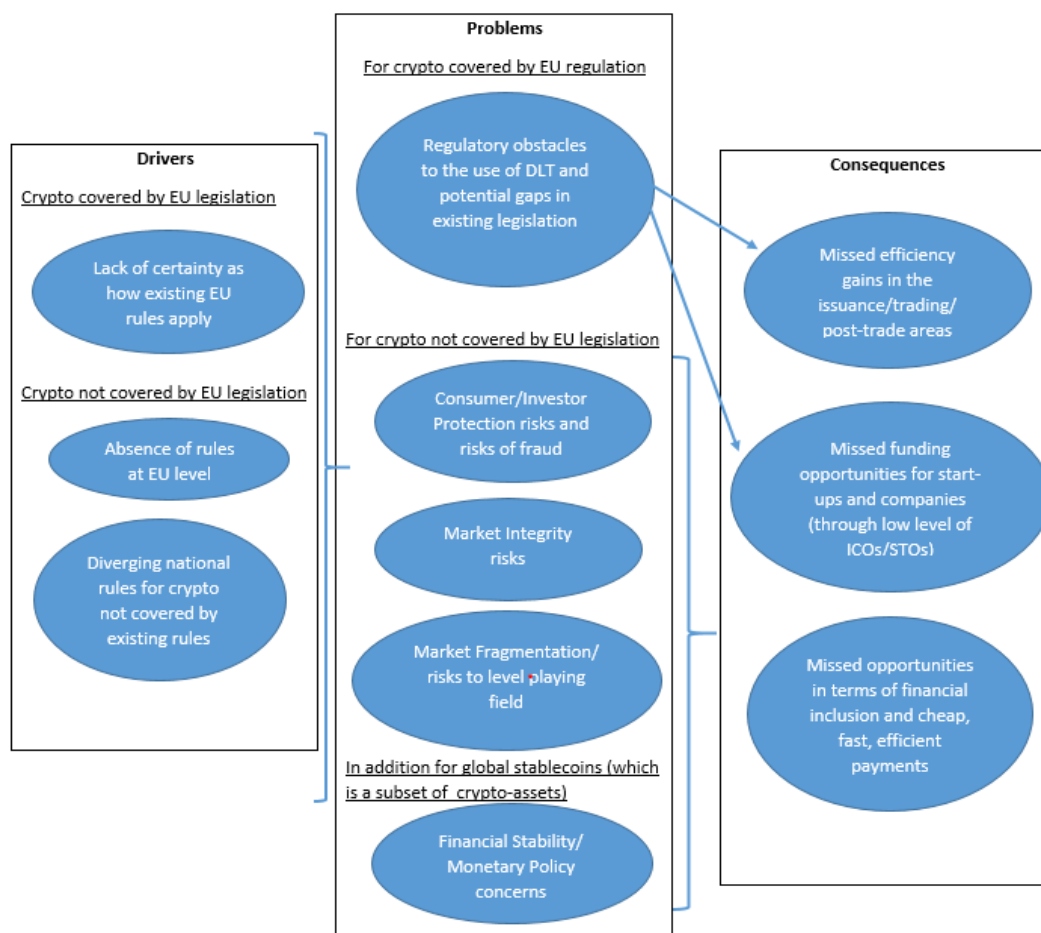
represented on a DLT. Such tokenisation processes have the ability to make liquid tangible assets (such as real estate) that would otherwise be illiquid or to facilitate the protection and monetisation of immaterial rights (such as intellectual property and software). Some utility tokens and DLT also offer individuals and companies the possibility to manage data flows and usage, making data portability in real time possible, along with various compensation models.

Crypto-assets and the underlying DLTs also hold great potential for efficiency gains in the ‘traditional’ financial sector. This potential stems mainly from two features of the technology: (i) the ability to record information in a safe and immutable format; and (ii) the capability to make this information accessible in a transparent way to all market participants in the DLT network. The tokenisation of securities (shares or bonds) is an example of potential for growth in the near future. This can lead to increased financing for companies through securities token offerings (STOs) and efficiency gains throughout the value chain, by reducing the need for intermediaries and the automation, resulting in faster, cheaper and frictionless transactions (see section 2.3.1.). A number of promising pilots and use-cases have been developed and tested by market participants across the EU.

Fully deploying DLT in the financial sector is associated with operational challenges. For example, building scale to use DLT massively is challenging given the significant throughput required to cater to the needs of global capital markets. The interoperability between the different DLT networks should also be developed. However, one of the biggest obstacles to unlocking the promise of crypto-assets and DLT in the financial sector remains **legal certainty**, especially as Member States are beginning to put in place national regimes for crypto-assets. Without certainty, start-ups and developers working in this field will not be able to attract the required investments. For instance, the potential mis-qualification of some utility tokens as “financial instruments” under MiFID2 can be unattractive for developers seeking to innovate. Similarly, without clarity on applicable rules, incumbent financial institutions and market infrastructures are unlikely, and sometimes unable, to pursue developments in this field.

2. PROBLEM DEFINITION

Figure 2: Problem tree



Beyond the issues in the figure above, crypto-assets are likely to raise additional issues in terms of tax compliance³⁸ and data privacy that are not further discussed in this impact assessment. When established market participants operate on private permission-based DLT, robust governance rules and antitrust scrutiny have to prevent restrictions of competition through, for example, exclusionary conduct or entry barriers.

³⁸ Crypto-assets pose two types of challenges for tax authorities. First, there is uncertainty about the legal status of crypto-assets, and therefore the tax treatment of transactions using crypto-assets. The second challenge for tax administrations is that crypto-assets can make it easier to avoid paying tax.

2.1. What are the problem drivers?

2.1.1. *Lack of certainty as to whether and how existing EU rules apply (for crypto-assets that could be covered by EU rules)*

MiFID II is the central piece of EU securities legislation, providing essential definitions, such as ‘financial instruments’, ‘transferable securities’ or ‘units of collective investment undertaking’. A broader set of rules mentioned above (namely the Prospectus Regulation, MAR, EMIR, SFD, CSDR...) also applies to financial instruments and firms that provide investment services and activities in relation to them. When considering whether existing EU financial regulation applies to crypto-assets, one fundamental question is therefore to determine whether the crypto-asset at stake is a ‘financial instrument’ under MiFID II.

However, the actual classification of a crypto-asset as a financial instrument under MiFID II requires a complex case-by-case analysis and varies depending on how the notion of ‘transferable security’ has been implemented by Member States. Thus, it is possible that the same crypto-asset could be considered as a ‘transferable security’ or another financial instrument in one jurisdiction and not in another, which gives rise to market fragmentation of the EU single market (see Section 2.2.4.)³⁹. This situation stems from two main factors.

First, the notion of ‘financial instruments’ and in particular of ‘transferable securities’ under MiFID II is harmonised in a broad manner. EU Member States have not always interpreted and implemented the MiFID II Directive in a similar way. ESMA has found that while a majority of national competent authorities (NCAs) (16) have no specific criteria in their national legislation to identify transferable securities in addition to those set out under MiFID II, other NCAs (12) do have such criteria. This results in different interpretations of what constitutes a “transferable security”⁴⁰.

Second, the range of crypto-assets is diverse and many of them have hybrid features. While some investment tokens could be considered as transferable securities or as other financial instruments, payment tokens and utility tokens are more likely to fall outside the scope of the existing EU financial services legislation. The situation can be more complicated for hybrid tokens that exhibit components of two or all three of the archetypes (i.e. hybrid utility/investment tokens, hybrid currency/investment tokens, hybrid currency/investment/utility tokens)⁴¹.

Even where a crypto-asset would qualify as a MiFID II financial instrument (the so-called ‘security tokens’), there is a lack of clarity on how the existing regulatory framework for financial services applies to such assets and services related to them.

³⁹ ESMA, Report on ‘Licensing of FinTech Business models’, 2019. In its report, ESMA indicates: “Almost all NCAs indicated having difficulty in determining when crypto-assets are regulated and when they are not. NCAs raised the question of the legal nature of the crypto-assets and whether they fit into the definition of MiFID financial instruments, and more specifically, transferable securities”.

⁴⁰ All Member States, except Poland. In addition, two EEA Member States (Liechtenstein and Norway). ESMA, Annex I – legal qualification of crypto-assets – survey to NCAs, January 2019.

⁴¹ Dr. Philipp Hacker, Dr. Chris Thomale, ‘Crypto-Securities Regulation: ICOs, Token Sales and Cryptocurrencies under EU Financial Law’.

As the existing regulatory framework was not designed with crypto-assets in mind, NCAs face challenges in interpreting and applying the various requirements under EU law⁴². Those NCAs may therefore diverge in their approach to interpreting and applying existing EU rules. This diverging approach by NCAs creates fragmentation of the market and opportunities for regulatory arbitrage (see Section 2.2.4.).

2.1.2. Absence of rules at EU level and diverging national rules for crypto-assets that would not be covered by EU rules

For crypto-assets that would not be covered by EU financial services legislation, the absence of rules exposes consumers and investors to substantial risks.

In the absence of rules at EU level, three Member States (France, Germany and Malta) have already put in place national regimes that regulate certain aspects of crypto-assets that neither qualify as financial instruments under MIFID II nor as electronic money under EMD2. These regimes differ: (i) rules are optional in France while they are mandatory in Malta and Germany; (ii) the scope of crypto-assets and activities covered differ; (iii) the requirements imposed on issuers or services providers are not the same; and (iv) the measures to ensure market integrity are not equivalent (for more information – see Annex 4).

Other Member States could also consider legislating on crypto-assets and related activities⁴³.

2.2. What are the problems?

2.2.1. Regulatory obstacles to and gaps in the use of security tokens and DLT in the EU financial services legislation

As the existing regulatory framework was not designed with DLT in mind⁴⁴, there are provisions in existing legislation that may preclude or limit the use of “security tokens” (i.e. crypto-assets that can qualify as MiFID II financial instruments). While security token issuances have gained traction, there is a lack of market infrastructures using DLT and providing trading⁴⁵, clearing⁴⁶ and settlement services⁴⁷ for those security tokens. Without a secondary market able to provide liquidity, the primary market for

⁴² ESMA, Advice on ‘Initial Coin Offerings and Crypto-Assets’, January 2019.

⁴³ In 2019, the Italian Companies and Exchange Commission (CONSOB) published a document for discussion on ‘Initial Coin Offerings and Crypto-Assets’ and published its final report, proposing a regulatory approach.

⁴⁴ ESMA, Advice on ‘Initial Coin Offerings and Crypto-Assets’, January 2019.

⁴⁵ A trading venue will receive orders from buyers and sellers and match them according to pre-defined rules.

⁴⁶ Clearing consists of activities between the execution and settlement of a trade. The purpose of these is to calculate the actual obligations of parties to a trade and make sure that any required assets are in place so that a trade can be settled. In many cases a third party, the central clearing counterparty (CCP), will act as the counterparty to both parties involved in the trade, managing risks (e.g. by margining procedures) and guaranteeing delivery and payment. In addition, the CCP can calculate a clearing member’s final position over multiple trades and only settle differences (netting).

⁴⁷ Settlement is the actual exchange of cash and securities between parties to a trade. Securities settlement systems are operated by a central security depository.

security tokens will never expand in a sustainable way. In a recent survey, 77% of the respondents indicated that the implementation of EU regulation can seriously hinder the development of security tokens⁴⁸. The regulatory issues related to the deployment of security tokens and DLT in the financial services sector can be grouped into five categories.

Some EU rules cannot be applied to DLT and security tokens as they were tailored to ‘traditional’ financial instruments and are not fully technology neutral⁴⁹. This is the case, for instance, for some pre-and post-trade and reporting requirements under the MiFID II/MiFIR framework or for some provisions of the Short Selling Regulation.

Some regulatory gaps exist due to legal, technological and operational specificities related to the use of DLT that are not addressed by existing requirements⁵⁰. There are no reliability and safety requirements imposed on the protocols and smart contracts underpinning security tokens and no specific rules on the resulting liability issues⁵¹. The underlying technology could also pose some novel forms of cyber risks that are not appropriately addressed by existing rules⁵². While the custody of private keys related to security tokens could be the equivalent of the ‘*safekeeping and administration of financial instruments for the account of clients*’ service under MiFID II, this activity is not currently regulated at EU level.

Current EU rules prevent the development of financial market infrastructures (such as trading venues, central clearing counterparties (CCPs) and central securities depositories (CSDs)) based on decentralised exchanges and permissionless DLT networks where activities are not entrusted to a central body⁵³. For instance, it is not possible to apply MiFID II or SFD/CSDR rules to them as these rules require the existence of a trading venue operator or a CSD to operate the securities settlement system (and intermediaries, such as brokers/market members and CSD participants/custodians). Given the absence of a central body and intermediaries that would be accountable for applying the rules, decentralised exchanges or permissionless networks cannot be used for security tokens.

Some regulatory uncertainties or obstacles remain for market infrastructures that rely on centralised platforms and permission-based DLT networks. Activities organised by an operator are *de facto* similar to traditional market infrastructures, such as

⁴⁸ FD2A, AMAFI, AFG, ASPIM, Gide 255, Woorton, Consensys, PWC – Questionnaire on security tokens – summary of results, May 2019.

⁴⁹ A technologically neutral approach means that legislation should not mandate market participants to use any particular technology or should not give a particular technology an advantage over another.

⁵⁰ ESMA, ‘Advice on Initial Coin Offerings and Crypto-Assets’, January 2019.

⁵¹ The software in which a smart contract is embedded can be defective or it may not accurately reflect contractual intent. If an error occurs, it can be difficult to resolve it as the operations via smart contracts are recorded on the DLT.

⁵² While having a copy of the same data on all the computers in the network eliminates the central points of failure, the security of the entire network remains dependent on its ‘weakest link’, as an attacker could step into the breach created by one unsecured DLT participant. Cyber risks may also arise if all the DLT participants are corrupted at the same time. As a result, some requirements related to cyber security can be necessary investor protection and financial stability.

⁵³ In the trading context, going peer-to-peer means having participants buy and sell assets directly with each other, rather than working through an intermediary or third-party service.

trading venues or CSDs. However, even when a central body is identifiable, existing legislation does not fit well with the use of DLT by existing market infrastructures. Legal uncertainties is a concern not only for new entrants but also for incumbents authorised market players. For instance, NCAs have reported that the CCP license under EMIR or the CSD license under CSDR would not be adapted to a blockchain environment. It results from an ESMA survey that only an estimated 0.7% of all regulated FinTech firms in the EU perform counterparty clearing or operate a CSD. MiFID rules on trading venues would not be proportionate enough to enable small-scale trading of crypto-assets comparable to shares and bonds. The regulation also prevents the widespread testing of DLT capabilities to determine to what extent the technology is mature enough to replace or complete existing market infrastructures⁵⁴.

Current rules hamper the development of financial market infrastructures that could merge certain activities (trading, clearing, settlement and custody), as it does not take into account the specific benefits of security tokens and DLT. Today, EU financial services legislation follows the lifecycle of a transaction (trading, clearing and settlement). It requires the presence of market intermediaries (i.e. a broker, clearing members, custodians) and market infrastructures (a trading venue, CCP, CSD) and imposes specific requirements on those entities. The use of DLT, with all transactions recorded in a decentralised ledger, can expedite and condense trading, clearing and settlement to nearly real-time⁵⁵ and could enable the merger of some activities in the chain⁵⁶. This simplification of the multi-step post-trade process could free up collateral (by reducing the counterparty risks during the settlement period⁵⁷) and improve efficiency (by reducing intermediation, the need for reconciliations and the risks of errors). However, as current rules envisage the performance of these activities by separate legal entities⁵⁸ (trading venue, CCP, CSD) on grounds of stability, security and competition, these benefits cannot be sufficiently unlocked⁵⁹. For instance, CSDR (Article 3(2)) requires that the securities admitted to trading on a MiFID II trading venue are recorded with a CSD, while the DLT network could be potentially used as a decentralised version of such depository. By contrast, the use of DLT and security tokens to operate trading, clearing and/or settlement at the same time would raise new risks that are not currently mitigated by EU rules (such as new forms of cyber risks).

⁵⁴ ESMA, Report on 'Licensing of FinTech Business models', 2019.

⁵⁵ OECD, the Tokenisation of Assets and Potential Implications for Financial Markets, 2020.

⁵⁶ When securities are issued on a DLT, the latter also serves as the recordkeeping mechanism that makes separate CSDs superfluous. As for CCPs, the majority of their functions could be performed by smart contracts on the DLT, including cash calls on network participants in times of need.

⁵⁷ The settlement period is the time between the execution of a trade and the performance of all duties necessary to satisfy all parties' obligations. Most of the trades are settled on T+2.

⁵⁸ Dutch Authority for the Financial Markets (AFM)/Dutch National Bank, Cryptos - Recommendations for a regulatory framework, December 2018.

⁵⁹ 33% of the respondents to the Commission's public consultation on crypto-assets considered that the regulatory separation of trading and post-trading activities can prevent the development of alternative business models based on DLT that could be more efficient to manage the trade lifecycle (against 20% saying 'no' and 47% without opinions).

2.2.2. Consumer or investor protection risks and risks of fraud (for unregulated crypto-assets)

Where crypto-assets would not qualify as MiFID II financial instruments or as electronic money under EMD2, users who purchase them would not benefit from the guarantees granted by the EU acquis. Yet, those ‘unregulated’ crypto-assets can pose a range of risks to consumers. 72% of the respondents to the public consultation considered the risks to consumer/investor protection as important or very important⁶⁰. Some NCAs and EBA have also been warning consumers about crypto-currency risks since 2013⁶¹. In 2017, many NCAs and ESMA published warnings about risks inherent to initial coin offerings (ICOs)⁶² and crypto-assets. There are three types of risks.

Consumers can purchase unsuitable products without having access to adequate information. Crypto-asset issuances are sometimes accompanied by “white papers” describing the crypto-assets and the ecosystem around it. However, these are not standardised and the quality, transparency and disclosure of risks vary greatly⁶³. As ‘white papers’ often feature exaggerated or misleading information, investors or consumers may not understand the rights associated with crypto-assets and the risks they present. Advertising materials can also overstate the benefits and rarely warn of volatility risks, the fact that consumers can lose their investment, and the lack of regulation⁶⁴. Consumers may therefore suffer large losses as a result of buying crypto-assets that are ill-suited to their needs and risk profile. The high volatility of crypto-assets, which may attract investors, can also lead to substantial losses. Such losses can be amplified when trading platforms offer leveraging trading⁶⁵.

Consumers are also at risk of losses resulting from fraudulent activities and deceptive practices. As the issuance and the provision of services related to crypto-assets are unregulated, this makes the market susceptible to illicit practices. In particular, the promise of high-yield returns makes it easy for fraudsters to attract customers. While

⁶⁰ 51% very important, 21% important, 14% neutral, 7% rather not important, 4% not important at all, 3% no opinion.

⁶¹ ESMA Securities and Markets Stakeholder Group, Own initiative Report on initial coin offerings and crypto-assets, 2018.

⁶² ICOs are an innovative way of raising money from the public. In an ICO, a business or individual issues coins or tokens and puts them for sale in exchange of traditional currencies, such as the Euro, or more often virtual currencies, e.g. bitcoin or ether. The features of the tokens vary across ICOs. Some tokens serve to access or purchase a service or product that the issuer develops using the proceeds of the ICO (e.g. utility tokens). Others provide voting rights or a share in the future revenues of the issuing venture (e.g. investment tokens). Some have no tangible value (e.g. some payment tokens). When an offer concerns tokens qualifying as MiFID II financial instruments, the term ‘security tokens offerings’ is often used. The term ICO is a misnomer used by the industry for marketing purposes to resemble IPO (initial public offering). The term ‘token sale’ would reflect better the substance of the phenomenon.

⁶³ ESMA, ‘Advice on ‘Initial Coin Offerings and Crypto-Assets’, January 2019.

⁶⁴ HM Treasury, Financial Conduct authority and Bank of England, Cryptoassets Taskforce: final report, October 2018.

⁶⁵ Leveraging is a form of margin trading where the trader borrows certain funds from a service provider to create a position that is larger than would normally be possible without any leverage. Given the high fluctuations of crypto-assets, most trading platforms are reluctant to offer such services. However, some platforms offer leveraging from x2 to x100 with a median of x3.3 (University of Cambridge, 2nd Global crypto-asset benchmarking study, 2018).

fraudulent activity exists across the range of crypto-assets, it is also likely to differ between different types. For instance, the risk of fraud is high in ICOs. Fraud estimates range from 5 to 25% of ICO offerings⁶⁶ and up to 81%⁶⁷, depending on the classification. In some cases, the crypto-assets do not exist, the developer disappears just after the ICO or the projects lack appropriate plan or capability to deliver the product or service⁶⁸. Users' lack of understanding of the intricacies of the underlying technology may also exacerbate the risk of fraud.

Consumers may also be at risk due to the immaturity or failings of service providers. As there are no legal minimum standards on operational risks (including cyber risks), the service providers are not encouraged to put in place appropriate systems and controls, exposing consumers to losses arising from hackers' attacks, software errors or data loss. Cyber hacks (e.g. to obtain users' private keys) can put consumers at risk of large losses, as crypto-assets are viewed as high-value targets for theft⁶⁹. Operational issues may also lead to temporary disruptions of systems (due to activity peaks), which can delay or deny consumers' access to their funds and/or secondary market trading. In periods of disruption, holders of crypto-assets are not able to carry out transactions when they like and may therefore suffer losses due to fluctuations during that period. Some trading platforms or exchanges have stopped trading and users have lost their entire holdings, in some cases⁷⁰. Anecdotal evidence also suggest that service providers can charge high and variable fees that are not properly disclosed to consumers. Solving consumer conflicts can be difficult, especially when the service providers have no internal procedures in place for handling complaints or when they are located outside the EU⁷¹.

2.2.3. Market integrity risks (for unregulated crypto-assets)

Market integrity, i.e. the fairness or transparency of price formation in financial markets, is an important basis for investor protection and fair competition. The Market Abuse Regulation (MAR) prohibits market abuse (such as insider dealing, the unlawful disclosure of inside information and market manipulation) in relation to financial instruments admitted to trading on an EU trading venue authorised under MiFID II. When crypto-assets do not qualify as MiFID II financial instruments, they fall outside the scope of MAR. However, market integrity may be undermined by the trading of 'unregulated' crypto-assets. 71% of respondents to the public consultation considered market integrity risks as important or very important⁷². This may damage confidence and prevent the crypto-asset market from operating effectively.

⁶⁶ Catalini, Christian and Joshua S. Gans, Initial Coin Offerings and the Value of Crypto Tokens, 2018.

⁶⁷ Dowlat, Sherwin and Hodapp, Michael (2018), ICO Quality: Development & Trading, Satis Group LLC publications.

⁶⁸ ESMA, Advice on 'Initial Coin Offerings and Crypto-Assets', January 2019.

⁶⁹ Some of the largest and most recent hacks and thefts include Coincheck (\$540 million stolen in January 2018), Mt Gox (nearly \$500 million stolen in February 2014) and Zaif (\$60 million stolen in September 2018), all in Japan, and Bithumb (\$32 million stolen in South Korea).

⁷⁰ FMA Focus Bitcoin & Co, Crypto-assets, 2018.

⁷¹ CNMV, Banco de Espana, Joint press statement on 'cryptocurrencies' and initial coin offerings, 2018.

⁷² 42% very important, 29% important, 14% neutral, 9% rather not important, 3% not important at all, 3% no opinion.

Some of the behaviours in crypto-asset markets are similar to market-abuse style activities observed in some traditional financial markets. For instance, market manipulation (such as ‘pump and dump’, spoofing, layering⁷³) includes false signals about the supply and demand for crypto-assets and distort price formation. Dissemination of false or misleading information by market participants (including by issuers) can lead investors to make misguided investment decisions and cause mispricing and dysfunction in the market.

Crypto-asset markets’ vulnerability to market manipulation is heightened by several factors, such as the novelty and complexity of the technologies used as well as the low liquidity, price volatility and concentration issues (which can lead actors with large holdings to use their dominant position to influence the price). Furthermore, as trading platforms are not subject to transparency requirements or conflicts of interest rules⁷⁴, equal access to information and a fair price are not guaranteed, which raise the risk of market manipulation. Anecdotal evidence also suggest that some large crypto-trading platforms allow investors to conduct wash trades⁷⁵.

Crypto-assets can also pose significant risks to financial integrity, as they may create new opportunities for money laundering, terrorist financing and other illicit financing activities.

2.2.4. Market fragmentation and risks to the level playing field

Where crypto-asset would qualify as financial instruments, market fragmentation, results from divergent national interpretations of how financial services legislation applies to security tokens (i.e. crypto-assets that could qualify as financial instruments)⁷⁶ giving rise to regulatory arbitrage. Some market players (e.g. market infrastructures) could be tempted to locate their activities in Member States with a more flexible approach towards the use of DLT, in order to benefit from the EU passporting system. In contrast, market fragmentation can also incentivise issuers or service providers related to crypto-assets to operate in Member States where the definition of ‘financial instruments’ is more restrictive in order to avoid the application of the full financial services framework. As a result, capital could flow to crypto-assets that are equivalent to financial instruments but not treated as such by the Member State where the activity is conducted. This would expose investors to risks due to the lack of adequate regulatory protection.

⁷³ In a ‘pump and dump’, a massive crypto-asset purchase pushes up its price, encouraging further purchasing amongst other investors. Once the price has risen, the organiser offloads the crypto-asset for a profit, leaving consumers with expensive and often illiquid crypto-assets. Spoofing and layering are trading strategies where a trader makes and then cancels orders that they never intend to have executed in hopes of influencing the stock price. While layering involves orders at different prices, spoofing entails orders at the top of the order book.

⁷⁴ Report from the UK crypto-assets taskforce, October 2018.

⁷⁵ See Cristina Cuervo, Anastasia Morozova, Nobuyasu Sugimoto (IMF), *Finech: Regulation of crypto-assets*, Note/19/03.

⁷⁶ Bank of Latvia, Guidelines on securities tokens 2019; *Autorité des Marchés Financiers*, Review and Analysis of financial regulations to security tokens and position providing clarifications regarding the notion of trading venue in particular to financial instruments registered in a digital ledger, 2020; Maltese FSA’s Feedback Statement to the Consultation Document on Security Token Offering, 2020.

Beyond the national variations in the implementation of MiFID II and other sectoral legislation, the proliferation of bespoke rules at national level for all or a subset of crypto-assets that do not qualify as ‘financial instruments’ may also lead to a substantial regulatory fragmentation. This market fragmentation also gives rise to regulatory arbitrage and distorts competition in the single market⁷⁷. Service providers or issuers of crypto-assets could operate in, or decide to (re)locate their activities to jurisdictions where crypto-assets are not regulated (beyond the obligations imposed by the AML/CFT framework).

Divergent national rules could create considerable complexity and legal uncertainty for crypto-asset service providers keen to extend operations on a cross-border basis⁷⁸. They could be obliged to adjust their business models according to the rules of separate jurisdictions. An obligation to seek a license from a supervisory authority in different Member States could create additional cost barriers, due to licensing and advisory fees. The proliferation of national approaches is also a concern for crypto-asset issuers, as they are obliged to check the requirements from each national legislation where the crypto-asset is to be marketed, distributed, traded and otherwise used. This makes issuances across the single market costly and difficult⁷⁹.

Market fragmentation may also undermine investor/consumer protection and market integrity in the EU. In most Member States, users of crypto-assets and related services are not protected. In other Member States, bespoke regulation may protect users (through disclosure obligations on the crypto-asset issuances, limits on the maximum amount that can be invested, requirements imposed on service providers). Nevertheless, even when Member States have legislated, the level of investor protection and the measures against market abuse still differ.

2.2.5. Financial stability and monetary policy risks raised by stablecoins and global stablecoins

Currently, 54 ‘stablecoins’ are in existence⁸⁰, of which 24 are operational. Their market capitalisation almost tripled from €1.5 billion in January 2018 to more than €4.3 billion in July 2019. Between January and July 2019, the average volume of ‘stablecoin’ transactions was €13.5 billion per month⁸¹.

The crypto-asset market (including existing stablecoins) remains small and does not pose a risk to financial stability⁸². However, some stablecoins (backed by a reserve of real assets or fiat currencies) can raise additional challenges in terms of financial stability, monetary policy transmission and monetary sovereignty for three main reasons (Annex 4 provides a detailed analysis of these vulnerabilities).

⁷⁷ EBA Report with advice on crypto-assets, January 2019.

⁷⁸ Association for Financial Markets in Europe (AFME), Recommendations for delivering supervisory convergence on the regulation of crypto-assets.

⁷⁹ Global legal insights, FinTech 2019.

⁸⁰ In existence means that a stablecoin initiative is either operational or traded or has been active by committing code and operational details.

⁸¹ ECB Occasional Paper, ‘In search for stability in crypto-assets: Are stablecoins the solution?’, 2019.

⁸² Financial Stability Board, ‘Crypto-asset markets, Potential channels for future financial stability implications’, Glossary, October 2018. Available at <http://www.fsb.org/wp-content/uploads/P101018.pdf>

Different activities within a ‘stablecoin’ arrangement, in particular those related to managing the reserve assets aimed at stabilising their value, increase its interconnectedness with the existing financial system. A ‘stablecoin’ is generally supported by an ecosystem of entities that collectively facilitate its issuance, redemption, the stabilisation mechanism, transfer and retail interface (storage through wallet providers; exchanges and trading platforms). While some of these functions are relevant for all crypto-assets, the existence of the stabilisation mechanism creates two functions specific to asset-backed ‘stablecoins’: (i) managing the reserve of assets and (ii) providing custody for these reserve assets. Runs on a ‘stablecoin’ arrangement could occur if users lose confidence in the issuer or its network, in particular if they realise that the reserve assets are losing value, thereby casting doubts on the value of the stablecoins.

Some ‘stablecoins’ could in the near future become widely used by consumers and reach a global scale. A number of stablecoin initiatives, sponsored by large technology and/or financial firms, have recently emerged (such as Facebook’s crypto-asset, Libra). Thanks to these companies’ large customer base, which may also be cross-border, these new ‘stablecoins’ have the potential to gain a substantial geographical footprint. These are referred to as ‘global stablecoins’⁸³. If a global stablecoin is successful in reducing price volatility, it can become widely used as a means of payment and as a store of value⁸⁴. The ECB has estimated the potential size of the reserve of assets backing a multi-currency Libra coin⁸⁵. The Libra Association’s assets under management could range from €152.7 billion in the ‘means of payment’ scenario to about €3 trillion in the most extreme ‘store of value’ scenario (see Annex 4 for more details). If a ‘stablecoin’ arrangement becomes systematically important, it is more likely to raise challenges to financial stability and monetary policy transmission.

Depending on their design, stablecoin arrangements may be particularly difficult to fit into the existing EU framework, leaving the above financial stability risks unaddressed. While some ‘stablecoins’ arrangements confer a claim or redemption rights against the issuer or the underlying assets and could therefore fall into existing regulatory categories⁸⁶, a large number of ‘stablecoins’ do not grant such rights and fall outside existing EU financial services legislation.

⁸³ G7 Working Group on Stablecoins, Report on ‘investigating the impact of global stablecoins’, 2019.

⁸⁴ ECB Occasional paper, ‘A regulatory and financial perspective on global stablecoins’, 2020 [to be published].

⁸⁵ On 16 April 2020, the Libra Association has published a second version of its white paper. Among other changes, the Association has indicated that, beyond the multicurrency-backed Libra, it will also launch stablecoins backed by single-fiat currency (euro-Libra, dollar-Libra...).

⁸⁶ For instance, they can qualify as electronic money directive under the Electronic Money Directive 2 or as an alternative investment fund under the Alternative Investment Fund Directive. The qualification as a ‘derivative contract’ can also be considered in some cases. Stablecoins are also likely to be considered as a ‘virtual currency’ under AMLD5.

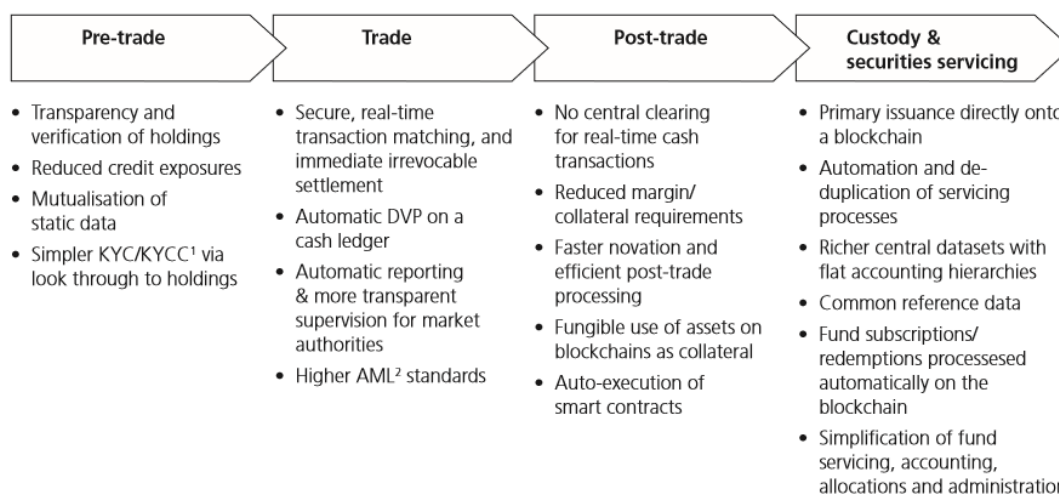
2.3. Consequences

2.3.1. Missed efficiency gains in the trading and post-trading areas

In the EU and in Europe, several projects for the creation of security token platforms⁸⁷ or in the post-trade area⁸⁸ have been identified, but few are already in operation or are limited in scale (testing phase or limited to small and medium-sized companies), for both operational and legal reasons. Given the regulatory constraints, it is difficult for traditional market infrastructures to use DLT rather than continuing running their business as they are used to. Legal obstacles may also prevent new entrants from offering financial services/activities through DLT solutions and competing with traditional players. The need for legal certainty has also continuously been highlighted throughout engagement with stakeholders from the financial industry

Nevertheless, security tokens and DLT hold the potential to transform the way that financial instruments are issued and exchanged. 77% of the respondents to the public consultation considered that DLT could bring substantial benefits in the trading, post-trading and asset management areas, notably in terms of efficiency⁸⁹. Figure 3 summarises these benefits:

Figure 3: Potential benefits of the adoption of DLT in the trade and post-trade area (Euroclear, Oliver Wyman, 2017)



⁸⁷ Three platforms in Germany have been identified (StartMark, Bitbond AG, Boerse Stuttgart Digital Exchange) and one in Austria (Conda AG). The London Stock Exchange Group carried out tests are due to be conducted in 2019 to experiment DLT on the secondary market for equities. The Liechtenstein Cryptoassets Exchange (LCX) targets professional investors and plans to provide trading, custody, portfolio management and analysis services that target all types of crypto-assets. The Swiss Digital Exchange will also propose trading, settlement and custody for security tokens.

⁸⁸ In France, LiquidShare – backed by major European Institutions – uses DLT solutions for the post-trading of non-listed SMEs; Deutsche Börse and Swisscom digitalised the shares of a Swiss company and then settled transactions of securities through DLT.

⁸⁹ 54% completely agree, 23% rather agree, 7% neutral, 1% rather disagree, 3% completely disagree, 12% without opinion

Trading, clearing and settlement of security token transactions could become almost instantaneous, as trade confirmation, affirmation, allocation and settlement could be combined into a single step and reconciliations would become practically superfluous. This would in turn have a number of benefits, including reduced counterparty risk (see Section 2.2.1.), and potentially reduced settlement failures and penalties⁹⁰. DLT could also enable security tokens to be traded beyond current markets hours⁹¹.

DLT could improve collateral management. Shorter settlement cycles would reduce credit risk for spot trades and the need to mitigate them through central collateral posting. For term transactions (e.g. derivatives) that require the posting of collateral to cover counterparty risk, the use of security tokens and DLT could facilitate reconciliations and accelerate collateral movements. This could ultimately lead to more collateral being available in the market.

DLT may also facilitate the recording and safekeeping of securities. It may improve the traceability of transactions and make ultimate ownership transparent throughout the security life cycle by providing a single ‘golden record’ that would be shared across market participants.

The use of DLT and security tokens could enhance reporting and supervision functions at firms and regulators, by facilitating the collection, consolidation and sharing of data for reporting and risk management purposes. With a DLT, multiple market participants could access a single, accurate and verifiable ledger source in real time. As far as regulators are concerned, they could be granted special access rights to consult or retrieve data stored on DLT ledgers, e.g. details on transactions made by some market participants or their risk exposure levels.

The use of ‘smart contracts’ could improve the enforcement of contract terms and the automation of back office processes, e.g. the processing of some corporate actions (such as dividend or coupon payments). This could in turn reduce errors and legal disputes.

Security tokens and their underlying technology may have certain advantages relative to current systems when it comes to security and resilience to a cyber-attack or a system breakdown. The distributed and shared nature of the system could make it easier to recover both data and processes in the event of an attack (assuming that not all the validating nodes are corrupted at the same time). This could also reduce the need for costly recovery plans⁹². Sophisticated encryption techniques could also provide an additional layer of protection to pools of information stored on DLT compared to existing systems.

⁹⁰ ESMA, Report on ‘Distributed Ledger Technology Applied to Securities Markets’, 2016.

⁹¹ AFME, Recommendations for delivering supervisory convergence on the regulation of crypto-assets in Europe, 2019.

⁹² A common market practice is to maintain business continuity in the event of a system failure is to have a second system which can take over until the first is repaired. This transfer between database can be complex and costly. DLT is different in that multiple participants (nodes) contain the same record. In the event of failure of one node, the others are still able to continue operating.

The above benefits of DLT could lead to a cost reductions for post-trade processes, including clearing, settlement, custody, registrar and notary services in the medium to long term, once investments have been amortised⁹³. Reporting, compliance and risk monitoring costs may decrease as well. The widespread use of DLT gains would imply a significant reduction in costs of around €540 million per year for the EU cash equity market alone⁹⁴. It has been estimated that DLT could reduce bank's infrastructure costs attributable to cross-border payments, securities trading and regulatory compliance by between \$15 to \$20 billion per year⁹⁵. Another study considers that a widespread adoption of DLT could remove 50% of the total capital market back and middle office costs of \$100 billion per year or more⁹⁶.

2.3.2. Missed financing opportunities for small businesses and companies due to a low level of initial coin offerings and security token offerings

An Initial Coin Offering (ICO) is an operation in which companies and entrepreneurs raise capital for their projects in exchange for crypto-assets that they create. Offers of utility tokens, in particular, represent an innovative method of funding innovative projects that complements other sources, such as crowdfunding, venture capital or a listing of shares on a public market (through an initial public offering – IPO). As well as providing capital to companies that sometimes have no alternative, token sales also put pressure on existing sources of financing to compete and provide better terms for small and medium-sized enterprises (SMEs)⁹⁷.

There are also specific benefits to ICOs, compared to traditional market-based sources of financing. ICO of utility tokens provide start-ups with a means to pre-sell access (potentially at a discount) to software that is under development⁹⁸. Unlike other means of financing, such tokens are not equity securities and they do not grant any rights to participate in the governance of the company. They therefore allow for SME funding without diluting entrepreneurs' equity ownership. ICOs can also be carried out without intermediaries, such as banks, which means that the cost of the transaction can be lower. For instance, it has been estimated that ICO costs are around 3% of the funds raised for offerings about \$1 million, compared to 10-12% for an IPO⁹⁹. ICOs are also faster to implement compared to IPOs, at least in the current state of play of the crypto-asset market¹⁰⁰. They are also a more inclusive method of financing compared to other traditional financing mechanisms. An ICO effectively enrolls future users, which allows the company to gain appreciation of the demand for the product or service before it becomes operational. The benefit of an ICO is also linked to the liquidity of the token.

⁹³ ESMA, Report on Distributed Ledger Technology Applies to Securities Markets.

⁹⁴ Goldman Sachs, Cboe Global Markets and own calculations. According to Goldman Sachs, DLT could result in an estimated \$2 billion in annual cost savings for the US Cash equity markets (by reducing duplicative, often manual affirmation and reconciliation of trade across buy-side clients, broker-dealers, custodian banks and capital required at the CSD).

⁹⁵ Banco Santander, Oliver Wyman, Anthemis Group, InnoVentures, FinTech 2.0 Paper.

⁹⁶ Swift Institute, The impact and potential of blockchain on the securities transaction lifecycle, 2016.

⁹⁷ OECD, Initial Coin Offerings for SME Financing, 2019.

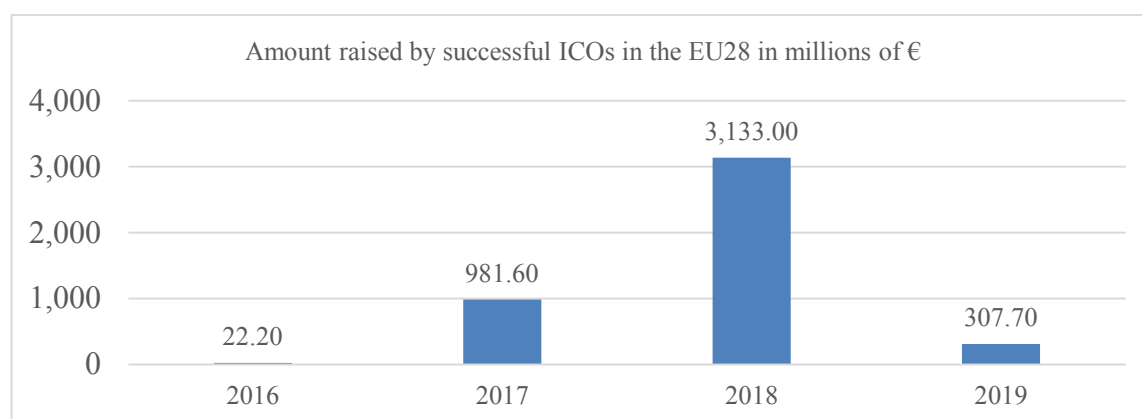
⁹⁸ Software that is not protected by intellectual property rights are less attractive for venture capital funding. ICOs may sometimes represent the only means for start-ups to develop open source software.

⁹⁹ OECD, Initial Coin Offerings for SME Financing, 2019.

¹⁰⁰ OECD, Initial Coin Offerings for SME Financing, 2019.

Unlike venture capital and crowdfunding where the instruments are illiquid, a large number of utility tokens can be traded on a secondary market (even if the liquidity is not guaranteed)¹⁰¹.

Figure 4: Amount raised by successful ICOs in the EU-28 (source: coinschedule.com and own calculations)



Despite these advantages, the amounts raised in the EU through ICOs are still relatively small and have significantly decreased since the second half of 2018. The financing through ICOs in 2018 (record year) only represented 15% of the funding by venture capital investments (€20.5 billion in 2018)¹⁰².

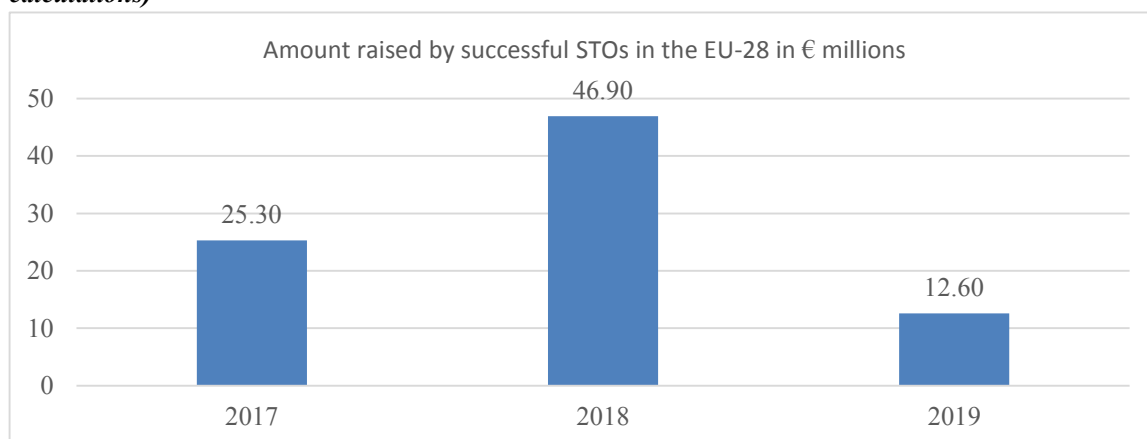
Security Tokens Offerings (STOs, i.e. offers of crypto-assets that could qualify as financial instruments under MiFID II) have developed in a second step and seem to respond to the need of institutional investors who prefer operating in a regulated environment. However, while there are still very few of STO projects in the EU, there are specific advantages rooted in this type of issuances. These include in particular for the issuers: (i) the automation, via smart contracts, of compliance with regulatory requirements and events affecting the life of securities (corporate actions, like dividend or coupon payments) and lower operational costs; (ii) potential enhanced transparency for issuers on the investors who actually hold the securities; (iii) optimisation of the settlement and delivery processes; (iv) an ability to reach new categories of potential investors and a diversification of the investors¹⁰³.

¹⁰¹ Amsden R. and D. Schweizer, ‘Are Blockchain Crowdsales the New ‘Gold Rush’? Success Determinants of Initial Coin Offerings’, 2018. Analysing 1009 tokens from 2015 to 2018, this study shows that 42% of tokens are listed on a secondary market after their ICO.

¹⁰² European Commission, European Financial Stability and Integration Report, 2019.

¹⁰³ FD2A, AMAFI, AFG, ASPIM, Gide 255, Woorton, Consensusys, PWC – Questionnaire on security tokens – summary of results, May 2019.

Figure 5: Amount raised by successful STOs in the EU-28 (source: coinschedule.com and own calculations)



2.3.3. Missed opportunities in terms of financial inclusion and cheap, fast, efficient payments

Domestic payments, in most instances, are increasingly convenient, instantaneous and available 24/7. International cross-border payments, however, remain slower, more expensive and not as transparent, especially for retail payments and remittances¹⁰⁴. Payment tokens have the potential to enable cheap, fast, efficient and inclusive payments and increase competition by providing alternatives to traditional payment instruments, especially on a cross-border basis. These benefits are potentially higher for ‘stablecoin’ arrangements, if they achieve their goal of price stability and become a reliable store of value and means of payment.

Payment tokens can allow for lower transaction costs, compared to other means of payments (such as payment cards and bank transfers), especially for cross-border transactions. Anecdotal evidence suggest that the costs tend to be less than 1% of the transaction amount, compared to 2-4% for traditional payment instruments used on a cross-border basis¹⁰⁵. These lower costs are explained by the absence or fewer intermediaries involved in the transaction. The payee in cross-border payment token transactions also benefits from no direct foreign exchange costs. However, a payee that keeps an amount of payment token for future usage, is exposed to exchange rate risk, which can be significant given the huge volatility of some payment tokens. ‘Stablecoins’ could resolve this issue, by reducing the need for converting the payment tokens into fiat currency.

While the cost differential between traditional payments and payment tokens is less pronounced in the Single Euro Payments Areas (SEPA)¹⁰⁶, a clear case for the use of payment tokens is remittances. Flows of money sent by EU residents to non-EU countries amounted to €32.7 billion in 2017, while inflows of money totalled €10.7

¹⁰⁴ G7 Working Group, Report on ‘investigating the impact of global stablecoins’, 2019.

¹⁰⁵ EBA opinion on virtual currencies, 2014.

¹⁰⁶ The EU regulation on equality of cross-border payment charges eliminates the differences in charges for cross-border and national payments in euros, therefore reducing the potential cost advantage of using payment tokens inside the EU.

billion¹⁰⁷. Despite political agreement (G7, G20) to lower the cost of remittances, the global average cost is currently 6.79% of the amounts sent¹⁰⁸. Payment tokens and ‘stablecoins’ offer opportunities to lower such transaction costs. However, this will depend on the fulfilment of several conditions, such as the widespread use of smartphones in emerging economies (as cryptographic wallets require a smartphone)¹⁰⁹ or the acceptance of payment tokens by local merchants. The higher fees charged for traditional means of payments are partly due to the regulatory requirements. Should payment tokens and ‘stablecoin’ arrangement be regulated, compliance costs could diminish their competitive advantage. **Payment tokens also hold potential for financial inclusion, as access to wider financial services is often limited to people with access to traditional transaction accounts**¹¹⁰. Despite the Payment Accounts Directive (PAD) adopted in April 2014 that aims to provide cheap basic bank accounts to EU citizens, the number of unbanked people is around 30 million in the EU¹¹¹. Even if payment tokens require a certain level of financial literacy (especially for older people and those without digital skills), payment tokens could be an alternative way for some individuals to carry out payment transactions.

Transactions using payment tokens can potentially be verified and settled faster than those in fiat currency. The length of the settlement may differ among the various payment tokens, but it is usually less than one hour for decentralised payment tokens and instantaneous for centralised ones. Another advantage of payment tokens is that payments can be validated 24/7, whereas traditional payment systems only have several clearing sessions per day and do not operate during holidays and weekends. These advantages are less significant for EU Member States that have already established instantaneous and 24/7 payment services and for SEPA, where the payee needs to be credited at the latest by the next business day. However, as the speed of verification and settlement does not depend on the location of the sender and receiver, payment tokens still offer advantages compared to credit transfers or card payments, particularly for payments between different currency areas.

Payment tokens can also provide some opportunities in terms of efficiency. One notable advantage is that the validation of payment transactions is distributed over multiple subjects (i.e. validating nodes) and that the use of DLT could improve system resilience, given the lack of a central system which could be subject to outages or failures. Under certain conditions, payment tokens could also improve the traceability and transparency of transactions. **Payment tokens may also hold the key to ‘programmable money’** (‘delivery vs. payment’ or ‘invoice vs. payment’), by enabling the functioning of smart contracts. A simple example of programmable money could be blocking the funds for a transaction, which are then automatically released to the

¹⁰⁷ Eurostat, Personal Transfers in the EU, 15 November 2018.

¹⁰⁸ World Bank, remittances prices database.

¹⁰⁹ Feature phones (i.e. first-generation mobile phone with button-based input and a small display) are still prevalent in the regions where an outflow of EU personal transfers is directed. For instance, 20% and 14% of those remittances are directed to Asia and Sub-Saharan Africa (source: Eurostat, 2018), while the rate of adoption of smart phones is only 43% and 33.5% (source: GSMA intelligence database, 2018).

¹¹⁰ Benoît Cœuré ‘Fintech for the people’, 2019.

¹¹¹ World Bank, Global Findex Database 2017. The impact of PAD cannot be seen yet, as it has just been fully transposed (the last two transpositions were in May and July 2019).

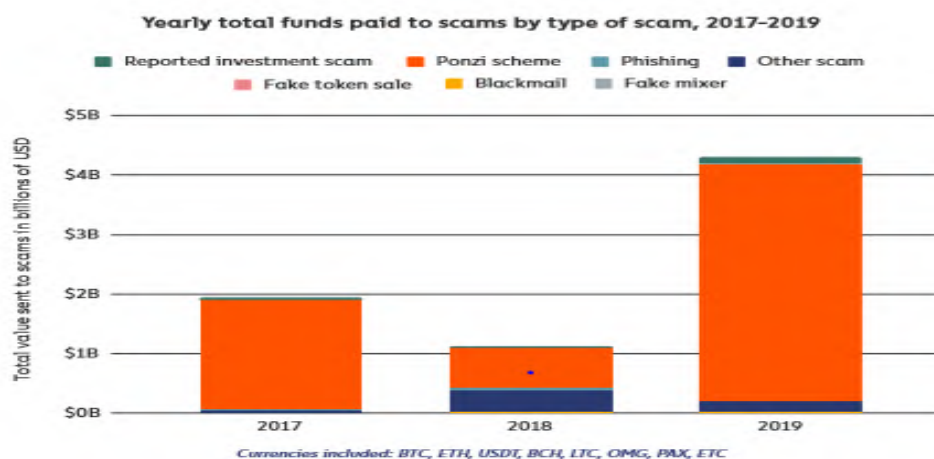
recipient only when specific conditions are met (for example the confirmed delivery of goods)¹¹².

2.4. How will the problem evolve?

Given the lack of (long-term) experience coupled with often abrupt changes in the market (e.g. erratic price swings) and the strong impact of unforeseeable external factors (e.g. regulatory changes in third countries), it is very difficult to predict how these markets and the problems identified will develop. Nevertheless, there are certain assumptions that appear plausible in terms of future developments.

In the absence of regulation, it is likely that crypto-assets falling outside the scope of EU legislation will still give rise to consumer protection and market integrity issues. Most of the crypto-assets have developed outside the regulated space. Supervisory actions at EU and national level (such as warning about the risks of cryptocurrencies or initial coin offerings) have had mixed results in terms of protecting investors or reducing criminal activities. Anecdotal evidence show that fraud remains significant and does not decrease. Cyber-attacks are still a major threat and hacking of wallet providers, exchanges and trading platforms are not uncommon.

Figure 6: Total number of fraud cases in main crypto-asset markets, 2017-2019 (source: chainanalysis)



The benefits offered by crypto-assets (alternative cheap and fast means of payments, funding sources for SMEs, benefits linked to a decentralised data economy) are unlikely to be reaped in the absence of a regulatory framework. The lack of trust in the integrity of crypto-asset markets remains a major hurdle to the widespread use of tokens as a means of exchange or as new investment opportunities for a wider set of investors¹¹³. Buyers of tokens are therefore usually some retail and other investors (such as family offices) with a high-risk tolerance. High levels of price volatility in the crypto-markets reinforce the general public's lack of confidence in

¹¹² HM Treasury, Financial Conduct Authority and Bank of England, Cryptoassets Task Force, final report 2018.

¹¹³ One survey found that two of the biggest obstacles to the adoption of DLT are regulatory uncertainty and lack of trust among users (PwC, Blockchain is here, What's your next move?, PwC's Global Blockchain Survey, 2018).

crypto-asset markets. The lack of trust also allows the most reliable service providers that support crypto-asset markets to charge high prices, which further inhibits liquidity¹¹⁴.

To address this, self-regulatory initiatives could emanate from the industry¹¹⁵. However, non-binding principles and the lack of an enforcement mechanism would only achieve limited effects on a market that has so far developed outside the regulatory perimeter. Furthermore, consumer groups are typically not invited to help develop best practice¹¹⁶. Therefore, crypto-asset markets are unlikely to further develop without a comprehensive regulatory framework for issuers and service providers¹¹⁷.

Furthermore, in the absence of regulatory action at EU level, more Member States will pursue reforms at national level to address the problems highlighted above, giving rise to further regulatory fragmentation. National regimes would not provide an optimal base for a genuine single market for crypto-assets as service providers would face regulatory hurdles when operating across borders. Because of the cross-border nature of crypto-assets, national legislation aimed at consumer protection would not significantly reduce risks for consumers¹¹⁸. The largest trading platforms, exchanges or wallet providers used by consumers in one Member State can be located in another Member State or even outside the EU, where no rule may apply.

‘Stablecoins’ are likely to follow a different path to other crypto-assets. By seeking to stabilise the price of the token, stablecoins could resolve the main shortcoming of others crypto-assets – high volatility. In a short time span, ‘global stablecoins’ can become largely accepted as a means of exchange and used as a store of value. This would introduce a host of challenges, including risks to financial stability, monetary policy transmission and monetary sovereignty. The risks to financial stability would also be amplified if a pioneer project triggers similar initiatives from other BigTech¹¹⁹. While becoming systemically important right after their launch¹²⁰, some global “stablecoin” initiatives could also try to be launched outside the EU financial services framework. Promoters of stablecoins could be tempted to follow an *‘act first, seek forgiveness later’* approach towards regulation, by framing their business model in a way that does not fit into any existing regulatory classification.

Crypto-assets that fall within existing EU legislation (those which would qualify as MiFID II financial instruments) face a different set of problems. The market may never meaningfully develop unless the applicable regulatory framework is clarified.

¹¹⁴ International Securities Service Association, Infrastructure for Crypto-assets: A review by infrastructure providers, October 2018.

¹¹⁵ See for instance, the Investment Industry Regulatory Organisation of Canada that has been preparing ‘a preparation of regulation for blockchain applications and digital assets’; Virtual Commodities Working Group in the USA.

¹¹⁶ University of Cambridge, the Global crypto-asset regulatory landscape study (2019)

¹¹⁷ 68% of the respondents to the Commission’s public consultation have indicated that an EU bespoke regime for crypto-assets (that are not currently covered by existing legislation) would enable a sustainable crypto-asset ecosystem in the EU (vs. 22% ‘no’ and 10% without opinion).

Dutch Authority for the Financial Markets (AFM)/Dutch National Bank, Cryptos - Recommendations for a regulatory framework, December 2018.

¹¹⁹ See for instance, Dirk A. Zetzche, Douglas W. Arner, Regulating Libra: The Transformative Potential of Facebook’s cryptocurrency and possible regulatory responses, 2019.

¹²⁰ G7 Working Group on Stablecoins, Report on ‘investigating the impact of global stablecoins’, 2019.

As indicated above, DLT systems could have numerous benefits when applied to the issuance, trading and post-trading areas. However, despite significant interest from market participants, there are only very sporadic cases of ‘security token’ issuances to date, and none of the security tokens have been admitted to trading on a trading venue or been recorded with a central securities depository.

While the industry is attempting to solve the operational issues that DLT systems still face (such as the harmonisation of technical standards and scalability issues), the lack of legal certainty and some provisions of existing EU regulations could act as a barrier to the introduction of this technology and the benefits of DLT may never materialise¹²¹. EU regulation could require the artificial replication of the traditional steps of the lifecycle of a transaction (such as trading and post-trade activities) and doing so would erode most of the efficiency gains offered by the technology. In fact, it can be assumed that costs will be higher compared to traditional financial instruments given that it would constitute a novel approach (lack of economies of scale, specialist knowhow etc.). As such, the uptake of security tokens is largely dependent on adapting the regulatory requirements in a way that would allow service providers and market infrastructures using DLT to realise the efficiency gains.

If the regulatory challenges related to DLT are resolved in other third country jurisdictions, this may put both the EU financial sectors and EU investors, at a competitive disadvantage¹²². As the financial industry has advocated for more regulatory guidance on the compatibility of DLT with EU financial services legislation for some time¹²³, the lack of an EU response could give rise to divergent views and interpretations from NCAs, leading to further market fragmentation and regulatory arbitrage. A recent study has quantified annual DLT spending in financial services at over \$1 billion in 2017, with an estimated annual figure of \$1.7 billion going forward¹²⁴. However, the investments in the EU could stop if, due to regulatory hurdles, market participants are prevented from shifting from trials and testing to real-world implementation. Ultimately, while not having any direct detrimental impact, it implies that (total) costs of financial transactions will remain higher than necessary in the EU.

3. WHY SHOULD THE EU ACT?

3.1. Legal basis

The Treaty on the Functioning of the European Union (TFEU) confers upon the EU institutions the competence to lay down appropriate provisions that have as their object the establishment and functioning of the internal market (Article 114 TFEU). Depending on the policy option chosen and the specific design of the rules, the appropriate legal

¹²¹ Randy Priem, Distributed ledger technology for securities clearing and settlement: benefits, risks and regulatory implications, 2020.

¹²² Switzerland in particular has recently introduced targeted amendments to their legislative framework. This will in effect establish a bespoke set of rules for infrastructures dealing with DLT securities, clearing the path for the industry to create solutions that harness the potential of the technology

¹²³ See, for instance the European Central Securities Depositories Association’s response to the public consultation on FinTech, 2017.

¹²⁴ See HSBC, Distributed ledger technology in the capital markets, 2020.

base could also be Article 53(1) TFEU on the taking-up and pursuing of activities by self-employed persons, which is used to regulate the access of financial intermediaries to their activities.

3.2. Subsidiarity: Necessity of EU action

For crypto-assets that are covered by EU legislation (mostly those which qualify as financial instruments under MIFID II), a legislative proposal bringing targeted legislative amendments to the existing EU financial services regulatory framework in order to allow for a wider use of DLT could only be carried out through legislative action at EU level. Furthermore, different interpretations on how the current financial services legislation applies to DLT can lead to disparities in terms of investor protection, market integrity and competition across the single market and they can lead to regulatory arbitrage, thus justifying a common EU approach.

For crypto-assets that fall outside the scope of existing EU financial services legislation, some Member States have put in place (or are considering) bespoke national regimes to regulate crypto-assets. As outlined above, these national regimes follow different approaches and can make the cross-border provision of services in relation to crypto-assets difficult. The proliferation of national approaches also poses risks to the level playing field in the single market in terms of investor/consumer protection, market integrity and competition. Furthermore, while some risks are mitigated in the Member States that introduced a bespoke regime on crypto-assets, consumers, investors and market participants in other Member States would remain unprotected against some of the most significant risks posed by crypto-assets (e.g. fraud, cyber-attacks, market manipulation...).

3.3. Subsidiarity: Added value of EU action

Action at EU level would present more advantages compared to actions at national level¹²⁵.

For crypto-assets that are covered by EU regulation (i.e. those that could qualify as ‘financial instruments’ under MiFID II or as ‘e-money’ under EMD2), an action at EU level (either by soft-law measures or regulatory action) would provide clarity on whether and how the EU framework on financial services applies. Enhanced legal certainty by legislation and/or guidance at EU level could facilitate the take-up of primary and secondary markets for ‘security tokens’ across the single market, while ensuring financial stability and a high level of investor protection. By contrast, the proliferation of guidance and interpretations at national level could lead to a fragmentation of the internal market and a distortion of competition.

¹²⁵ ESMA, Report on licensing of business models, 2019. In this report, ESMA indicates: ‘almost all NCAs in their responses referred to the area of crypto-assets and ICOs as the areas that need to be addressed at EU level. NCAs reported the lack of clarity with respect to the definition of financial instruments and the legal nature of crypto-assets and related activities. A timely and coherent response from the EC to the uncertainties in the crypto area could prevent divergence in national regime and favour a consistent approach across Member States’.

For crypto-assets that are not currently covered by EU legislation, an action at EU level, such as the creation of an EU regulatory framework, completing also the anti-money laundering existing rules, would set the ground on which a larger cross-border market for crypto-assets and crypto-asset service providers could develop, thereby reaping the full benefits of the single market. An EU regime would significantly reduce the complexity as well as the financial and administrative burdens for all stakeholders, such as the service providers, issuers and investors/users. Harmonising operational requirements on service providers as well as the disclosure requirements imposed on issuers could also bring clear benefits in terms of investor protection and financial stability.

4. OBJECTIVES: WHAT IS TO BE ACHIEVED?

4.1. General objectives

The objective of this initiative are as follows:

- This initiative aims at providing **legal clarity** as regards whether and how EU financial services legislation applies to crypto-assets (and related services);
- The initiative should **support innovation and fair competition by creating a conducive framework** for the issuance of, and the provision of services related to crypto-assets;
- It should ensure a **high level of consumer and investor protection and market integrity** in the crypto-asset markets;
- It should address **financial stability and monetary policy risks** that could arise from a wide use of crypto-assets and DLT.

4.2. Specific objectives

The specific objectives of this initiative are as follows:

- **Removing regulatory hurdles** to the issuance, trading and post-trading of security tokens (i.e. crypto-assets that qualify as financial instruments under MiFID II), while respecting the principle of technological neutrality¹²⁶;
- **Increasing the sources of funding** for companies through increased Initial Coin Offerings and Securities Tokens Offerings;
- **Limiting the risks of fraud, money laundering and illicit practices** in the crypto-asset markets;
- Allowing EU consumers and investors to access **new investment opportunities or new types of payment instruments, competing with existing ones, to deliver fast, cheap, and efficient payments, in particular for cross-border situations.**

¹²⁶ A technologically neutral approach means that legislation should not mandate market participants to use any particular technology or should not give a particular technology an advantage over another.

5. WHAT ARE THE AVAILABLE POLICY OPTIONS?

The policy options analysed in this impact assessment have been grouped into three areas of action: (i) policy options for crypto-assets that are not currently covered by the EU regulation (mainly for certain payment and utility tokens); (ii) policy options for crypto-assets that could qualify as financial instruments under MiFID II; (iii) policy options for ‘stablecoins’ and global ‘stablecoins’. This last category has been assessed separately, as ‘global stablecoins’ can pose new risks to financial stability, compared to other crypto-assets.

Table 7: Summary of the options assessed in the impact assessment

Type of crypto-assets	Policy options
Crypto-assets that are currently unregulated at EU level	Option 1: Opt-in regime
	Option 2: Full harmonisation regime
Crypto-assets that qualify as financial instruments under MiFID II	Option 1: Non-legislative measures
	Option 2: Targeted amendments to sectoral legislation
	Option 3: Pilot/experimental regime on DLT market infrastructure
‘Stablecoins’ and global ‘stablecoins’	Option 1: Bespoke legislative measures on stablecoins/global stablecoins
	Option 2: Bringing stablecoins and global stablecoins under the Electronic Money Directive 2
	Option 3: Measures limiting the use of stablecoins and global stablecoins

5.1. What is the baseline from which options are assessed?

The baseline is similar to section 2.3. (*How will the problem evolve?*).

5.2. Description of the policy options

5.2.1. Policy options for crypto-asset that are not currently covered by the EU financial framework for financial services

Option 1: Opt-in regime for unregulated crypto-assets

For crypto-assets that fall outside the EU financial services framework, Option 1 would consist in an optional regime for the issuance of, and services related to, crypto-assets (such as trading platforms, exchanges, wallet providers...). In such a case, crypto-asset issuers and service providers would have the possibility to opt-in to an EU-wide regime if they want to operate throughout the single market. Issuers or service providers that would decline to opt-in would remain unregulated or be subject to national bespoke regimes. The regime would not apply to crypto-assets that may qualify as ‘financial instruments’ under MiFID II or as ‘electronic money’ under EMD2. The opt-in regime would be built on four building blocks.

The first building block would relate to the issuance of crypto-assets. If they opt-in for this regime, issuers would benefit from a passport regime across the single market, allowing them to market and offer their crypto-assets in all Member States. In return,

they would be subject to some requirements imposed at EU level. The fundamental requirement imposed on the crypto-asset issuer should be the disclosure of clear, accurate and non-misleading information through an information document/white paper (such as a technical and economic description of the project, the nature of the crypto-assets, the rights or the absence of rights associated with them, the risks they present and finally whether and where they are tradeable)¹²⁷. These provisions would apply only to crypto-assets that are issued (i.e. created and then sold by the issuer or his agent, as opposed to those simply awarded to the miners¹²⁸ or those that are distributed to the public for free).

Under this option, the issuer would be obliged to create a legal entity or to have a legal representative in the EU that would be accountable to the national competent authority. The issuer could also be subject to further requirements, such as advertising rules ensuring that marketing and promotional materials are not misleading. The issuer managers would also be subject to fitness and probity standards.

The second building block would concern the services related to crypto-assets. Three main categories of services would be in scope: 1) the trading platforms of crypto-assets: 2) the brokerages/exchanges (fiat-to-crypto and crypto-to-crypto) and 3) the custodial wallet providers. Those entities would be subject to the following key requirements¹²⁹, summarised in the table below.

Table 8: Summary of the requirements on crypto-asset service providers

Key requirements for all crypto-asset service providers	Legal presence in the EU - Governance arrangements (e.g. in terms of operational resilience and ICT security) - Rules on conflicts of interest - Prudential requirements (including capital requirements) – Business continuity requirements - Adequate complaints handling and redress procedures - Reporting requirements (including and beyond AML/CFT requirements) - Liability towards the customers for the crypto-assets given in custody – Segregation of users’ assets from those held on own account - Obligation to keep appropriate records of users’ transactions - Rules, surveillance and enforcement mechanisms to deter potential market abuse - Advertising rules to avoid misleading marketing/promotions – Obligation to provide information in the context of criminal investigations upon requests of national authorities, according to national laws
Additional requirement for exchanges and trading platforms	Obligation to provide a certain degree of pre- and post-trade transparency (bid-offer spreads and transaction volumes, price) - Access to services in an undiscriminating way – Obligation to screen crypto-assets against the risk of fraud
Additional requirement for trading platforms	Adequate rules to ensure fair and orderly trading
Additional requirement for wallet providers	Minimum conditions for their contractual relationship with the consumers/investors

¹²⁷ 59% of the respondents to the public consultation on crypto-assets indicated that the crypto-asset issuer should provide information on crypto-assets, 29% said that disclosure of information should depend on the nature of the assets, 5% indicated that there should be no disclosure and 7% were without opinion.

¹²⁸ Miners provide the necessary computational power to validate transactions and include them in the next block of transactions in the chain. This term is especially used for permissionless DLT.

¹²⁹ These key requirements were presented in the consultation document on crypto-assets.

The third building block would be consumer protection and market integrity measures. Crypto-asset service providers would have to apply additional measures to ensure investor/consumer protection (such as suitability checks and/or issuing warnings on the risks). A legislative proposal could also integrate measures aimed at preventing market abuse (market manipulation, insider dealings and disclosure of false information) related to crypto-assets when they are traded on a secondary market.

The fourth pillar would be the supervision of issuances of, and the services related to crypto-assets. Given the limited scale of service providers in the crypto-asset market, supervision at national level would seem more justified. Those providers would have to be authorised by an NCA before providing services. When authorised in one Member State, they would be allowed to provide services in all Member States (EU passport). The legislation should also include rules on the withdrawal of authorisations. The issuer or sponsor would also be required to register their *white paper* describing the crypto-asset issuance with the NCA of the jurisdiction where it is established. While the white paper would not be subject to prior approval, the NCA would be empowered to require more information or, if necessary, stop the issuance process. The opt-in regime would also include provisions on investigations by NCAs, administrative sanctions and cooperation between NCAs.

Under Option 1, all unregulated crypto-assets (except stablecoins that would require a specific set of measures – see section 5.2.3.) would be covered, as this option aims at regulating activities and service providers rather than the specific crypto-assets. Whereas for example disclosure requirements on the issuance could be envisaged to be different depending on the specific attributes of an unregulated crypto-asset (e.g. utility tokens that offer access to a service or a product would require an information different compared to other crypto-assets), all service providers (e.g. trading platforms, custodian wallets and exchanges/brokerage services) would be covered regardless of the crypto-assets they offer.

Additionally, Option 1 for unregulated crypto-assets, would take into account the updated international recommendations on AML/CFT from the FATF. Building on the recommendations from both EBA and ESMA, the framework would cover relevant service providers as these are defined in the FATF recommendations, preparing the ground for the upcoming updated EU AML/CFT policy.

Option 2: Full harmonisation for unregulated crypto-assets

Option 2 would introduce **a mandatory EU framework for the issuance and the services related to crypto-assets that are currently not covered by EU legislation.** This legislation would cover the four pillars mentioned under Option 1. The main difference with Option 1 would be that all issuers and crypto-asset service providers would have to comply with the legislation. This means that crypto-asset issuers would have to publish an information document. However, some measures would also ensure that the requirement related to this information document is proportionate (e.g. exemptions for issuances below a certain threshold or distributed to a small number of users/investors). Service providers would be required to apply the requirements set out in Table 8 (see above). Under Option 2, all issuances of crypto-assets in the EU as well as

service providers would benefit from an EU passport. National bespoke regimes on crypto-assets would cease to apply.

Like Option 1, Option 2 would also build on the FATF recommendations.

5.2.2. Policy Options for crypto-assets that may qualify as financial instruments under MiFID II

Option 1: Non-legislative measures to provide guidance on the applicability of the EU framework on financial services to security tokens and DLT

Under this option, there would be no proposed legislative measures for crypto-assets that are currently covered by EU financial services legislation (at least in the short/medium term). Instead, a series of non-legislative measures (e.g. a Commission's interpretative Communication, eventually complemented by and/or Guidelines¹³⁰, Questions and Answers¹³¹ from the ESAs depending on the nature of the issue at stake) would be issued to set out a common view on the applicability of existing EU legislation to increase supervisory convergence.

Those non-legislative measures would provide guidance on: (i) the conditions and criteria under which crypto-assets (including investment tokens, hybrid tokens and 'stablecoins') qualify as '*transferable securities*' or as other financial instruments (money market instruments, units of collective investment undertaking, derivative contracts) under MiFID II; (ii) the conditions under which trading platforms for crypto-assets (either centralised or decentralised) qualify as a trading venue or as any investment firm under MiFID II; (iii) the application of the Prospectus Regulation to security tokens offerings; and (iv) the application of post-trading rules (in particular CSDR and SFD) to CSDs using a DLT and more widely in a DLT context.

Option 2: Targeted amendments to the EU framework on financial services

Building on the outcomes of the public consultation on crypto-assets, Option 2 would bring targeted amendments to sectoral legislation applying to MiFID II financial instruments. Option 2 would therefore only entail limited changes to the body of legislations governing the securities lifecycle, namely issuance (Prospectus Regulation), trading and provision of investment services (MiFID II/MiFIR framework), settlement activities (CSDR and SFD). Option 2 would address the regulatory challenges linked to the use of permission-based and centralised trading platforms for crypto-assets, and not the wider concerns raised by permissionless and decentralised trading platforms.

¹³⁰ In order to promote supervisory convergence, ESMA has the power to issue guidelines (Article 16 of ESMA Regulation 1095/2010), which are addressed to the NCAs or to the market participants. Each NCA must confirm whether it complies or intends to comply with the guidelines. Where it does not comply, it must inform ESMA and provides reasoning. ESMA can decide to publish any NCA non-compliance.

¹³¹ Under Article 16b of ESMA Regulation, ESMA can develop 'questions & answers'. The answers by ESMA are not binding.

The first aim of such changes would be to remove obstacles to the use of DLT in level 1 and/or level 2 legislation, to ensure that service providers using this technology can offer their products and services, compete with and complement the legacy financial market infrastructures. The targeted amendments would strive to maintain the technology-neutral approach taken by the current financial services legislation. These measures could introduce, for instance, the creation of a specific prospectus schedule under the level 2 of the Prospectus Regulation to remove regulatory hurdles to the issuance of security tokens. They could also include a modification of Article 3(2) of CSDR to allow for the recording of financial instruments admitted to trading on a MiFID II trading venue on a DLT.

Second, some targeted modifications would be brought to existing EU rules to ensure that some novel risks raised by the use of DLT (operational, including cyber risks) are addressed. For instance, this can include technical changes to the legislation applying to ‘custody services’ to specify that the control of ‘private keys’ related to security tokens is the equivalent of the *‘administration and safekeeping of financial instruments on behalf of clients’*.

Option 3: Pilot/experimental regime – creation of a DLT market infrastructure facility for security tokens

A pilot or experimental regime would create a new type of market infrastructures dedicated to the trading and/or settlement of crypto-assets that would qualify as MiFID II financial instruments (‘security tokens’). The scope of ‘financial instruments’ that could be traded and/or settled on the DLT market infrastructure would be limited, in order to avoid risks. Given the regime’s experimental nature, the DLT market infrastructure could be allowed to implement innovative business models (e.g. admission of unregulated participants, such as retail investors, use of permission-based and permissionless DLT...).

The DLT market infrastructure would be exempted from certain requirements stemming from sectoral legislation (e.g. MiFID II, CSDR, SFD) applying to financial market infrastructures that may not be adequate in a DLT environment. However, high-level principles of those pieces of legislation would be replicated in a broad manner, in order to address ‘traditional risks’ that would not be sufficiently reduced by the use of DLT to ensure, among other things, an appropriate level of investor protection, infrastructure robustness, trading transparency, financial stability. Other rules, such as market integrity rules from the Market Abuse Regulation or the EU AML/CFT framework would apply in full to these DLT market infrastructures. The DLT market infrastructures would also be subject to additional requirements (not specified by existing legislation) to mitigate new risks raised by the use of DLT (such as novel forms of cyber risks). The applicant for a DLT market infrastructure license would have to demonstrate that its project can achieve compliance with these requirements.

The operator of a DLT market infrastructure would have to request an authorisation from a NCA. In order to avoid regulatory arbitrage and to ensure a level-playing field, ESMA would be in charge of coordinating experimentations. After three years of application, the Commission (in cooperation with ESMA) would have to review results. The Commission

would also evaluate whether: (i) the temporary regime should become permanent; (ii) it should be extended to other types of financial instruments and/or (iii) whether targeted amendments to existing legislation should be proposed. The report should also take into account the needs of businesses that would have committed resources to build DLT market infrastructure under the pilot regime.

5.2.3. Policy options for stablecoins and global stablecoins

Option 1: Bespoke legislative regime aimed at addressing the risks posed by ‘stablecoins’ and global ‘stablecoins’

These legislative measures could complement and be part of the legislative proposal on crypto-assets (that are not currently covered by existing EU legislation), as described under section 5.2.1. (Options 1 and 2). These legislative measures would make a distinction between the three types of ‘stablecoins’: (i) ‘stablecoins’ backed by other crypto-assets; (ii) ‘stablecoins’ backed by real assets or funds and (iii) algorithmic stablecoins. Further requirements would be imposed on ‘stablecoins’ backed by a reserve of real assets (second category) that could reach a global scale¹³².

The proposed measures would aim at mitigating the specific risks raised by this type of crypto-assets. The issuer or promoter of ‘stablecoins’ would be subject to additional disclosure requirements (such as information on the governance of the ‘stablecoin’ arrangements, on the stabilisation mechanism, potential rights/claims attached to the tokens) compared to issuers of other crypto-assets. The reserve of real assets (depending on their nature, some of those requirements could be applied to stablecoins backed by other crypto-assets) should also be subject to requirements. Table 9 lists the potential requirements.

Table 9: Summary of requirements for ‘stablecoin’ issuers

Key requirements for stablecoins backed by a reserve of real assets or by other crypto-assets	• Obligation on the reserve assets (segregation from the issuer’s balance sheet, assets are not pledged as collateral, assets held in custody with a credit institution, periodic auditing of the assets...) • Governance arrangements (physical presence in the EU, contractual arrangements between issuer and other entities in the arrangement, conflicts of interest rules...) • Periodic disclosure requirements (number of ‘stablecoins’, value of the reserve...) • Prudential (including capital and liquidity) requirements rules • Continuous risk assessments, contingency preparedness and continuity planning • Issuance of “stablecoins” always lower or equal to the value of the funds of the reserve • Requirements in case of insolvency/wind-down • Complaints handling and redress procedures
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¹³² At this stage, it can be considered that a ‘stablecoin’ can reach global scale if it becomes a real store of value and a trusted means of payment. This will be only the case if there is a sufficient degree of assurance that the value of the ‘stablecoin’ is actually stable and that it is backed by a reserve of assets whose value is also stable. It can be therefore possible to consider that only ‘stablecoins’ that are linked or backed with highly liquid and stable assets, such as fiat currencies and short-term government bonds with an ‘investment grade’ ratings can be really deemed stable.

	Assessment of how the technology and rules for transferring coins provide assurance of settlement finality
Key additional requirements for ‘global stablecoins’	- Investment of reserve in safe and liquid assets - Flow tools to limit sudden outflows from the SC arrangement. - Interoperability requirements
Key additional requirements for algorithmic ‘stablecoins’	Disclosure of the algorithm

Option 1 would set specific requirements for ‘global stablecoins’ based on their potential to achieve widespread adoption and thereby become systemic. To mitigate potential risks to financial stability and monetary policy transmission, for example, they would be subject to specific requirements regarding the management of the reserve, for instance, and would be subject to an EU authorisation. Under this Option, the issuer of a ‘global stablecoin’ would need an authorisation from a European Supervisory Authority as such a proposition could become pan-European very quickly after its launch. It is envisaged to grant supervisory authorities the power to refuse authorisation to the issuer of a stablecoin if there are objective grounds to believe that the specific business model can raise unmanageable issues in terms in financial stability and monetary policy transmission. Additionally, there would be rules on withdrawal of authorisations, enabling supervisory authorities to withdraw a stablecoin issuer’s authorisations in case of non-compliance.

Option 2: Regulating ‘stablecoins’ under the e-money directive

The Electronic Money Directive 2 (EMD2) defines electronic money as: *“electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of [Payment Services Directive - PSD2] and which is accepted by a natural or legal person other than the electronic money issuer”*¹³³. In addition to the above elements, e-money has to be issued at par on the receipt of funds (1:1). It is also obliged to be redeemed at any moment and at par value¹³⁴. This means, for instance, if a user purchases e-money valued at €10, he will later be able to redeem that e-money for €10.

Option 2 would not modify the definition of e-money and would keep unchanged the requirements of issuance and redeemability at par value. However, the EMD2 would be modified in order to oblige all the issuers of ‘stablecoins’ to give the users a claim on the issuer. Under Option 2, a definition of a ‘stablecoin’ would be introduced in EMD2 and would define a ‘stablecoin’ as any crypto-asset that aims to maintain a stable value. This option is in line with the Financial Stability Board high-level recommendations on ‘stablecoins’ that indicate: *“Authorities should ensure that GSC arrangements provide legal clarity to users on the nature and enforceability of any redemption rights and the*

¹³³ Article 2(2) of EMD2.

¹³⁴ Article 11 of EMD2.

process for redemption, where applicable [...] Authorities should consider implications of GSC arrangements' decisions to grant users and/or intermediaries a direct legal claim against the GSC issuer or its reserve portfolio, including for "run" risks."

Option 2 would require 'stablecoin' issuers to comply with existing legislation that may not be fit for purpose. Although EMD2 and, by extension PSD2, could cover some service providers within 'stablecoin' arrangements, it might not mitigate adequately the most significant risks to consumer protection raised by for example wallet providers. In addition, EMD2 does not set specific provisions for an entity that would be systemic, which is what 'global stablecoins' could potentially become.

Option 3: Measures aimed at limiting the use of stablecoins within the EU

In a joint statement published in December 2019 on 'stablecoins', the Commission and the Council stated that *"all options should be on the table, including any measure to prevent the creation of unmanageable risks by certain 'global stablecoins'.* Therefore, Option 3 would limit the use of 'stablecoins' within the EU. Under this option, the EU framework would define 'stablecoins'¹³⁵. Then, the legislative intervention would specify that the following activities are not available in the EU: (i) any issuance of 'stablecoins' in the EU and (ii) any offer of services and activities involving 'stablecoins' in the EU or by an entity incorporated in the EU (e.g. wallet providers, exchanges or trading platforms).

Options discarded at an early stage: Creating a new category 'crypto-assets' in the list of "financial instruments" (Annex I C of MiFID II)

Under this option, the difference between crypto-assets that are currently regulated (i.e. mostly those that qualify as MiFID II financial instruments) and those that fall outside (i.e. utility tokens or payment tokens) would no longer exist, as a new category of crypto-assets would be added to the Annex listing financial instruments in MiFID II.

However, ESMA advice on "initial coin offerings and crypto-assets" has showed limited support from NCAs to create a new category of financial instruments for crypto-assets, as the creation of a new category C12 would create confusion and regulatory arbitrage between existing categories (e.g. traditional 'transferable securities') and the new one (e.g. investment tokens that present the same features as traditional transferable securities but issued on a DLT). Furthermore, this Option would have brought all crypto-assets that are currently unregulated under MiFID II. This solution could have been burdensome for issuers and service providers in connection with these assets. Please see Annex 5 for further details.

¹³⁵ The term 'stablecoin' commonly refers to a crypto-asset that aims to maintain a stable value relative to a specified asset, or a pool or basket of assets.

6. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

6.1. Policy options for crypto-asset that are not currently covered by the EU financial framework for financial services

Option 1: ‘Opt-in’ regime for unregulated crypto-assets

Such an opt-in regime would instil a degree of trust in the crypto-asset market, by somewhat enhancing investor protection and market integrity. When the issuer of crypto-assets decides to opt-in, it will be required to produce an information document/a white paper. The disclosure of accurate and comprehensive information about issuers and crypto-assets themselves would build sustained investor confidence and allow for an informed assessment of the crypto-assets. Disclosure requirements could also assist with market efficiency, allowing for more accurate asset pricing. In the same way, when service providers decide to apply the EU regime, governance requirements on those entities would provide a certain degree of assurance on the reliability of their business. Market abuse rules and surveillance mechanisms would also improve market integrity in the crypto-asset markets.

The positive effect on investor protection and market integrity could however be limited. The opt-in regime could create a ‘two-tier’ crypto-asset market, where some issuers and service providers are subject to EU requirements, while others (depending on the Member States where they operate their business) would not be subject to any rules. Some users would therefore be adequately protected, while others would remain either unprotected or their protection would depend on national legislation. The existence of co-existing regimes (at EU level and national level in a subset of Member States) is also likely to create confusion among users and investors. Service providers with weaker governance arrangements may establish their activities in countries with lower requirements. It is therefore not certain that such an opt-in regime could reduce the exposure of consumers to potentially fraudulent offers.

The opt-in regime would allow service providers to scale up their activities on a cross-border basis in the single market, without stifling innovation. Smaller actors that wish to remain national and operate in one or a subset of Member States would remain bound by the rules in that or those Member States or would remain unregulated¹³⁶ if they operate in a jurisdiction without bespoke regime on crypto-assets. The possibility to opt-out presents advantages, as many issuers of tokens are at an early stage of their development¹³⁷ and service providers are relatively small firms¹³⁸. For issuers and service providers that opt-in, they could benefit from a reduction of market entry costs (e.g. regulatory and supervisory costs), as there would be only one authorisation to operate in the EU and the regime would be lighter and proportionate compared to the MiFID II

¹³⁶ Depending on their activity (i.e. wallet provider or fiat-to-crypto exchange), they could be subject to the EU AML/CFT framework.

¹³⁷ See OECD, Initial Coin Offerings (2019): ‘ICOs are in their majority project-based and the financing raised is actually allowing the start-up to finance the undertaking of a specific project’.

¹³⁸ University of Cambridge, 2nd Global crypto-asset benchmarking study (2018). This study provides an overview of the median number of full time employees for various type of service providers. Despite a strong growth, those numbers are still relatively low: 20 for exchanges, 14 for wallet providers, 8 for payment services and 33 for service providers offering more than one service.

framework applying to investment firms. Crypto-asset service providers authorised according to the EU rules would also benefit from a moderate regulatory license effect that would attract more users. Users would benefit from lower costs for services, as service providers that opt-in would be able to compete on a cross-border basis.

The business case for issuers and service providers that would decline to opt-in is however limited. Issuers would only be able to market their crypto-assets in Member States without bespoke regime or to comply with the various requirements set in the national regimes. The service providers opting out could only solicit clients residing in their Member State or potentially comply with various national requirements, which can be costly and legally complex. An opt-in regime may not be adapted to the crypto-asset market that relies on decentralised platforms and permissionless DLT for which it may be challenging to determine a geographic location¹³⁹. In such circumstances, maintaining national regimes can present limited advantages.

By setting out an opt-in regime, the legislation would limit the potential for regulatory arbitrage between the EU and third countries. Regulatory changes or enhanced supervisory monitoring can result in a shift towards non-EU jurisdictions with no regulatory regime for crypto-assets¹⁴⁰. However, under Option 1, issuers and service providers would be less tempted to establish their activities out of the EU, as they would still have the possibility to opt-out and to conduct their activities in Member States with no bespoke regime or less stringent rules.

However, the opt-in regime would not reduce market fragmentation in the single market. Member States would still be allowed to adopt national bespoke measures for issuers and service providers choosing not to opt-in. Regulatory divergence would therefore remain, casting doubts about the adequate legal basis for such an opt-in regime.

Option 2: Full harmonisation

Full harmonisation for all offerings and services provided in relation with crypto-assets in the EU would provide legal clarity for users, issuers and service providers alike. Stakeholders would know that all crypto-asset issuers and service providers in the EU would be covered by regulation, either because they are covered by MIFID II as financial instruments, as electronic money under EMD2 or under this new legislation. This increased legal certainty would help build confidence in the trustworthiness and reliability of crypto-assets and associated services. A harmonised regime would also reduce regulatory ambiguity that is slowing down the adoption rate of DLT and crypto-assets, as market participants are uncertain of the conditions under which they can participate in such markets in their own or in other Member States and/or engage investors and users.

Under Option 2, all investors and users of crypto-assets would benefit from the same level of investor protection and market integrity across the single market. Disclosure requirements imposed on issuers would reduce information asymmetries, lack of transparency and plain fraud, for example by imposing requirements at the issuance

¹³⁹ International Monetary Fund note 19/03, Regulation of Crypto-Assets

¹⁴⁰ University of Cambridge, the Global crypto-asset regulatory landscape study (2019)

stage, limiting the risks of misleading promises by the issuer about the qualities of a crypto-asset or Ponzi schemes. A harmonised regime on the issuance of crypto-assets would also ensure a fair and equitable treatment of all users and investors in the EU. In the same way, Option 2 would also guarantee that all services providers would be subject to the same regulatory standards within the EU. Users would be ensured that all service providers operating in the EU have the necessary resources to run their business and adequate processes and control in place that would mitigate the risks of hacking and theft, for instance. Crypto-asset service providers will be subject to capital requirements, governance standards, and the obligation to segregate their clients' assets from their own assets and will be subject to IT requirements to avoid the risks of cyber thefts and hacks. All transactions in crypto-assets traded in the secondary markets in the EU would also be subject to market abuse rules, therefore ensuring a high and consistent level of market integrity. Such rules will for example include a requirement for crypto-asset to put in place surveillance mechanisms to identify market abuse. **This enhanced investor protection should increase confidence in crypto-assets and attract new investors.**

By regulating all crypto-asset service providers, Option 2 would also contribute to ensure financial stability, if the size of the crypto-asset market grows in the future. While users can hold and trade crypto-assets with their peers by using any personal device with an internet connection, the majority of users and investors are more likely to rely on the crypto-asset 'gatekeeping' services (e.g. custodian wallet providers, trading platforms and exchanges). By regulating those services, Option 2 would allow risks to be addressed at the point where they can enter and propagate into the regulated financial sector. This would also facilitate monitoring of crypto-assets via transparency and reporting obligations that would otherwise not be possible to impose or enforce on unregulated activities¹⁴¹.

Full harmonisation would also prevent or at least minimise the risk of regulatory arbitrage within the Union, as offerings and services related to crypto-assets would be subject to the same rules. A mandatory regime at EU level would harmonise and supersede national rules. This would ensure a level-playing field and foster competition among service providers in the single market with potential benefits for users and investors.

However, an EU mandatory framework would impose costs on all crypto-asset issuers and service providers. Currently, in a majority of Member States, there is no rule applying to the offering of crypto-assets or the provision of services related to this type of assets. However, the cost burden imposed on those market players should not be overstated for four reasons. First, some Member States (France, Malta, and Germany) have already established a mandatory or voluntary bespoke regime on issuers and/or some service providers. As the regulatory standards envisaged under Option 2 are proportionate to the risks raised by the activities, it is not certain that the EU regime would increase the costs incurred by issuers and service providers. Second, the requirements are aimed at filtering out unscrupulous and poorly organised and capitalised service providers. Reputable and reliable providers would already be meeting many of

¹⁴¹ ECB Occasional papers, *Crypto-assets: implications for financial stability, monetary policy and payments and market infrastructures*, 2019.

the requirements that would be set out in the regulatory regime. Third, the EU passport would enable issuers and service providers to operate on a cross-border basis, while the co-existence of diverging national regimes could prevent firms from scaling up or could significantly raise the compliance costs borne by firms operating in several countries. Fourth, some provisions would ensure that the obligation to produce an information document do not apply to small size crypto-asset issuances or to crypto-asset distributed to a small circle of users or investors. This would ensure the proportionality of the framework, especially for SME issuers.

While reducing the risks of regulatory arbitrage inside the EU level, there is a risk that a mandatory regime in the EU would increase the risk of regulatory arbitrage with third countries. This can be the case in particular if the EU regime is perceived as imposing more stringent rules than elsewhere. However, the risk of regulatory arbitrage should be weighed against the risks to consumer protection and market integrity posed by crypto-assets. Market access restrictions on service providers that do not fulfil the standards therefore do not seem disproportionate. The risk of regulatory arbitrage is also limited by the fact that operating in the EU would require an authorisation under the EU regime. Furthermore, with a fully harmonised regime, the EU could lead by example, given the lack of comprehensive regulation on crypto-assets in third countries.

As it would focus on the regulation of crypto-asset service providers, Option 2 would not tackle the issue raised by peer-to-peer transactions. One legal or natural person can trade crypto-assets and record the transactions on the DLT without the intermediary of a third party (e.g. trading platforms). In such a case, the consumer protection measures, as envisaged under Option 2, would not apply. However, from a consumer protection angle, when a legal or natural person engages in peer-to-peer transactions (by for instance creating their own wallet), they expressly renounce the safeguards provided by transacting through a trusted intermediary (i.e. an authorised crypto-asset service provider). Secondly, from a market integrity/market abuse angle, a legal or natural person could potentially engage in peer-to-peer transactions to commit insider dealings or market manipulation. However, the challenges raised by this situation are not dissimilar to those encountered in traditional securities markets, when participants engage in some over-the-counter (OTC) transactions (i.e. outside regulated ‘trading venues’). Furthermore, even if one participant to a trade use its own wallet, the other party to the transaction can trade through an intermediary (through a custodial wallet providers) and be caught under the surveillance mechanism of the authorised crypto-asset service provider. As for AML/CFT, the FATF is currently carrying out an analysis on the potential risks of peer-to-peer transactions (especially those by ‘stablecoin’ arrangement). Whereas a global ‘stablecoin’, with wider reach than normal crypto-assets, is considered to increase the risks of peer-to-peer transactions, the assessment remains that the actual use of peer-to-peer remains very limited, compared to transactions that goes through crypto-asset service providers. This is mainly due to the ease-of-use of the trusted intermediaries’ service, and the risks associated with holding your own assets (no recovery procedure in case of lost keys for example). Lastly, all transactions, including peer-to-peer, are registered on the distributed ledger, which in fact offer traceability not available in other value transfer systems. More and more companies offer services to this effect, working together with law enforcement agencies.

Comparison of the options for crypto-asset that would not currently be covered by the EU financial framework for financial services

<i>Objectives</i> <i>Policy option</i>	<i>EFFECTIVENESS</i>				<i>EFFICIENCY</i> <i>(cost-effectiveness)</i>	<i>Coherence</i>	<i>SCORE</i>
	<i>Objective 1</i> <i>Legal clarity</i>	<i>Objective 2</i> <i>Supporting innovation</i>	<i>Objective 3</i> <i>Consumer protection / market integrity</i>	<i>Objective 4</i> <i>financial stability</i>			
Baseline scenario	0	0	0	0	0	0	0
Option 1. Opt-in regime	+	++	+	≈	+	≈	5
Option 2. Full harmonisation	++	+	++	+	+	++	9

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

	Issuers of crypto-assets	Crypto users and investors	Crypto-asset service providers	NCA's / Supervisors
Baseline scenario	0	0	0	0
Option 1. Opt-in regime	↑	≈ or ↑	↑	≈ or ↑
Option 2. Full harmonisation	↑ or ↑↑	↑↑	↑ or ↑↑	↑

Option 2 would provide better legal clarity, especially for crypto-asset users that would be ensured that all issuers and service providers are subject to the same rules across the EU. By creating a single EU framework for crypto-assets that are currently outside the regulated space, Option 2 would address the issue of market fragmentation within the single market, while Option 1 would maintain the existence of national bespoke and divergent national regimes. Full harmonisation therefore represents a more coherent approach compared to an opt-in regime.

By requiring issuers to publish an information document on the offer and by obliging service providers to be authorised by an NCA, Option 2 would provide a higher level of consumer and investor protection to crypto-asset users compared to Option 1. It would also better protect users against market abuse. In terms of cost-efficiency, both options give an EU passport and the possibility for companies to scale-up their activities within the single market. Option 1 could potentially entail lower supervisory and compliance costs for providers and issuers that choose to stay outside the opt-in regime. However, under that option, Member States would still have the possibility to adopt bespoke national regimes and it is not certain that those national regimes would be less costly to comply with than a harmonised EU regime that is commensurate to the risks raised by crypto-asset activities. Finally, some benefits (such as reduced amounts of frauds) can only be realised through harmonisation at EU level, while it can be expected that the less reliable issuers and service providers would remain outside the scope of the opt-in regime. **The preferred option is therefore Option 2.**

6.2. Impact of policy options for crypto-assets that could qualify as financial instruments under MiFID II

Option 1: Non-legislative measures to provide guidance on the applicability of the EU framework on financial services to security tokens and DLT

Non-legislative measures envisaged under Option 1 would assist in clarifying on when crypto-assets could qualify as financial instruments under MiFID II. This may facilitate solving one of the most pressing issues raised by NCAs *“that report having difficulty in determining when crypto-assets are regulated and when they are not”*¹⁴². Such a guidance would also facilitate the distinction between crypto-assets that fall into the scope of existing legislation and those that would be covered by a potential new framework on crypto-assets (as envisaged in sections 6.1). The guidance could also support the primary market (by providing further clarification on how the prospectus regulation could apply to this type of issuances), and to some extent the secondary market (by specifying how a trading platform for crypto-assets could operate under the MiFID II/MiFIR framework) as well as the development of post-trading infrastructures for security tokens. This holistic approach (with various soft-law measures on different technical points, eventually complemented by ESAs’ guidance) would avoid regulatory arbitrage in the single market and could foster regulatory and supervisory convergence across the EU¹⁴³. A set of soft-law measures could also support the emergence of innovative services based on DLT and security tokens, as market participants will be clearer on how the rules could apply to their activities, particularly when conducting their business across several Member States¹⁴⁴. If soft-law measures are issued, market participants would not incur the costs linked to legislative changes. Greater clarity on how the EU framework on financial services applies to security tokens and DLT-based activities could potentially decrease compliance and legal costs for market participants.

Non-legislative measures present a strong advantage in terms of flexibility. The use of security tokens and the operationalisation of DLT in the financial sector is going to be a *“gradual step-by-step evolution rather than a big bang revolution”*¹⁴⁵. The business models relying on security tokens and DLT are not fully stable and it might be premature to bring significant modifications to the EU legislation on financial services. Soft-law measures could therefore be better suited to an evolving landscape compared to *hard law* amendments. Non-legislative measures can foster for the take-up of innovation in the

¹⁴² ESMA, Report on ‘Licensing of FinTech Business models’, 2019.

¹⁴³ Several NCAs are already providing their interpretations on how the EU framework can apply to security token offerings (for instance, the French Autorité des marchés financiers or Bank of Lithuania). This proliferation of national interpretation may create a risk of distortions in the single market and regulatory arbitrage.

¹⁴⁴ Association for financial Markets in Europe, Recommendations for delivering supervisory convergence on the regulation of crypto-assets in Europe, 2019. It should also be noted that the Swiss Financial Supervisory Authority (FINMA) issued several guidance on how the Swiss regulatory framework can apply to initial coin offerings and stablecoins, in order to provide legal clarity to market participants, including investors.

¹⁴⁵ Randy Priem, Distributed ledger technology for securities clearing and settlement: benefits, risks, and regulatory implications, 2018.

short-medium term while giving more time and concrete examples for the Commission and ESMA to assess any necessary adaptations of the EU legal framework to be considered at a later stage. They could be issued swiftly. Finally, the type of soft-law measures (Commission interpretative communication, and depending on the issues at stake, potentially complemented by ESMA guidelines with a “comply or explain” mechanism, ESMA questions & answers) could be adapted to the type and the intensity of the issue at stake.

Non-legislative measures would also preserve the current high level of investor protection, market integrity and financial stability, underpinned by the sectoral legislation (MiFID II, the Prospectus Regulation, CSDR, EMIR, UCITS or the Alternative Investment Fund Directive). Soft-law measures envisaged under option 1 would keep the EU regulatory framework technology neutral. Activities related to tokenised ‘financial instruments’ would be still regulated in the same manner as activities based on traditional ‘financial instruments’ and raising the same type of risks.

However, non-legislative measures under option 1 could also have a limited effect. By nature, soft law measures are not binding and one Member State or one NCA could decide not to apply the guidance. The guidance on which crypto-assets constitute ‘financial instruments’ under MiFID II could have limited effects due to the difference in transposition of the notion of ‘financial instruments’ in national legislations. Furthermore, soft law measures would not contribute to the development of entities providing integrated trading and post-trading services on DLT as such entities could still find it hard to comply with all the requirements of sectoral legislation that regulates these services separately.

Option 2: Targeted amendments to the EU framework on financial services

This Option would provide a high degree of legal clarity to market participants and NCAs on how the EU financial services legislation applies to services related to the issuance, trading and settlement of security tokens. In principle, targeted amendments in well-defined areas (Prospectus Regulation, CSDR, SFD) can be highly effective to enable the use of DLT by market participants. For instance, a modification of Article 3 of CSDR (which requires the recording of ‘financial instruments’ admitted to trading on a MiFID II trading venue with a CSD) could allow for the direct recording of security tokens with the DLT network itself. This would eliminate the mandatory intermediation by a CSD and could enable the development of trading venues for security tokens as well as the settlement of security token transactions on a DLT network¹⁴⁶. Targeted changes to the Prospectus Regulation and its implementing measures (such as the creation of a specific prospectus schedule) would also facilitate the issuance of security tokens and capital-raising by EU corporates. While, in principle, legislative changes normally come with a cost for market participants, the envisaged amendments should trigger limited costs or even eliminate some of them. In particular, legal, compliance and operational

¹⁴⁶ Provided that the DLT network is not designated as a securities settlement system by a Member States, in accordance with SFD. In such as case, a CSD would be necessary to operate the DLT network.

costs would be reduced by providing legal certainty on how the EU framework for financial services applies. Option 2 could potentially avoid the replication of market infrastructures or some layers of intermediation (such as the mandatory presence of a CSD in case of financial instruments on a trading venue). These regulatory adjustments would also be effective to address the risk of regulatory fragmentation within the single market, due to divergent interpretations of the EU financial services legislation by NCAs.

Option 2 would also address the specific operational resilience risks raised by the use of crypto-assets and DLT and would ensure financial stability and investor protection. Legislative amendments would also bring clarity about what constitutes safekeeping services related to tokenised ‘financial instruments’ (i.e. the control of private keys), thereby fostering investor protection.

However, those targeted amendments taken in isolation could have a limited impact to support the take-up of security tokens and DLT in the financial sector. Under Option 2, the number of amendments to existing legislation would be relatively limited. As DLT and security tokens are in nascent stages, it is difficult to identify many regulatory obstacles that would require immediate legislative action. Without sufficient evidence, an in-depth modification of the legislative framework could endanger investor protection and financial stability. Likewise, it is difficult to precisely assess the risks that may arise when security tokens and DLT will be deployed at scale and to frame mitigating measures accordingly. Furthermore, those targeted amendments would only accommodate activities related to security tokens via permission-based DLT network and centralised platforms (as a central operator able to apply regulation applying to market infrastructures would be needed to operate such services). However, Option 2 will not allow for the testing of permissionless DLT networks and decentralised platforms (with no identifiable operator), while such DLT network, such as Ethereum¹⁴⁷ could, in principle, be used for the issuance and trading of securities. Finally, even if there are limited in terms of numbers, those adjustments could be quite controversial, as they would create a particular DLT approach in the post-trading area. They could raise legitimate questions as regards their coherence with the risk-reduction strategy in the post-trading area underpinned by CSDR and SFD and it could be difficult to fully address those criticisms, given the limited market experience to date. Finally, some of these changes could entail a long legislative process so that the proposed amendments could be outdated or insufficient when entering into application.

Option 3: Pilot/experimental regime – the creation of a DLT market infrastructure

The regime could give existing investment firms and market players the possibility to test the use of DLT on a larger scale, by offering trading and settlement services at the same time. DLT can allow for near real-time settlement, thereby reducing the counterparty risk during the settlement process. The distributed nature of DLT could also mitigate some cyber risks that centralised market infrastructures raise, such as the single point of failure. The use of DLT could decrease costs by freeing up capital through reduced need for collateral posting and through automated process (with the use of smart

¹⁴⁷ Ethereum is an open source, public, blockchain-based distributed computing platform and operating system featuring smart contract functionality.

contracts) that could simplify some back offices processes (e.g. reconciliation). Realising the full benefits of DLT are however currently hindered by the EU framework on financial services that makes the trading and settlement by a single platform almost impossible (as the same platform would be obliged to cumulate the status of a trading venue and a CSD, which is not technically feasible or very costly)¹⁴⁸. The pilot regime would allow market participants to remove other regulatory constraints that can inhibit the development of market infrastructure underpinning the secondary market for security tokens¹⁴⁹.

The pilot/experimental regime could facilitate the emergence of a more reliable and safe secondary markets for security tokens. Without well-functioning secondary markets underpinned by market infrastructures able to provide both liquidity and ensure investor protection, the primary market for security tokens is unlikely to develop on a significant scale. At the current juncture, trading in security tokens is carried out by platforms organised on a ‘broker-dealer’ model and mainly takes place over-the-counter (OTC)¹⁵⁰. The DLT market infrastructure could allow for the execution of a higher volume of transactions and, in a safer way, as settlement services would also be provided.

This regime would enable EU companies to innovate and to compete with their counterparts in other jurisdictions. Several third countries (such as the USA¹⁵¹ or Switzerland¹⁵²) have adopted an open-minded approach towards experimentation as regards the use of DLT for the secondary markets in security tokens.

The safeguards under the pilot regime would preserve a high level of investor protection and financial stability, by limiting the type of securities that can be admitted on the platforms, for instance. The DLT market infrastructure would operate under the close supervision of a NCA, in close coordination with ESMA to ensure a level-playing field and avoid the proliferation of undue risks across the EU.

This experimental regime would create “real use-cases” and market experience by which a permanent EU regulatory regime could be inspired. At the current juncture, there is a large number of proofs of concept developed by market participants illustrating that DLT and security tokens could yield a large number of benefits in the financial industry¹⁵³. However, the projects that are developed try to replicate one segment of the

¹⁴⁸ See Autorité des Marchés Financiers, Review and Analysis of the application of financial regulations to security tokens 2020.

¹⁴⁹ e.g. wider access to the platforms to both authorised entities (such as credit institutions and investment firms) and natural persons, use of permissionless blockchain etc.

¹⁵⁰ PwC: New Swiss Regulation for secondary trading security tokens explained, 2019.

¹⁵¹ For instance, in October 2019, the American Securities and Exchange Commission published a ‘no action letter’ concerning Paxos. This firm has been exempted from a formal registration as a ‘clearing agency’ while being allowed to settle equity securities trades of US listed companies’ shares on a blockchain platform. This no-action relief was granted under certain conditions (Letter from the US SEC to Paxos Trust Company LLC).

¹⁵² In November 2019, the Swiss Federal Council also announced its intention to introduce a new category of market infrastructure, the DLT Trading facility that will be authorised to conduct trading, settlement and custody activities at the same time (‘Projet de loi fédérale sur l’adoption du droit fédéral aux développements de la technologie des registres électroniques distribués’).

¹⁵³ Randy Priem, Distributed ledger technology for securities clearing and settlement: benefits, risks, and regulatory implications, 2018.

market (either trading platforms, or CCP, or CSD using a DLT), which would not allow for reaping the full benefits of DLT¹⁵⁴. The experimental DLT market infrastructure could solve this issue, by allowing for the merging of some steps in the transaction lifecycle and the identification of regulatory barriers that may have to be removed so that DLT and security tokens could be fully adopted in the longer term. A three-year review clause would be introduced in the framework. At the end of the period, the Commission (in cooperation with ESMA and the NCAs) would have the obligation to report on the experiment and would propose a way forward (such as continuing the experiment, extending the experiment to other instruments such as derivative contracts, making the DLT market infrastructure status permanent, bringing modifications to the EU framework on financial services...).

The experimental regime also presents some limits. It could lack the flexibility necessary to allow for the development of certain innovative solutions in the secondary market for security tokens. It could frame the business model of firms in a way that might not be fully adequate. The industry could be reluctant to commit resources to build a DLT market infrastructure that could be subject to significant regulatory changes in the short-term. The scalability and interoperability of such DLT market infrastructures are also key to attract a widespread interest in security tokens. The pilot regime could lead to the development of ‘niche’ DLT market infrastructure, raising risks of incompatibility and market fragmentation. However, the issue of interoperability of DLTs networks is a widespread concern¹⁵⁵. Furthermore, the experimental regime envisaged under option 3 would enable EU authorities to gain experience on these issues.

Comparison of the options for crypto-asset that could qualify as financial instruments under MiFID II

Objectives Policy option	EFFECTIVENESS				EFFICIENCY (cost-effectiveness)	Coherence	SCORE
	Objective 1 <i>Legal clarity</i>	Objective 2 <i>Supporting innovation</i>	Objective 3 <i>Consumer protection / market integrity</i>	Objective 4 <i>financial stability</i>			
Baseline scenario	0	0	0	0	0	0	0
Option 1. Non-legislative measures	+	+	≈	≈	+	+	4
Option 2. Targeted	++	+	+	≈	+	+	6

¹⁵⁴ See Deloitte, ‘Are token assets the securities of tomorrow?’, 2019: ‘An option for the future may be the use of DLT within a limited section of the specific value chain for specific instruments, following the existing security lifecycle organised within the legacy environment. [...] we believe this model does not do justice to the potential offered by DLT and tokens. This model would improve the status quo in some respects but would still be up for debate given the need to find adequate profiles or restructure old banking/custody systems’.

¹⁵⁵ Randy Priem, Distributed ledger technology for securities clearing and settlement: benefits, risks, and regulatory implications, 2018.

amendments				
Option 3. Experimental / pilot regime	+	++	+	≈
			+	+
				6

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; – – strongly negative; – negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

	Issuers of security tokens	Investors	Investment firms/Financial market infrastructures	NCA's / Supervisors
1. Baseline scenario	0	0	0	0
Option 1. Non-legislative measures	↑	↑	↑	↑
Option 2. Targeted amendments	↑↑	↑	↑	↑
Option 3. Experimental / pilot regime	↑	↑	↑ or ↑↑	↑

The effectiveness of the three considered options appears broadly similar even though these options would not address the same issues equally. By providing guidance on whether a crypto-asset qualifies as a financial instrument and other technical issues raised by sectoral legislation, Option 1 would clarify how EU financial services legislation applies to crypto-assets and related services and limit regulatory arbitrage across the EU. However, the reach of Option 1 would be limited as it could not remove regulatory obstacles imbedded in existing legislation. In contrast, Option 2 could fully remove legal hurdles that prevent the deployment of security tokens and DLT but only in limited areas which have been clearly identified in recent assessments. If carefully crafted, Option 3 could be highly effective by providing a clear experimental framework for the trading and/or settlement of security tokens. However, these benefits could disappear if the experimental regime is not extended after the three-year period. Under Option 1, the level of investor protection and financial stability ensured by the existing framework on EU financial services would remain unchanged. By contrast, Option 2 would address some specific risks raised by the use of DLT but it could also eliminate some requirements in the post-trading areas. Under Option 3, appropriate safeguards (such as limits on the type of traded ‘tokenised’ financial instruments) would preserve financial stability and investor protection. Option 3 presents a clear advantage compared to the others in terms of support to innovation, by building a regime adapted to the specific characteristics of DLT and security tokens.

The cost-efficiency of the three options is also equivalent. In terms of efficiency, Option 1 would potentially reduce legal and compliance costs of market participants, by providing increased clarity on the application of existing rules. Options 2 and 3 would entail costs for market participants (due to regulatory changes) but the expected benefits should be larger, as they would allow the development of a secondary market for security tokens.

The three options are equally coherent with the existing legislation and the Commission’s objectives as regards a digital economy. Option 1 would complement existing legislation but it would not represent a major breakthrough enabling the development of innovative solutions. A distinct advantage of Option 2 is that all market infrastructures would be kept under the existing framework but it would also modify certain requirements of EU post-trade legislation aimed at ensuring financial stability. Option 3 is highly coherent with the Commission’s digital agenda, as it would allow for innovation in the trading and post-trading for security tokens. It would also provide EU authorities with live cases to assess whether further amendments to the EU regulatory framework would be necessary at a later stage. The downside of Option 3 is the potential creation of a potential branching off from the existing financial market infrastructures, which would make the EU framework on financial services less coherent (at least temporarily). **As the overall effects of those options could complement each other, the preferred approach would be to proceed cautiously by a combination of Options 1, 2 and 3. Such an approach would also be consistent with the need for a gradual regulatory approach in the context of a nascent market.**

6.3. Impacts of policy options for stablecoins and global stablecoins

Option 1: Bespoke legislative regime aimed at addressing the risks posed by “stablecoins” and global ‘stablecoins’

Under Option 1, users would have the possibility to buy and use ‘stablecoins’, therefore benefiting from the potential advantages of new types of payment instruments, competing with existing ones, to deliver fast, cheap, and efficient payments, in particular for cross-border situations.

A clear legal basis would also ensure that ‘stablecoin’ issuers and other service providers within the arrangement do not operate in a regulatory vacuum. Currently, depending on their structure and the rights they provide to users, some ‘stablecoins’ could be designed to qualify as e-money and/or as an alternative investment fund under AIFMD. However, many ‘stablecoins’ fall outside the scope of EU financial services legislation, in particular, those which do not provide end-users with a formal claim on the issuer or on the assets backing the coins. The existence of a clear legal basis for ‘stablecoins’ in the EU would allow companies and developers to innovate and compete on an equal footing in the single market. This would allow to harness the benefits of this relatively new form of payment tokens without undermining consumer protection and financial stability. The existence of an EU legal framework would also ensure that EU legislation meets the expectations of international standard-setting bodies, including the 10 high-level recommendations issued by the Financial Stability Board (FSB)¹⁵⁶. The FSB indicates: *“authorities should be prepared to [...] supplement financial regulations that do not adequately capture the risks of GSC [...] activities [...] to address uncaptured risks”*.

Option 1 would ensure an adequate level of investor protection across the EU as regards the risks posed by issuers of ‘stablecoins’ and ‘global stablecoins’. Under

¹⁵⁶ See Draft report from the FSB, *Addressing the regulatory and supervisory challenges raised by global stablecoin arrangements*, 2020.

option 1, ‘stablecoin’ issuers would be required to provide users and other market participants with the information needed to understand the functioning of the ‘stablecoin’ arrangement. Issuers would be required to provide additional information compared to other crypto-assets, as their structure and functioning is more complex. This would also ensure that information provided by ‘stablecoin’ issuers to users in the EU is in line with recommendations from international organisations and standard-setting bodies¹⁵⁷.

Option 1 (in combination with Option 2 for other unregulated crypto-assets, as described in Section 5.2.1.) would create a comprehensive and holistic EU framework on stablecoins, in line with the risks identified by the Financial Stability Board’s (see Annex 6), in particular financial stability risks. ‘Stablecoins’ are complex arrangements and comprise many interdependent functions and legal entities. The regulatory approach under Option 1 would cover the different functions usually present in such arrangements (governance body, asset management, payment and customer-interface functions) and would also capture the different interactions between those entities that can amplify the risk to financial stability. Those specific requirements would also ensure that ‘stablecoins’ operating in the EU would be subject to equivalent measures to those applied in other jurisdictions. As the organisation of a ‘stablecoin’ or global ‘stablecoin’ could be highly decentralised, with various entities operating in different jurisdictions, the regulatory action at EU level may not be sufficient. Coordinated actions may be needed to preserve financial stability and therefore, the EU legislation may be updated according to international standards.

In addition, Option 1 would address consumer protection and financial stability by way of coordinated supervision, giving powers to both national and European supervisors. For example, the issuer of a ‘global stablecoin’ would need an authorisation from a European Supervisory Authority as such a proposition could become pan-European very quickly after its launch. Furthermore, individual parts of the wider ‘stablecoin’ arrangement, would be authorised in the Member States where they are located, such as custodian wallets and exchanges. The European Supervisor would in this example be responsible for approving the issuer and its white paper detailing the terms of the ‘stablecoin’ issuance, whereas the national supervisors would enforce the requirements put to crypto-asset service providers.

Option 1 would impose some regulatory and supervision costs on the issuers of ‘stablecoins’. However, the requirements envisaged under Option 1 would follow a strict risk-based approach (see Annex 6) and would not go beyond what is necessary to ensure financial stability and investor protection, given the sheer size that global ‘stablecoin’ may reach. The measures would not prescribe a particular business model (e.g. the use of

¹⁵⁷ International Monetary Fund, FinTech notes 19/03 on the *Regulation of crypto assets*. The IMF indicates that ‘Authorities should mandate that the disclosure requirements provide a comprehensive description of the features and risks of each assets. For offer of stablecoins, for instance, this would likely include the assessment of the collateral underlying the coins, an explanation of rights governing access to the collateral, and a discussion of their stabilisation and governance mechanisms’. In the same way, the FSB’s working group on ‘Regulatory Issues of Stablecoins’ has developed ten high-level recommendation for the regulation, supervision and oversight of stablecoins. One of them states that ‘Authorities should ensure that GSC arrangements provide to users and relevant stakeholders comprehensive and transparent information necessary to understand the functioning of the GSC arrangement, including with respect to its stabilisation mechanism’.

a public or private blockchain, the investment in one specific type of assets to back the value of the coins...) and would leave sufficient flexibility for companies to innovate. Furthermore, the authorisation would give an EU passport to 'stablecoin' issuers that could expand their business throughout the single market.

At the same time, introducing bespoke measures provides the flexibility needed to differentiate between the different types of 'stablecoins' to avoid regulatory arbitrage.

'Stablecoins' that reference a single currency, would not be subject to currency fluctuations, making them even more likely to function as payment instruments, and practically indistinguishable from e-money. To avoid circumvention of the rules on e-money and instil consumer confidence in those 'stablecoins', it might be necessary to subject these to the same requirements as e-money.

Option 2: Regulating 'stablecoins' under EMD2

'Stablecoins' whose value is backed by real funds or assets are close to the definition of e-money under EMD2. The aim of many 'stablecoin' initiatives is to create a "means of payments" and, when backed by a reserve of assets, some 'stablecoin' arrangement could become a credible means of exchange and store of value. In that sense, 'stablecoins' can arguably have common features with e-money, as the latter is a digital representation of fiat money stored on an electronic device.

Regulating 'stablecoins' under EMD2 could oblige 'stablecoin' issuers to be authorised in the EU¹⁵⁸. To obtain an authorisation, the legal entity must be established in an EU Member State. Neither EMD2 nor the Payment Services Directive (PSD2) include any third country equivalence provisions. Therefore, if 'stablecoins' are e-money, their issuer should have at least one branch in the EU, meaning that one NCA would be responsible for authorising and supervising such an institution. NCAs would also have the possibility to prohibit unauthorised 'stablecoins' if it is accessible to EU consumers without authorisation¹⁵⁹.

If 'stablecoins' are considered as e-money, issuers would be subject to capital requirements and safeguarding requirements, thus protecting user funds. EMD 2 establishes (i) initial capital requirements (at least EUR 350,000) and (ii) ongoing capital requirements/own funds for 'e-money institutions' (2% of the average outstanding e-money). Capital is required to be held as a buffer, absorbing both unexpected losses that arise while the business is going concern as well as the first losses if it is wound up. Furthermore, e-money institutions are subject to organisational arrangements to protect

¹⁵⁸ EMD 2 prohibits persons who are not 'electronic money issuers' from issuing electronic money. The definition of electronic money issuer includes (but is not limited to) "credit institutions" and "electronic money institutions", which must have at least a branch located within the EU. This suggests that access from a third country on a cross-border services basis (i.e. without the establishment of a branch) would be prohibited.

¹⁵⁹ Article 18 of EMD 2 states that *'Member States shall prohibit natural or legal persons who are not electronic money issuers from issuing electronic money'*.

customers' funds received in exchange for e-money issued. Those funds are either placed in a separate account from the institution's working capital and other funds, or are covered by an appropriate insurance policy or comparable guarantee. The inclusion of asset-backed 'stablecoins' into the scope of EMD2 would be a way to deal with the most pressing issues in terms of financial stability (through the safeguarding and capital requirements). However, if some 'stablecoin' arrangements reach scale relatively soon, the e-money directive framework could appear as a relatively "light" regulatory regime (as the initial capital requirements are relatively low).

Despite the fact that EMD2 and, by extension PSD2, could cover some services providers of 'stablecoin' arrangements, it may not mitigate adequately the most significant risks to consumer protection raised by wallet providers. If a firm offers services such as transfer of 'stablecoins', this service could fall under the PSD2 as 'stablecoins' would be considered to be "funds" under PSD2. PSD2 defines funds as cash, scriptural money and e-money. Therefore, if 'stablecoins' are e-money, and services involving the transfer of 'stablecoins' will have to be considered payment services. This means that not only the 'stablecoins' but also other participants in the 'stablecoin' arrangement would have to be licensed as a payment service provider, thus fostering to some extent consumer protection. However, users of 'stablecoin' arrangements - subject to EMD2 - would still need the services of wallet providers to hold 'stablecoins'. It is not certain that the provision of wallet services could be assimilated to a payment service under PSD2. Furthermore, even if PSD 2 applied, its requirements in terms of security policy would not be fully sufficient to a DLT context¹⁶⁰. As a result, users may not be adequately protected against hacking and security breaches targeting their wallets.

The granting of interest for holding 'stablecoins' would be prohibited, thus limiting the risks of 'shadow banking'. The risk of shadow banking arising from 'stablecoins' is not negligible. Some entities can collect 'stablecoins' from users for a small fee and lend them to other domestic or foreign users. If 'stablecoins' qualify as e-money, the granting of interest or any other benefit related to the length of time during which a user holds 'stablecoins' will be prohibited¹⁶¹. This prohibition of granting interests may limit the risks of shadow banking, as 'stablecoin' holders would not have any interest in lending their holdings.

Bringing all 'stablecoins' backed by assets or funds within the scope of EMD2 could considerably limit the type and the number of 'stablecoins' offered in the EU. At the current stage, some but not all 'stablecoins' confer a contractual claim against the issuer and/or the underlying assets or confer direct redemption rights¹⁶². Option 2 would impose on all 'stablecoins', backed by a reserve of real assets or funds, to provide a claim on the issuer. 'Stablecoin' issuers that do not currently confer a claim would have the choice

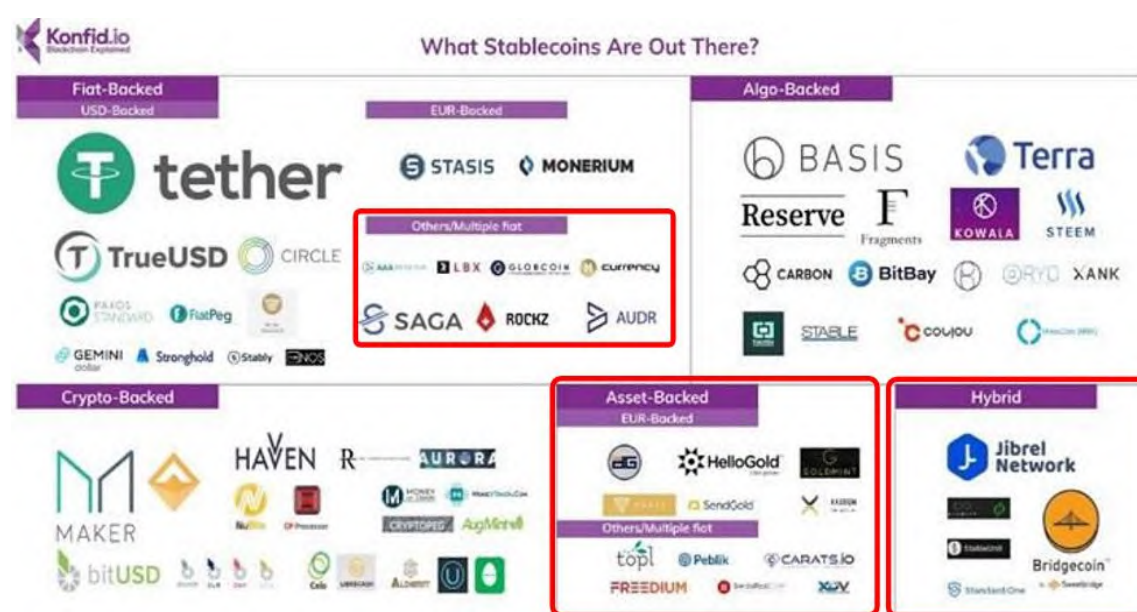
¹⁶⁰ For instance, Article 2(j) of PSD2 states: 'security policy document, including a detailed risk assessment in relation to its payment services and a description of security control and mitigation measures taken to adequately protect payment service users against the risks identified, including fraud and illegal use of sensitive and personal data'.

¹⁶¹ Article 12 of EMD-

¹⁶² FINMA, Supplement to the Guidelines for enquiries regarding the regulatory framework for initial coin offerings, 11 September 2019.

between either modifying their business model to comply with the modifications of EMD2 or ceasing activities in the EU. Furthermore, under EMD2, the e-money issuer has the obligation to invest the funds in its reserve in safe assets¹⁶³. This would also restrict the type of ‘stablecoins’ that could be actively marketed in the EU, as several ‘stablecoins’ are currently backed or linked to various type of assets (e.g. commodities, such as gold and oil, real estate, securities other than short-term government bonds...). Finally, the requirement to invest in safe assets combined with the obligation to issue and redeem at par value would *de facto* limit the possibility to have a reserve invested in different fiat currencies. **Option 2 could therefore hinder innovation in the EU, by limiting the type of ‘stablecoin’ arrangements and the business models to be proposed in the EU** (as shown in red in the table- the document shows the type of assets that could not be proposed under Option 2).

Figure 10: Types of stablecoins that would not be available to users in the EU under Option 2 (source: Kondif.io and Commission)



Option 3: Measures aimed at limiting the use of stablecoins within the EU

Under this option, the issuance of ‘stablecoins’ and the provision of services related to this type of crypto-assets would be restricted. This approach could be potentially justified, as the risks posed by ‘stablecoins’ and in particular those that could reach global scale (including risks to financial stability, monetary policy and monetary sovereignty) would exceed the benefits offered to EU consumers in terms of fast, cheap, efficient and inclusive means of payment. For instance, EU consumers already have access to relatively fast and affordable means of payment within SEPA. Under this option, EU consumers would be still able to buy, hold and use ‘stablecoins’ issued

¹⁶³ Article 5 of EMD2.

outside the EU and not actively marketed in the EU¹⁶⁴. Issuers would still be allowed to issue ‘stablecoins’ within the conditions of existing regulatory frameworks (e.g. Electronic Money Directive or the alternative investment fund directive).

However, this limitation of the use of ‘stablecoins’ within the EU could raise a number of challenges. First, any restriction on the offerings of ‘stablecoins’ at EU level should be considered in the context of the Union’s competences. It would require a suitable legal basis being identified and should rely on sound evidence. In particular, the principle of proportionality (Article 5 TFEU) would have to be respected (as well as the principles flowing from the Charter, such as the freedom to conduct a business, Article 16)¹⁶⁵.

For the time being, it is not certain that the conditions necessary to impose such restrictions are met, as the market capitalisation of existing ‘stablecoins’ (EUR 4.3 billion as of July 2019), and the risks they pose are rather limited. While some ‘global stablecoins’ can raise financial stability concerns, none of them are in operation yet. Secondly, any regulatory restriction on the use and access to ‘stablecoins’ in the EU could send out a negative signal as how innovation is treated in the single market. Global ‘stablecoins’ could be potentially be the first mainstream application of blockchain technology in retail financial services and the EU has repeatedly expressed our interest in the potential of that technology for financial markets.

Furthermore, it is not certain that this measure would be effective to preserve financial stability and ensure investor protection. EU consumers will still have the possibility to hold stablecoins issued by third country issuers and use services provided by firms established outside the EU. This could leave EU users unprotected against some risks (misleading information by the issuer, theft or hacks at an exchange or trading platform...). Finally, a stablecoin issued in a third country, depending on its structure, can have an impact on the EU financial sector (e.g. if the assets backing the stablecoins are euro-denominated and there is a sudden sell-off of such assets).

Comparison of the options for stablecoins and global stablecoins

Objectives Policy option	EFFECTIVENESS				EFFICIENCY (cost-effectiveness)	Coherence	SCORE
	Objective 1 <i>Legal clarity</i>	Objective 2 <i>Supporting innovation</i>	Objective 3 <i>Consumer protection / market integrity</i>	Objective 4 <i>financial stability</i>			
Baseline scenario	0	0	0	0	0	0	0
Option 1. Bespoke legislative	++	++	++	++	+	++	11

¹⁶⁴ EU consumers would be able to buy those stablecoins if they have approached a third country issuer or a service provider (exchange, trading platforms) on their own initiative with the intention of purchasing such crypto-assets.

¹⁶⁵ Article 63 of the TFEU provides that ‘all restrictions on payments between Member States and between Member States and third countries shall be prohibited’.

measures					
Option 2. Regulating SC under EMD2	+	≈	+	+	5
Option 3. Limiting the use of SCs	++	--	+	+	0

Magnitude of impact as compared with the baseline scenario (the baseline is indicated as 0): ++ strongly positive; + positive; -- strongly negative; - negative; ≈ marginal/neutral; ? uncertain; n.a. not applicable

	Issuers of stablecoins	User of stablecoins	Crypto-asset service providers	NCA's / Supervisors
Baseline scenario	0	0	0	0
Option 1. Bespoke legislative measures	↑↑	↑↑	≈ or ↑	≈ or ↑
Option 2. Regulating SC/GSCs under EMD2	↑	↑	≈ or ↓	≈ or ↑
Option 3. Limitation of SC use in the EU	↓↓	≈ or ↓	↓	≈

The three envisaged options would provide a certain degree of clarity as regards the legal treatment of ‘stablecoins’ in the EU. Nevertheless, Option 2 may require further guidance (by the ESAs) on how the provisions of EMD2 and PSD2 could be effectively applied to ‘stablecoin’ issuers. Option 1 would allow the development of different types of ‘stablecoins’ business models while Options 2 and 3 would considerably limit innovation (either by only recognising ‘stablecoins’ fitting the e-money definition or by restricting their use of such crypto-assets in the EU). By following a strict risk-based approach, Option 1 would address the different risks to consumer protection and financial stability raised by ‘stablecoin’ arrangements. Bringing ‘stablecoins’ within the e-money framework would also ensure a certain degree of investor protection and financial stability. However, some provisions of EMD2 (and by extension PSD2) may not be fully adequate in a DLT context (e.g. the protection of e-money issued in a DLT context) or adapted to a ‘stablecoin’ that reach a global scale (as EMD2 caters to the needs of relatively small institutions). By introducing bespoke measures, it would be possible to apply relevant parts of existing legislation, while addressing these additional risks. Option 3 could incentivise users to buy ‘stablecoins’ from third country providers that may offer an uncertain level of investor protection. That situation could also create financial stability concerns.

In terms of cost-effectiveness, either Options 1 or 2 would entail supervisory and compliance costs for ‘stablecoin’ issuers. However, the expected benefits can be larger for the economy under Option 1 compared to Option 2, as it would enable the take-up of a wider range of innovative payment solutions. Option 3 would not only create costs for ‘stablecoin’ arrangements already in operation but it would also prevent the deployment of any benefits related to this new type of crypto-assets. Option 1 would be highly coherent, by introducing bespoke measures on ‘stablecoin’ arrangements in a general EU regulatory framework on crypto-assets. Option 2 would also be coherent as it would bring under existing legislation an innovation that presents some similarities with e-

money. By contrast, Option 3 would not be consistent with the objectives set at EU level to promote innovation in the financial sector. **Overall, given the impact of the options, the preferred approach would be a mix between Option 1 and 2.**

7. PREFERRED OPTIONS

7.1. Overall impact of preferred options

Table 11 – Summary of the preferred options

Problem/Problem drivers impacted	Preferred options
Option for crypto-assets that fall outside the scope of existing EU legislation	
Consumer protection risks	Option 2 (full harmonisation): (i) publication of an information document by crypto-asset issuers; (ii) requirements (governance, operational, capital) on wallet providers, fiat-to-crypto and crypto-to-crypto exchanges and trading platforms; (iii) application of consumer protection and market integrity rules; (iv) authorisation by NCAs
Market integrity risks	
Market Fragmentation	
Options for crypto-assets that could qualify as financial instruments under MiFID II	
Legal uncertainty as regards whether and how existing legislation applies	Option 1 (non-legislative measures): (i) the conditions under which crypto-assets could qualify as financial instruments under MiFID II; (ii) the conditions under which crypto-assets trading platforms can qualify as “trading venue” or as any investment firm under MiFID II; (iii) the application of PR to security token offerings (e.g. modifications of the guidelines on risk factors for security tokens) and (iv) the application of post-trading rules (in particular CSDR and SFD) to CSD using a DLT and more widely in a DLT context. Option 2 (targeted legislative amendments): e.g. (i) creation of a specific prospectus schedule for security tokens and (ii) Article 3(2) of CSDR Option 3 (pilot/experimental regime on DLT trading facility): (i) experimental regime for the trading and/or settlement of security tokens; (ii) exemptions from some requirements from MiFID II, SFD, CSDR; (iii) additional requirements to address novel risks (e.g. operational/cyber risks); (iv) authorisation by NCA and coordination by ESMA
Market fragmentation	
Option for stablecoins/global stablecoins	
Financial stability risks	Option 1 and 2 (bespoke legislative measures, applying some existing legislation): (i) publication of an information document by the stablecoin issuer; (ii) requirements on stablecoins backed by a reserve of real assets and by other crypto-assets; (ii) requirements for global stablecoins; (iv) requirements for algorithmic stablecoins
Risks to monetary policy transmission	

The preferred combination of actions represents an evolutionary approach, which was also supported by the public consultation. It is therefore envisaged to use

secondary legislation to complement level 1 legislation requirements. The level 1 legislation will create a bespoke regime for ‘unregulated’ crypto-assets by creating rules on the issuance, service provision, consumer protection and market integrity of such crypto-assets as well as requirements on issuers of ‘stablecoins’ and ‘global stablecoins’. For crypto-assets already covered, level 1 legislation will be amended to provide legal certainty and allow for an experimental regime.

At the same time, it is envisaged to use secondary legislation to complement level 1 legislation requirements on crypto-asset service providers (delegated acts or regulatory technical standards). Furthermore, the Commission would be empowered to modify the ‘definitions’ included in the bespoke regime on unregulated crypto-assets, to ensure that the bespoke regime keeps pace with innovation, market and technical developments. This would be similar to the provision of MiFID II (Article 4(2)) that allows the Commission to take delegated acts to adjust definitions to markets, and technological developments

7.1.1. Benefits and cost savings

The preferred options would create a fully harmonised framework for crypto-assets that currently falls outside existing legislation. This would ensure a high level of investor protection and market integrity, by regulating the main activities related to crypto-assets (such as crypto-assets issuance, wallet provision, exchanged and trading platforms). By imposing requirements (such as governance, operational requirements) on all crypto-service providers and issuers operating in the EU, the preferred options are likely to reduce the amounts of fraud and theft of crypto-assets. The initiative would also introduce bespoke requirements on ‘stablecoin’ and global ‘stablecoin’ arrangements in order to address the specific risks to financial stability and monetary policy transmission, raised by these projects. The full harmonisation envisaged under the preferred options would address the risk of market fragmentation and regulatory arbitrage within the single market. The existence of a single regime for crypto-asset issuances and service providers would also limit the costs that EU entities could face due to the proliferation of national regimes triggering supervisory and licensing costs (or even requiring modifications of the business model) for service providers in every Member State.

By following a strict risk-based and proportionate approach, these new legislative measures would enhance user confidence in crypto-asset issuers and service providers and create a conducive framework for the development of crypto-assets in the EU.

First, the measures would allow payment tokens to develop, as fast and cheap means of payment able to compete, especially for cross-border transactions, with existing payment instruments, provided by incumbent financial institutions. For instance, retail ‘stablecoins’ could enable a wide range of payments and replicate the role of transaction accounts, which are a stepping stone to broader financial inclusion¹⁶⁶. Cost savings

¹⁶⁶ G7 Working Group on Stablecoins, Report on ‘investigating the impact of global stablecoins’, 2019.

would be particularly important in the remittances area. Based on estimates, these could range up from €220 to 570 million per year¹⁶⁷.

Second, the framework should also enable the take-up of utility token and security tokens issuances by EU corporates in the EU, as a complementary financing tool for EU corporates, including SMEs. The preferred options would therefore contribute to the objectives of the Capital Markets Union, by diversifying the sources of financing of EU companies away from bank lending. The measures would facilitate utility tokens and security tokens issuances and reduce the dependency of EU corporates on bank financing. It would thereby increase the EU's economic resilience. It is not possible to estimate the overall additional funding made available through ICOs as this depends on various external factors such as the decision on and need for funding of potential issuers, current market sentiment (e.g. COVID-19 market stress that would make issuance unattractive) and competitive reaction of other funding channels. However, the funding costs for utility token issuances are expected to be 20-40% lower than for a comparably sized IPO¹⁶⁸. These saved costs would directly contribute to the level of funding of respective issuer.

Third, the preferred options would also have a positive, if limited, impact on crypto-assets that could qualify as financial instruments ('security tokens'). The non-legislative measures would enhance clarity whether and how the EU financial services legislation applies to crypto-assets and limit regulatory arbitrage across the EU. The soft-law measures, combined with targeted legislative amendments and the creation of a dedicated DLT market infrastructures, would facilitate the development of a secondary market for security tokens. Enhanced liquidity in the secondary market would foster the issuance of security tokens in the primary market. The preferred options would also foster competition, by enabling new market entrants to develop DLT-based market infrastructures for the trading and/or settlement of 'tokenised' financial instruments that could compete with the legacy infrastructures in the medium to long term. Several third country regulators and central banks (e.g. Australia, Singapore, Switzerland...) are allowing trials of DLT-based financial activities to take place in their jurisdictions, which acts as a spur for further private sector investment. The preferred options would therefore allow market participants in the EU to test the transition to security tokens and DLT-based infrastructure and to compete with entities established in third countries.

However, these measures might not be sufficient to enable the full deployment of security tokens and DLT in the entire trading and post-trading chain. Other factors beyond legal uncertainty may inhibit the full deployment of DLT in the financial sector. Moving from legacy infrastructure to DLT-based networks require significant investment from market participants. Widespread adoption of DLTs also requires the resolution of

¹⁶⁷ Based on stakeholder input and Commission market analysis and estimates on average crypto transaction costs – Savings would range between €220 – €570 million. This figure assumes a market uptake of 30% and does not account for potential competition effects with other payment channels.

¹⁶⁸ ICO costs are estimated to amount to ± 3 -5% of funds raised versus 10-15% for an IPO. The application of the envisaged regime however would imply additional costs. Funding costs ultimately will depend on various factors, including choices made by the issuing entity in terms of intermediaries, legal support etc.

technical challenges around scalability, given the significant throughput required for the settlement of financial instruments¹⁶⁹. The advantages of security tokens and DLT network for financial services in terms of cost savings (by streamlining shortening settlement times, enhancing collateral use, disintermediation, reduction of trade errors etc.) crucially depend on such further factors that would allow the technology to effectively compete in the market. Given the large range of factors, it is not possible to make any accurate predication as to cost savings. Assuming that the existing technological and legal hurdles are addressed over time (i.e. including a clear regulatory regime and legal certainty as regards ownership rights and contract law), they can hold a vast cost saving potential. The European derivatives market alone with around 34 million open transaction and gross notional amount outstanding of ± €450 trillion¹⁷⁰ could see savings in the range of several billion euros over time in relation to clearing, settlement, collateral management and other intermediary functions¹⁷¹. Similarly, potential efficiency gains in the EU cash equity markets are estimated to lie in the range of €270 to 540 million per year¹⁷². DLTs could furthermore reduce certain compliance costs, in particular supervisory reporting costs which are estimated to lie above €4 billion¹⁷³. A large fraction of these costs could be saved over time by the application of self-reporting contracts and automated reporting mechanisms based on DLTs. Based on figures presented in a study from Banco Santander and Oliver Wyman, DLTs (more widely, including payments) could reduce bank's infrastructure costs attributable to cross-border payments, securities trading and regulatory compliance by between €15 to 19 billion per year¹⁷⁴. The envisaged regime will form a key stepping-stone to reaping these efficiency gains in the medium to long run by facilitating innovation, supervisory experience and enabling a gradual EU standard setting process.

7.1.2. Costs on issuers, service providers and NCAs

Under the preferred options, issuers of crypto-assets that currently fall outside the regulated space and service providers related to these instruments would bear compliance costs. The preferred options would impose new costs on issuers, by requiring the existence of an accountable entity in the EU¹⁷⁵ and the publication of an information document, describing the issuance of tokens. Anecdotal evidence shows that the costs related to the drafting of such information document is relatively low while their publication of such documents has been shown to improve the chances of success of an

¹⁶⁹ OECD, The tokenisation of Assets and Potential Implications for Financial Markets, 2020.

¹⁷⁰ ESMA EU derivatives market a first-time overview (2017).

¹⁷¹ Global post-trade and securities servicing fees are estimated in the region of \$100 billion. Depending on technological progress and necessary legal adaptation, more than 50% of these costs could be saved over time - SWIFT Institute Working Paper 2015-007.

¹⁷² Goldman Sachs, Cboe Global Markets and own calculations.

¹⁷³ See Commission Fitness Check of EU Supervisory Reporting Requirements.

¹⁷⁴ Banco Santander, Oliver Wyman, Anthemis Group, InnoVentures, FinTech 2.0 Paper.

¹⁷⁵ See, for instance, Bitcoin Market Journal, *How much does it really cost to launch an ICO?*, 2018 according to which costs of having an accountable entity in the EU can be estimated at €4,500.

ICO¹⁷⁶. The costs per token issuer can be broadly estimated to lie in the range of €10.000 – 25.000¹⁷⁷. Additional fees for aspects such as legal advice would also be apply. Depending on the complexity of the regime, the issuer and the level of attached liability, the overall costs are expected to amount to €35.000 – 75.000¹⁷⁸ per white paper.

The compliance costs on crypto-asset service providers is expected to be higher and will crucially depend on the type of services for which authorisation is sought respectively¹⁷⁹. The application of the envisaged regime is estimated to give rise to one-off compliance costs between €2.8 – 16.5 million¹⁸⁰. On-going compliance costs are estimated to range between €2.2 – 24 million¹⁸¹. This estimate does not cover cost placed on potential future issuers of global stablecoins. Given the stringent rules envisioned to effectively address financial stability concerns their compliance costs are expected to considerably exceed those faced by other crypto-asset issuers.

The initial pilot regime will bear minimal on-going compliance costs on incumbents such as operators of regulated market infrastructures that would want to opt-in. Certain operational changes may be required but these relate more to the general application of the new technology. Newly regulated trading platforms are expected to bear authorisation and on-going compliance costs in a range below that of comparably sized MiFID II-authorized multilateral trading facilities of similar size.

The preferred options would have a limited negative impact on the Member States' budgets. First, they would impose new costs related to the supervision of crypto-asset service providers that are currently unregulated at EU level. The supervisory costs related to crypto-asset issuers would be relatively low, as it is not envisaged under the preferred options to require an approval of the information document prior its publication. Based on anecdotal evidence provided by Member States that have put in place a bespoke regime for crypto-assets falling outside the scope of existing EU legislation, the estimated supervisory costs for each Member State (including staff, training, IT infrastructure and dedicated investigative tools) can range from €350,000 to €500,000 per year, with one-off costs estimated at EUR 140,000¹⁸². However, this negative impact

¹⁷⁶ Lennart Ante, *'Determinants and Impact of Blockchain-based Startup financing: The Case of Initial Coin Offerings'*, 2017. This study found that the best predictor for the success of a token sale is the quality of the white paper published by the group of developers.

¹⁷⁷ Commission estimate based on anecdotal evidence and current market practice. - See, for instance, Bitcoin Market Journal, *How much does it really cost to launch an ICO?*, 2018, which indicates an average cost of USD 15,000 for drafting a white paper.

¹⁷⁸ *id.*

¹⁷⁹ As national bespoke regimes have been put in place recently, it is not possible to infer the compliance costs for service providers from these experiences. A better proxy can be the crypto-asset regime from the State of New-York. Anecdotal evidence from this regime shows that compliance costs (including men hours, IT, supervisory costs) ranges from \$18,000 (€16,400) to \$100,000 (€90,100) depending on the activities. See: CoinDesk, *The real costs of applying for a New York BitLicense*, 2015.

¹⁸⁰ Based on stakeholder input and Commission estimates on costs and number of entities falling within the regime – Upper and lower bound figures vary greatly due to uncertainty as to the number and type of entities, market reaction and scope of the regime.

¹⁸¹ *id.*

¹⁸² One NCA has estimated that the cost of supervision (including staff, training, IT infrastructure and dedicated investigative tools) is estimated at €500,000 per annum. The legislator in another Member State has estimated recurring costs to be €347.500 per annum and non-recurring costs to be €137,564.

on Member States budget would be partially offset by the supervisory fees that NCAs would levy on crypto-asset service providers and issuers¹⁸³.

Second, the preferred option would also impose supervisory costs related to DLT market infrastructures. The costs of supervising such new entities can be relatively high given the complexity of their functions (trading and/or settlement) and the continuous dialogue between the NCA and the authorised entity that such experimentation would imply. ESMA would also bear some limited costs related to the coordination of the supervision of the new DLT infrastructures by NCAs. Those costs are estimated at approximately EUR 150.000 – 250.000 per regulated platform¹⁸⁴. Initial setup costs would apply in addition to cover the development of IT tools, training etc. The marginal costs would drop with additional regulated entities, however, the expected number of authorised entities under the pilot regime should be relatively low and can be estimated at five for the whole EU¹⁸⁵. The supervisory costs would be partially compensated by fees levied by NCAs.

Third, the supervision of ‘stablecoins’ and global ‘stablecoins’ will also trigger costs. The number of stablecoins in operation is relatively low (24 at international level) but the supervisory costs are expected to be higher than for other crypto-asset issuer or service providers. It is difficult to provide an accurate estimate as to the costs incurred as this will strongly depend on (i) the number of issuers (ii) the complexity of stablecoins’ setup (including the stabilisation mechanism) and, most importantly (iii) the penetration rate of respective stablecoins (as a main determinant for potential systemic risks stemming from them). In addition, costs will be partially compensated by NCA’s supervisory fees.

7.2. Specific impact: small and medium-sized enterprises

The preferred options should have an overall positive impact on SMEs. They should increase non-bank sources of funding for SMEs, through the development of initial coin offerings (ICOs) and securities token offerings (STOs). ICOs can offer an opportunity for start-ups to raise substantial amounts of funding at an early stage of development. The average amount raised by ICOs in 2017 was around €15 million, while a start-up company can usually expect an investment of €1.3 million from venture capital funds¹⁸⁶. Furthermore, ICOs are carried out with less intermediaries (such as banks), which lowers

¹⁸³ For instance, one NCA has indicated that the one-off application fee for a crypto-asset exchange is €24,000. Another NCA has indicated an annual fee of €1,000 at the time of application and then €5,000 of recurring fees per year.

¹⁸⁴ European Commission estimate - figure presented assumes need for 1-2 FTE supervisors

¹⁸⁵ In the ESMA Report on Licensing of FinTech business models (2019), NCAs (excluding UK) reported a total number of 636 FinTech (regulated or unregulated) and 0.7% regulated of those which are regulated (308) operate in the clearing and settlement areas. This gives a rough estimation of five entities that could apply for the licensing under the pilot regime.

¹⁸⁶ European Commission, EFSIR Report, 2018.

the cost of such fundraising compared to other non-bank financing (such as crowdfunding)¹⁸⁷.

The preferred options would impose new costs on SMEs, by requiring the publication of an information document (a so-called ‘white paper’) describing the issuance of tokens. However, this requirement would not be applied to small offerings below a certain threshold and to crypto-assets distributed to small circle of users. When required, the information document should also improve the prospects of success of ICOs, by providing standardised and accurate information to investors. Finally, the overall costs to produce a white paper should be relatively low for SMEs (around €35,000).

7.3. Specific impact: Environmental impact

The preferred options would not have a detrimental impact on environment. The initiative would support the use of DLT and blockchain in the EU, which is said to have negative implications for the environment. However, this environmental impact should not be overstated. The choice of validation mechanism or consensus process determines the amount of energy consumed for each transaction that gets validated in a DLT network¹⁸⁸.

The most prominent consensus mechanisms to date are ‘Proof of work’ and ‘Proof of stake’. The ‘Proof of work’ consensus, originally used by the bitcoin blockchain, requires all miners (participants to the DLT) to solve complex mathematical puzzles to validate a new transaction, adding a block to the chain and permanently and irreversibly recording a new transaction. The first miner who solves the puzzle is given a reward for its work. The ‘proof of work’ validation mechanism is seen as slow and as creating scalability issues. As each mining node races to discover the next mathematical puzzle to record a block (and claim the mining fee), it also consumes huge amounts of computing power¹⁸⁹.

The ‘proof of stake’ consensus seeks to overcome the issues raised by proof of work consensus mechanism by reducing the number of network participants working on the verification and the validation of new transactions. ‘Proof of stake’ requests participants to demonstrate ownership of a pre-defined crypto-asset. The person that

¹⁸⁷ The costs of crowdfunding represents between 8% and 18% of the amounts raised, depending on the websites of the main platforms (AMF, French ICOs, a new method of financing, 2018), compared to 3% of an ICO (OECD study on Initial Coin Offerings for SME financing, 2018).

¹⁸⁸ OECD, The tokenisation of Assets and Potential Implications for Financial Markets, 2020.

¹⁸⁹ In 2018, it was estimated, for instance, that the six major ‘proof-of-work’ crypto-assets (Bitcoin, Bitcoin cash, Ethereum, Litecoin, Monero and ZCash) are estimated to collectively consume between 52 and 111 terawatt-hours (TWh) of energy a year and bitcoin would represent 75% of this consumption. Taking the mid-point of the estimated range as a reference, it can be established that the six crypto-assets consume approximately as much energy as Belgium in 2016. However, the miners of these DLT networks increasingly use renewable energy for their activities (28%) and miners tend to congregate in locations with excess capacities in renewables (e.g. Western and South-Western China, North-East and North-West of the USA, as well as South-Eastern Canada and Iceland). As renewable energy sources fluctuates in their production, they can overproduce relative to local demand. Crypto-assets may soak up local overcapacities and prevent the waste of unused renewable energy (University of Cambridge, 2nd Global Crypto-asset benchmarking study, 2019).

validates the block transactions is chosen by an algorithm according to how many coins he/she holds. These are energy efficient alternative validation mechanisms for the transactions without the need for expensive computations.

DLT are increasingly shifting to ‘proof of stake’ mechanisms. For instance, the permissionless blockchain Ethereum could move to a ‘proof of stake’ consensus in 2020. Depending on the estimation, between 74 and 85% of utility tokens use the Ethereum blockchain¹⁹⁰. Furthermore, most of the permissioned DLT networks do not typically require difficult energy-intensive “proofs of work” as a consensus mechanism because network participants are pre-selected and trusted¹⁹¹. As mentioned, many DLT developed in the financial sectors could be permission-based. The environmental impact of the preferred options would therefore be limited.

8. HOW WILL ACTUAL IMPACTS BE MONITORED AND EVALUATED?

Providing for a robust monitoring and evaluation mechanism is crucial to ensure that the regulatory actions undertaken are effective in achieving their respective objectives. The Commission should therefore establish a detailed programme for monitoring the outputs and impacts of this initiative. The Commission will be in charge of monitoring the effects of the preferred policy options on the basis of the following non-exhaustive list of indicators:

Table 12 – List of indicators to evaluate the preferred options

Objectives	Indicators
Consumer protection	Number and value of fraud and thefts of crypto-assets in the EU
Supporting Innovation	- Number and volumes of crypto-asset issuances in the EU (by category utility tokens, payment tokens...) - Market capitalisation of crypto-assets in the EU - Number of entities authorised in the EU as crypto-asset services providers (trading platforms, exchanges, wallet providers...) - Number of entities authorised in the EU as ‘stablecoin’ or global ‘stablecoin’ issuers - Estimation of the number of EU residents using or investing in crypto-assets - Liquidity of crypto-assets - Number of entities authorised by a NCA as a DLT market infrastructure under the pilot/experimental regime - Volume of transactions traded and settled by DLT market infrastructure (pilot/experimental regime)
Market integrity	Number of market abuse cases involving crypto-assets reported to NCAs and investigated by NCAs
Financial stability	- Size of the reserve backing ‘stablecoins’ (including those backed by a reserve of real assets and those backed by other crypto-assets) - Market capitalisation of ‘stablecoins’ and global ‘stablecoins’

¹⁹⁰ See: Vlad Burilov, *Utility Token Offerings and Crypto Exchange Listings: how regulation can help?*, 2019.

¹⁹¹ World Bank, *Distributed Ledger Technology and Blockchain*, 2017.

	• Volume of payments through the use of payment tokens and 'stablecoins' • Assessment if other crypto-assets/infrastructures or market participants using DLT and/or dealing with crypto-assets have reached a systemically relevant level
Legal certainty	• Number and volume of security token issuances in the EU • Number of prospectuses approved by NCAs in relation with security tokens • Number of entities authorised by NCAs to provide services under existing EU legislation (e.g. MiFID II/MiFIR, CSDR, SFD) and using a DLT/security tokens • Volume of transactions traded and settled by service providers authorised under existing EU legislation (e.g. MiFID II/MiFIR, CSDR, SFD) and using a DLT/security tokens

While some parts of the data can be collected via public sources and licenced databases, many of the indicators set out in the Table above would require the help of Member States, NCAs, ESMA and service providers (either those authorised under the new regime or those authorised under existing legislation, such as MIFID II, CSDR...). Beyond those indicators, the Commission would have to produce a report, in cooperation with ESMA, on the pilot programme for DLT market infrastructures, after a three-year period. On the basis of this report, the Commission would inform the Parliament and Council on the appropriate way forward (e.g. continuing the experimentation, extending its scope, modifying existing legislation...).

Glossary

<i>Term or acronym</i>	<i>Meaning or definition</i>
AML/CFT	Anti-money laundering and countering the financing of terrorism
AMLD	Anti-Money Laundering Directive (Directive 2018/843)
CCP	Central Clearing Counterparty
CPMI-IOSCO	Committee on Payments and Market Infrastructures – International Organisation of Securities Commissions
CSD	Central Securities Depositories
DLT	Distributed Ledger Technology
EBA	European Banking Authority
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
EMD2	Electronic Money Directive (2009/110/EC)
EMIR	European Markets Infrastructure Regulation (648/2012/EU)
ESAs	European Supervisory Authorities (EBA, EIOPA, ESMA)
ESMA	European Securities Market Authority
EU	European Union
FATF	Financial Action Task Force
FCD	Financial Collateral Directive (2002/47/EC)
FSB	Financial Stability Board
ICO	Initial Coin Offering
IPO	Initial Public Offering
ISIN	International Securities Identification Number
LEI	Legal Entity Identifier
MAR	Market Abuse Regulation (596/2014/EU)
MiFID II	Markets in Financial Instruments Directive II (2014/65/EU)
MiFIR	Markets in Financial Instruments Regulation (600/2014/EU)
MTF	Multilateral Trading Facility
NCA	National Competent Authority
OTC	Over the Counter

OTF	Organised Trading Facility
PR	Prospectus Regulation (2017/1129/EU)
PSD2	Payment Services Directive 2 (2015/2366/EU)
RM	Regulated Market
SFD	Settlement Finality Directive (98/26/EC)
SME	Small Medium Enterprise
SSR	Short Selling Regulation (236/2012/EU)
STO	Security Token Offering
UCITS	Undertaking for Collective Investment in Transferable Securities Directive (2009/65/EC)
VASP	Virtual Asset Service Provider (as defined by the FATF)

*

Definitions

Blockchain: A form of distributed ledger in which details of transactions are held in the ledger in the form of blocks of information. A block of new information is attached into the chain of pre-existing blocks via a computerised process by which transactions are validated.

Crypto-asset: For the purpose of the consultation, a crypto-asset is defined as a type of digital asset that depends primarily on cryptography and distributed ledger technology.

Crypto-asset broker/dealers (or exchanges): Entities that offer exchange services for crypto-assets, usually against payment of a certain fee (i.e. a commission). By providing broker/dealer services, they allow users to sell their crypto-assets for fiat currency or buy new crypto-assets with fiat currency

Crypto-asset issuer or sponsor: The organisation that has typically developed the technical specifications of a crypto-asset and set its features.

Crypto-asset trading platforms: a marketplace bringing together different crypto-asset users that are either looking to buy or sell crypto-assets. Trading platforms match buyers and sellers directly or through an intermediary.

Cryptography: The conversion of data into private code using encryption algorithms, typically for transmission over a public network.

Distributed Ledger Technology (DLT): a means of saving information through a distributed ledger, i.e., a repeated digital copy of data available at multiple locations. DLT is built upon public-key cryptography, a cryptographic system that uses pairs of keys: public keys, which are publicly known and essential for identification, and private keys, which are kept secret and are used for authentication and encryption.

Financial instrument: those instruments specified in Section C of Annex I in MiFID II

Electronic money (e-money): ‘electronic money’ means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of Directive 2007/64/EC, and which is accepted by a natural or legal person other than the electronic money issuer;

Global stablecoins: For the purpose of the impact assessment, a “global stablecoin” is considered as a “stablecoin” that is backed by a reserve of real assets and that can be accepted by large networks of customers and merchants and hence reach global scale.

Initial coin offering (ICO): an operation through which companies, entrepreneurs, developers or other promoters raise capital for their projects in exchange for crypto-assets (often referred to as ‘digital tokens’ or ‘coins’), that they create.

Investment tokens: For the purpose of the consultation, investment tokens are a type of crypto-assets with profit-rights attached to it.

Mining: a means to create new crypto-assets, often through a mathematical process by which transactions are verified and added to the distributed ledger.

Payment tokens: For the purpose of the impact assessment, payment tokens are a type of crypto-assets that may serve as a means of payment or exchange.

Permission-based DLT: a DLT network in which only those parties that meet certain requirements are entitled to participate to the validation and consensus process.

Permissionless DLT: a DLT network in which virtually anyone can become a participant in the validation and consensus process.

Utility tokens: Utility tokens have two main functions. Some of them enable access to a specific current or prospective service or good (similar to a voucher). Some are issued to reward operators for maintaining the DLT, for validating and recording transactions.

Security tokens: For the purpose of the impact assessment, security tokens are a type of crypto-assets that qualify as a financial instrument under MiFID II.

Security token offering: an operation through which companies, entrepreneurs, developers or other promoters raise capital for their projects in exchange for ‘security tokens’ that they create.

Stablecoins: For the purpose of the impact assessment, “stablecoins” are considered as a form of payment tokens whose price is meant to remain stable through time. Those “stablecoins” are typically asset-backed by real assets or funds or by other crypto-assets. They can also take the form of algorithmic “stablecoins” (with algorithms being used as a way to stabilise volatility in the value of the coin).

Trading venue: Under MiFID Article 4(1)(24), trading venue means a regulated market, a multilateral trading facility, or an organised trading facility (OTF’).

Virtual Currencies: Under AMLD5, virtual currency means *'digital representation of value that is not issued or guaranteed by a central bank or a public authority, is not necessarily attached to a legally established currency and does not possess a legal status of currency or money, but is accepted by natural or legal persons as a means of exchange and which can be transferred, stored and traded electronically'*.

Wallet provider: a firm that offers storage services to users of crypto-assets.

Annex 1: Procedural information

1. Lead Directorate General, Decide Planning, Commission Work Plan references

The Impact Assessment was prepared by Directorate B ‘Horizontal policies’ of Directorate-General for Financial Stability, Financial Services and Capital Markets Union" (DG FISMA). The Decide Planning reference of the file entitled ‘European Framework for Markets in Crypto-assets’ is PLAN/2019/6125. The legislative proposal has also been announced in a Commission’s communication on “an EU Digital Finance Strategy” **(to be published in September 2020)**.

2. Organisation and timing

Several services of the Commission with an interest in the assessment of this initiative (in particular DG CNECT) have been associated in the development of this analysis.

One ISSG (Inter-Service Steering Group) meeting was held on the specific issue of ‘stablecoins’ on 17 October 2019 with representatives of DG FISMA, DG COMP, DG JUST, DG TAXUD, DG ECFIN, DG HOME, the Legal Service and the Secretariat general. Another ISSG meeting was also held on crypto-assets more generally on 27 November 2019, involving representatives of DG FISMA, DG CNECT, DG TAXUD, DG HOME, DG GROW, DG JUST, DG COMP, DG ECFIN, JRC, the Legal Service and the Secretariat General.

On 18 December 2019, different services (DG GROW, DG CNECT, DG RTD, DG JUST, DG COMP, DG HOME, DG ECFIN, DG TAXUD, the Legal Service and the Secretariat General) were also consulted on the public consultation document on an “EU framework for crypto-assets”.

Three ISSG were dedicated to the impact assessment. A first ISSG was held on 4 March 2020, with representatives of DG FISMA, DG CNECT, DG COMP, DG JUST, DG TAXUD, DG ECFIN, DG HOME, DG NEAR, DG DEVCO, the legal Service and the Secretariat General. A second ISSG was held on 2 April 2020 with representatives of DG FISMA, DG CNECT, DG COMP, DG GROW, DG JUST, DG TAXUD, DG HOME, the Legal Service and the Secretariat General. Finally, a third ISSG on this impact assessment was held on 22 April 2020 with representatives of DG FISMA, DG GROW, DG CNECT, DG JUST, DG TAXUD, DG HOME, DG NEAR, DG RTD, JRC, the Legal Service and the Secretariat General.

3. Consultation of the Regulatory Scrutiny Board

A draft of the impact assessment was submitted to the Regulatory Scrutiny Board (RSB) on 30 April 2020 and presented during a dedicated meeting on 27 May 2020. The

Regulatory Scrutiny Board delivered a positive opinion with reservations on the draft impact assessment on 29 May 2020. The comments formulated by the Board were addressed and integrated in the final version of the impact assessment.

4. Evidence, sources and quality

For the purpose of this impact assessment, Commission services collected data from some NCAs (including on the number of entities authorised or applying under the national regimes or on the supervisory costs). The impact assessment is also based on the extensive qualitative and quantitative evidence from the public consultation on “An EU framework for crypto-assets” which was organised by the Commission from 19 December to 19 March 2020 (see Annex 2 of the impact assessment for more information).

In January 2019, the Commission also received advice from ESMA and EBA that assessed the applicability and the suitability of the existing current EU framework for financial services to crypto-assets. That advice provides qualitative evidence to support a common approach at EU level on crypto-assets. The Commission also built its analysis on the ESMA report on *‘the Distributed Ledger Technology Applied to Securities Markets’* (2017) that analysed in-depth the key benefits and risks of DLT, the ESMA Report on the licensing of FinTech Business model (2020) and the EBA Opinion on ‘virtual currencies’ (2014).

To carry out this impact assessment, the Commission also relied on the Report from the Regulatory Obstacles to Financial Innovation Expert Group (ROFIEG) set up by the Commission in Spring 2018. The ROFIEG reviewed the application and suitability of the European regulatory framework to FinTech from the perspective of identifying issues impeding the scaling-up of FinTech in the EU. The impact assessment is also based on a study requested by Commission services on *“Blockchains: legal, governance and interoperability aspects”* (2020). The impact assessment also built on the work carried out in the context of the EU Blockchain Observatory and Forum, and in particular the outcomes of the two workshops organised respectively in May and September 2019 on digital assets and blockchain use cases in the financial sector.

Other sources used include reports from other European institutions, such as the European Parliament’s reports (e.g. *‘Cryptocurrencies and blockchain’*, 2018; *‘Virtual Currencies and Central Banks Monetary Policies: Challenges ahead’*, 2018; *‘Crypto-assets, key developments, regulatory concerns and responses’*, 2020) and the occasional papers from the European Central Bank (e.g. *‘Virtual Currencies Schemes – A Further Analysis’*, 2015; *‘Distributed Ledger Technologies in securities post-trading’*, 2016; *‘In search for stability in crypto-assets: are stablecoins the solution?’*, 2019; *“Crypto-Assets: Implications for financial stability, monetary policy, and payments and market infrastructures”*, 2019).

The impact assessment also relied on reports on DLT and crypto-assets from international organisations and standard-setting bodies, such as the Financial Stability Board (e.g. *“Decentralised financial technologies: Report in financial stability, regulatory and governance implications”*; *‘Crypto-assets: Work underway, regulatory*

approaches and potential gaps”; *‘Crypto-asset markets: Potential channels for future financial stability implications’...*), the International Organisation of Securities Commissions (IOSCO) (*‘Issues, Risks, Regulatory Considerations Relating to Crypto-Asset Trading Platforms’*, May 2019) and the Organisation for Economic Co-operation and Development (OECD) (*“Initial Coin Offerings for SME Financing”*, 2019; *‘The Tokenisation of assets and Potential Implications for Financial Markets’*, 2020). This also includes specific works on ‘stablecoins’ (the report from the G7 group on *‘investigating the impact of global stablecoins’*, October 2019; the ongoing work of the G20/Financial Stability Board ‘Regulatory Issues of Stablecoins’ Working group; the IOSCO *‘study of emerging global stablecoins proposals’*, November 2019).

The Commission also collected evidence through several sources, including warnings and guidelines issued by NCAs and third countries, academic literature and research, industry associations.

Annex 2: Stakeholder consultation

1. Introduction

As set out in the Commission's current mandate, *a Europe fit for the digital age* is a top priority, and specifically on crypto-assets, there is the ambition to adopt a common approach to ensure that Europe can make the most of the opportunities while mitigating the risks.

This approach and ambition very much builds on the work done under the previous mandate, where markets in crypto-assets were already closely monitored. With the publication of the FinTech action plan in March 2018, specific mandates were given to the EBA and ESMA to provide reports with advice to the Commission on the applicability and suitability of the existing EU financial services regulatory framework on crypto-assets. Furthermore, the Commission continued to assess and monitor internally as well as actively participate in international fora where the topic was – and continues to be – discussed, for example BCBS, G7, G20, FATF and the FSB. Following advice from the EBA and ESMA in January 2019, the Commission undertook an internal cost benefit analysis starting in April 2019 on the appropriate way forward as regards crypto-assets within the scope of the existing EU financial services regulatory framework and those outside. In addition, the Commission has hosted ongoing technical workshops on the use of blockchain, including in the financial sector, from early 2018 and ongoing, through for example the EU Blockchain Observatory and Forum, which was also launched as part of the 2018 FinTech action plan.

On 19 December 2019, the Commission launched a public consultation on markets in crypto-assets. It focused on three main areas: 1) on whether and how to classify crypto-assets; 2) on crypto-assets currently outside the scope of the EU financial services legislation; 3) on crypto-assets currently within the scope of EU legislation, specifically MiFID II and EMD2.

The Commission received a total of 198 responses via the Have Your Say portal, and several confidential responses submitted directly via email. The feedback from the confidential responses was aggregated and anonymised to a level that prevents identification of individual entities/authorities. The confidential responses are not reflected in the statistics below.

2. Overview of type and origin of respondents to the public consultation on crypto-assets

Considering the total of 198 respondents, the breakdown per type of stakeholder, their field of activity and their country of origin is as follows:

Type of respondent	Number of respondents
Academic/research institution	10
Business association	33
Company/business organisation	72
EU citizen	39
Non-EU citizen	3
Non-governmental organisation (NGO)	9
Public authority	21
Other	11

Field of activity or sector	Number of respondents
Asset management	25
Banking	42
Crypto-asset exchange	23
Crypto-asset trading platforms	21
Crypto-asset users	34
Electronic money issuer	10
FinTech	49
Investment Firm	23
Issuer of crypto-assets	19
Market infrastructure	23
Other crypto-asset service providers	26
Payment service provider	17
Technology expert	44
Wallet provider	19
Other	61
Not applicable	19

Country	Number of respondents
Austria	4
Belgium	26
Bulgaria	2
Croatia	1
Czech Republic	5
Denmark	2
Estonia	6
Finland	4
France	14
Germany	22
Gibraltar	3
Greece	2
Hungary	4

Ireland	2
Italy	17
Latvia	4
Liechtenstein	3
Lithuania	4
Luxembourg	5
Malta	4
Netherlands	8
Portugal	5
Slovakia	2
Spain	8
Sweden	7
Switzerland	6
United Kingdom	21
United States	7

3. 2019 public consultation on an EU framework for markets in crypto-assets

3.1. Questions on the classification of crypto-assets

The vast majority of respondents were in favour of a classification of crypto-assets at EU level. In general, there was strong support for the proposed distinction between ‘payment’, ‘investment’ and ‘utility’ tokens, which is also the distinction most commonly used in other jurisdictions. Stakeholders argued that this classification would rightly be based on the economic function and purpose of an asset, stressing the importance of the ‘substance over form’ principle. However, the opinions on ‘hybrid tokens’ were less uniform. Some stated that such a category would be useful as a token might combine characteristics of ‘payment’, ‘investment’ and/or ‘utility’ tokens and/or change its characteristics over time, whereas others opposed this view by expressing concerns of lost clarity. Similarly, no consensus was established on the question if a further subdivision of the mentioned categories is needed.

Proponents of a more granular approach argued that the classification into ‘payment’, ‘investment’, ‘utility’ and ‘hybrid’ tokens is too broad and does not sufficiently clarify the circumstances under which a crypto-asset may fall under existing regulation (e.g. whether a ‘payment token’ fulfils the definition of e-money or not, which subsequently determines if it falls under EMD2). On the other hand, stakeholders put forward the concern that a too detailed classification may not be flexible enough to accommodate future developments of asset classes and would therefore impede innovation and growth.

Respondents also provided insights into how different Member States deal with crypto-asset classification, with many Member States not having acted in this respect at all. Consequently, stakeholders stressed the importance of an EU-wide classification and of a coordination with international standard-setters for a holistic approach in classifying crypto-assets. As to how such an EU-wide classification could be implemented, some respondents advocated for a non-legislative approach mentioning its flexibility to incorporate newly emerging categories in the future and pointing to the role the ESAs

play in this context. However, most stakeholders seemed to favour a regulatory classification as it provides the highest degree of legal certainty and prevents potential regulatory arbitrage. This in turn ensures a level playing field for market participants and fosters economic progress as it assists in the creation of a single market for crypto-assets. Some respondents could imagine a combination of legislative and non-legislative classification.

3.2. Questions on crypto-assets currently not covered by EU legislation

The majority of stakeholders believes that a bespoke regime for crypto-assets currently not covered by the EU financial services regulatory framework, would establish a sustainable crypto-asset ecosystem in the EU, citing primarily the need for legal certainty and harmonisation across EU national legislations. Many stakeholders believe that legal certainty through proper regulation will help the sector obtain credibility and gain access to the financial system and its business partners in general. Among the stakeholders who do not see the need for a bespoke regime, around half of them believe that all crypto-assets are already covered by existing EU and national rules and where they differ, they should be captured by way of similarity to existing asset classes.

Several other respondents answered in favour of a risk-based approach to regulation, based on the level of risks associated with the specific category of crypto-assets. Around half of the respondents believe that harmonisation of national civil laws should be considered to provide clarity on the legal validity of transfers of crypto-assets and the tokenisation of material assets (i.e. proof of ownership recorded on a blockchain). Almost the entirety of the negative responses to this question cite the difficulty of achieving this as the reason for their answer.

Several stakeholders provided input on the existing national regimes among different Members States, referring primarily to the German and French regimes that are in place. Specifically, respondents state that the German regulatory framework which aims at regulating financial instruments in a technologically neutral way is widely accepted among market participants as well as the French provisions for ICOs and digital asset service providers (the PACTE law – an action plan for business growth and transformation) could be a model for an EU-wide framework due to its flexible opt-in licence design.

On the issue of “stablecoins” or “global stablecoins”, the majority of respondents are in favour of imposing several requirements on the issuers and/or managers of the reserve. The most strongly supported requirements are the containment of the creation of “stablecoins”, periodic auditing and the provision of transparent information to users on the stability mechanism of the “stablecoin”, on the potential claim and on the nature of the underlying assets in the reserve. A majority of respondents also believe that the regulatory treatment of “stablecoins” offered to retail investors should be different than those limited to financial institutions or select clients thereof, so-called wholesale “stablecoins”.

Digital wallet providers are also highlighted by many as key actors in the crypto-asset ecosystem. Several stakeholders believe that custody service providers should be held to

high operational resilience standards due to the several instances of hacking and theft that has taken place in this area. Additionally, several respondents point to the importance of proper AML/CFT procedures for custody services but also for other actors in the crypto-asset ecosystem. In this context, a majority of stakeholders was in favour of revisiting the definition of virtual currency under AMLD.

3.3. Questions on crypto-assets currently covered by EU legislation

The majority of respondents consider that the absence of a common approach on when a crypto-asset constitutes a financial instrument is an impediment to the effective development of security tokens. Respondents underline mainly the risk of fragmented approaches leading to regulatory arbitrage and difficulties in developing a European market for security tokens. Different approaches in the qualification of a security token as a financial instrument creates legal uncertainty to issuers and investors and is an impediment to the effective cross-border issuance of security tokens. Currently, the lack of legal clarity and gaps in the EU regulation has forced many Member States to adopt their own legislation (e.g. Malta; Germany; France; Luxembourg).

For many respondents, in case a crypto-asset qualification as a financial instrument, investment services related to these security tokens will fall within the scope of MiFID II, in particular licence and investor protection requirements. Legal clarity is therefore essential for businesses because it provides for a reliable basis of the regulatory costs attached to any new initiatives. Issuers of security tokens are also unlikely to operate in certain jurisdictions if the applicable framework is unclear. The lack of clarity can also be problematic for investors, who may not receive the appropriate information about the security token issuance due to a different legal classification of a security token in another jurisdiction. Discrepancies on the understanding and definition of a security token as a financial instrument could also lead to taxation issues.

A minority of respondents express very different views. A few respondents first underline that this issue is not specific to crypto-assets as there is already a regulatory fragmentation and different interpretations among Member States on what a financial instruments is. A few others note that security tokens will develop independently of any possible EU legislation. They consider that the technology is global, and that ‘local’ regulation will have a limited impact. According to one respondent, no action is needed since it is already obvious when a security token constitutes a financial instrument.

Almost all respondents consider that ‘harmonising the definition of certain types of financial instruments in the EU’ and ‘providing a definition of a security token at EU level’ would be very relevant and appropriate. Most respondents also consider that providing guidance at EU level on the main criteria to be taken into consideration when qualifying a crypto-asset as security token would be useful.

For most respondents, the absence of EU definitions for the categories of ‘financial instruments’ is an issue of legal inconsistency and uncertainty not specific to crypto-assets, but it may prevent the uptake of financial innovation. Respondents would welcome a common EU regulatory framework with harmonised definitions, particularly a

common notion of ‘transferable securities’ (a few respondents also stress the need for a common definition of the term ‘securities’).

For a few respondents the existing EU framework on financial instruments has proven to be satisfactory as it is and should not change. They consider that EU harmonisation of the definition of financial instruments would be a far too complex and unlikely process as it would imply changes in the private law of Member States. Respondents would rather encourage the adoption of a binding definition of a security token (they would also call for a definition of ‘token’) to create a basic level playing field and prevent that security tokens could fall outside the regulatory perimeter. A few respondents also stress the need to set up clear rules on the fiscal treatment of a security token.

The majority of stakeholders believe that DLT will lead to efficiencies or other benefits as regards trading, post-trade and asset management. For example, according to most respondents, DLT could help improve settlement timeframes, and reduce the number of intermediaries involved in capital markets transactions, with the greatest potential for efficiencies within central counterparty clearing, custodianship, CSDs.

They explain how they believe post-trade processes are partly redundant, based on legacy technology like fax machines, spreadsheets, and phone confirmations and require heavy reconciliation processes. DLT could accelerate, decentralise, automate and standardise data-driven processes and therefore improve the way in which assets are transferred and records are kept.

A few respondents, took a more neutral stance on this question. While acknowledging the benefits DLT could bring to capital markets, they underlined that this technology is still at an early stage, and they have yet to see yet huge-scale use cases. It is therefore difficult to get a clear assessment of its benefits.

The overwhelming majority of respondents believe that DLT will have a significant impact on the current financial market infrastructures (FMIs), but that it will largely be determined by the applicable regulatory framework, since it is the regulation that mandates roles and operational standards. DLT does not change the requirement for entities to become authorised and regulated to carry out regulated FMI activities. The majority of respondents believe that the current rules applying to FMIs should also apply to any DLT platforms performing similar roles. However, it is possible that a number of provisions are no longer relevant for DLT-driven processing.

The majority of respondents believe the EU should foster innovation, and that any potential new regulation has to provide for efficient and reliable trade and post-trade services, regulating roles and specific functions rather than business models.

The majority of respondents considered that a gradual regulatory approach in the areas of trading, post-trade or asset management could be relevant in the current context. According to them, this technology is still at an early stage and market developments are moving quickly. In that context, it is impossible to propose a comprehensive approach for crypto-assets. Some consider, that a gradual regulatory approach, understood as trying to first provide legal clarity to market participants as regards permissioned

networks and centralised platforms before considering changes in the regulatory framework to accommodate permissionless networks and decentralised platforms, would be reasonable.

On questions on CSDR and additional specific issues with applying the CSDR definition in a DLT environment, about half of the limited number of stakeholders who responded, are of the opinion that DLT solutions could exclude the use of CSDs by replacing CSDs by the distributed ledger as a decentralised version of such depositories. They also therefore consider the definitions in the CSDR as not fitting with the DLT environment requiring a new approach.

Asked about other potential issues on trading and post-trading than the specific provisions mentioned in the public consultation, the majority of the stakeholders who responded (only a bit more than 50) did not identify any other provisions that would prevent effectively applying EU financial services legislation to crypto-assets or limit their use. Among the respondents that did identify issues, some of them cite the cross-border nature of crypto-assets, and subsequent potential problems of conflicts of law. Another respondent pointed out issues with the immutability of a blockchain and the interplay with the General Data Protection Regulation, highlighting the need for clarity as to what would be considered in compliance with the regulation where these systems would be dealing with personal data.

On questions relating to EMD and PSD2 as regards crypto-assets that would qualify as e-money (e-money tokens), only a limited number of stakeholders responded. Among those responding, the split is around 50/50 between respondents finding impediments in EMD and PSD2 to the issuance of e-money tokens. However, most respondents believe that legal amendments or supervisory guidance may be needed to ensure the effective functioning and use of e-money tokens, highlighting for example a lack of clarity of the definition of e-money and how the strong customer authentication requirements from EMD2 can apply to payment transactions with e-money tokens.

Regarding questions on whether requirements under EMD and PSD2 are appropriate for “global stablecoins”, again, only a limited number of stakeholders responded, with most considering that requirements from EMD could be applied to “global stablecoins”. On PSD2, responses are split between some respondents finding PSD2 fit and others highlighting that PSD2 is not fit for DLT and that there is not enough experience to regulate.

4. Reports and advice on crypto-assets from EBA and ESMA

On 9 January 2019, the EBA and ESMA published reports with advice to the European Commission on the applicability and suitability of the EU financial services regulatory framework on crypto-assets. These reports were based on the mandate given to them under the Commission’s FinTech action plan, published in March 2018.

Both the EBA and ESMA come to the overall conclusion that while some crypto-assets may fit the definition of a financial instrument under MiFID or e-money, respectively, most of them, do not. In addition, they highlight that most of the crypto-assets outside the

EU financial services regulatory framework, present very much the same risks to consumers and investors as the ones within.

ESMA further highlights that crypto-assets may qualify as financial instruments under MiFID, or as alternative investment funds. Whether they qualify as financial instruments depends on the precise facts and circumstances of the crypto-asset (its nature, rights attached to it, negotiable on the capital market, etc.) and national law. The definitions in EU law rely on notions in national law to define what constitutes a financial instrument. Member State legislation varies on this. If a crypto-asset qualifies as a financial instrument, then in principle, the corresponding EU legislation applies (MiFID, MAR, Prospectus...). Applying this legislation in practice to assets recorded, held and transacted on distributed ledgers and blockchains, presents a number of complex legal and practical questions as to *how* the legislation can actually be applied to them. This is largely due to the fact that distributed ledger implementation were not considered at the time the relevant legislation was adopted by the co-legislators.

The EBA details how crypto-assets do not meet the definition of funds under PSD2 and therefore PSD2 does not directly apply to payment services based on crypto-assets. A small number of crypto-assets may be covered by EMD2, provided they meet the definition set out in the directive. Where crypto assets meet the definition of EMD2, placing them on the market in the EU requires an e-money license. Such license allows the service provider to passport e-money services throughout the European Economic Area. Where crypto-assets qualify as e-money, payment services provided in relation to them would also be covered by PSD2. Whereas crypto-assets are mainly not repayable at par value and therefore unlikely to meet the definition of a deposit pursuant to the Deposit Guarantee Scheme Directive, further analysis of the DGS treatment of client funds safeguarded by (non-bank) financial institutions on bank accounts would be required.

In their conclusions, both the EBA and ESMA advises that the Commission should carry out a cost benefit analysis on a holistic basis to determine whether a bespoke EU regime is appropriate for crypto-assets outside the scope of the EU financial services regulatory framework.

5. Monitoring through the EU Blockchain Observatory and Forum

The EU Blockchain Observatory and Forum was launched in February 2018 and is one the actions presented in the FinTech action plan of March 2018. It monitors and highlights key developments of blockchain technology and promotes European actors and reinforce European engagement with multiple stakeholders involved in blockchain activities.

The Commission has identified blockchain as a potentially foundational and transformative technology, including in the financial sector. The Blockchain Observatory and Forum presents an opportunity to monitor the latest developments and inform the Commission's policy making in this area.

It gathers stakeholders from the blockchain space and provides an opportunity to hold targeted workshops together with the regulatory community. The work is cross-cutting, covering both privacy aspects of blockchain development as well as legal and regulatory frameworks for blockchains and smart contracts.

Annex 3: Who is affected and how?

1. PRACTICAL IMPLICATIONS OF THE INITIATIVE

The initiative envisages the creation of a regulatory framework for crypto assets that currently do not fall within the scope of the existing regulatory acquis. This will ensure that European-based crypto-asset service providers are supervised and meet the foreseen obligations in terms of investor protection. Crypto-asset issuers will equally be required to meet certain transparency requirements. The framework will also mandate minimum standards in terms of market integrity and respective monitoring thus creating a safer market environment.

Furthermore, the initiative endeavours to enable the creation of STOs by clarifying the application of existing market regulation and the launch of a pilot framework. This will allow supervisors to gather experience in the supervision of these new assets while facilitating innovation and competition. Certain key regulatory hurdles may also be addressed via changes to existing primary legislation.

Lastly, it will tackle issues regarding financial stability and market integrity risks in relation to ‘stablecoins’. It will impose obligations on stablecoin issuers that will address such risks and subject them to firm supervision.

Impacts on the individual stakeholders groups:

Crypto-asset service providers – As European service providers have been largely operating in a non-regulated space to date the initiative will give rise to new compliance costs. Apart from authorisation and on-going supervisory costs, intermediaries in crypto-assets will need to implement a range of operational changes. The individual costs arising from this will largely depend on the extent to which respective service providers have already implemented measures, either on a voluntary basis or in order to comply with regulation at national level. An EU regulatory framework, however, will harmonise the applicable requirements and avoid the proliferation of nationally fragmented regimes. It will thus provide service providers with the opportunity to offer services cross-border throughout the EU without incurring additional compliance costs. As the initiative pre-empts the creation of national regimes in many Member States, there can be a significant indirect cost saving in this regard for cross-border operations¹⁹². As concerns service providers’ commercial operations, the initiative aims to facilitate competition on a fair basis by creating a regulatory level playing field. In combination with the incurred

¹⁹² At the current stage, there are only three national regimes in place. Many Member States however indicated that they would pursue the creation of national regimes in the absence of a European framework.

compliance costs, this is likely to decrease profit margins in the sector. However, the initiative will also help to strengthen consumer and investor trust and should thereby generate additional revenue for service providers. Over time, this should outweigh the initial impact on margins.

Similar to other service providers, crypto-trading platforms will face new compliance costs if they want to continue to offer services in the EU. Apart from authorisation and supervisory costs, there will be a range of one-off and on-going cost in order to meet the new regulatory requirement. This concerns in particular systems to monitor orders and transactions for market abuse infractions and possible changes to listings and trading protocols. While certain requirements may be met already, it is expected that many requirements will go beyond current measures taken on a voluntary basis. Given that some crypto investors seek in particular anonymity in their trading, it is also foreseeable that some exchanges will decide to exit the market and cease their European operations and offerings. While this may initially affect market competition, the established level-playing field should ensure that a high degree of competition is maintained between remaining exchanges and possible new entrants. Especially existing market operators may see an incentive to expand their operations to crypto trading given that they will be able to rely on a firmly established regulatory approach. Likewise, existing crypto-asset trading platforms may see opportunities to list STOs enabled by the pilot regime on DLT market infrastructure thus increasing competitive pressure in these markets. While increased competition will negatively affect profit margins, lower investor costs should increase trading flows and generate additional revenue. Moreover, it will help to drive innovation which should increase the international competitiveness of crypto-asset trading platforms (especially in view of regulatory frameworks that will likely be adopted in third countries).

Issuers – Issuers of crypto assets will face compliance costs in particular in the form of mandatory transparency requirements. The envisaged white paper will give rise to direct costs as well as indirect costs to cover aspects such as legal and/or other consultative support. Issuing whitepapers (or other information document) however is a prevalent practice in the market already today and may be required by existing national frameworks. As such, the additional costs compared to a baseline scenario are relatively low.

From a regulatory perspective, the issuance of crypto-assets without such information provision would inflict more damage to European markets (fraudulent activities e.g.) than it would create value in terms of financing. The increased trust in the issuance process and market overall should in fact help genuine crypto-asset issuers to raise higher amounts of funding. Especially institutional and other professional investors, previously scared off by high risks given the unregulated market environment, may be won as investing parties. In addition, the pilot regime will enable STOs as a new form of financing. This vehicle may present itself as a cheaper or more opportune financing option compared to traditional share or bond issuance.

‘Stablecoin’ issuers will face higher compliance costs compared to other issuers as well as certain restrictions to operational designs. Their potentially systemic nature imply significant risks for the wider financial system, thus calling for supervision that is more

stringent and a ruleset that effectively minimises these risks. Issuers will however also benefit from operating in a regulated environment in terms of user trust. This aspect is likely to outweigh the implied costs over time.

Investors – Investors and consumers of crypto-asset services will benefit from an increased level of investor protection and higher market integrity. The mandatory transparency requirements and enforcement of market abuse rules will enable investors to make more informed investment decisions in a safer market environment. They will be better protected from fraudulent activities and resulting losses. In addition, liquidity risks are expected to be lower given an inflow of new investors and more interconnected exchanges. In sum, investors will carry lower risks, including regulatory ones given the harmonised European regulatory approach. In result, this may lead to higher valuations of crypto-assets that meet the regulatory requirements.

A fraction of compliance costs may be passed on to investors and customers of service providers in the form of higher costs. However, given relatively low barriers to entry and the upstart, innovative nature of the market, it is expected that competitive pressures will prevent strong price increases. In the medium to long run, investors may in fact benefit from lower costs given increased economies of scale and scope as the market continues to grow and mature. The regulatory level playing field should also promote innovation, which will equally lead to lower cost and an improved quality of services.

Supervisors – Supervisors will face a range of new tasks and supervisory obligations stemming from the framework. This holds cost implications, both as concerns one-off investments and ongoing operational costs. Supervisors will need to invest in particular in new monitoring systems to capture market abuse and fraudulent activities in crypto-asset markets and ensure a firm enforcement of regulatory provisions. They will also need to train staff to ensure sufficient knowledge of these newly regulated markets and employ additional employees to stem the additional work. The costs for individual NCAs will crucially depend on (i) the amount of service providers and crypto activities monitored, and (ii) the extent to which innovative market abuse and other monitoring systems are already in place. While it may be possible to use similar monitoring techniques to traditional financial markets the pseudo-anonymous nature of trading many crypto-assets will require alterations and new systems to efficiently analyse and combine Know Your Customer and trading data. These systems will need new input layers and need to be regularly updated and maintained. The cross-border nature of many crypto transactions will furthermore require supervisors to cooperate closely and share relevant data. Costs will originate especially in the supervision of currently unregulated crypto-assets, including ‘stablecoins’. The creation of a pilot regime for STOs will equally require some operational changes, however, given that these tokens take the form of traditional financial assets such as shares or bonds, the already existing supervisory approaches should be able to meet many obligations. As such, costs should remain relatively low in this area and concern mainly new issuances and the ongoing monitoring of the markets.

Incumbent operators of market infrastructures – Incumbent operators of market infrastructure will not face any direct impacts stemming from the initiative. The pilot regime on DLT market infrastructure however will enable them to engage in this new

market and list potential crypto-assets that qualify as MiFID II financial instruments. Given that some of the operators already comply with more stringent market rules and regulatory requirements, the overall compliance costs arising from this should be relatively low. Costs will mainly be incurred by new entrants for the commercial setup of new trading systems and necessary IT operations. In addition, they may also want to engage in providing services in other crypto-assets where the unregulated environment and resulting high risks previously deterred market entry.

Provided that security tokens meet the envisaged efficiency gains and overcome outstanding technological and legal hurdles, they may slowly supplant traditional listings. This process would hold important implications for many market infrastructure operators, especially CCPs and CSDs. The business model of these stakeholders would need to change radically¹⁹³, with some operations potentially becoming outdated altogether. This would however require further changes to primary legislation. In addition, the market would transform slowly and allow companies to adapt accordingly.

Other market participants – The initiative will benefit in particular asset managers and institutional investors in the form of a new regulated asset class¹⁹⁴ and via potential efficiency gains in trading, clearing and settlement processes. Intermediaries such as banks and payment providers may attract additional revenue as the entry and exit points for fiat currency given increased crypto investment and trading flows. They will benefit especially from the established legal certainty concerning crypto assets, which will allow them to market offers without regulatory risks. Investment banks could furthermore engage in STO underwritings and consultative services supporting the issuance process. Some banks may equally find the issuance of stablecoins commercially attractive, for example to increase the efficiency of transfers of payments¹⁹⁵.

2. SUMMARY OF COSTS AND BENEFITS

<i>I. Overview of Benefits (total for all provisions) – Preferred Option</i>		
<i>Description</i>	<i>Amount</i>	<i>Comments</i>
<i>Direct benefits</i>		
Efficiency gains	EUR 220 to 570 million per year¹⁹⁶ (in the area of remittances) EUR 270 to 540 million per year¹⁹⁷ (in the area of cash equity markets)	The efficiency gains will only fully manifest themselves after several years following implementation. They can only be broadly estimated given the high degree of uncertainty as concerns technological developments and market reaction / uptake. The figures presented indicate the

¹⁹³ E.g. while a formal book-entry settlement may no longer be required a CSD could operate as an off-chain fiduciary of settlement information.

¹⁹⁴ E.g. low β -market correlation of some crypto assets may make them attractive as additional portfolio diversification.

¹⁹⁵ See, for example, JPM Coin which enables the instantaneous transfer of payments between institutional clients.

¹⁹⁶ Based on stakeholder input and Commission market analysis and estimates on average crypto transaction costs – Savings would range between €220 – 570 million. This figure assumes a market uptake of 30% and does not account for potential competition effects with and within other payment channels.

¹⁹⁷ Goldman Sachs, Cboe Global Markets and European Commission calculations.

	Up to EUR 4 billion per year¹⁹⁸ (in the area of reporting) N/A - In the range of several billion EUR (in the areas of clearing, settlement, collateral management and other intermediary functions) €15 to 19 billion per year¹⁹⁹ (estimate of banks' infrastructure cost savings in relation to cross-border payments, securities trading and regulatory compliance – captures parts of other efficiency gains)	magnitude of possible savings and are based on a range of assumptions. Actually realised costs savings may deviate substantially (both up and down). There will also be positive impacts due to increase competition and innovation that are not accounted for in these figures (e.g. smart contracts based on DLT systems; they hold the potential to greatly lower legal costs across various economic activities)
Reduced costs of issuance	20-40% lower costs than for comparably sized IPOs ²⁰⁰	Anecdotal evidence suggests that the current costs of ICOs is considerably lower than for comparable IPOs. The estimated figure reflects additional compliance costs that will arise due to the imposed regulatory framework.
Reduced fraudulent activity	Cannot be estimated with any reasonable degree of accuracy. One study found that global costs of fraud in crypto markets amounted to as much as USD 4.3 billion in 2019 ²⁰¹ .	Fraudulent activity is estimated to affect 5% to 25% of current ICO offerings ²⁰² . The imposed transparency requirements and supervisory oversight should substantially reduce this figure in the European market.
Increased market integrity	Cannot be estimated with any reasonable degree of accuracy.	Stakeholders have frequently flagged issues related to market integrity. Low liquidity and concentrated holdings make many some crypto assets particularly susceptible to manipulative market behaviour. Given that there is currently no supervisory oversight in place, it is not possible to estimate the financial damage incurred. The enforcement of market integrity rules however clearly results in direct benefits for all market participants.
Reduced financial stability risks	Cannot be estimated with any reasonable degree of accuracy.	The regulation of global stablecoins will address associated risks in relation to financial stability. It is not possible to estimate this benefit given that there are currently no stablecoins in the market that

¹⁹⁸ Figure based on Commission Fitness Check of EU Supervisory Reporting Requirements – This figure represents the maximum cost saving potential assuming fully automated reporting systems throughout all areas of the financial system enabled by DLTs.

¹⁹⁹ Banco Santander, Oliver Wyman, Anthemis Group, InnoVentures, FinTech 2.0 Pap

²⁰⁰ ICO costs are estimated to amount to $\pm 3-5\%$ of funds raised versus 10-15% for an IPO. The application of the envisaged regime however would imply additional costs. Funding costs ultimately will depend on various factors, including choices made by the issuing entity in terms of intermediaries, legal support etc.

²⁰¹ Chainalysis - State of crypto crime

²⁰² Catalini, Christian and Joshua S. Gans (2018), Initial Coin Offerings and the Value of Crypto Tokens, MIT Sloan Research Paper No. 5347-18; Rotman School of Management Working Paper No. 3137213, (<http://dx.doi.org/10.2139/ssrn.3137213>)

		would pose a potentially systemic risk.
Indirect benefits		
Increased innovation	-	The initiative will create a regulatory level playing field. This will facilitate innovation as market participants are exposed to direct EU-wide competition. The foreseen STO pilot regime will furthermore enable market participants to develop new products, services and market solutions.
Safeguarding monetary sovereignty	-	Global stablecoins hold the potential to undermine monetary control. This risk depends crucially on the setup of respective tokens. The framework will ensure that tokens minimise such risk and provide supervisors with sufficient tools to monitor and enforce respective regulatory requirements.

II. Overview of costs – Preferred option							
		Citizens/Consumers		Businesses		Administrations	
		One-off	Recurrent	One-off	Recurrent	One-off	Recurrent
Newly regulated crypto assets	Direct costs	-	Parts of the arising compliance costs may be passed on to consumers	EUR 35.000 – 75.000 per whitepaper ²⁰³ EUR 2.8 – 16.5 million compliance costs for currently unregulated entities ²⁰⁴	EUR 2.2 – 24.0 million ²⁰⁵ on-going compliance costs	± EUR 140,000 per NCA ²⁰⁶	EUR 350,000 - 500,000 per annum per NCA ²⁰⁷ EUR 150.000 – 250.000 per regulated platform ²⁰⁸
	Indirect costs	-	-	-	-	-	-
Security tokens / pilot regime	Direct costs	-	-	Minimal compliance costs for incumbents New entrants will face one-off compliance costs	Supervisory fees for operators of exchanges with costs comparable to current MTFs.	New input layers and training will imply small one-off costs	EUR 150.000 – 250.000 per regulated platform ²⁰⁹ (supervisory practices can be

²⁰³ Includes legal costs beyond drafting of the whitepaper.

²⁰⁴ Based on stakeholder input and Commission estimates on costs and number of entities falling within the regime – Upper and lower bound figures vary greatly due to uncertainty as to the number and type of entities, market reaction and scope of the regime.

²⁰⁵ Id.

²⁰⁶ One NCA has indicated that the cost of supervision (including staff, training, IT infrastructure and dedicated investigative tools) is estimated at €500,000 per annum. The legislator in another Member State has estimated recurring costs at €347.500 per annum and non-recurring costs at €137,564.

²⁰⁷ Id.

²⁰⁸ European Commission estimate - figure presented assumes need for 1-2 FTE supervisors

²⁰⁹ European Commission estimate - figure presented assumes need for 1-2 FTE supervisors

				similar to MTFs			copied from traditional financial markets)
	Indirect costs	-	-	-	-	-	-
Regulation of Stablecoins	Direct costs	-	Parts of the arising compliance costs may be passed on to consumers	Issuers will need to develop a whitepaper as other crypto-assets issuers Costs are expected to considerably exceed those faced by other issuers, given more stringent ruleset and requirements as concerns operational setup	Regular reporting and operational requirements will place significant costs on issuers compared to the baseline Costs will depend strongly on the type of stablecoin	Significant one-off costs will be placed on supervisors for training and the setup of monitoring tools	Costs will depend strongly on the amount and type of stablecoins supervised
	Indirect costs	-	-	-	-	-	-

Annex 4: Problem definition

This annex provides for more information on some problem drivers and problems, described in section 2 of the impact assessment.

1. Problems drivers

1.1. Absence of rules at EU level and diverging national rules for crypto-assets that would not be covered by EU rules: additional information on national legislations

The definitions used and the scope of the national legislations differ. The notion of ‘digital assets’ under the PACTE law²¹⁰ in France covers both utility tokens and payment tokens. In Malta, the law introduced in 2018, the notion of virtual financial assets (VFA)²¹¹ excludes utility tokens²¹². In Germany, the notion of ‘crypto-assets’ is rather broad and includes ‘payment tokens’, ‘investment tokens’ and ‘hybrid tokens’.

Issuers of crypto-assets are not regulated in the same manner. The French provisions introduced an optional regime for utility token issuers. When the issuer opts in, the requirements become binding and the French NCA is granted with the power to monitor compliance by the issuer. By contrast, Malta has implemented a mandatory regime. Any person wishing to offer a VFA to the public in or from Malta, or wishing to apply for the VFA’s admission to trading on a VFA exchange must draw up a white paper and register it with the Maltese NCA. The issuer in Malta must comply with various requirements, which are different to those required in France. In Germany, the issuer of crypto-assets is not required to prepare a prospectus under the Prospectus Regulation and is not subject to disclosure requirements²¹³.

Both the French, German and Maltese laws regulate service providers in relation with crypto-assets. However, the scope of covered services is not the same. While France, Malta and Germany cover services that are similar to those defined in MiFID II for financial instruments and regulate custodian wallet providers and trading platforms for crypto-assets, some variations exist. For instance, Malta regulates the placing of VFA in general, whilst French law makes a distinction among various forms of placing²¹⁴. Malta has also created a specific function of VFA agent²¹⁵. France makes a distinction between trading platforms and exchanges.

²¹⁰ Action Plan for Business Growth and Transformation Law or Loi sur un Plan d’Action pour Croissance et la Transformation des Entreprises.

²¹¹ Introduced in 2018 by the *Virtual Financial Assets Act (the VFA Act)*.

²¹² Chetcuti Cauchi Advocates Malta, Utility Token Offering, 2019.

²¹³ While ‘crypto-assets’ are classified as ‘financial instruments’ under the German Banking law, they are not ‘transferable securities’ within the meaning of MiFID II and are not subject to prospectus requirements.

²¹⁴ Underwriting of crypto-assets on a firm commitment basis, placing crypto-assets on a firm commitment basis, placing crypto-assets without a firm commitment basis.

²¹⁵ The VFA agent is responsible for representing a prospective VFA service provider before the MFSA, and who acts as an intermediary between the authority and the provider.

Service providers are not regulated in the same way. In France, digital asset service providers (except custodians and crypto-to-fiat that need to be registered) can opt into the optional regime. By contrast, service providers must be licensed in Malta (VFA act) and in Germany (Germany Banking Act). **The nature of the requirements on service providers in those three countries also tend to differ.**

The three regimes do not ensure the same level of protection as regards market integrity. In Malta, market integrity of the markets in VFAs is ensured by specific provisions on market abuse²¹⁶. In France and in Germany, the market integrity rules stemming from the Market Abuse Regulation do not apply.

1.2. Lack of certainty as to when and how existing EU rules would apply (for crypto-assets that could covered by EU rules)

ESMA undertook a survey of NCAs²¹⁷, to better understand how Member States have transposed the notion of ‘financial instruments’ and, based on the transposition, the circumstances under which crypto-assets may qualify as a ‘financial instrument’ and in particular as a ‘transferable security’ in the different Member States. It results from this survey that while a majority of NCAs (16) have no specific criteria under their national legislation to identify transferable securities in addition to those set out under MiFID II, other NCAs (12) have such criteria, which results in broader or more restrictive interpretation of what constitutes a “transferable security”. The figure below clearly shows that there were divergent views among NCAs as whether the six cases of tokens²¹⁸ presented by ESMA could qualify as ‘transferable securities’ under their legislation. Those cases reflected different characteristics that ranged from investment-type (cases 1 and 2) to utility-type (case 5) and hybrids of investment-type, utility-type and payment-type of crypto-assets (cases 3, 4 and 6).

²¹⁶ Furthermore, VFA exchange must notably have effective systems of detecting possible market abuse when dealing with VFAs.

²¹⁷ All Member States, except Poland. In addition, two EEA Member States (Liechtenstein and Norway). ESMA, Annex I – legal qualification of crypto-assets – survey to NCAs, January 2019

²¹⁸ Those cases reflected different characteristics that ranged from investment-type (cases 1 and 2) to utility-type (case 5) and hybrids of investment-type, utility-type and payment-type of crypto-assets (cases 3, 4 and 6).

Figure 11: Crypto-assets from ESMA survey qualifying as transferrable securities under MiFID II (Source: ESMA)



2. Problems: Financial stability and monetary policy risks raised by stablecoins and global stablecoins

The ECB has estimated the potential size of the reserve of assets backing the Libra coin, based on the 2.4 billion user base of the Facebook ecosystem (which includes other applications, such as Instagram and WhatsApp) of which 10% are located in the euro area. The ECB considered three scenarios: (i) Libra becomes a widespread means of payment and users have €64 on average their accounts²¹⁹; (ii) Libra becomes a store of value and the holding per capita is €254²²⁰ and (iii) the extreme scenario, where Libra becomes a store of value and the per capital holding is €1220²²¹.

Table 3 shows the estimated size of the Libra reserve. The Libra Association's assets under management could range from €152.7 billion in the 'means of payment' scenario to about €3 trillion in the most extreme 'store of value' scenario.

²¹⁹ This is based on the average holding per PayPal account.

²²⁰ Based on Yu'E Bao, the money market fund of the Chinese Ant Financial in the Alibaba Group ecosystem

²²¹ Based on Yu'E Bao, the money market fund of the Chinese Ant Financial in the Alibaba Group ecosystem (purchasing power parity adjusted exchanges rates to euro are used).

Table 12: Potential global size of the Libra Association and importance for the euro area (ECB, 2020)

(EUR billion)			
	"Means of payment"	"Store of value"	
		A	B
Global size	152.7	563.6	2928.4
– of which flows from EA users (10%)	15.3	56.4	292.8
– of which invested in EUR assets (18%)	27.5	101.4	527.1
Net inflows to EA financial markets	12.2	45.1	234.3

As a global stablecoin of that size would become systematically important, it could raise the following challenges to financial stability and monetary policy transmission.

2.1. Financial stability concerns raised by global stablecoins (GSCs)

The GSC's potential malfunctioning could pose risks to financial stability if consumers use a GSC increasingly as a means of payment. Vulnerabilities may result from conflicts of interest, fraud, cyber incidents, other operational failures or liquidity shortages. The relationships between entities in a stablecoin arrangement may be complex and fragilities may emerge if the obligations between those entities (such as market-makers and issuers) are unclear. This could lead to failure to execute a transaction or redemption, or prevent access by users.

There is a risk to the stablecoin value stemming from the investments constituting the reserve. GSCs whose assets include bank deposits can be unable to meet redemption requests, in case of default or liquidity issue at the bank level. GSCs that hold a wider range of assets may also be exposed to the market and liquidity risk of those assets and the credit risk of their issuers. A fall in the value of the reserve assets triggered either by overall market conditions or by an idiosyncratic change in the value of the asset could reduce the value of the GSC²²².

A run on a GSC could also occur if the end-users lose confidence in the issuer and/or its arrangement, leading to sudden selling flows out of the GSC. This could happen, for example, if an adverse event damages the GSC arrangement's reputation (cyber-attack to the system, theft from wallet) or if end users realise that the assets backing the coin are losing value²²³. A run would be more likely if the GSC has poor governance arrangement (such as non-segregated funds in the reserve, ambiguous legal

²²² G7 Working Group on Stablecoins, Report on 'Investigating the impact of global stablecoins', 2019.

²²³ ECB Occasional paper, A regulatory and financial perspective on global stablecoins, 2020 [to be published].

obligations of the issuer, lack of transparency on the reserve holdings, lack of credibility of GSC's reporting, weak mechanism to allow users to redeem their coins...) ²²⁴.

GSCs can also increase vulnerabilities in the broader financial system through several channels. First, if the GSC becomes a store of value and therefore users hold GSCs permanently, retail deposits at banks may decline increasing bank dependence on more costly and volatile sources of funding, including wholesale funding ²²⁵. Second, easy availability of GSCs may exacerbate bank runs in times when confidence in one or more bank erodes. Third, GSCs may disrupt banks' activity, especially in the payment services activity, which represents on average between 10 to 15% of banks' total revenues ²²⁶. A decreased profitability could make it more difficult for banks to meet their own funds target, leading some banks to take on more risks or to contract lending to the real economy. Fourth, depending on levels of uptake, purchase of safe assets for the GSC reserve could cause a shortage of high-quality liquid assets (HQLA) in some markets, potentially affecting financial stability ²²⁷. Large inflows or outflows from the GSC arrangement and changes in the reserve composition may also affect the prices and yields of such HQLA. Fifth, if a GSC were used as a store of value, then any shock to the value of a GSC would have a wealth effect on its users. This could have a wider effect on the economy as people would adjust their spending accordingly. Sixth, banks and other financial institutions directly exposed to a GSC – for example because they hold GSCs or provide services related to GSCs to their customers – could suffer a loss if the value of the GSC decreased or be subject to a reputational risk.

b. Risks to monetary policy transmission and monetary sovereignty

If a GSC became a store of value and took a large share of the value currently stored in bank deposits, monetary policy transmission to the real economy via banks (through official interest rates) could be undermined. If a GSC backed by a basket of several currencies pays an interest rate, such a return on GSC holdings could be a weighted average of interest rates on the GSC reserve currencies. This would attenuate the link between domestic monetary policy and interest rates on GSC-denominated deposits. Because domestic savers will be able to switch between domestic currency deposits and GSC holdings, the return on a GSC may affect the amount of domestic currency deposits and thus deposit and loan interest rates in the domestic currency financial system, further diluting the effectiveness of the interest rate channel of monetary policy.

If a GSC were to become widely used globally, the demand for those assets included in the reserve is likely to increase in the longer term. This could entail capital outflows from

²²⁴ G7 Working Group on Stablecoins, Report on 'Investigating the impact of global stablecoins', 2019.

²²⁵ The ECB has estimated that in an extreme-case scenario (i.e. if Libra becomes a widely used store of value), 5.2% of euro area household current account and overnight bank deposits would be transformed from retail deposits to wholesale deposits.

²²⁶ S&P, The Future of Banking Regulators to Decide if the Crypto Stars Align for Libra, 2019.

²²⁷ The ECB indicates that the outstanding amount of AAA-rated central government debt with a maturity of less than one year in the euro area stood at €71.4 billion in Q2 2019. In the scenario 'Store of Value A', the Libra Reserve would hold around 45% of the outstanding amounts in short-term government papers, while this whole market segment is smaller than the amounts invested under scenario 'Store of value B'.

countries whose assets are not included in the GSC's reserve and capital inflows into countries whose assets are included. This could raise market interest rates in the former countries and lower them in the latter. Finally, in time of stress and if the GSC is an attractive alternative, it can become a substitute for domestic currency and undermine monetary sovereignty.

Annex 5: Discarded options

Option discarded for crypto-assets that qualify as financial instruments and those which currently fall outside: Creating a new category ‘crypto-assets’ in the list of “financial instruments” (Annex I C of MiFID II)

Under this option, the difference between crypto-assets that are currently regulated (i.e. mostly those that qualify as MiFID II financial instruments) and those that fall outside (i.e. utility tokens or payment tokens) would no longer exist. Annex I.C of MiFID II would be modified to add a new category of financial instruments, a “C12 category” for crypto-assets. This option has been assessed by ESMA and NCAs in the context of the advice on initial coin offerings and crypto-assets²²⁸.

This option would offer several benefits: it would provide legal certainty and harmonisation in the EU. The NCAs that supported the creation of a new C12 category also believed that all the requirements applicable to financial instruments should also apply to crypto-assets. The ESMA Securities and Markets Stakeholder Group²²⁹ also considered that both payment and utility tokens should be included in the MiFID II list of financial instruments. Since a number of transferable payment and utility tokens are increasingly considered as investment objects, risks arise that are similar to risks on the capital markets (including investor protection and market abuse concerns). This inclusion would allow secondary markets of such payment or utility tokens to be considered as MiFID II trading venues, subject to market abuse regulation.

However, ESMA advice on “initial coin offerings and crypto-assets” has showed limited support from NCAs to create a new category of financial instruments for crypto-assets. Some NCAs (4) considered that applying the same rules across all crypto-assets was not relevant because of their variety. Other NCAs (3) insisted on the “same business, same risks, same rules” approach and the fact that differences in the underlying technologies do not suffice to support a specific regime. Provided that they meet the relevant conditions (e.g. when they present the features of shares or bonds), most NCAs (15) agreed that crypto-assets should comply with the full set of EU rules applicable to financial instruments. The creation of a new category C12 would create confusion and regulatory arbitrage between existing categories (e.g. traditional ‘transferable securities’) and the new one (e.g. investment tokens that present the same features as traditional transferable securities but issued on a DLT). Finally, as many crypto-assets (including utility or payment tokens) are substantially different from traditional financial instruments, applying the MiFID II would not be relevant. Finally, if all crypto-assets were considered as financial instruments, some cumbersome requirements under MiFID II could drive crypto-asset projects away from the EU.

²²⁸ Annex 1 – Legal qualification of crypto-assets – survey to NCAs (2019), p.21-22.

²²⁹ ESMA Securities and Markets Stakeholder Group – Advice to ESMA : Own Initiative Report on Initial Coin Offerings and Crypto-Assets, 2018.

Annex 6: Option 1 for stablecoins and global stablecoins

Risks raised by stablecoin arrangements (FSB report) and measures to address them under Option 1

Function in the stablecoin arrangement and description of the function	Vulnerabilities	Measures aimed at mitigating the risks under option 1
Governance of the stablecoin arrangement Establishing rules governing the stablecoin arrangements	Fraud or conflict of interest; Uncertainty for users due to unclear definition of role and responsibilities within the SC arrangement; Inadequate governance framework.	Governance arrangements; Obligation on the reserve assets; Requirements in case of insolvency/wind-down; Continuous risk assessments, contingency preparedness and continuity planning.
Issuing, creating and destroying stablecoins 1/Issuing, creating and destroying stablecoins 2/Managing reserve assets 3/Providing custody/trust services for reserve assets	1/ Inability to meet redemptions; for algorithmic SC, errors in the algorithm that impact value 2/ Price decrease or liquidity issues for reserve assets; lack of transparency/change in the composition of the reserve; fraud or mismanagement of the reserve; investment in illiquid assets 3/ Custodian failure, fraud; liquidity issues; lack of clarity regarding rights to reserve assets in particular	1/Capital/liquidity requirements; For GSC, reserve invested in safe and liquid assets and flow tools to limit sudden outflows from the SC arrangement; For algorithmic SCs, disclosure of the algorithm. 2/ Capital/liquidity requirements; periodic auditing of the assets/funds held in the reserve; periodic disclosure. 3/ Obligation on the reserve assets (segregation/custody requirements); disclosure requirements on SC issuers
Transfer of coins Operating the infrastructure and validating transactions	SC/GSC ledger compromised due to design flaw, operational/cyber incident; uncertainty on the revocability of payments or due to failure of multiple validator nodes	Assessment of how the technology and rules for transferring coins provide assurance of settlement finality; Complaints handling and redress procedures
Interaction with users Wallet provisions; Exchange and trading platforms	Disruption of a wallet (theft or operational/cyber incident) Withdrawal of liquidity provision by or disruption of a trading platform	Those CASPs would be regulated in the same way as described in sections 5.2.1

SC: Stablecoin, GSC: Global Stablecoins, CASP: crypto-asset service providers

