CERIL

CERIL Report 2023-3 on

Crypto-assets in Restructuring and Insolvency

31 October 2023

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[1] This Report is prepared by CERIL Working Party (WP) 16 on Crypto-Assets. The WP that discussed and contributed to this Report consisted, in addition to Reporters, of the conferees participating in this WP, see https://www.ceril.eu/working-parties/wp-16-crypto-assets.

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Contents

1. Introduction

The purpose of this CERIL report – prepared by CERIL Working Party 16 on Crypto-assets in restructuring and insolvency – is to examine whether, as a matter of legal practice, it is necessary to adopt specific legal provisions for crypto-assets in restructuring and insolvency within the European Union (EU). Recognising the complexity of the crypto-market, its rapid evolution, and the ongoing work of the EU and other supra-national forums – including the International Institute for the Unification of Private Law (UNIDROIT) and the Hague Conference on Private International Law (HCCH) –, CERIL has limited itself to addressing six questions.

The CERIL recommendations that resulted from this exercise are intended to provide practical solutions to some of the specific issues that may arise in an insolvency involving crypto-assets. The recommendations seek to reduce complexity, facilitate legal certainty, ensure the smooth running of insolvency proceedings, and ultimately maximise returns to creditors. Conflict of law matters are considered only insofar as necessary to support the recommendations made, as it is beyond the scope of this report to examine them further.

The report adopts a technology neutral approach in line with that taken by UNIDROIT in developing its May 2023 Principles on Digital Assets and Private Law (the UNIDROIT DAPL Principles),[2] and has been informed by the EU Markets in Crypto-assets Regulation (MiCAR) of May 2023.[3] The Report on crypto-assets in restructuring and insolvency is based on three methodological pillars:

- First, CERIL has examined existing legal acts of the EU, Member States and third countries on a doctrinal basis, mainly using the European method of interpretation where examining European law. The WP has therefore interpreted existing (European) law autonomously using the four established methods, namely grammatical interpretation, systematic interpretation, historical interpretation and sense and purpose interpretation.

- Second, CERIL has taken a comparative approach, and examined relevant case law and legal literature from Member States of the EU, the United Kingdom, Switzerland, the United States and Singapore.

- Third, CERIL consulted an invited panel of conferees taking a semi-structured interview approach. The Conferees are experts in the field of restructuring and insolvency and collectively represent a range of legal disciplines, including the judiciary, academia and consultancy. Conferees were invited to respond to a questionnaire comprised of six questions. Each question was subsequently discussed

[2] UNIDROIT Principles on Digital Assets and Private Law UNIDROIT 2023 C.D. (102) 6. This is also the approach of the UK Law Commission which recognises the importance of applying technology-neutral principles to different types of technology. See UK Law Commission Digital assets: Final report HC 1486 Law Com 412 (27 June 2023) para 2.20.

[3] Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 [2023] OJ L 150/40.

in a workshop in order to collect the personal experiences of the experts. Each question from the questionnaire forms a chapter of this report.

The report summarises the results of the three methodological approaches. CERIL uses technical and legal terms as well as the abbreviations as defined in the Annexes. Wherever possible, CERIL understands these terms in the same way as they are defined in existing European legislation, in particular the recast European Insolvency Regulation (EIR)[4] and the MiCAR.

[4] Regulation (EU) 2015/848 of the European Parliament and of the Council of 12 December 2012 on insolvency proceedings (recast) [2015] OJ L 141/19.

2. A potential definition of crypto-assets in the EIR

CERIL is of the opinion that aspects of terminology should first be clarified before moving on to insolvency-related issues. Due to the wide variety of terms used for crypto-assets and their variants, and the inconsistency of crypto-related terminology in practice and legislation, the understanding of the terms used needs to be addressed first.

CERIL is aware of a high number of existing definitions of crypto-assets and has reviewed, inter alia:

- Art. 3(1)(5) MiCAR,[5] which defines 'crypto-asset' as 'a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology';
- Art. 3(18)(19) AMLD,[6] Which defines 'virtual currencies' as 'a 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' and '"custodian wallet provider" means an entity that provides services to safeguard private cryptographic keys on behalf of its customers, to hold, store and transfer virtual currencies';
- Art. 2(1) and (2) DLT Pilot Regime,[7] which defines 'distributed ledger technology' or 'DLT' as 'a technology that enables the operation and use of distributed ledgers' and '"distributed ledger" means an information repository that keeps records of transactions and that is shared across, and synchronised between, a set of DLT network nodes using a consensus mechanism';
- Principle 2 UNIDROIT 2023,[8] which defines 'Digital asset' as 'an electronic record which is capable of being subject to control' and 'Electronic record' as 'information which is (i) stored in an electronic medium and (ii) capable of being retrieved';
- Section 65(4)(a) UK Financial Services and Markets Bill,[9] which defines 'cryptoasset' as 'any cryptographically secured digital representation of value or contractual rights that - (a) can be transferred, stored or traded electronically, and (b) that uses

[5] Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937. Asset-referenced tokens and electronic money tokens are also crypto-assets under the MiCAR but have been defined separately in Art. 3(1)(6) and (7).

[6] Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC.

[7] Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology, and amending Regulations (EU) No 600/2014 and (EU) No 909/2014 and Directive 2014/65/EU (Text with EEA relevance).

[8] UNIDROIT Principles on Digital Assets and Private Law [2023] – Study LXXXII – PC, available online at https://www.unidroit.org/wp-content/uploads/2023/04/C.D.-102-6-Principles-on-Digital-Assets-and-Private-Law.pdf (accessed on 21 October 2023). Linked assets have been defined separately in Principle 4.

[9] UK Financial Services and Markets Bill (as amended in Grand Committee), HL Bill 124, 23.03.2023, available online at https://bills.parliament.uk/publications/50528/documents/3210 (accessed on 21 October 2023). The definition was ultimately retained unchanged as section 69 UK Financial Services and Markets Act 2023 https://www.legislation.gov.uk/ukpga/2023/29/enacted (accessed on 21 October 2023).

technology supporting the recording or storage of data (which may include distributed ledger technology)';

- The UK Law Commission's definitions of crypto-asset and crypto-token in their final report on digital assets, where a crypto-asset is 'a crypto-token which has been "linked" or "stapled" to a legal right or interest in another thing. Linking or stapling refers to a legal mechanism whereby the holder of a legal right or interest in a thing is identified by reference to a crypto-token'; and a crypto-token 'exists as a notional quantity unit manifested by the combination of the active operation of software by a network of participants and network-instantiated data';[10]
- The European Banking Authority Report 9 January 2019,[11] which defines 'crypto-assets' as 'a type of private asset that depend primarily on cryptography and distributed ledger technology as part of their perceived or inherent value';
- The ESMA Advice on Crypto-Assets,[12] which defines 'Crypto-assets' as 'a type of private asset that depends primarily on cryptography and Distributed Ledger Technology (DLT)';
- The ELI Principles on the Use of Digital Assets as Security – Report of the European Law Institute, 2022, according to 'digital asset' means any record or representation of value that fulfils the following criteria: (i) it is exclusively stored, displayed and administered electronically, on or through a virtual platform or database, including where it is a record or representation of a real-world, tradeable asset, and whether or not the digital asset itself is held directly or through an account with an intermediary; (ii) it is capable of being subject to a right of control, enjoyment or use, regardless of whether such rights are legally characterised as being of a proprietary, obligational or other nature; and (iii) it is capable of being transferred from one party to another, including by way of voluntary disposition.

Besides these definitions and descriptions, CERIL is aware of many definitions in Member States' and third countries' national law.

In considering whether to adopt a new definition for the EIR, CERIL acknowledges, at the outset, the limited number of definitions in Art. 2 EIR and the legislator's intention not to define all types of assets that may be subject to insolvency proceedings. A separate definition of crypto-assets could be seen to contradict this general approach taken by the European legislator. However, defining crypto-assets and – at the same time – defining where crypto-assets are situated may solve not only problems of terminology and clarity, but also problems of allocation in main and secondary insolvency proceedings (matters discussed later in this report).

Moreover, CERIL recognises the different functions of the above definitions and notes that a definition e.g. in the MiCAR – which is one of the latest definitions adopted by the European Parliament and the Council – may not necessarily be appropriate for the EIR, as these legal

[10] UK Law Commission Digital assets: Final report HC 1486 Law Com 412 (27 June 2023) ix, available online at https://www.lawcom.gov.uk/project/digital-assets/ (accessed on 13 July 2023).

[11] European Banking Authority, Report with advice for the European Commission on crypto-assets, 9 January 2019, available online at https://www.eba.europa.eu/sites/default/documents/files/documents/10180/2545547/67493daa-85a8-4429-aa91-e9a5ed880684/EBA%20Report%20on%20crypto%20assets.pdf (accessed on 13 July 2023).

[12] European Securities and Markets Authority, Advice: Initial Coin Offerings and Crypto-Assets, 9 January 2019, ESMA50-157-1391, available online at https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf (accessed on 13 July 2023).

acts have different objectives: while the MiCAR is mainly a regulatory or administrative law instrument, the EIR is a regime of private international law and procedural law. Nevertheless, CERIL also recognises that the broad definition of crypto-assets in MiCAR may be adequate for general insolvency matters.

For example, there may be good reasons why the MiCAR focuses almost extensively on asset-referenced tokens and electronic money tokens (i.e. potential challenges they create in terms of financial stability, see Recital 5 MiCAR) and limits some insolvency-related provisions to this type of crypto-asset (cf. Arts 3(1)(6), 46, 47, 55 MiCAR),[13] but these reasons do not necessarily make sense when it comes to cross-border insolvencies. In other words, limiting the application of the EIR to special crypto-assets does not seem convincing to the CERIL.

In addition, the purpose of a definition in a European act containing substantive law might be different from the purpose of a European act containing mainly procedural provisions, such as the rules regarding international jurisdiction, recognition, and cross-border cooperation and coordination between insolvency practitioners and courts in the EIR. Furthermore, financial market regulation legislation is frequently updated and amended, as evidenced by the MiFID II, the CRR, the SRMR and the BRRD.[14] There is no guarantee that a future revision of a MiCAR-referenced definition will continue to align to the objectives of the EIR. For this reason, CERIL considers it inappropriate or even risky to pursue the solution of a mere reference to a definition in another European act.

CERIL also notes the discussion of the concept of 'control' (as a factual matter) and 'change of control' in the UNIDROIT DAPL Principles and the assumed functional equivalence of 'control' to the 'possession' of moveables, which is contextualised for crypto-assets as the control of a private key through a consensus mechanism.[15] However, CERIL does not consider that it is necessary to include a reference to 'control' in its own definition of crypto-assets, provided that such a definition includes a recognition that crypto-assets are capable of being transferred.[16]

Finally, CERIL understands that an autonomous definition of crypto-assets in the EIR could have positive effects in insolvency law in the long run by supporting the argument that crypto-assets can form part of the insolvency estate and can therefore be subject to

[13] However, according to K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, forthcoming, p. 34, to date, no issuer of asset-referenced tokens has filed for insolvency, either in the US or in any other country. According to them (p. 37), one of the major issues in insolvency law will be whether creditors holding stablecoins are entitled to separate satisfaction in respect of the reserve assets (secured claims).

[14] For the full references of these European legal acts, see Part 3 of this Report.

[15] UNIDROIT DAPL Principles, Principle 6, commentary paragraph 6.5. The UK Law Commission Final report described control as a factual matter "mirror[ing] the position taken by UNIDROIT" (para 5.9) and whilst recognising its importance, considered that for England and Wales it was more appropriate to focus on the concept of rivalrousness (para 5.16).

[16] The concept of control is important in the context of crypto custodians, for example. However, whether or not crypto-assets form part of the insolvency estate is a different question and subject to the applicable law (Art. 7(2) EIR)). See UNIDROIT DAPL Principles, Principle 6, commentary paragraph 6.5: "The change of control from one person to another must be distinguished from a transfer of a digital asset or an interest therein i.e. a transfer of proprietary rights […]. Whether there is a valid transfer of proprietary rights in a digital asset is a matter of other law and is not dealt with in these Principles".

realisation by insolvency practitioners.[17] It would be inconsistent to define crypto-assets in the EIR and at the same time not allow them to form part of the insolvency estate. This approach is consistent with that of both UNIDROIT[18] and MiCAR[19] which recognise that crypto-assets are capable of being subject to proprietary rights (UNIDROIT) or ownership rights (MiCAR) without necessarily determining that crypto-assets exist as property in every jurisdiction.

CERIL supports an autonomous definition of crypto-assets in the EIR only if it meets the following key features:

- First, the definition needs to be as broad as possible to cover all types of crypto-assets, in particular cryptocurrencies, investment/security tokens and utility tokens. Furthermore, the definition needs to cover both intrinsic and extrinsic crypto-assets, meaning crypto-assets that have value inherently attached to them, as is the case with cryptocurrencies ('intrinsic crypto-assets' or 'autonomous crypto-assets'), and those crypto-assets that are linked to an asset in order to keep the value more stable;[20] in these cases, the value of the crypto-asset is derived from the value of the linked asset which could be, for example, a fiat currency, a plot of land or a precious metal ('extrinsic crypto-assets', 'asset-referenced token' or 'electronic money token' in the sense of Art. 3(1)(6) and (7) MiCAR).[21]
- Second, CERIL does not see a significant benefit in the definition itself differentiating between different types of crypto-assets.
- Third, the definition of crypto-assets in the EIR needs to be future-proof and should therefore avoid mentioning the specific cryptographic technique used.[22] It seems sufficient to mention distributed ledger technology (DLT) in general, as DLT can be used as a generic term that can cover, inter alia, all types of blockchain technology and include an addition reference to 'similar technology' as a neutral term.
- Fourth, the definition of crypto-assets shall at the same time stipulate where crypto-assets are situated, similar to Art. 2(9) EIR.

[17] The authors' note the comments made about autonomous interpretation in Para 43 of the Virgos Schmit Report which states: "When the substance of a problem is directly governed by the Convention, the international character of the Convention requires an autonomous interpretation of its concepts. An autonomous interpretation implies that the meaning of its concepts should be determined by reference to the objectives and system of the Convention, taking into account the specific function of those concepts within this system and the general principles which can be inferred from all the national laws of the Contracting States", Virgos, Miguel and Schmit, Etienne, Report on the Convention on Insolvency Proceedings (1996).

[18] UNIDROIT DAPL Principles, inter alia Principle 3, commentary paragraph 3.4.

[19] Recital 82, Art. 70(1) MiCAR.

[20] UNIDROIT DAPL Principles, Principle 4 defines these as "linked assets" and is explicit that they fall within the wider definition of "digital asset".

[21] For more on the different types of crypto-assets see S. Omlor, in: S. Omlor and M. Link (eds), *Kryptowährungen und Token* (2st edn dfv-Mediengruppe 2023) ch. 6 mn. 14 et seq. The US private law aspects of stablecoins, including US bankruptcy law, are discussed explicitly by K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, forthcoming.

[22] See Recital 6 MiCAR.

Recommendation 1

1.1 CERIL recommends amending Art. 2 EIR to add a new number 15: 'crypto-asset' means a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology.

1.2 If the European legislator does not think that crypto-assets should be defined as a separate asset type for reasons of principle, CERIL recommends in the alternative that the definition is adopted as part of new definition Art. 2(9)(ix) (see Recommendation 3).

3. An all-encompassing scope of the EIR and the jeopardy of a regulatory gap

In general, the EIR covers insolvency proceedings over the assets of the 'debtor' and does not specify whether the debtor must be a manufacturing company, a service provider, a small or medium-sized enterprise or a member of a larger group of companies. The personal scope of the EIR is, therefore, all-encompassing, at least as a matter of principle under Art. 1(1) EIR. Having said that, the EIR contains an exclusion and shall not apply to proceedings referred to in Art. 1(2) that concern:

(a) insurance undertakings;
(b) credit institutions;
(c) investment firms and other firms, institutions and undertakings to the extent that they are covered by Directive 2001/24/EC ('CIWUD')[23] or
(d) collective investment undertakings

CERIL is not aware of any specific problems with regard to the scope of the EIR where the debtor holds crypto-assets as a natural or legal person or a partnership and does not fall under the exclusion of Art. 1(2) EIR (the 'personal scope'). This is the case if the person merely invests in crypto-assets ('investor perspective'). Typical scenarios that illustrate the personal scope of the EIR are:

- insolvency proceedings over the assets of a natural person who has invested in crypto-assets, e.g. as a consumer;
- insolvency proceedings over the assets of legal persons such as limited liability companies and stock corporations that have invested in crypto-assets without being obliged to apply for special licences under supervisory law (e.g., a manufacturing LLC decides to invest 50,000.00 Euros in an investment token issued by another company);
- insolvency proceedings over the assets of partnerships, cooperatives, associations and other legal forms that have invested in crypto-assets without being obliged to apply for a special licence under supervisory law.

In these cases, the crypto-assets may form part of the debtor's assets and, subsequently, may form part of the insolvency estate. Whether crypto-assets actually form part of the debtor's insolvency estate then depends on the law applicable to insolvency proceedings. Whether crypto-assets form part of the insolvency estate depends on certain questions, which CERIL has addressed below.

CERIL is not aware of any specific problems regarding the personal scope of the EIR where the debtor has issued crypto-assets as a natural or legal person and does not fall under the exclusion of Art. 1(2) EIR ('issuer perspective'). The issuer of crypto-assets under Art. 3(1)(10) MiCAR means the 'natural or legal person, or other undertaking, who issues the crypto-assets'. In CERIL's understanding insolvency proceedings over the assets of an issuer may to some extent be comparable to insolvency proceedings over the assets of issuers of corporate bonds.

[23] Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions [2001] L125.

As an interim finding, CERIL understands that many crypto-market debtors – issuers and investors (in the sense of a debtor who has invested in crypto-assets) – fall within the personal scope of the EIR.

However, CERIL recognises the growing importance of crypto-asset service providers (CASP) – in particular – crypto custodians. Unlike some crypto trading and lending platforms which tend to manage or maintain crypto-assets only for short periods, crypto custodians control the assets of others most of the time. CERIL therefore recognises that crypto custodians require specific consideration in an insolvency context to determine whether they fall within the exclusion under Art. 1(2) EIR.[24] Under the MiCAR:

- 'crypto-asset service provider' means 'a legal person or other undertaking whose occupation or business is the provision of one or more crypto-asset services to clients on a professional basis, and that is allowed to provide crypto-asset services in accordance with Art. 59.' (Art. 3(1)(15) MiCAR);
- 'crypto-asset service' means any of the following services and activities relating to any crypto-asset:
    a. providing custody and administration of crypto-assets on behalf of clients;
    b. operation of a trading platform for crypto-assets;
    c. exchange of crypto-assets for funds;
    d. exchange of crypto-assets for other crypto-assets;
    e. execution of orders for crypto-assets on behalf of clients;
    f. placing of crypto-assets;
    g. reception and transmission of orders for crypto-assets on behalf of clients;
    h. providing advice on crypto-assets;
    i. providing portfolio management on crypto-assets;
    j. providing transfer services for crypto-assets on behalf of clients'
    (Art. 3(1)(16) MiCAR);
- 'the custody and administration of crypto-assets on behalf of clients' means the 'safekeeping or controlling, on behalf of clients, of crypto-assets or of the means of access to such crypto-assets, where applicable in the form of private cryptographic keys' (Art. 3(1)(17) MiCAR).

Although distributed ledger technology, and blockchain technology in particular, has been designed to operate without the involvement of intermediaries such as central banks, credit institutions or financial services institutions,[25] the market is increasingly accepting new 'crypto' intermediaries. Reasons for this may include, inter alia, recent improvements in both consumer access to crypto-assets and the ability to exchange fiat money for crypto-assets (and vice versa), as well as the more convenient and secure storage of private keys. Notably, there is an increase in crypto-asset service providers, especially exchange platforms and crypto custodians.[26] Specifically, the role of the crypto custodian has become more prominent because crypto custodians store and manage the private keys required to authorise an on-chain transaction on the relevant blockchain (such as Polygon or

[24] This is presumably why also UNIDROIT DAPL Principles in Principle 13 established a separate principle on the insolvency of a custodian.

[25] See Recital 2 MiCAR.

[26] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 3 = Int. Insolv. Rev., forthcoming.

Ethereum).[27] Private keys consist of a sequence of characters and numbers and are difficult for customers to remember. Generally, keys cannot be recovered if lost, so customers are increasingly entrusting crypto custodians to store and manage their private keys. The problem is similar for businesses: shifting the storage risk associated with private keys could also be a reason why businesses investing in crypto-assets are engaging crypto custodians.

CERIL considers that the European legislator should view this market development as an opportunity to gain control and supervise key players in the crypto-market. As part of this task, it is the responsibility of the European legislator and the Member States as national legislators to provide an appropriate supervisory legal framework for the insolvency of crypto-asset service providers. Insolvency proceedings initiated against crypto-asset service providers are no longer a theoretical scenario.[28] Landmark cases such as the case of *FTX, BlockFi, Three Arrows Capital, Voyager Digital, Celsius Network, Nuri*, among others – undoubtedly demonstrate the need for a sound European insolvency law for this type of business.

CERIL distinguishes between two groups of crypto-asset service providers. In doing so, CERIL recognises that the business model of crypto-asset service providers, in particular crypto custodians, is at least similar to that of the financial institutions mentioned in the exclusion according to Art. 1(2) EIR.[29]

For financial institutions in financial distress, the EU provides a comprehensive legal framework consisting of the Single Resolution Mechanism Regulation (SRMR),[30] the Bank Recovery and Resolution Directive (BRRD),[31] and CIWUD.[32] The EU resolution framework will not apply if it is established that it is not in the public interest to take a financial institution through a resolution process under the BRRD or SRMR. This will be the case where it is not proportionate to one or more of the resolution objectives, and winding up of the entity

[27] M. Haentjens, T. De Graaf and I. Kokorin, 'The Failed Hopes of Disintermediation' [2020] NUSL 526, 533. This is why the UNIDROIT Principles dedicate an entire Principle (13) on the crypto custodian's insolvency.

[28] See for the investment intermediary's insolvency at length M. Lehmann, F. Krysa, E. Prévost, F. Schinerl and R. Vogelauer, 'Staking Your Crypto: What are the Stakes?' [SSRN, 2023] 1.

[29] D. Skauradszun, S. Schweizer and J. Kümpel, 'Das Kryptoverwahrgeschäft und der insolvenzrechtliche Rang der Kunden - Aussonderung oder Insolvenzquote?' [2021] ZIP – Zeitschrift für Wirtschaftsrecht 2101, 2102.

[30] Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010 [2014] OJ L225/1.

[31] Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council [2014] OJ L173/190.

[32] Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions [2001] OJ L125. A special regime for resolution of financial institutions is also established in the USA. These entities are subject to regulatory frameworks that provide for independent procedures in the event of insolvency, K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, 1073, 1121 et seq.

under normal insolvency proceedings would meet the resolution objectives to the same extent. In such a case, national insolvency law will apply to the debtor (Art. 18(5) SRMR).[33]

It therefore seems arguable that some crypto-asset service providers should be covered by the same legal framework in the event of insolvency proceedings and ultimately excluded from the EIR. CERIL has no doubt that *credit institutions* or *investment firms* licensed under the MiFID II[34] which also offer crypto-asset services at the same time (all-in-one providers) are excluded from the scope of the EIR ('Group 1').[35]

For all other cases ('Group 2'), the determination as to whether the Art. 1(2) EIR exclusion applies will require an in-depth analysis of the crypto-asset service provider's business model. This approach seems cumbersome and uncertain and is impractical in an insolvency where swift action is required to preserve the insolvency estate. Crypto-asset service providers, and specifically pure crypto custodians, do not act as insurance or collective investment undertakings (cf. Arts. 1(2)(a)(b), 2(2) EIR in conjunction with Directives 2009/138/EC [Solvency II],[36] 2009/65/EC[37] and 2011/61/EU[38]).[39] The respective business models share virtually no similarities. It is also reasonable to conclude that these Group 2 'pure' crypto custodians are not credit institutions. Credit institutions according to Art. 4(1)(1) CRR[40] are undertakings, "the business of which is to take deposits or other repayable funds from the public and to grant credits for its own account". Pure crypto custodians do not fall under this definition.[41]

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[33] The provision reads "For the purposes of point (c) of paragraph 1 of this Article [Art. 18 SRMR], a resolution action shall be treated as in the public interest if it is necessary for the achievement of, and is proportionate to one or more of the resolution objectives referred to in Article 14 [SRMR] and winding up of the entity under normal insolvency proceedings would not meet those resolution objectives to the same extent". In practice, bank resolution is extremely rare. See Single Resolution Board, https://www.srb.europa.eu/en/cases

[34] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) [2014] OJ L173/349.

[35] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 27 = Int. Insolv. Rev., forthcoming. Furthermore, CERIL is convinced that a crypto-asset service provider that requires a licence but does not have one, for example because it has not applied for one or because its licence has been revoked by the financial supervisory authority, should be subject to the specific legal regime for financial institutions. See for a similar discussion Higher Regional Court of Munich, judgment 25 June 2018 – 17 U 2168/15, Beck RS 2018, 19664, para. 48; D. Skauradszun and J. Schröder, KWG mit CRR (eds. Beck/Samm/Kokemoor), 230th ed. 3/2023, sec. 46d KWG para. 5.

[36] Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast) [2009] OJ L335/1.

[37] Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (recast) [2009] OJ L302/32.

[38] Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 [2011] OJ L174/1.

[39] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 8 et. Seq = Int. Insolv. Rev., forthcoming.

[40] Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 [2013] OJ L176/1.

[41] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 9 = Int. Insolv. Rev., forthcoming; D. Skauradszun, S. Schweizer and J. Kümpel, 'Das Kryptoverwahrgeschäft und der insolvenzrechtliche Rang der Kunden - Aussonderung oder Insolvenzquote?' [2021] ZIP – Zeitschrift für Wirtschaftsrecht 2101, 2102.

Crypto custodians cannot be considered investment firms covered by CIWUD (Art. 1(3) CIWUD referring to Art. 4(1)(2) CRR referring to Art. Art. 4(1)(1) MiFID II referring to Section A of Annex I and Section C of Annex I).[42] They do not conduct business beyond the administration and custodianship of financial products:

- Annex I Section A MiFID II defines financial services, whereas Annex I Section B MiFID II defines ancillary services. Pure crypto custodians provide ancillary services only, which is not sufficient to be considered an investment firm.[43]
- Annex I Section C MiFID II lists financial instruments. These financial instruments all lead to some form of contractual obligation, whereas not all crypto-assets create contractual obligations e.g. cryptocurrencies (although investment tokens could do and so could be financial instruments). Defining financial instruments as 'instruments specified in Section C of Annex I, including such instruments issued by means of distributed ledger technology' (amendment of Art. 4(1)(15) MiFID II by DLT Pilot Regime) is not aimed at creating a new class of financial instruments (recital 59 DLT Pilot Regime) and does not lead to a different conclusion. Art. 4(1)(15) MiFID II is also not included in the list of references beginning with Art. 1(2) EIR and ending with Art. 4(1)(2) MiFID II.[44] Furthermore, as crypto-assets such as cryptocurrencies undoubtedly fall under MiCAR, they cannot be subsumed under MiFID II at the same time. According to Art. 2(4)(a), 3(1)(49) MiCAR, the European legislator tries to avoid any overlap between MiCAR and MiFID II. The non-overlapping concept of MiCAR and MiFID II also argues that cryptocurrencies cannot be considered as financial instruments.[45]

A minor change in the business model of pure crypto custodians, in the sense that the company provides one of the financial services listed in Annex I Section A or offers services with respect to financial instruments such as crypto securities[46] for instance, could exclude crypto custodians from the scope of the EIR.[47] The exclusion of crypto custodians from the scope of the EIR, while including them in the scope of the SRMR and the BRRD as an alternative, would not allow for more appropriate instruments. The bail-in tool of the SRMR and the BRRD in its two variants, the write-down and the conversion tool, is not suitable for

[42] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 9 et. Seq = Int. Insolv. Rev. 2023, forthcoming.

[43] D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 10 . Whether crypto custodians limit themselves to pure custody business depends on the applicable supervisory law. Some companies do not want to trigger a second or even third reason for being supervised by financial authorities, e.g. because they also operate as a trading platform or an exchange for crypto-assets, and therefore divide the tasks of a crypto-asset service provider among different members of a group of companies.

[44] D. Skauradszun, S. Schweizer and J. Kümpel, 'Das Kryptoverwahrgeschäft und der insolvenzrechtliche Rang der Kunden – Aussonderung oder Insolvenzquote?' [2021] ZIP 2101, 2102.

[45] D. Skauradszun and J. Kümpel, Int. Insolv. Rev. 2023, forthcoming.

[46] These crypto securities are considered as financial instruments in the sense of Art. 4(1)(15) MiFID II, see D. Skauradszun and S. Schweizer, 'Gestaltungen betreffend Kryptowertpapiere mittels Restrukturierungs- und Insolvenzplan' [2023] ZRI, forthcoming.

[47] See D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 13 and fn. 34 = Int. Insolv. Rev., forthcoming.

crypto custodians in financial distress.[48] However, CERIL believes that stricter capital requirements for crypto-asset service providers, as introduced and required by the MiCAR, could make crypto-asset service providers, in particular crypto custodians, more suitable for the SRMR and BRRD as an alternative.

Nevertheless, it is important to remember the history and development of the SRM, which came into being following the global financial crisis of 2007-2009. The SRM introduced measures to preserve the financial stability of systemically important financial institutions (SIFIs) and ensure that in a crisis, critical bank functions would be maintained for the benefit of markets and consumers. In doing so, the SRM sought to minimise calls on state (taxpayers') money to prop up failing institutions by ensuring that no bank could be deemed to be "too big to fail". Currently, no crypto-asset service providers are SIFIs although this may change in the future.[49] The rationale for the development of the SRM will be a critical consideration in any discussions by the European legislator about the long-term suitability of the application of the SRM to insolvent crypto-asset service providers.

Looking at the CIWUD as another option, the CIWUD as a directive has the conceptual disadvantage that it has to be transposed into national law. This leads to different transposition laws within the EU and uncertainty as to whether all Member States have sufficiently implemented the CIWUD.[50]

CERIL considers the EIR to be the most suitable toolbox for insolvent crypto-asset service providers, in particular crypto custodians. This is because the main issues to be addressed in the event of the insolvency of a crypto-asset service provider are: (i) international jurisdiction; (ii) applicable law; (iii) recognition; and (iv) the exercise of the legal powers of the insolvency practitioner in another Member State.[51] These issues can be addressed by the EIR (cf. Arts. 3, 7 et seq., 19-21, 32 EIR).

[48] D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 17 = Int. Insolv. Rev., forthcoming. However, as can be seen from the references in Art. 47 MiCAR to crisis prevention measures or crisis management measures within the meaning of Art. 2(1) points (101) and (102) BRRD and resolution measures as defined in Art. 2(11) of Regulation (EU) 2021/23, the European legislator considers at least some of the instruments to be suitable.

[49] Compare FTX which was valued at $32 billion in January 2022 (https://www.cnbc.com/2022/01/31/crypto-exchange-ftx-valued-at-32-billion-amid-bitcoin-price-plunge.html) with systemic bank BNP Paribas valued at €2554 billion in 2022 (https://www.insiderintelligence.com/insights/largest-banks-europe-list/#:~:text=HSBC%20is%20the%20largest%20bank,work%20in%20the%20Banking%20industry%3F) accessed 22 October 2023.

[50] D. Skauradszun and J. Kümpel, 'Crypto Custodians in Financial Distress' [2023] SSRN 1, 19 et seq. = Int. Insol. Rev., forthcoming

[51] This was apparently also UNIDROIT's view. The DAPL Principles therefore include principles on applicable law (Principle 5), insolvency-related proceedings (Principles 13 and 19) and procedural law, including enforcement (Principle 18).

Recommendation 2

2.1 The European legislator should avoid any regulatory gaps in an insolvency framework for crypto-asset service providers, in particular crypto custodians.

2.2 The European legislator should avoid a regulatory patchwork for crypto-asset service providers in insolvency,[52] in the sense that one business model falls within the scope of the EIR and another does not.

2.3 The European legislator should not leave the matter to national law (i.e. unharmonised) even though crypto-asset service providers operate or can easily operate across borders.

2.4 Courts and authorities should interpret Art. 1(2) EIR narrowly to avoid excluding crypto-asset service providers, in particular crypto custodians, from the scope of the EIR.

2.5 The European legislator should cautiously assess the further development of the legal obligations set out in the MiCAR and decide whether: (i) the tools of the Single Resolution Mechanism are appropriate for crypto-asset service providers; and (ii) an alternative treatment of crypto-asset service providers, in particular crypto custodians, within the legal regime for financial institutions is more appropriate than the EIR.

[52] K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, forthcoming, p. 36 have warned against a similar patchwork under US law for stablecoin issuers.

4. Should Art. 2(9) define where crypto-assets should be allocated e.g. for main or secondary proceedings?

The EIR is based on the principle of universality (Recital 23 sentence 2 EIR). Insolvency proceedings over the assets of a debtor cover those assets regardless of their location in the territory of the Member States or even in the territory of third countries. Whether this principle is enforceable in third countries is assessed on a case-by-case analysis. The EIR does not exclude crypto-assets from this universal approach. The EIR's universal approach therefore also applies to crypto-assets.

The EIR modifies the principle of universality in that it permits the opening of secondary insolvency proceedings (modified universality). The effects of those proceedings are restricted to the assets of the debtor situated in the territory of the latter Member State (Arts. 3(2) and 34 EIR).

The concept of modified universality makes it important to determine the *situs* of an individual asset to allocate it to either the insolvency estate of the main insolvency proceedings or the insolvency estate of the secondary insolvency proceedings. The allocation of assets to the respective insolvency estate has significant impact on the importance of the insolvency proceedings:

- If assets are essential for the restructuring of the debtor's business the allocation of these assets to the main insolvency estate or to the secondary insolvency estate may decide the question whether the business can economically survive or needs to be liquidated. If the insolvency practitioner of the insolvency estate to which this asset is not allocated cannot continue the business without this asset, the insolvency estate can only be liquidated.[53]
- If valuable assets are allocated to one of the insolvency estates, this estate becomes more attractive to the creditors. Creditors who are aware of the right to lodge their claims in the main insolvency proceedings *and* in any secondary insolvency proceedings (Art. 45(1) EIR) will attempt to participate in the value of this insolvency estate. However, not all creditors will lodge their claims in all possible proceedings, so that the insolvency estate to which the assets are allocated may be distributed to fewer creditors. Moreover, insolvency practitioners may exercise their right under Art. 45(2) EIR differently.
- If valuable assets are allocated to one of the insolvency estates and the insolvency laws provide for different priorities of rights, the allocation of assets to the main or secondary insolvency proceedings will result in different recoveries for the creditors.

[53] From the perspective of the main insolvency proceedings this can be mitigated only theoretically by giving an undertaking according to Art. 36 EIR in order to avoid the opening of secondary insolvency proceedings. In practice, those virtual/synthetic secondary insolvency proceedings have rarely been used and can, therefore, hardly mitigate the jeopardy of secondary insolvency proceedings. The reasons for the rare use of virtual/synthetic secondary insolvency proceedings are multiple: the determination of the factual assumptions according to Art. 36(1) second sentence EIR is complex, time-consuming and risky in light of the autonomous liability according to Art. 36(10) EIR (see for this D. Skauradszun, 'Die "tatsächlichen Annahmen" der Zusicherung nach Art. 36 Abs. 1 Satz 2 EuInsVO n. F.', [2016] ZIP – Zeitschrift für Wirtschaftsrecht 1563 et seq.). Furthermore, local creditors have many possibilities to challenge different phases and actions before or within a virtual/synthetic insolvency proceedings (cf. Art. 36(7-9) EIR and for this D. Skauradszun, 'Einstweilige Maßnahmen und Sicherungsmaßnahmen nach Art. 36 Abs. 9 EuInsVO n.F.', [2016] KTS – Zeitschrift für Insolvenzrecht 419 et seq.).

- The determination of the *situs* of crypto-assets will also have implications for those articles of the EIR that provide for rights or obligations depending on the territory in which those assets are situated at the time of the opening of insolvency proceedings. For example, potential rights in rem in respect of crypto-assets should not be affected by the opening of insolvency proceedings if the assets are located in the territory of another Member State at the time of the opening of proceedings (cf. Art. 8(1) EIR). Similar examples could be found with Art. 10 EIR and others.

Regarding many traditional tangible, moveable and immovable assets such as the debtor's machinery or land, the question of the *situs* of the respective assets can be settled immediately because these assets are visible and therefore allocatable to the territory of a state. However, even beyond crypto-assets the European legislator is aware of several asset classes where the allocation is less clear. The legislator therefore decided to define the term 'the Member State in which assets are situated' when it comes to those assets listed in Art. 2(9) EIR. By defining these terms, the European legislator has allocated the following assets to one of the affected (Member) States: (i) registered shares, (ii) financial instruments in registers, (iii) cash held in bank accounts, (iv) registered property and rights, (v) European patents, (vi) copyright and related rights, (vii) tangible property, and (viii) claims against third parties.

Assets based on distributed ledger technology (DLT) can and will be regularly distributed around the world. Non-allocation to a single (Member) State is a key feature of these assets.[54] Although some registered shares and financial instruments may also be based on DLT, their allocation may be uncontroversial, because of the specific application of Art. 2(9) EIR to both registered shares and financial instruments. However, crypto-assets based on DLT are not listed in Art. 2(9) EIR and a lacuna therefore exists. The allocation of crypto-assets is unclear. Legal uncertainty will lead to litigation between competent insolvency practitioners and/or between insolvency practitioners and creditors arguing in favour of either the main insolvency estate or one of the secondary insolvency estates.

CERIL noted the waterfall approach taken in UNIDROIT DAPL Principles (Principle 5) in determining the applicable law[55] and has discussed a similar legal technique.

CERIL has discussed whether Art. 2(9) EIR should define where crypto-assets should be allocated by law. It considers that a clear rule or set of rules will provide greater certainty in practice. However, CERIL also understands that the allocation of crypto-assets to a particular state has consequences for the applicable law regarding the respective crypto-asset. For example, states differ as to the legal basis for the transfer of crypto-assets;[56] for some,

[54] See, therefore, Question 7 of the HCCH/UNIDROIT Scoping Paper draft as of June 2023 whether private international law should include a (rebuttable) presumption of internationality due to the nature of digital assets.

[55] See commentary paragraph 5.5 on the waterfall approach.

[56] According to A. Dickinson: "Cryptocurrencies gain their value by reason of the relationships between the participants in the cryptocurrency system… the intangible property… consists of a bundle of 'entitlements'… the most important and valuable of these … is a claim or a legitimate expectation to be associated with and have the power to engage in transactions… within the system… [here], 'claim' should be understood in the limited sense of a legally enforceable right arising under the law(s) applicable to relationships between participants in the system". See *Cryptocurrencies and the conflict of laws,* in D. Fox and S. Green *Cryptocurrencies in Public and Private Law* Oxford (2019), 129.

transfer is under the law of obligations, for others, it is subject to the law of property.[57] As a downside, the attribution of crypto-assets to a particular state could therefore make the law of that state applicable, even if it is not appropriate in the case at hand.

CERIL has identified a number of arguable connecting factors determining the *situs* of crypto-assets, namely: (i) the place from which the private key is controlled[58]; (ii) the place of the crypto custodian if the private keys have been taken into custody; (iii) the place of the registrar if crypto-assets are registered in a register under the supervision of a state; (iv) the place where the wallet (public key) is managed; and (v) in terms of asset-referenced tokens (as defined in Art. 3(1)(6) MiCAR) the physical location of the reserve assets. CERIL did not consider that the owner's domicile would be a convincing connecting factor.

CERIL can see advantages to choosing the location (registered office) of a crypto custodian as the primary connecting factor.[59] First, it would be a place that would be ascertainable for users, creditors and insolvency practitioners and, therefore, allow legal certainty. Second, it would be more likely to prevent the too easy—and even abusive—re-allocation of crypto-assets prior to the opening of insolvency proceedings. This cannot be said for other connecting factors, such as the location of the control of the private key, which can be changed quickly and thus abusively in the period immediately before the opening of insolvency proceedings.

Comparing the UNIDROIT legal technique of the waterfall structure and considering a similar technique, CERIL notes that the starting point for the applicable law under the UNIDROIT Principles[60] is the domestic law of the state expressly stated in the digital asset. However, it is recognised that few digital assets specify this. Failing that, the UNIDROIT waterfall applies the law of the system on which the asset is recorded, or the law of the issuer; failing that, it provides a fall-back provision that reverts to the law and/or principles of the forum state. CERIL is in favour of a fall-back solution for the EIR where the primary connecting factors do not apply in an individual case. This fall-back solution could allocate crypto-assets to the main insolvency estate, thereby acknowledging the importance of the main insolvency proceedings, which seems to be in line with the structure of Art. 3 EIR.[61]

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[57] For a judicial analysis of crypto-assets as property see *AA v Persons Unknown & Ors Re Bitcoin* [2019] EWHC Comm, which drew on the Legal Statement of the UK Jurisdiction Task Force on crypto-assets and smart contracts, and the decision of the of the Singapore International Commercial Court in *B2C2 Limited v Quoine PTC Limited* [2019] SGHC (I) 03 [142], para 59: "Essentially, and for the reasons identified in that legal statement, I consider that a crypto-asset such as Bitcoin are *(sic*) property. They meet the four criteria set out in Lord Wilberforce's classic definition of property in *National Provincial Bank v Ainsworth* [1965] 1 AC 1175 as being definable, identifiable by third parties, capable in their nature of assumption by third parties, and having some degree of permanence. That too, was the conclusion … in… *Quoine*". The judge also referred in para 60 to two English asset preservation cases where cryptocurrencies were treated as property: *Vorotyntseva v Money -4 Limited t/a as Nebeus.com* [2018] EWHC 2596 (Ch) (where a worldwide freezing order in respect of Bitcoin and Ethereum was granted; see para 13) and *Liam David Robertson v. Persons Unknown & Ors* (unreported), 16 July 2019 (where an asset preservation order was granted over cryptocurrencies)

[58] "Control" is understood as control of the consensus mechanism operating the private key. Cf. UNIDROIT DAPL Principles, Principle 6 on control.

[59] This approach is similar to the UNIDROIT DAPL Principles, Principle 5(1)(c): the statutory seat of the issuer of a digital asset is the first objective connecting factor after a choice of law in the digital asset (lit. a) or in the system on which the digital asset is recorded (lit. b).

[60] UNIDROIT DAPL Principles, Principle 5.

[61] Proposed by R. Hänel, in H. Vallender (ed), Europäische Insolvenzverordnung, 2nd ed, RWS, 2022, Art. 21 para 34.

Recommendation 3

3.1 The European legislator should amend Art. 2(9) EIR with a new point (ix). The new provision should first define crypto-assets as recommended in the Recommendation 1 and then exclude those crypto-assets whose blockchain is stored solely on the territory of one state (local blockchains). This is technically possible and imaginable for local DLT networks. In these (rare) cases, the allocation of crypto-assets is clear, so no special provision is needed. Furthermore, the provision should reflect the suspect period mentioned in Art. 3(1.2) EIR, although the suspect period has been criticised.

3.2 Art. 2(9) EIR should be amended to add a new (ix) for crypto-assets as follows:

> Art. 2(9) EIR 'the Member State in which assets are situated' means, in the case of:
>
> (ix) a crypto-asset (meaning a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology)[62] whose distributed ledger is saved in more than one state:[63]
> (a) the Member State within the territory of which a crypto custodian has its registered office[64] if the crypto custodian has taken control of those crypto-assets within the 3-month period prior to the request for the opening of insolvency proceedings; or, failing that,
> (b) the Member State under the authority of which the register is kept if the crypto-assets are registered in a register under the supervision of that Member State; or, failing that,
> (c) the Member State within the territory in which the debtor's control of the crypto-assets is exercised than those referred to in point (a)[65]; or, failing that,
> (d) the Member State within the territory of which the main insolvency proceedings are opened.[66]

[62] If the European legislator decides in favour of an autonomous definition of crypto-assets (see Recommendation 1), the part in brackets can be deleted.

[63] In order to facilitate the resolution of potential disputes about this requirement, distribution in more than one state could be legally presumed for digital ledger technology, giving the person who wishes to challenge this presumption the right to rebut it on a case-by-case basis.

[64] If the crypto custodian has its registered office in a third country, based on the principle of universality, the crypto-assets may be covered by the main insolvency proceedings.

[65] The English law decision on domicile in *Fetch.AI Ltd and Another v Persons Unknown and others* [2021] EWHC 2254 could inform a consideration of the place of a person's control. See para 14: "… the first question which arises and the one which is decisive for present purposes, is where a cryptocurrency is to be regarded as being located for the purposes of the issues I am now concerned with. So far as that is concerned, it was submitted on behalf of the claimant that these were property. I agree for the reasons I gave earlier. It was submitted that it was property located in England because that was, in essence, the country where the owners of the assets concerned were located. In that regard, I adopt, with respect, the conclusions reached by Butcher J in *Ion Science v Persons Unknown* (unreported) (21 December 2020) in which, at para 13, the judge said this: "...*lex situs* of a cryptoasset is the place where the person or company who owns it is domiciled. That is an analysis which is supported by Professor Andrew Dickinson in his book *Cryptocurrencies in Public and Private Law* at para.5.108. There is apparently no decided case in relation to the *lex situs* for a cryptoasset. Nevertheless, I am satisfied that there is at least a serious issue to be tried that that is the correct analysis"".

[66] See fn. 56.

5. Are registered crypto-assets covered by the EIR conflict of law rules?

The EIR provides a general conflict of law rule (Art. 7(1) EIR), known as *lex fori concursus*. The law applicable to insolvency proceedings and their effects shall be that of the Member State within the territory of which such proceedings are opened. Under Art. 7(2)(b) EIR, the law of the Member State opening proceedings determines the assets which form part of the insolvency estate. In addition, the EIR contains more specific conflict of law rules in Arts. 8-18. However, there is no conflict of law rule explicitly designed for crypto-assets in the EIR. This is also the case for preliminary questions in private international law. In particular, the applicable law for determining proprietary issues affecting crypto-assets on insolvency is a preliminary question that is not governed by the EIR.

With respect to crypto-assets registered in a public register, CERIL has considered, in detail, Art. 14 EIR which governs the principle of the *lex libri siti*, and Art. 15 EIR in relation to registered rights.

- Under Art. 14 EIR, the effects of insolvency proceedings are determined by the law of the Member State under the authority of which the register is kept. Art. 14 EIR applies to immoveable property, ships, and aircraft subject to registration in a public register.
- Regarding registered rights, Art. 15 EIR on European patents and Community trademarks stipulates that those rights established by Union law may be included only in main insolvency proceedings.
- According to the wording of both provisions, Arts. 14 and 15 EIR are clearly not applicable to registered crypto-assets.

CERIL has examined the question as to whether the EIR should, by analogy, follow the principle of *lex libri siti* adopted in Art. 14 EIR and extend the rule to cover crypto-assets registered in public crypto-asset registers.[67] Crypto-assets in public crypto-asset registers held under the control of a crypto custodian in accordance with Art. 75(2) MiCAR could be considered to be held on a public register. The Virgos-Schmit Report[68] elaborated on the meaning of a 'public register' explaining that it 'does not mean a register kept by a public authority, but rather a register for public access, an entry in which produces (*sic*) effects vis-à-vis third parties. It also includes private registers with these characteristics, recognized by the national legal system concerned'.[69] An examination of the Ethereum or Polygon ledger, for instance, illustrates that, as a matter of public information, it is possible to see and verify transactions.[70] This might suggest that some ledgers of the category 'public blockchains' have the characteristics of a public register as articulated in the Virgos Schmit Report. Although permissionless public blockchains lack a central authority similar to a land registry or patent office, CERIL tends to understand permissionless public blockchains as being at least similar to traditional public registers because of the full transparency and security of the entries.

[67] In favour of this connection L. Hanner, 'Internationales Kryptowerterecht' (Baden-Baden 2022), p. 304. The UNIDROIT DAPL Principles do not consider this as an option in the waterfall of Principle 5.

[68] Virgos, Miguel and Schmit, Etienne *Report on the Convention on Insolvency Proceedings* (1996).

[69] Virgos/Schmit Report, p. 47, highlighted here.

[70] See, for instance, https://etherscan.io.

However, the question of interpreting a public blockchain as a public register must be distinguished from the question of the application of the *lex libri siti*. That said, CERIL is not convinced that Art. 14 EIR can be applied by analogy to registered crypto-assets. Even if crypto-assets registered on a (permissionless) public blockchain resemble traditional public registers, all registers mentioned in Arts. 14 and 15 EIR are under the supervision of a state or EU authority. Without such a state authority, the legal consequence of Art. 14 EIR cannot apply, as the location of the state authority determines the applicable law.

Comparable to the UK Law Commission's assessment, CERIL can imagine the application of the *lex libri siti* only if the EIR treats records in the distributed ledger as a *definitive* record of legal title or legal right and, therefore, introduces a minimum level of state supervision.[71] This might be possible or desirable in certain, limited cases, such as DLT-based entries for important assets ('tokenised property'[72]), but it seems unlikely that a state would allow permissionless, uncontrolled blockchains the legal standing of a land register or Community trademark register.[73]

CERIL considers that a possible solution would be to amend the EIR to apply the *lex libri siti* in cases where a public blockchain or at least the registrar is supervised by a public authority. Section 32 of the German Electronic Securities Act (eWpG) could serve as an example of a conflict-of-law rule where crypto securities are registered in a crypto security register and the registrar is supervised by the financial regulator. However, CERIL does not consider it detrimental to retain the basic principle of Art. 7(1) EIR and apply the *lex fori concursus* to crypto-assets registered in public registers.

Recommendation 4

The European legislator should amend the EIR by applying the *lex libri siti* only to those public blockchains (if any), where either the public blockchain itself, or the administrator of the register, is supervised by a public authority.

[71] The UK Law Commission considers that "the state of a distributed ledger or structured record within a crypto-token system should not necessarily be regarded as a definitive record of superior legal title to a crypto-token", para 6.10, Final report. A more detailed analysis of their position appears in the UK Law Commission (Reforming the law) Digital Assets: Consultation paper, Law Com No 256, 28 July 2022 at para 13.7 et seq.

[72] Pioneering research has been published by J. M. Moringiello and Ch. K. Odinet, 'The Property Law of Tokens', 74 [2022] Florida Law Review, 606 and R. W. Freyermuth, Ch. K. Odinet and A. Tosato, 'Crypto in Real Estate Finance', 75 [2023] Alabama Law Review, forthcoming (= SSRN id4268587).

[73] Furthermore, CERIL understands that it is more convincing to establish a general *lex libri siti* rule in the EIR before establishing a *lex libri siti* rule designed for specific crypto-assets. Otherwise, the more specific case (registered crypto-assets) will be codified before the general case (registered assets).

6. Do European Member States set comparable requirements in determining whether crypto-assets form part of the insolvency estate?

According to Art. 7(1) EIR the law applicable to insolvency proceedings and their effects shall be that of the Member State within the territory of which such proceedings are opened (*lex concursus*). This law shall also determine 'the assets which form part of the insolvency estate' (Art. 7(2)(b) EIR). The question as to whether crypto-assets form part of the insolvency estate will be therefore answered by the law of the Member State of the opening of insolvency proceedings.[74] Leaving it to national law to decide whether crypto-assets form part of the insolvency estate seems to be problematic, as it could lead to a patchwork across the EU, even though DLT-based assets are typically spread across all Member States (and even the world), and therefore a harmonised response at least at European level seems desirable.[75] In other words, it seems less convincing to allow insolvency practitioners to realise crypto-assets (such as Litecoin and Ethereum) or crypto securities in Member State A but not in Member State B.

The contradictions of such an approach can be illustrated in the context of main and secondary insolvency proceedings. For example, what happens if main insolvency proceedings are opened in Member State A, where national law does not provide for crypto-assets to form part of the insolvency estate, whereas in Member State B, where secondary insolvency proceedings are opened, crypto-assets do form part of the insolvency estate? In this case, since creditors may lodge their claims in the main insolvency proceeding and in any secondary insolvency proceedings (Art. 45(1) EIR), creditors will rightly expect the insolvency practitioner to realise crypto-assets at least in the secondary insolvency proceedings. However, assuming that DLT-based assets can be attributed in general or on a case-by-case basis only to the Member State opening main insolvency proceedings, because Member State A does not provide for crypto-assets to be part of the insolvency estate, these assets cannot be realised. This potential outcome is obviously undesirable. The reason for this potential outcome is the interplay between insolvency law, enforcement law and general civil law.[76] Under national law, the insolvency estate usually encompasses all of the debtor's assets at the time of the opening of insolvency proceedings (see, for instance, Art. 46 Portuguese Insolvency Act, Art. 76 Spanish Ley Concursal, Section 35(1) German Insolvency Code, Art. 92(1) Greek Law No 4738/2020).[77] However, the principle insofar is

[74] D. Skauradszun, S. Schweizer and J. Kümpel, 'Das Kryptoverwahrgeschäft und der insolvenzrechtliche Rang der Kunden - Aussonderung oder Insolvenzquote?' [2021] ZIP – Zeitschrift für Wirtschaftsrecht 2101, 2104.

[75] Similar approach M. Lehmann, National Blockchain Laws as a Threat to Capital Markets Integration, Uniform Law Review, forthcoming [SSRN].

[76] A. Bauer, 'Die effektive Einzel- und Gesamtvollstreckung von Blockchain-basierten Kryptowährungen' (Berlin 2023), p. 210.

[77] This is also the US approach, see 11 U.S.C. § 541(a)(1) and K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, forthcoming, p. 37. In the UK Insolvency Act 1986 references to a company's property are to the section 436 definition of property as "money goods things in action land and every description of property wherever situated and also obligations and every description of interest, whether present or future or vested or contingent, arising out of or incidental to property". This wide drafting seems be sufficient to include crypto-assets. It is clear from recent judgments that crypto-assets are recognised as a form of property in the English courts which have referred to the Legal Statement of the UK Jurisdiction Task Force on crypto-assets and smart contracts to inform this view. See, for example, *AA v Persons Unknown* and *LMN v Bitflyer Holdings Inc.& others* [2022] EWHC 2954 (Comm) paras 19, 30.

also that only enforceable assets belong to the insolvency estate (see, for instance, Art. 46 Portuguese Insolvency Act, Art. 76 Spanish Ley Concursal, Section 36(1) sentence 1 German Insolvency Code, Art. 92(5) Greek Law No 4738/2020[78]).[79]

In some Member States, the enforceability of assets depends on the transferability of assets (see, for instance, Art. 736(a) Portuguese Code on Civil Procedure, Section 851(1) German Code on Civil Procedure). If assets are not legally transferable (or at least not exercisable for the purpose of realisation), they are unenforceable and are therefore excluded from the insolvency estate.[80]

Because of this interplay between insolvency law, enforcement law and general civil law, CERIL considers the following to be prerequisites for harmonised insolvency law regarding crypto-assets forming part of the insolvency estate:

- Enforcement law needs a catch-all provision for the attachment of crypto-assets as 'other property rights' that are neither physical objects, immovable property nor claims.
- The catch-all provision need not and should not explicitly define the individual crypto-assets in order to be future-proof.
- As a general matter,[81] that crypto-assets are – at least *de facto* – transferable and realisable, as well as being enforceable.[82]

CERIL notes the findings of the UK Law Commission's Final Report that:

> In England and Wales, across the common law world, and in other jurisdictions, there is now a persuasive, clear, and well-reasoned body of case law that concludes that certain digital assets are capable of being objects of personal property rights. Much of the reasoning in that case law relies on analysis that supports or is consistent with our approach that recognises there is a third category of thing [beyond things in possession and things in action] to which personal property rights can relate.[83]

[78] No 4738/2020 Greek Law for the debt settlement and second chance provision and other provision.

[79] An unenforceable asset is an asset which the national legislator does not allow to be the subject of an enforcement order. This may be because the asset is too personal (e.g. the debtor's diary), socially protected (e.g. the debtor's Holy Bible) or unsuitable for enforcement. The latter may be the case if the asset is neither transferable nor exercisable by another person.

[80] Under English law, transferability would be understood as one of the characteristics or incidents that makes crypto-assets property. Transferability would not be seen as a specific step in the checking sequence.

[81] Because of the high number of crypto-assets, there can be blockchains where the respective smart contract does not allow a transfer of a token to another blockchain address.

[82] This can be also seen from UNIDROIT DAPL Principles, Principle 18 and commentary paragraph 18.3 where the enforceability of digital assets is implied.

[83] UK Law Commission Digital assets: Final report HC 1486 Law Com 412 (27 June 2023) para 3.48. They cite a number of cases that support this position in various ways including the following: from Australia (Chen v Blockchain Global Ltd [2022] VSC 92; Commissioner of the Australian Federal Police v Bigatton [2020] NSWSC 245), from Canada (Shair.Com Global Digital Services Ltd v Arnold [2018] BCJ 311), from Hong Kong (Re GateCoin Ltd (In Liquidation) [2023] HKCFI 914, HCCW 18/2019), from New Zealand (Ruscoe v Cryptopia Ltd (In liquidation) [2020] NZHC 728, [2020] 22 ITELR 925 at [69], by Gendall J. 47), from Singapore (Algorand Foundation Ltd v Three Arrows Capital Pte Ltd (HC/CWU 246/2022) (May 2023) , CLM v CLN [2022] SGHC 46; B2C2 Ltd v Quoine Pte Ltd [2020] SGCA(I) 02; B2C2 Ltd v Quoine Pte Ltd [2019] SGHC(I) 03). A key part of the Law Commission's work is to recommend UK "statutory confirmation that a thing will not be deprived of legal status as an object of personal property rights merely by reason of the fact that it is neither a thing in action nor a thing in possession". See Final Report Recommendation 1, para 3.76.

According to Art. 75(7) MiCAR, crypto-asset service providers shall segregate holdings of crypto-assets on behalf of their clients from their own holdings. This segregation is intended to prevent ordinary creditors of the crypto-asset service provider from claiming that the crypto-assets form part of the insolvency estate. Instead, the clients shall be able to reclaim the crypto-assets, in particular in the event of insolvency. Art. 75(7) MiCAR may convey the message that crypto-assets that are not segregated from one's own assets form part of the insolvency estate under the lex fori concursus.

Furthermore, this is the underlying understanding of the UNIDROIT DAPL Principles, Principle 13(2).

CERIL has considered whether the EIR should be amended to include a specific provision stating that crypto-assets form part of the insolvency estate. In light of the above, CERIL does not see an urgent need for an amendment of the EIR on the basis that the European legislator has already recognised implicitly that this is the case through the enactment of MiCAR, and therefore that this will lead to the same result.[84]

Recommendation 5

Recital 82 and Art. 70(1) MiCAR seek to protect 'ownership rights' in crypto-assets even in the event of insolvency.[85] Art. 3(1)(5) MiCAR refers to crypto-assets as being transferable. As a general matter of EU law, crypto-assets are recognised as being – at least de facto – transferable and realisable. Consequently, crypto-assets are enforceable. They should form part of the insolvency estate in all Member States without the necessity of an amendment to the EIR.

[84] This can be seen, for example, in Art. 70(1) MiCAR. This article deals with the insolvency of the crypto-asset service provider and requires the protection of the ownership rights of clients specifically in the situation where the crypto-assets are held by the crypto-asset service provider (custodian) as intermediary. The crypto-assets in custody cannot be used for the custodian's own account and do not form part of the custodian's insolvency estate. This structure would be understood in English law as a trust where the assets are held by the custodian for the benefit of the client. See the discussion in the Law Commission's Final Report at para 7.29 et seq. Similar K. Bruce, Ch. K. Odinet and A. Tosato, 'The Private Law of Stablecoins', [2023] Arizona State Law Journal, forthcoming, p. 37 for US bankruptcy law and in detail regarding the stablecoin issuer's insolvency.

7. Should the EIR include a power for insolvency practitioners to realise crypto-assets of the insolvency estate irrespective of national law?

The legal powers of insolvency practitioners are partly defined in the EIR, but mainly in national law. If the national law of the Member State within the territory of which insolvency proceedings are opened determines the legal powers of the insolvency practitioner to realise crypto-assets, crypto-assets can be realised on the basis of national law (Art. 7(1)(2)(c) EIR). Based on the principle of mutual recognition according to Art. 19(1) EIR, the insolvency practitioner appointed by a court which has jurisdiction pursuant to Art. 3(1) EIR (main insolvency proceedings) may exercise all the powers conferred on it, by the law of the Member State of the opening of proceedings, in another Member State, as long as no other insolvency proceedings have been opened there and no preservation measure to the contrary has been taken there further to a request for the opening of insolvency proceedings in that State (Art. 21(1) EIR). Regarding secondary proceedings, insolvency practitioners may also exercise certain powers in another Member State, but these are limited to the rights listed in Art. 21(2) EIR.

With regard to insolvency proceedings aimed at the liquidation of debtors' assets, the first and foremost task of insolvency practitioners is the realisation of assets. However, the realisation of crypto-assets has many special features:

- Since many types of crypto-assets can be transferred over the blockchain in minutes, on appointment, insolvency practitioners should immediately investigate whether the debtor holds crypto-assets and, if so, take immediate action to secure those assets.
- As it can be difficult to detect crypto-assets, asset tracing requires time, experience and sometimes even specialised investigators. There are no official registers from which insolvency practitioners can obtain information on debtors' crypto-assets, nor are they visible when visiting debtors' premises or companies.
- Even in cases where insolvency practitioners could obtain information about crypto-assets (where, for example, they are registered in specific wallets of the debtor or with a crypto custodian), neither the EIR nor most national laws specify in detail how crypto-assets should be realised, e.g. by instructing a crypto-dealer or a crypto-exchange. CERIL is not aware of a single national law that regulates the timing and pricing of crypto-assets when they are realised on crypto exchanges.
- All of these legal and technical challenges are magnified by the fact that many insolvency practitioners have never created a crypto wallet, used a private key or transferred crypto-assets and therefore do not feel comfortable realising crypto-assets.

CERIL has assessed the merits of the legal powers granted to insolvency practitioners by the EIR, with a particular focus on the realisation of crypto-assets. The cryptographic realisation[86] of crypto-assets may require special powers that are not granted by the EIR or by national law. If this turns out to be the case, Art. 21 EIR seems to be the proper provision to be amended by special realisation powers. However, CERIL is not aware of a single case in

[86] Cryptographic realisation means the realisation of crypto-assets by the insolvency practitioner through the use of crypto-asset trading platforms, exchanges or other similar service providers for the exchange of crypto-assets for funds and the use of the related private keys directly or through a crypto-asset service provider.

Europe where the realisation of crypto-assets failed due to the lack of a legal basis for the realisation of crypto-assets. Without factual evidence from practical cases, general realisation powers seem sufficient, at least for the time being.

Recommendation 6

It is recommended that because national laws permitting the general realisation of the debtor's assets normally also permit the specific realisation of crypto-assets, e.g. by commissioning a crypto exchange or a crypto dealer, there is no immediate need to introduce specific enforcement powers or regulate them in a cross-border context; that because the market in crypto-assets is emerging, the need for specific enforcement powers in relation to crypto-assets should nevertheless be reviewed at a later stage.

8. Concluding remarks

Based on the forgoing, CERIL adopts the following recommendations:

Recommendation 1

1.1 CERIL recommends amending Art. 2 EIR to add a new number 15: 'crypto-asset' means a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology.

1.2 If the European legislator does not think that crypto-assets should be defined as a separate asset type for reasons of principle, CERIL recommends in the alternative that the definition is adopted as part of new definition Art. 2(9)(ix) (see Recommendation 3).

Recommendation 2

2.1 The European legislator should avoid any regulatory gaps in an insolvency framework for crypto-asset service providers, in particular crypto custodians.

2.2 The European legislator should avoid a regulatory patchwork for crypto-asset service providers in insolvency, in the sense that one business model falls within the scope of the EIR and another does not.

2.3 The European legislator should not leave the matter to national law (i.e. unharmonised) even though crypto-asset service providers operate or can easily operate across borders.

2.4 Courts and authorities should interpret Art. 1(2) EIR narrowly to avoid excluding crypto-asset service providers, in particular crypto custodians, from the scope of the EIR.

2.5 The European legislator should cautiously assess the further development of the legal obligations set out in the MiCAR and decide whether: (i) the tools of the Single Resolution Mechanism are appropriate for crypto-asset service providers; and (ii) an alternative treatment of crypto-asset service providers, in particular crypto custodians, within the legal regime for financial institutions is more appropriate than the EIR.

Recommendation 3

3.1 The European legislator should amend Art. 2(9) EIR with a new point (ix). The new provision should exclude those crypto-assets whose blockchain is stored solely on the territory of one state (local blockchains). This is technically possible and imaginable for local DLT networks. In these (rare) cases, the allocation of crypto-assets is clear, so no special provision is needed. Furthermore, the provision should reflect the suspect period mentioned in Art. 3(1.2) EIR, although the suspect period has been criticised.

3.2 Art. 2(9) EIR should be amended to add a new (ix) for crypto-assets as follows:

Art. 2(9) EIR 'the Member State in which assets are situated' means, in the case of:

(ix) a crypto-asset (meaning a digital representation of a value or of a right that is able to be transferred and stored electronically using distributed ledger technology or similar technology)[87]:
(a) the Member State within the territory of which a crypto custodian has its registered office if the crypto custodian has taken control of those crypto-assets within the 3-month period prior to the request for the opening of insolvency proceedings;
(b) the Member State under the authority of which the register is kept if the crypto-assets are registered in a register under the supervision of that Member State;
(c) the Member State within the territory in which the debtor's control of the crypto-assets is exercised than those referred to in point (a) and
(d) where points (a) to (c) do not apply, the Member State within the territory of which the main insolvency proceedings are opened.

Recommendation 4

The European legislator should amend the EIR by applying the *lex libri siti* only to those public blockchains (if any), where either the public blockchain itself, or the administrator of the register, is supervised by a public authority.

Recommendation 5

Recital 82 and Art. 70(1) MiCAR seek to protect 'ownership rights' in crypto-assets even in the event of insolvency. Art. 3(1)(5) MiCAR refers to crypto-assets as being transferable. As a general matter of EU law, crypto-assets are recognised as being—at least de facto—transferable and realisable. Consequently, crypto-assets are enforceable. They should form part of the insolvency estate in all Member States without the necessity of an amendment to the EIR.

Recommendation 6

It is recommended that because national laws permitting the general realisation of the debtor's assets normally also permit the specific realisation of crypto-assets, e.g. by commissioning a crypto exchange or a crypto dealer, there is no immediate need to introduce specific enforcement powers or regulate them in a cross-border context; that because the market in crypto-assets is emerging, the need for specific enforcement powers in relation to crypto-assets should nevertheless be reviewed at a later stage.

[87] If the European legislator decides in favour of an autonomous definition of crypto-assets (see Recommendation 1), the part in brackets can be deleted.

Annex 1. Definitions

CERIL uses technical and legal terms as defined below. Wherever possible, CERIL understands these terms in the same way as they are defined in existing European legislation, in particular the recast European Insolvency Regulation (EIR)[88] and the MiCAR.

Asset-referenced token	Means, according to Art. 3(1)(6) MiCAR, 'a type of crypto-asset that is not an electronic money token and that purports to maintain a stable value by referencing another value or right or a combination thereof, including one or more official currencies'.
Consensus mechanism	Means, according to Art. 3(1)(3) MiCAR 'the rules and procedures by which an agreement is reached, among DLT network nodes, that a transaction is validated'.
Crypto-asset service	Means any of the services referred to in Art. 3(1)(16) MiCAR.
Crypto-asset service providers	Means, according to Art. 3(1)(15) MiCAR 'a legal person or other undertaking whose occupation or business is the provision of one or more crypto-asset services to clients on a professional basis, and that is allowed to provide crypto-asset services in accordance with Art. 59'.
Custodian wallet provider	Means the entity that provides services to safeguard private cryptographic keys on behalf of its customers, to hold, store and transfer crypto currencies.
Distributed Ledger (or blockchain)	Means, according to Art. 3(1)(2) MiCAR, 'an information repository that keeps records of transactions and that is shared across, and synchronised between, a set of DLT network nodes using a consensus mechanism'. The digital ledger operates on a decentralized peer-to-peer network of computers ('nodes'), without any data being stored or regulated centrally; instead, data is distributed and shared among all participants of the network. Transactions are recorded in a secure and permanent way through means of cryptography, which is used to link the created blocks of data. When a person orders a transaction on the blockchain (e.g. a transfer of cryptocurrency), the transaction is recorded pseudonymously. Pseudonymity means that the involved parties and their personal information remain unrevealed.
Fiat currency	Means a type of currency that is declared legal tender by a government but has no intrinsic or fixed value and is not backed by any tangible asset, such as gold or silver.
Lex fori concursus	Means the law of the State in which insolvency proceedings are commenced.
Lex libri siti	Means the law of the State in which a right is registered in a public register.

[88] Regulation (EU) 2015/848 of the European Parliament and of the Council of 12 December 2012 on insolvency proceedings (recast) [2015] OJ L 141/19.

Network nodes	According to Art. 3(1)(4) MiCAR, 'DLT network node' means 'a device or process that is part of a network and that holds a complete or partial replica of records of all transactions on a distributed ledger'.
Off-chain transactions	Means transactions which take the value of the transaction outside the blockchain, either because they include the conclusion of a transfer agreement between the transacting parties, or because a third party participates in the transaction under the capacity of a guarantor (e.g. Paypal).
On-chain transactions	Means transactions concluded digitally within the blockchain network, through a Consensus mechanism.
Permission-based blockchain	Means blockchain networks, where only authorised participants, who are given permission by a central authority, can create records and make changes.
Permissionless blockchain	Means blockchain networks which are open to the public and carry all the standard characteristics of the technology, i.e. immutability, decentralisation, and pseudo-anonymity, while enabling anyone to participate in and maintain an identical copy of the ledger.
Private key	Means a string of numbers and letters used in cryptography, similar to a password, which enables the owner to obtain access to a wallet, authorise transactions within the blockchain, and prove ownership of the crypto-assets.
Public key	Means a string of numbers and letters, associated with a Private key, which enables the holder of the wallet to be identified by other users of the network and allows the conclusion of transactions between users of the blockchain.
Security token (or Investment token)	Means digital tokens used, inter alia, for the process of crowdfunding a new cryptocurrency or a (blockchain) project. Their value is derived from exogenous, tradeable, tangible assets.
Utility token	Means, according to Art. 3(1)(9) MiCAR, a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer.
Wallet	Means a digital wallet (crypto-wallet), which runs on software or hardware and enables users to store and use crypto-assets.

Annex 2. Index of Abbreviations and Legislation

Abbreviations

AMLD	Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC
Art./Arts.	Article/Articles
BRRD	Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council [2014] OJ L173/190
cf.	compare
CIWUD	Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions [2001] OJ L125
DLT	Distributed ledger technology
e.g.	*exempli gratia* (for example)
EBI	European Banking Institute
EC	European Council
EIR	Regulation (EU) 2015/848 of the European Parliament and of the Council of 12 December 2012 on insolvency proceedings (recast) [2015] OJ L141/19
ESMA	European Securities and Markets Authority
et seq	and what follows
etc.	*Et cetera* (and the rest)
EU	European Union
EWHC	High Court of England and Wales
i.e.	*id est* (that is)
MiCAR	Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on markets in crypto-assets, and amending Directive (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937.
MiFID	Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) [2014] OJ L173/349
OJ	Official Journal
No	Number

Solvency II	Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast) [2009] OJ L335/1
SRMR	Regulation (EU) No 806/2014 the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism (SRM) and a Single Resolution Fund and amending Regulation (EU) No 1093/2010 [2014] OJ L225/1.
UK	United Kingdom of Great Britain and Northern Ireland

Legislation

Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC.

Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions [2001] L125.

Directive 2001/24/EC of the European Parliament and of the Council of 4 April 2001 on the reorganisation and winding up of credit institutions [2001] OJ L125.

Directive 2009/138/EC of the European Parliament and of the Council of 25 November 2009 on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II) (recast) [2009] OJ L335/1.

Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (recast) [2009] OJ L302/32.

Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 [2011] OJ L174/1.

Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council [2014] OJ L173/190.

Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) [2014] OJ L173/349.

No 4738/2020 Greek Law for the debt settlement and second chance provision and other provision.

Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 [2013] OJ L176/1.

Regulation (EU) No 806/2014 the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010 [2014] OJ L225/1.

Regulation (EU) 2015/848 of the European Parliament and of the Council of 12 December 2012 on insolvency proceedings (recast) [2015] OJ L141/19.

Regulation (EU) 2023/1114 of the European Parliament and of the council of 31 May 2023 on markets in crypto-assets and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937.

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In Report 2023-3 on Crypto-assets in Restructuring and Insolvency, the Conference on European Restructuring and Insolvency Law (CERIL) highlights that, as a result of the complexity of the crypto-market and its rapid evolution, there is a lack of clarity as to whether insolvent crypto-asset service providers, in particular crypto custodians, should be governed by the European Insolvency Regulation Recast (EIR) or the EU banking recovery and resolution mechanism. CERIL's view is that the EIR's exclusion in Article 1(2) should be interpreted narrowly, so that crypto-asset service providers such as pure crypto custodians fall within its scope, but recommends that, in light of the introduction of the Markets in Crypto-assets Regulation (MiCAR), the European regulator should undertake a proper assessment of the most appropriate approach. CERIL further recommends that the EIR should be amended for crypto-assets in three ways: first, to include an autonomous definition of 'crypto-asset'; second, to make it explicit that the *lex libri siti* applies only to those blockchains subject to the supervision of a public authority; and third, to provide a waterfall mechanism for determining where crypto-assets are situated.

About CERIL

CERIL is an independent non-profit, non-partisan, self-supporting organisation of approximately 90 lawyers and other restructuring and insolvency practitioners, law professors, and (insolvency) judges committed to the improvement of restructuring and insolvency laws and practices in Europe, the European Union, and in its Member States.

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