CRYPTO-ASSET REGULATION IN THE CURRENT INTERNATIONAL AND EUROPEAN FRAMEWORK

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Abstract

The growth of crypto-assets in recent years, their potential use as a means of exchange or saving, and their possible risks to financial stability, arising, among other things, from their interconnections with the banking sector, have drawn the attention of national and international authorities. In terms of the regulation of these assets, of note at the European level is the European Union's proposal for a regulation on markets in crypto-assets, which establishes a regulatory framework for all those crypto-assets that currently lie outside the scope of the European Union's existing regulation on financial services. As regards their treatment in the banking sector, in December 2022 the Basel Committee on Banking Supervision published the global standard on the prudential treatment of banks' exposures to crypto-assets. In this article we review the main characteristics of these two regulatory developments, which are essential for the future of the crypto-asset ecosystem's relationship with the traditional financial world.

Keywords: Crypto-assets, stablecoins, tokenisation, prudential regulation, supervision, financial innovation, fintech, capital requirements, financial stability.

1 Introduction

Crypto-assets can be defined as private digital assets that depend on cryptography and distributed ledger technology (DLT) or similar technology (Financial Stability Board, 2022a). However, it should be noted that the term crypto-assets encompasses different types of instruments with different characteristics, uses and risk profiles. This issue will be addressed throughout this article, taking as a basis the regulatory references or international standards currently in place, despite the fact that there is no common taxonomy at international level to help categorise crypto-assets uniformly.

The rapid growth of crypto-assets in recent years, their potential use as a means of exchange or saving, and their possible risks to financial stability, arising, among other things, from their interconnections with the banking sector, have drawn the attention of national and international authorities. Consequently, intense regulatory activity has been observed in this field in recent years at both international and European level.

Crypto-asset market capitalisation reached almost $3 trillion in 2021, although its volume decreased to one third of that figure in 2022 after the collapse of

Terra/Luna and FTX (Bains, Ismail, Melo and Sugimoto, 2022). Although there are over 10,000 different types of crypto-assets in operation, the largest proportion of the total capitalisation is accounted for by crypto-assets that are not backed by traditional assets, including most notably Bitcoin and Ethereum. The so-called stablecoins[1] currently represent around 15% of total market capitalisation.

Broadly speaking, crypto-assets pose risks and opportunities for the financial ecosystem which require a flexible response from the authorities to ensure an adequate level of protection without hampering development and innovation. The potential benefits linked to the technology underlying crypto-assets include improvements in the efficiency, speed and resilience of some of the processes associated with financial transactions. The vulnerabilities identified in crypto-assets generally relate to market, liquidity and high-leverage risks, their potential use in illegal activities, the lack of operational transparency and high energy consumption, among others. Also, the fact that there is no past experience to draw on makes it difficult to compare the level of resilience and robustness of the underlying technology.

As regards the risks to financial stability, their impact will hinge on the potential vulnerabilities inherent to activity related to crypto-assets, and on the scale and interconnectedness of such assets with the traditional financial system. Currently, few risk transmission channels between the two systems are thought to exist, despite the growing participation of institutional investors and traditional service providers (Financial Stability Board, 2022a; Banco de España, 2022).

Accordingly, there have been several international initiatives to promote regulation and supervision adapted to crypto-assets' unique characteristics. At international level, the Financial Stability Board is working on a set of high-level recommendations for crypto-asset activities and markets, in general, and for global stablecoins, in particular (Financial Stability Board, 2022b and 2022c). In both cases, the aim is to promote global and consistent regulatory and supervisory frameworks, based on close international cooperation and coordination. Thus, it recognises the global nature of crypto-assets and the need for coordination at institutional level.

Notable in Europe is the proposal for a regulation on markets in crypto-assets (MiCA), which establishes a regulatory framework for all those crypto-assets which would currently fall outside the scope of existing European Union (EU) financial services legislation. Broadly speaking, the regulation includes a series of requirements regarding: (i) issuance, offers to the public and trading; (ii) issuers and service providers; and (iii) customer and investor protection.

1 Stablecoins are defined as crypto-assets that aim to maintain a stable value in relation to a specific asset or a basket of assets.

As regards interconnectedness with the banking sector, in December 2022 the Basel Committee on Banking Supervision (BCBS) published the global standard on the prudential treatment of banks' exposures to crypto-assets. Generally speaking, the standard provides for a more stringent prudential treatment for those crypto-assets which are not representations of traditional financial assets, are not backed by a basket of financial assets or do not have an effective stabilisation mechanism. The standard aims to provide a global regulatory framework that promotes responsible innovation while preserving financial stability (Basel Committee on Banking Supervision, 2022c).

Given the importance of the two regulatory developments at European and international level, this article explores the main characteristics of the EU proposal for a regulation on markets in crypto-assets (MiCA) and the prudential standard drawn up by the BCBS, soon to be implemented by the different member jurisdictions, including the euro area.

2 European Union regulation on markets in crypto-assets

The Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a digital finance strategy for the EU was published on 24 September 2020. It included a proposal for a regulation on markets in crypto-assets (MiCA), which was subject to debate and negotiation until 5 October 2022. At the time of writing this article, MiCA has already been approved and is only awaiting publication in the *Official Journal of the European Union.*

MiCA introduces requirements on crypto-asset issuance, offers to the public and admission to trading on a trading platform for crypto-assets; requirements for the authorisation and supervision of crypto-asset service providers, issuers of asset-referenced tokens (ARTs) and issuers of electronic money tokens (EMTs), and for their operation, organisation and governance; requirements to protect holders of crypto-assets in the issuance, offers to the public and admission to trading; requirements to protect customers of crypto-asset service providers; and measures to prevent insider dealing, unlawful disclosure of inside information and market manipulation in relation to crypto-assets.

2.1 Crypto-assets regulated by MiCA

MiCA defines crypto-assets as digital representations of value or rights which may be transferred and stored electronically, using DLT or similar technology. However, MiCA does not apply to all the crypto-assets that fall under this definition. It excludes from its scope, inter alia, crypto-assets that qualify as financial instruments

or other products that are already regulated in existing legislation on financial services. Crypto-assets that are unique and not fungible with other crypto-assets are also excluded. The European Central Bank (ECB) and national central banks when acting in their capacity as monetary authorities are also outside its scope. Lastly, MiCA does not apply to crypto-asset services that are provided in a fully decentralised manner without any intermediary.

MiCA classifies crypto-assets into three types: ARTs, EMTs and all other crypto-assets. The latter are crypto-assets different from EMTs and ARTs and are not excluded from the scope of MiCA. These include a variety of crypto-assets, including utility tokens, a type of crypto-asset that is only intended to provide access to a good or service supplied by its issuer. An ART is a type of crypto-asset that is not an EMT and that purports to maintain a stable value by referencing another value or right, or a combination thereof, including one or more official currencies. An EMT is a type of crypto-asset that purports to maintain a stable value by referencing the value of one official currency.

2.2 Crypto-assets other than asset-referenced tokens and electronic money tokens

Any person intending to offer crypto-assets other than ARTs and EMTs to the public in the EU or seeking their admission to trading in the EU shall not be subject to authorisation, but is required to comply with several obligations. These include the obligation to be legal persons and to draw up, notify to the competent authority and publish a white paper. MiCA does not require the approval of the white paper by the competent authority. Such white paper shall essentially contain information on the offeror or person seeking admission to trading, on the crypto-asset and on the rights and obligations attached to the latter.

2.3 Asset-referenced tokens

Any person offering ARTs to the public in the EU or seeking their admission to trading must be the issuer of those ARTs and a legal person or undertaking established in the EU that has been duly authorised by the competent authority, or a credit institution that has drawn up a white paper which has been approved by the competent authority. MiCA regulates the essential elements of the authorisation regime for the former and the requirements to be met by the latter. The ECB must issue an opinion in both cases. If the opinion is negative on the grounds of a risk to the smooth operation of payment systems, monetary policy transmission, monetary sovereignty or financial stability, such authorisation or approval shall be refused by the competent authority; otherwise, the ECB's opinion shall be non-binding.

The issuance of ARTs is also subject to certain restrictions. When the estimated quarterly average number and average aggregate value of transactions per day associated with the use of ARTs as a means of exchange within a single currency area is higher than one million transactions and €200 million, respectively, the issuer shall: (i) stop issuing the ARTs and, (ii) within 40 working days of reaching that threshold, submit a plan to the competent authority to ensure that the number and value of transactions per day are kept below such figures. Additionally, the competent authorities shall limit the amount of an ART to be issued or impose a minimum denomination when the ECB issues an opinion concluding that the ARTs pose a threat to the smooth operation of payment systems, monetary policy transmission or monetary sovereignty, and specify the applicable limit or minimum denomination amount.

Issuers of ARTs shall constitute and at all times maintain a reserve of assets, which shall be composed and managed in such a way that the risks associated with the assets referenced by the ARTs are covered and the liquidity risks associated with the permanent redemption rights of the holders are addressed. The reserve of assets shall be legally segregated from the issuer's estate. Issuers shall ensure that the issuance and redemption of ARTs is always matched by a corresponding increase or decrease in the reserve. Issuers shall determine the aggregate value of reserve assets by using market prices. This aggregate value shall be at least equal to the aggregate value of the claims against the issuer from the holders of the ART in circulation. Issuers that invest a part of the reserve of assets shall only invest in highly liquid financial instruments with minimal credit risk, market risk and concentration risk. In any event, it should be noted that the minimum amounts in each official currency referenced to be held as deposits in credit institutions cannot be lower than 30% of the amount referenced in each official currency.

Holders of ARTs shall have a redemption right at all times against the issuers of ARTs and on the reserve assets when the issuers are unable to comply with their obligations, in accordance with the recovery and redemption plan they are required to draw up. At the request of an ART holder, the issuer must redeem, either by paying an amount in funds, other than electronic money, equivalent to the market value of the assets referenced by such ARTs, or by delivering the assets referenced by the ARTs.

MiCA provides for the existence of certain ARTs that are deemed significant when they meet certain criteria and thresholds. The criteria used to determine whether an ART is significant include the total value of the issue, the size of the reserve of assets, the number and value of transactions per day, the number of holders, etc. The European Banking Authority (EBA) shall classify ARTs as significant when at least three of the criteria established are met and shall then assume supervisory responsibilities on various aspects relating to the issuers.

Lastly, issuers shall draw up and maintain a recovery plan and an operational plan to support the orderly redemption of each ART. Specifically:

— The *recovery plan* shall provide for measures to be taken by the issuer to restore compliance with the requirements applicable to the reserve of assets when the issuer fails to comply with those requirements. The plan shall also include the preservation of the issuer's services related to the ARTs issued, the timely recovery of operations and the fulfilment of the issuer's obligations in the case of events that pose a significant risk of disrupting operations. The recovery plan shall also include appropriate conditions and procedures to ensure the timely implementation of recovery actions, including liquidity fees on redemptions, limits on the amount of the ART that can be redeemed on any working day and suspension of redemptions. The recovery plan shall be notified to the competent authority, which may require amendments to its content and, where appropriate, their implementation by the issuer.

— The *redemption plan* shall demonstrate the ability of the issuer of the ART to carry out the redemption of the outstanding ART issued without causing undue economic harm to its holders or to the stability of the markets of the reserve assets. As with the recovery plan, the redemption plan shall be notified to the competent authority, which may require amendments to its content. The redemption plan shall be implemented upon a decision by the competent authority that the issuer is unable or likely to be unable to fulfil its obligations.

2.4 Electronic money tokens

Any person offering EMTs to the public in the EU or seeking their admission to trading must be the issuer of such EMTs, be authorised as a credit institution or as an electronic money institution, publish a crypto-asset white paper and notify the competent authority of such publication. EMTs are deemed to be electronic money and, when referencing an official currency of an EU Member State, shall be deemed to be offered to the public in the EU. Issuers of EMTs shall not require authorisation for such issuance. They shall be subject to certain provisions of Directive 2009/110/EC on electronic money, and to some specific requirements under MiCA. These include compliance with the provisions on drawing up and maintaining a recovery plan and a redemption plan which apply to issuers of ARTs, and with the rules set out below.

Issuers of EMTs shall issue these tokens at par value and on the receipt of funds. Holders of EMTs shall have a claim against the issuer. Upon request by such holders, the issuer shall redeem the EMTs, at any time and at par value, by paying

holders the monetary value of the EMTs in the form of funds other than electronic money. The redemption shall not be subject to a fee and the issuer shall not grant interest in relation to EMTs. Any remuneration or any other benefit related to the length of time that a holder of an EMT holds such a token shall be treated as interest and, consequently, shall not be permitted.

Electronic money institutions issuing EMTs shall safeguard the funds received in exchange for EMTs. These funds shall be deposited in a separate account in a credit institution or shall be invested in secure, low-risk assets that qualify as highly liquid financial instruments with minimal market risk, credit risk and concentration risk and are denominated in the same official currency as that referenced by the EMT. In any case, at least 30% of the funds received shall always be deposited in a separate account in a credit institution.

Lastly, as with ARTs, MiCA provides for the existence of certain EMTs considered significant based on the same criteria and thresholds as those applied to ARTs. The EBA shall classify EMTs as significant when at least three of the criteria established are met, at which point it shall assume supervisory responsibilities on various aspects relating to the issuers. Electronic money institutions that issue significant EMTs shall be subject to certain provisions applying to issuers of ARTs, including those relating to reserve assets.

2.5 Crypto-asset services

Any person that provides crypto-asset services in the EU must be a crypto-asset service provider, or a credit institution, a central securities depositary, investment firm, market operator, electronic money institution, a management company for an undertaking for collective investment in transferable securities or an alternative investment fund manager. Pursuant to MiCA, crypto-asset services may also be provided by undertakings that are not legal persons only if their legal form ensures a level of protection for third parties' interests equivalent to that afforded by legal persons and if they are subject to equivalent prudential supervision appropriate to their legal form.

Crypto-asset service providers must obtain authorisation from the competent authority, unless they are one of the aforementioned institutions (credit institution, investment firm, etc.), in which case they shall only be required to notify the competent authority of the activity they intend to engage in. Nor shall the authorisation requirement apply where clients established or located in the EU request at their exclusive initiative the provision of a crypto-asset service or activity by a third-country firm. However, if a third-country firm solicits clients in the EU, regardless of the means of communication used to that end, it shall not be deemed to be a service provided at the client's exclusive initiative. Moreover, a client's

exclusive initiative shall not entitle the third-country firm to propose new types or categories of crypto-assets or crypto-asset services to that client, unless it obtains authorisation as a crypto-asset service provider.

Crypto-asset service providers shall be subject to certain obligations. They must act honestly, fairly and professionally, and in the best interest of clients. They must meet certain governance requirements, have procedures in place for handling complaints and policies and procedures to identify, prevent, manage and disclose conflicts of interest. They shall also be subject to certain requirements when outsourcing operational functions. When providing certain crypto-asset services (custody, operation of a platform, exchanging and placing), they shall have an appropriate plan to support an orderly wind-down of their activities under applicable national law, including the continuity or recovery of any critical activities performed by those service providers.

Crypto-asset service providers that hold crypto-assets belonging to clients or the means of access to such crypto-assets shall make adequate arrangements to safeguard the ownership rights of clients and to prevent the use of a client's crypto-assets for their own account. Where their business models or the crypto-asset services require holding clients' funds other than EMTs, crypto-asset service providers shall have adequate arrangements in place to safeguard the ownership rights of clients and prevent the use of clients' funds for their own account.

Crypto-asset service providers may themselves, or through a third party, provide payment services related to the crypto-asset service they offer, provided that the crypto-asset service provider itself, or the third-party, is authorised to provide those services under Directive (EU) 2015/2366 on payment services.

Crypto-asset service providers may provide the following crypto-asset services throughout the EU, either through the right of establishment, including through a branch, or through the freedom to provide services:

— *Custody and administration of crypto-assets on behalf of clients:* the safekeeping or controlling, on behalf of clients, of crypto-assets or the means of access to such crypto-assets, where applicable in the form of private cryptographic keys.

— *Operation of a trading platform for crypto-assets:* the management of one or more multilateral systems, which bring together or facilitate the bringing together of multiple third-party purchasing and selling interests in crypto-assets – in the system and in accordance with its rules – in a way that results in a contract, either by exchanging crypto-assets for funds or crypto-assets for other crypto-assets.

— *Exchange of crypto-assets for funds or for other crypto-assets:* the conclusion of purchase or sale contracts concerning crypto-assets with clients in exchange for funds or other crypto-assets, by using proprietary capital.

— *Execution of orders for crypto-assets on behalf of clients:* the conclusion of agreements, on behalf of clients, to purchase or sell one or more crypto-assets or to subscribe for one or more crypto-assets, including the conclusion of agreements to sell crypto-assets at the time of their issuance.

— *Placing of crypto-assets:* the marketing, on behalf of or for the account of the offeror or of a party related to the offeror, of crypto-assets to purchasers.

— *Reception and transmission of orders for crypto-assets on behalf of clients:* the reception from a person of an order to buy or to sell one or more crypto-assets or to subscribe for one or more crypto-assets and the transmission of that order to a client for execution.

— *Providing advice on crypto-assets:* offering, giving or agreeing to give personalised recommendations to a client, either at the client's request or on the initiative of the crypto-asset service provider providing the advice, in respect of one or more transactions relating to crypto-assets, or the use of crypto-asset services.

— *Management of crypto-asset portfolios:* the management of portfolios in accordance with mandates given by clients on a discretionary client-by-client basis where such portfolios include one or more crypto-assets.

— *Providing crypto-asset transfer services on behalf of clients:* providing services involving the transfer, on behalf of a natural or legal person, of crypto-assets from one distributed ledger address or account to another.

However, MiCA does not address the lending and borrowing of crypto-assets, including EMTs, and therefore should not prejudice applicable national law.

2.6 Rules on market abuse involving crypto-assets

MiCA establishes rules to prevent market abuse involving crypto-assets. To this end, it defines inside information, establishes rules for the public disclosure of such information, prohibits insider dealing using that information and the unlawful disclosure thereof. It also prohibits market manipulation or attempts to manipulate the market, requiring any person arranging or executing transactions involving crypto-assets to have in place effective mechanisms, systems and procedures to prevent and detect market abuse.

2.7 Supervision of crypto-assets

The national authorities take on the lead role as competent authorities for the supervision of the subjects and activities regulated by MiCA. The white paper shall be notified to the national authorities, which shall be responsible for authorising and supervising issuers of ARTs and crypto-asset service providers. The EBA intervenes when ARTs or EMTs classified as significant are issued, at which point it assumes certain supervisory responsibilities with respect to the issuers. In addition, it should be noted that at the time of writing this article, the draft Law on Securities Markets and Investment Services was in passage through Parliament. According to this law, the Spanish National Securities Market Commission shall be the competent authority for supervising compliance with MiCA, and the Banco de España shall carry out supervisory, inspection and sanctioning tasks in relation to the obligations applicable to issuers of ARTs and EMTs under MiCA.

The powers of the competent authorities include requesting information, temporarily suspending or prohibiting the provision of crypto-asset services, requesting amendments to the white paper or to any marketing communications, temporarily suspending or prohibiting an offer to the public or admission to trading of crypto-assets, carrying out inspections or investigations at sites other than the private residences of natural persons in order to seize documents or data, requesting any person to take steps to reduce the size of its position or exposure to crypto-assets, or to take all necessary measures to remove content from an online interface. These powers are without prejudice to the powers conferred on the same or other supervisory authorities, including powers granted to competent authorities under the provisions of national law transposing Directive 2009/110/EC on electronic money, and prudential supervisory powers granted to the ECB under Regulation (EU) 1024/2013.

MiCA also confers temporary intervention powers on the EBA, the European Securities and Markets Authority (ESMA) and the competent authorities. Such powers essentially include the power to temporarily prohibit or restrict, subject to fulfilling certain conditions, the marketing, distribution or sale of certain crypto-assets or a type of activity or practice related to crypto-assets.

Lastly, **ESMA shall keep a register** of white papers of crypto-assets other than ARTs and EMTs, of issuers of ARTs and issuers of EMTs, and of crypto-asset service providers. ESMA shall also establish a non-exhaustive register of entities that provide crypto-asset services in violation of MiCA provisions.

2.8 Amendments to the Capital Requirements Directive and implementation date for MiCA

MiCA amends annex I of Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions, which lists the activities

of credit institutions that are subject to mutual recognition. Accordingly, these activities shall include the issuance of EMTs, the issuance of ARTs and crypto-asset services.

Lastly, **MiCA will enter into force 20 days after its publication in the Official Journal of the EU** and will become applicable **18 months** after this date, with the exception of the rules on ARTs and EMTs, which will apply **12 months** after the entry into force of the regulation. During this phase, the European authorities, particularly the EBA and ESMA, are to develop a series of implementing rules to give effect to MiCA provisions.

3 Treatment under the Basel framework

In December 2022 the BCBS published the final version of the standard on the prudential treatment of banks' exposures to crypto-assets.[2] This global standard is the last step in a work programme that began in 2018 and that includes, inter alia, a periodic quantitative review of banks' exposures to crypto-assets.[3]

The standard is applicable to all crypto-assets,[4] **except for central bank digital currencies (CBDCs), whose treatment will be gradually addressed in the future, as they are issued.** The standard must be implemented by the BCBS member jurisdictions by 1 January 2025. In any event, the document includes a number of issues that will likely require additional review and clarifications.

The standard on crypto-assets establishes prudential treatment on the basis of a set of conditions determining the classification of crypto-assets into two broad groups. Crypto-assets that meet the conditions in full are classified in Group 1, whereas those that fail to meet any of the conditions are classified in Group 2, which entails more stringent prudential requirements since they entail greater risks. Each group is in turn divided into two sub-groups depending on the characteristics of the crypto-assets and on fulfilment of additional criteria (see Figure 1).

Prudential treatment has been incorporated into the consolidated framework in the form of an independent standard (SCO 60). Unlike the rest of the Basel framework, which primarily establishes distinctions by type of risk (market, credit, operational, liquidity, etc.) and, within each type, by type of asset, the standard on crypto-assets refers to the prudential treatment of a specific asset class. This is to allow for possible future adjustments and to provide an overall picture of the prudential treatment of this new asset class, given that the framework is constantly evolving.

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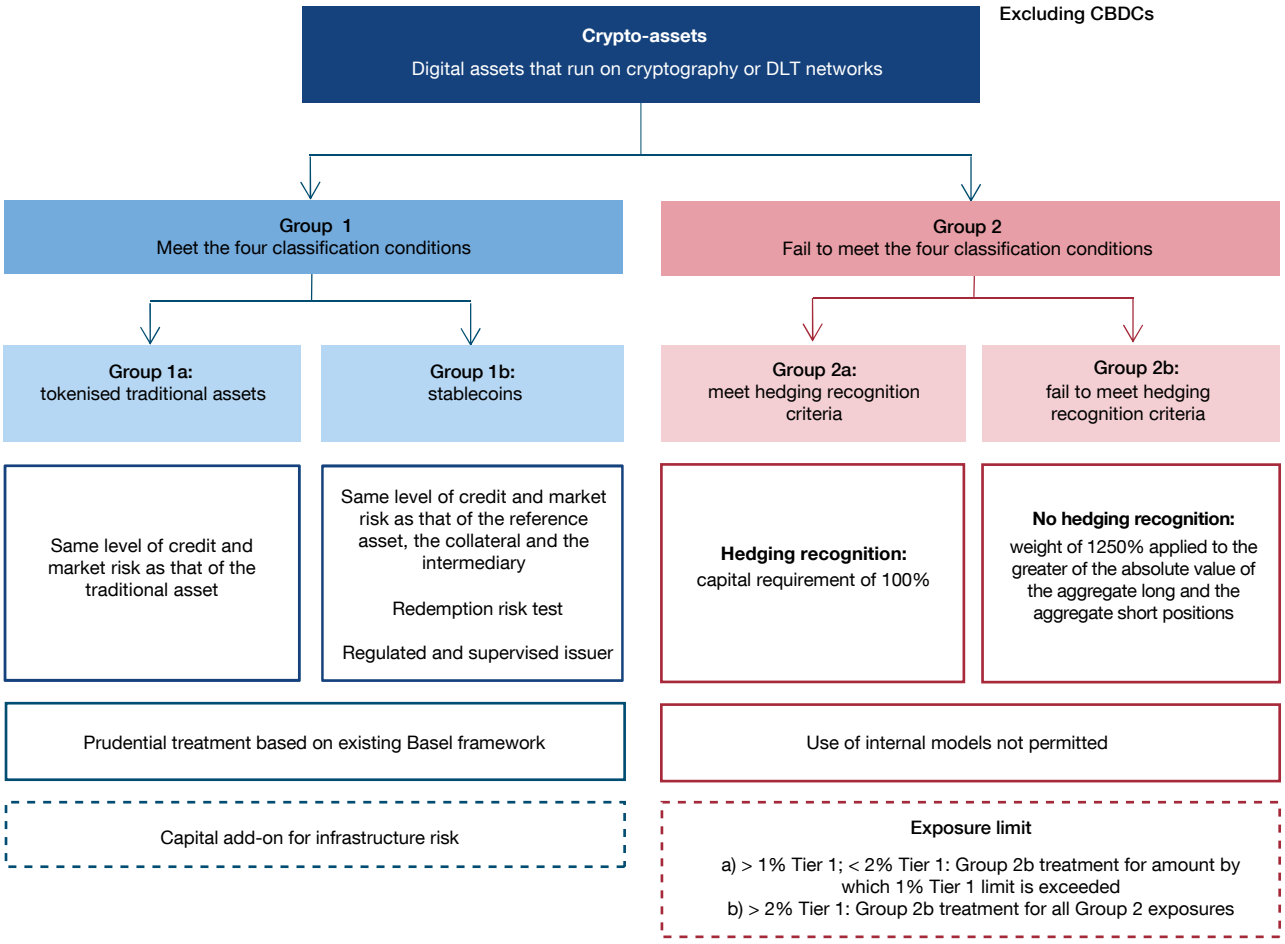
2 This standard has previously been submitted for two public consultations (summers of 2021 and 2022).

3 The Basel Committee had previously published a discussion paper on the risks stemming from these assets (BCBS, 2019a) and a public statement on their implications for supervisors and banks (BCBS, 2019b).

4 The standard defines crypto-assets as private digital assets that depend on cryptography and DLTs or similar technologies. Digital assets are digital representations of value, which can be used for payment or investment purposes or to access goods or services.

Figure 1

CRYPTO-ASSET REGULATION IN THE CURRENT INTERNATIONAL AND EUROPEAN FRAMEWORK



SOURCE: Devised by authors drawing on Banco de España (2023).

3.1 Classification conditions

The standard sets out four classification conditions which a crypto-asset must meet in full to be classified in Group 1. These conditions encompass the nature and stability of crypto-assets, the definition of the legal rights and obligations arising from crypto-assets, the security of the network on which they operate and the regulation of participants performing key functions.

Banks are responsible for assessing whether the crypto-assets to which they are exposed meet the classification conditions. Supervisors must review this assessment and may override banks' classification decisions if they do not agree with them.

Box 1

PEG VALUE AND RESERVE ASSET VALUE

Drawing a distinction between the peg value and the composition and valuation of the reserve assets is important. The former refers to the asset (or assets) to which the stablecoin's value is pegged and the redemption promise. The latter refers to the value of the assets comprising the collateral for potential redemptions.

One of the main examples of this type of stablecoin would be USDC, issued by Circle, an e-money institution subject to US regulations. USDC's value is pegged to the US dollar (USD) and its terms and conditions establish that USDC is always redeemable 1:1 for USD. To guarantee this value, Circle states that it has cash reserves and short-term US Treasury bonds for the equivalent value of USDC in circulation (USD 43.3 billion as at 26 January 2023), deposited at The Bank of New York Mellon and managed by BlackRock.[1]

A distinction is generally drawn between the two values. However, this distinction is important in the case of stablecoins that are not pegged to a specific asset and the value of which is potentially stable, but linked to that of their own collateral. This latter type of crypto-asset could be deemed to function like a unit in a traditional investment fund.

Distinction between stablecoins and tokenised traditional assets: tokenised deposits

The BCBS standard accounts for the fact that in some jurisdictions certain bank-issued tokenised assets that are backed by the general assets of the bank – and not by a pool of reserve assets – may be referred to as stablecoins. However, if they meet the classification conditions and demonstrate the same level of (credit and market) risk as traditional assets, they should be classified in Group 1a, regardless of their local name.

In any event, the BCBS acknowledges that the distinction between a stablecoin and a tokenised traditional deposit can be uncertain where issuers are banks. In addition, the classification of stablecoins pegged to a commodity (e.g. gold) and backed by the commodity itself, such as Pax Gold, can be confused between Group 1a and Group 1b.

There are, however, factors that could determine their classification into one group or another that have not been specifically incorporated into the standard. These include legal aspects and the determination of rights and obligations; the existence and segregation of a pool of reserve assets (on the balance sheet itself or held in a special purpose vehicle); and the coverage of depositor protection schemes.

This distinction has important implications for their prudential treatment, such as ineligibility as collateral for credit risk (see Section 3.3.1). In a holistic analysis, the BCBS will study over the medium term the implications of banks as stablecoin issuers.

1 Information published by Circle on its website.

Classification condition 1

This condition classifies Group 1 crypto-assets into two types: tokenised traditional assets and stablecoins.[5] To meet this condition, tokenised traditional assets must demonstrate the same level of (credit and market) risk as their traditional form.

As regards stablecoins, the issuer must be regulated and supervised, subject to prudential capital and liquidity requirements. In addition, they must have a

5 Tokenised traditional assets are defined as representations of traditional assets using cryptography, DLT or similar technology to record ownership.

stabilisation mechanism that is effective at all times in linking the value of the crypto-asset to the traditional asset(s) to which it is referenced (e.g. the dollar). Algorithm-based[6] stablecoins or those that are referenced by other crypto-assets do not meet this condition.

The effectiveness of the stabilisation mechanism is assessed through a redemption risk test. To pass this test, the reserve assets backing the crypto-asset must be sufficient to ensure full redemption for their peg value. This means that the value of the reserve assets must exceed the aggregate value of all the outstanding crypto-assets, expressed in terms of their peg value.

Additionally, there are requirements regarding the composition, valuation and management of the stablecoin reserve assets. More generally, for crypto-assets that are referenced by one or more fiat currencies, the standard requires the reserve assets to be comprised of assets with minimal market risk and credit risk, such as the expressly mentioned Level 1 high-quality liquid assets (HQLAs), and which are generally denominated in the same currency as that used for the peg value. Moreover, the value and composition of the reserve assets must be publicly disclosed on a daily and weekly basis, respectively, and be subject to an audit at least once a year.

Classification condition 2

Under this condition, all rights and obligations related to the crypto-asset must be clearly defined and legally enforceable in all the jurisdictions where it is issued and redeemed. Specifically, full transferability and settlement finality must be ensured at all times. To this end, crypto-asset arrangements must be properly documented. In the case of stablecoins, the standard requires that full redeemability be guaranteed and that redemption be completed within five calendar days of the redemption request.

Classification condition 3

This condition addresses the functions of the network on which the crypto-asset operates. All the transactions and participants must be traceable and the key functions (issuance, validation, redemption and transfer) must not pose any material risks that could impair the transferability, settlement finality or redeemability of the crypto-asset. Entities performing these functions must also follow robust risk governance and risk control policies and practices.

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6 Crypto-assets whose stability does not depend on backing by traditional assets, but on protocols which regulate the supply to maintain their value.

Classification condition 4

Entities that execute redemptions, transfers, storage or settlement finality of the crypto-asset, or manage reserve assets, must be regulated and supervised, or subject to appropriate risk management standards and have in place and disclose a comprehensive governance framework. In particular, to meet this condition node validators must also be regulated and supervised or, alternatively, be subject to appropriate risk management standards.

3.2 Hedging recognition criteria

The standard also establishes a series of market criteria that divide Group 2 into two sub-groups (2a and 2b). Where all the criteria are met, banks may calculate the capital requirements for these crypto-assets using a specific credit risk framework and recognise a limited degree of hedging in the calculation of their exposure. Failure to meet any of these conditions would entail banks not being permitted to recognise any hedging. Under no circumstances may internal models be used for Group 2 crypto-assets.

Under these criteria, there must be regulated products that reference the underlying crypto-asset, the latter must be sufficiently liquid and sufficient market data must be available to assess it. Specifically:

(i) The crypto-asset must be a spot where there exists at least one derivative or exchange-traded fund (ETF)/exchange-traded note (ETN) that is traded on a regulated exchange that solely references the crypto-asset, or it must be a derivative or ETF/ETN traded on a regulated exchange or, in the case of the derivative, cleared by a qualifying central counterparty.

(ii) The bank's direct crypto-asset exposure, or the crypto-asset referenced by the derivative or ETF/ETN, must be highly liquid. In this respect, the average market capitalisation must have been at least USD 10 billion over the previous year, and the 10% trimmed mean of daily trading volume must have been at least USD 50 million over the previous year.

(iii) There must be at least 100 price observations over the previous year and there must be sufficient data on trading volumes and market capitalisation.

With regard to the calculation of the exposure, for the crypto-assets that meet the above-mentioned conditions (Group 2a), only the regulated products described in (i) may be used to calculate the net position. The other products shall be subject to the requirements of Group 2b. In addition, only products that are traded on the same exchange or platform may be used for the purposes of offsetting.

Box 2

TYPES OF DISTRIBUTED LEDGER TECHNOLOGY: PERMISSIONED OR PERMISSIONLESS, PUBLIC AND PRIVATE NETWORKS

A distributed ledger technology (DLT) is generally classified as a database managed by various participants that is subject to some level of decentralisation. Blockchains are a type of DLT, the main feature of which is that information is shared via blocks forming a sequentially ordered chain that can only be augmented and validated using hashes (Banco de España, 2022, and Romero, 2018).

Based on their degree of centralisation, they can be permissioned (where agents require authorisation from a central entity to participate as nodes in the chain) or permissionless. In addition, networks can be public or private, depending on how participants access them. Public networks are open to all, while private ones require an invite, which restricts access to a certain number of participants.

Therefore, permissionless networks are essentially public, fully decentralised networks that can be accessed by anyone. Meanwhile, within permissioned networks (some centralisation), there can be public networks (unrestricted access to information, albeit requiring authorisation to participate as a node) and private networks (an invitation is required to both participate and access information). In all permissioned networks there is some degree of participant identification, although this may be aimed exclusively at participating nodes (public networks) or at any agent accessing information (private networks).

The different degrees of dispersion and regulation and supervision of the node validators give rise to the DLT trilemma (decentralisation, scalability[1] and security), where maximising one aspect detracts from the opposite vertex. Thus, permissionless networks are more scalable and decentralised, whereas permissioned networks sacrifice scalability in the name of an appropriate degree of security.

A critical aspect of the classification conditions established in the standard is the requirement for all participants to be regulated and supervised, which entails knowing their identity, including node validators (Classification condition 4). In this respect, although the standard does not explicitly state as such, using permissionless networks (where participant identification is not an inherent characteristic) would in practice mean that the crypto-assets transacted on them – including those tokenised traditional assets that meet the other three conditions – would be classified in Group 2.

This aspect is included among the elements subject to specific monitoring and review (see Section 3.6).

1 The network's ability to adapt to increases in demand, processing a higher number of transactions per second while continuing to operate smoothly.

3.3 Prudential treatment

3.3.1 Group 1 - Treatment for credit and market risk

In general, tokenised traditional assets that meet all the classification conditions (Group 1a) shall be subject to requirements comparable to the traditional (non-tokenised) form of the asset. However, the Basel standard acknowledges the existence of particularities that should be assessed on the basis of the characteristics of the crypto-asset itself and that may distinguish it from its traditional form.

In the case of stablecoins that meet all the classification conditions (Group 1b), the standard takes into account these instruments' unique aspects. Specifically,

Box 3

CAPITAL REQUIREMENTS APPLICABLE TO A STABLECOIN

There is more than one model for issuing a stablecoin. With this is mind, the prudential treatment will depend on the stablecoin's structure and, in particular, against whom and under what circumstances a credit institution may exercise its right to redeem.

Where the bank transacts directly with the redeemer, the investment will be subject to the risk arising from: (i) impairment of the reserve assets, or default on the inherent payment obligations (e.g. default on bond coupons); and (ii) default by the redeemer. The latter shall not apply if the reserve assets are held in a separate institution, or a special purpose vehicle, and are effectively bankruptcy remote.

Based on the above, the calculation of the risk-weighted assets (RWAs) will be the result of applying and adding to the value of the direct exposure to the crypto-asset (i) the risk weight corresponding to the direct holding of the reserve assets (which will depend on factors such as asset type and currency); and (ii) the risk weight corresponding to an unsecured exposure to the redeemer. Where the reserve assets comprise a pool of financial assets, banks should apply the treatment for equity investments in funds.

If, by contrast, the credit institution does not transact directly with the redeemer and the transactions are instead conducted through an intermediary, the prudential treatment will depend on whether or not the intermediary has committed to purchase crypto-assets from all non-member holders in unlimited amounts.

Thus, if the intermediary has not committed to purchase crypto-assets, the bank will be exposed to the above-mentioned risks (risk arising from the reserve assets and from default by the redeemer) and, in addition, to the credit risk of all the members that transact directly with the redeemer. The calculation of the RWAs must take into account all these sources of risk.

If, by contrast, the intermediary has committed to purchase crypto-assets in an unlimited amount, the bank will be exposed to the credit risk of the member(s) who has (have) committed to buy and to the risk arising from the changing value of the reserve assets and the risk that the redeemer defaults. The risk weight to be used should be the risk weight that would be applicable to the member with the highest credit rating (i.e. lowest risk weight).

In those cases where it is the credit institution itself that acts as an intermediary and therefore undertakes to buy crypto-assets from other investors at a predetermined price, the calculation of the RWAs must include this undertaking to pay. Specifically, the calculation shall include the total value of all the crypto-assets that the bank could be obliged to purchase multiplied by the risk weight applicable to an unsecured exposure to the redeemer. This treatment shall also apply where the bank is not legally obliged to buy crypto-assets, but it is understood that, in the event of redeemer bankruptcy, the bank would step in and purchase them (e.g. as a means of preventing an increase in reputation risk).

Figure 1
CAPITAL REQUIREMENTS APPLICABLE TO A STABLECOIN

SOURCE: BCBS (2021b).

not only does the calculation of credit risk requirements factor in the risk associated with the issuer, but it also considers the risk associated with the reference asset, the collateral, the redeemer and any other intermediary involved. Internal models can be used to calculate requirements for Group 1 crypto-assets.

Only Group 1a crypto-assets that are tokenised versions of the traditional assets listed as eligible collateral can be considered collateral for the purposes of credit risk mitigation (CRM). Consequently, in the case of stablecoins, the standard acknowledges the increase in counterparty risk associated with redemption and does not consider them eligible as collateral.

The treatment for market risk is equivalent to that for credit risk and also applies a look-through approach. The standard does not establish different treatments for Groups 1a and 1b, as in both cases the treatment depends on the traditional asset backing them, either the underlying asset or the collateral. The standard includes the possibility of calculating requirements using the internal models approach (IMA), the standardised approach (SA) or the simplified standardised approach (SSA).

Under both the IMA and the SA, the calculation should be decomposed into the same risk factors and sensitivities as the traditional asset the Group 1 crypto-asset digitally represents.[7] In the case of the standardised approach, the same risk classes as those related to the traditional assets that the tokenised assets digitally represent shall be applied.[8] Meanwhile, the IMA specifies that the tokenised assets and the traditional assets that they represent shall be considered separately in the calculation of loss given default.

For Group 1 crypto-assets, the calculation of counterparty credit risk (CCR) and, in the case of derivatives, credit valuation adjustment (CVA) risk follows the same rules as the traditional assets. However, in the case of Group 1a crypto-assets, the standard clarifies that differences in liquidity between the traditional and the tokenised asset should be taken into account. The internal models method (IMM) is therefore permitted for the calculation of CCR.

3.3.2 Group 2 - Treatment for credit and market risk

The standard specifies that Group 2 crypto-assets should be treated in accordance with the rules proposed in the standard for market risk and does not envisage the possibility of recognising them for credit risk. Under no circumstances is the IMM permitted.

Broadly speaking, Group 2 crypto-assets that meet the hedging recognition criteria shall be classified in Group 2a and the capital requirement shall amount to 100% of the net exposure – between the aggregate of the long and short positions – for each type of crypto-asset. A new risk class is created for the

7 This includes the gross jump-to-default in the calculation of the default risk capital.

8 In other words, interest rate risk, position risk, settlement risk and commodity risk.

SA (and the SSA) market risk requirements in Group 2a crypto-assets. Also, under the SSA,[9] coverage is limited to 65% of the smaller of the absolute value of the long position and the absolute value of the short position.

This new class includes new specifications of delta, vega and curvature risk factors. In addition, a new bucket structure is introduced for each crypto-asset, with their respective sensitivities, calculated on the basis of market prices, exchanges – to calculate the delta – and times to maturity.

Use of the standardised approach for counterparty credit risk (SA-CCR) is permitted for Group 2a crypto-assets. However, the standard establishes a series of amendments to the calculation of replacement cost and the potential future exposure add-on, where a new risk class is also created.

In the case of Group 2b crypto-assets, positions may not be offset in the calculation of RWAs and a weight of 1250% must be applied to the greater of the absolute value of aggregate long positions and the absolute value of aggregate short positions. Therefore, the new market risk framework is not applied to these crypto-assets and there are no crypto-asset specific rules for applying the CVA.

3.3.3 Treatment for liquidity risk

Unlike credit and market risk requirements, the treatment for liquidity risk does not depend on meeting the classification conditions. Instead of differentiating between the aforementioned Groups 1 and 2, the treatment for liquidity risk distinguishes between i) crypto-assets representing claims on banks; ii) stablecoins; and iii) other types of crypto-assets. In addition, the treatment for liquidity risk is, by its very nature, the only risk addressed by the standard from both an asset and a liability (banks as issuers) standpoint.[10]

In general terms, the liquidity risk requirements are the result of the current liquidity risk framework being applied to each crypto-asset's specific characteristics.[11] Traditional tokenised assets may be considered as HQLAs if both the tokenised financial asset (e.g. a corporate bond issued using DLT) and the underlying asset in its traditional form are eligible for consideration as HQLAs.[12] Crypto-assets classified as Group 1b or Group 2 must not be considered as HQLAs.

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9 Under the SSA, the new specifications are limited to applying a scaling factor of 1 and to using ±100% for the underlying price change and ±100% for the relative volatility change.

10 As part of its medium-term work programme, the BCBS intends to carry out a more wide-ranging analysis of the implications of banks as crypto-asset issuers (see Section 3.6).

11 This is principally reflected in the calculation and fulfilment of the liquidity coverage ratio and the net stable funding ratio.

12 As a result, a crypto-asset may be ineligible as HQLAs despite the eligibility of the underlying traditional asset.

For the purposes of calculating the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR), Group 1a tokenised claims on regulated and supervised banks will be treated as "unsecured funding instruments". To that end, they must i) represent a legally binding claim on the bank; ii) be redeemable in fiat currency at par value; and iii) have a stable value supported by the creditworthiness and asset-liability profile of the issuing bank.[13] The issuing bank cannot treat liabilities associated with their crypto-assets as stable retail deposits, since it is understood that crypto-assets are usually less stable than a traditional retail deposit.

For their part, stablecoins, whether classified as Group 1b or Group 2, can be treated as financial assets when calculating the LCR and NSFR. In that case, they must be fully collateralised by a segregated pool of underlying assets that do not count towards the bank's stock of HQLAs and must be subject to some additional considerations.[14]

Finally, for other Group 2 crypto-assets, the standard takes a conservative approach with some additional considerations for direct exposures.[15] The standard does not enter into considerations of derivatives, collateral or off-balance sheet exposures, which, without further discussion, are to be treated as non-HQLA instruments.

3.3.4 Infrastructure risk add-on

The standard stipulates that authorities may apply an add-on to the capital requirement for exposures to Group 1 crypto-assets to cover potential risks arising from the (relatively new) technological infrastructure underlying all crypto-assets. This tool does not apply to Group 2 crypto-assets, which are already subject to conservative treatment in line with their high risk profile.

The add-on will initially be set at zero, but it can be increased by authorities based on any observed weakness in the technological infrastructure used by crypto-assets in Group 1.

This tool can be thought of as equivalent to the operational risk requirements that are applicable to banks' crypto-asset activities. However, it is important to

13 In this case, bank-issued tokenised assets that are backed by the general assets of the bank are considered more liquid than those backed by an external pool of reserve assets (see Box 1).

14 Assets are subject to an 85% required stable funding (RSF) factor in the NSFR and must not result in inflows under the LCR (unless the asset is redeemable for fiat currency within a 30-day period). For liabilities, a 0%-50% weighting is established for the available stable funding (ASF) factor in the NSFR, based on the instrument type. The issuing bank must recognise 100% outflows in the LCR if the stablecoin is redeemable within 30 days.

15 Assets are given a 100% weight for the NSFR RSF factor and no inflows are recognised in the LCR. Liabilities are assigned a weight of 0% for the NSFR ASF factor and an outflow weight of 100% in the LCR if redeemable within 30 days.

distinguish between risks arising from the network specific to a crypto-asset (infrastructure risk is intended to address these risks) and banks' operational risk.

3.3.5 Exposure limit

Group 2 crypto-asset exposures – both direct and indirect – are subject to an aggregate exposure limit. Total exposure to Group 2 crypto-assets should not generally be higher than 1% of the bank's Tier 1 capital and must not exceed 2% of the bank's Tier 1 capital.

The methodology to calculate exposure for the purposes of the limit is the same as that used to calculate Group 2b exposures. That is, exposures to all Group 2 crypto-assets (Group 2a and Group 2b) must be measured using the higher of the absolute value of the long and short exposures in each separate crypto-asset to which the bank is exposed. Derivative exposures must be measured using a delta-equivalent methodology.

Exposures in excess of the 1% of Tier 1 capital threshold will be subject to the capital requirements that apply to Group 2b crypto-asset exposures. Any breach must be communicated immediately to the supervisor and must be rapidly rectified. If total exposure breaches 2% of the bank's Tier 1 capital, all Group 2 exposures will be subject to the capital requirements that apply to Group 2b crypto-asset exposures. In other words, the bank may not net long and short derivative positions when calculating its exposures that are in excess of the 1% limit – or for all Group 2 exposures if the 2% of Tier 1 capital is breached.

In practice, this system of thresholds will affect banks with exposures to Group 2a crypto-assets. If the bank only has exposures to Group 2b crypto-assets, the only restriction for reaching the limit of 2% of Tier 1 capital is an obligation to inform the supervisor of the breach and attempt to restore compliance as soon as possible.

3.4 Internal risk management

In addition to the quantitative requirements, the standard requires banks with exposures to crypto-assets to have policies and procedures in place to identify, evaluate and mitigate potential risks ex ante, based on current standards on operational risk management. Any decision to invest in crypto-assets must be consistent with the bank's risk appetite and strategic objectives.

Likewise, a sound risk management approach must be in place, including limits and hedging strategies and clearly assigned risk management

responsibilities. Further, the supervisor must be informed of the policies, procedures, risk assessment results and mitigation measures in place, as well as actual and planned exposures to crypto-assets.

The standard highlights a series of specific risks: i) crypto-asset technology risk (e.g. network stability, network design and type, node trustworthiness); ii) information, communication and technology and cyber risk; iii) legal risk (e.g. accounting, ownership, disclosure and consumer protection and uncertainty regarding legal status); iv) money laundering and financing of terrorism; and v) valuation risk.

3.5 Supervisory review

The standard also affirms the importance of the supervisory role, given the nature and rapid evolution of crypto-assets. In particular, it urges the competent authorities to review the appropriateness of banks' policies and procedures for identifying and assessing risks and require banks to address any deficiencies. Similarly, the standard specifically mentions that supervisors may recommend that banks undertake stress testing or scenario analysis to assess risks resulting from crypto-asset exposures.

The process of classifying crypto-assets into the aforementioned categories (Group 1a, 1b, 2a and 2b) does not require the supervisor's specific approval, but rather is the competence of each bank (which must notify the supervisor, ideally in advance of the implementation date). However, the supervisor is responsible for reviewing banks' classification decisions and may override a decision if they disagree with a bank's assessment. Analyses undertaken in other jurisdictions or by independent experts may, where necessary, be used as the basis for such a step.

3.6 Elements subject to refinement and clarification

The standard must be implemented by member jurisdictions by 1 January 2025. However, the BCBS recognises that there are some issues that will require ongoing review in the years to come and the standard may be revised in consequence, if justified by analyses and monitoring. In the document accompanying the standard, five specific points are highlighted.

(i) Statistical tests and redemption risk test: further study will be performed into the existence of tests that can reliably identify low-risk stablecoins. The need for new specific requirements for the composition of reserve assets will also be considered.

(ii) Permissionless blockchains: the risks posed by crypto-assets that use permissionless blockchains will remain under review, as will whether these risks can be sufficiently mitigated to allow for their inclusion in Group 1.

(iii) Eligibility of Group 1b crypto-assets as CRM collateral: their inclusion will be reviewed if certain conditions are met.

(iv) Group 2a hedge recognition: current thresholds and the degree of hedge recognition permitted under the current conditions will be monitored.

(v) Calibration of the Group 2 exposure limit: the effectiveness and appropriateness of the current thresholds will be reassessed.

In addition, the BCBS work programme for 2023-24 notes the need to carry out a thorough, big-picture analysis of the implications of banks as crypto-asset issuers and assess banks' risk management practices in their role as custodians of crypto-assets. Likewise, the standard itself identifies the need to give further consideration to the prudential and financial stability implications of central bank digital currencies as they are issued.

4 Conclusions

Crypto-assets and their associated risks and opportunities have become an area of both interest and concern for domestic and international authorities. Recent crypto-asset market instability warrants the regulatory activity in this field in recent years.

A draft regulation on markets in crypto-assets (MiCA) was recently published in Europe. This initiative is part of a larger digital finance package aiming to adapt the EU to the digital age.

Specifically, MiCA sets out a regulatory framework for crypto-assets, such as EMTs, that currently lie outside the scope of EU legislation on financial services. Intended to ground these instruments in a sound legal framework, MiCA includes, in broad terms, requirements for token issuance and trading, authorisation and supervision of both issuers and service providers (for example, crypto-asset portfolio custody, advisory and management services), and sets out requirements to protect investors and customers of such services.

For its part, and in line with its mandate, the BCBS has focused its efforts on prudential regulation of banks' exposures to crypto-assets. Specifically, it has

chosen to issue a separate standard, rather than amending the standards for each risk type (for example, credit risk) to the specific case of crypto-assets.

The treatment proposed by the BCBS is based on classification conditions that sort crypto-assets into groups and sub-groups to identify the appropriate prudential treatment. The BCBS thereby acknowledges that not all crypto-assets entail the same risk. It also includes two new tools tailored to the unique nature of crypto-assets: the Group 1 infrastructure risk add-on (intended to take account of potential weaknesses in the technology underlying crypto-assets) and the Group 2 exposure limit (if no issuer could be identified for a Group 2 crypto-asset, they would have fallen outside the scope of the large exposures requirement).

The regulatory developments set out in this article represent a further step forward in the handling of this new type of asset. There is more work to be done in both cases. In Europe, the EBA and the ESMA are expected to develop a series of implementing rules to give effect to MiCA provisions. In the case of the Basel Committee, the standard reflects the ever-changing nature of crypto-assets by including a list of aspects requiring further analysis and monitoring.

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