

Cryptocurrencies and Conflict of Laws

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1 Introductory Remarks on Cryptocurrencies and PIL Issues

According to Coinmarketcap,¹ as of November 2021 over 7700 different cryptocurrencies are traded globally and the worldwide crypto market cap amounts to USD 2.47 trillion. Among them, Bitcoin is the best known² and most present on the market, with a market share of around 45% (even 65% in June 2020).³ Moreover, Bitcoin was not only the prototype of all cryptocurrencies, revealed to the world by the legendary⁴ Satoshi Nakamoto on 31 October

1 CoinMarketCap, “Today’s Cryptocurrency Prices by Market Cap” (*CoinMarketCap*) <<https://coinmarketcap.com/>> accessed 27 November 2021.

2 *Wright v McCormack* [2021] EWHC 2671 (QB) para. 5, whereby “[a] cryptocurrency is a digital asset designed to work as a medium of exchange, in which individual coin ownership records are stored in a ledger existing in a computerised database using cryptography to secure transactions, to control the creation of additional coins, and to verify the transfer of coin ownership. It does not exist in physical form (as paper money does) and is typically not issued by a central authority. Bitcoin is probably the best-known cryptocurrency.” See also Michael Karim and Gergana Tomova, “Research Note: Cryptoasset consumer research 2021” (*Financial Conduct Authority*, 17 June 2021) <<https://www.fca.org.uk/publications/research/research-note-cryptoasset-consumer-research-2021>>.

3 European Parliament resolution of 8 October 2020 with recommendations to the Commission on Digital Finance: emerging risks in crypto-assets - regulatory and supervisory challenges in the area of financial services, institutions and markets (2020/2034(INL)), Pg_TA(2020)0265, Recital N.

4 “Satoshi Nakamoto” is the pseudonym used by the person, or persons, who developed Bitcoin. In that regard, a dispute was filed before English courts between Dr. Craig Wright, a national of Australia who has lived in the United Kingdom since December 2015 and is a computer scientist with a particular interest in cryptocurrencies, including Bitcoin, maintaining that he is Satoshi Nakamoto, and Roger Ver, a bitcoin investor and commentator on bitcoin and other cryptocurrencies, who was born in California, U.S., and moved to Japan, which he described in evidence as the global centre for cryptocurrencies, in 2005. In 2014 he renounced his US citizenship and became a citizen of St. Kitts & Nevis, although he continues to live in Japan. Mr. Ver does not accept that Dr. Wright is Satoshi Nakamoto. Dr. Wright claims that he was libeled by Mr. Ver in a YouTube video posted on the Bitcoin.com YouTube channel, a tweet containing the YouTube video, and a reply on Mr. Ver’s Twitter Account posted from Bkk-Shadow some 8 minutes after the tweet from Mr. Ver. These publications were alleged to be defamatory, in that Dr. Wright “had fraudulently claimed to be Satoshi Nakamoto, that is to say the person, or one of the group of people who developed Bitcoin.” Cf. *Wright v Ver* [2020]

2008,⁵ but it also represents the paradigm around which the legal discourse on distributed ledger technologies (DLTs) and crypto assets was, at least initially, developed.

Technological features of cryptocurrencies have been raising a number of challenges for lawyers and, namely, for experts in Private International Law (PIL),⁶ in that (i), cryptocurrencies are intangible, (ii) they exhibit a wide range of different financial features⁷ that, to add further complexity, evolve in parallel with technological developments, (iii) the identity of cryptocurrency users – *i.e.*, everyone who is involved in the process of creation and transfer of cryptocurrencies⁸ – is, at minimum, not easy to trace, since identities are protected through pseudonyms⁹ or, even, full anonymity, (iv) they are set for more than one usage, *i.e.*, both as a payment instrument and a form of investment (albeit a very risky one!).¹⁰ Even more relevant, (v) they intrinsically have a

EWCA Civ 672 (29 May 2020) declining English jurisdiction on the controversy, based on the argument “that England and Wales is not clearly the most appropriate place to bring this action for defamation.” Furthermore, Dr. Wright also sued journalist Peter McCormack for defamation in 2019 over tweets or, a series of tweets, he had made in which he either directly, or by innuendo, called Wright a fraud for his claim that he was Bitcoin inventor Satoshi Nakamoto: *cf. Wright v McCormack* [2021] EWHC 2671 (QB).

5 Satoshi Nakamoto, “Bitcoin: A Peer-to-Peer Electronic Cash System” (*Bitcoin*, 24 May 2009) <<https://bitcoin.org/bitcoin.pdf>>.

6 The present paper has benefitted from the research conducted within the framework of the Project Time to Become Digital in Law – DIGinLaw - KA226 (Call 2020 Round 1 KA2 - Cooperation for innovation and the exchange of good practices).

7 *Cf.* European Central Bank (ECB), “Virtual currency schemes – a further analysis” (*ECB*, February 2015), 9 ff <<https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes.pdf>> accessed 30 November 2021; and Robby Houben and Alexander Snyers, “Cryptocurrencies and blockchain: Legal context and implications for financial crime, money laundering and tax evasion” (*European Parliament*, July 2018), 31 ff <<https://www.europarl.europa.eu/cmsdata/150761/TAX3%20Study%20on%20cryptocurrencies%20and%20blockchain.pdf>> accessed 30 November 2021, providing a synthetic description of the 10 cryptocurrencies with the highest market capitalisation.

8 Yet, Article 4 of the Proposal for a Regulation of the European Parliament and of the Council on information accompanying transfers of funds and certain crypto-assets (recast), [2021] COM/2021/422 final, 2021/0241(COD) requires that the crypto asset service provider of the originator ensures that transfers of crypto assets are accompanied by the name of the originator, the originator’s account number, where such an account exists and is used to process the transaction, and the originator’s address, official personal document number, customer identification number or date and place of birth. Moreover, the crypto asset service provider of the originator must ensure that transfers of crypto assets are accompanied by the name of the beneficiary and the beneficiary’s account number, where such an account exists and is used to process the transaction.

See Kleczewski in this book, 128 ff.

10 European Parliament resolution of 8 October 2020 (n 3), Recital L.

cross-border reach, since they are based on decentralised distributed ledgers, potentially spanned all over the world, with no connections to any particular state, allowing value to be transferred between users across borders at a very high speed, not conditional on the location of the transferor and the transferee. Finally, (vi) it is extremely difficult to impose legal restrictions on their circulation, including territorial restrictions, not only because of the decentralised nature of said ledgers, but also because of their inherent autonomy *vis-à-vis* the law. In fact, certain technical features of the systems on which the mere existence of cryptocurrencies depend, such as the automated functioning of those systems – based on smart contracts, as well as on consent mechanisms relying on cryptographic techniques, collective validation of the transactions, and continuous chains of blocks, unmodifiable without the consent of the majority of participants to the system (or good hacking skills...) –, make those systems not only tamper resistant, but also difficult to subject to any legal constraints.

Looking at cryptocurrencies from a legal perspective, according to the many definitions provided by various institutional players, in their attempt to grasp the distinctive features of cryptocurrencies that are relevant for the purpose of establishing a sound and effective legal framework, coherent with the policy objectives pursued by those institutions, the following elements have been commonly identified.

Firstly, the core of all definitions, including legislative ones,¹¹ lies in the notion of cryptocurrencies as digital representations of

11 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, [2015] OJ L41/73, as amended by Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018, [2018] OJ L156/43, and Directive (EU) 2019/2177 of the European Parliament and of the Council of 18 December 2019, [2019] OJ L334/155, art. 3 n 18 (“virtual currencies” means 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 Recital 10; *cf. e.g.*, the Italian implementing rule provided in *decreto legislativo* n 231 of 21 November 2007, *Gazz. Uff.* N 290 of 14 December 2007 Suppl. Ord. n 268, art. 1 para. 2 *litt.* Qq, as amended by art. 1 para. 1 *litt.* h of *decreto legislativo* n 125 of 4 October 2019, *Gazz. Uff.* n 252 of 26 October 2019: “valuta virtuale: la rappresentazione digitale di valore, non emessa né garantita da una banca centrale o da un'autorità pubblica, non necessariamente collegata a una valuta avente corso legale, utilizzata come mezzo di

value,¹² originated in distributed ledgers via a process called “mining,”¹³ making use of those ledgers to allow remote peer-to-peer exchanges of that value¹⁴ and relying on cryptographic techniques to achieve consensus on the validation of the transfer.¹⁵ Cryptocurrencies are not *per se* legal tender (unless any state or other monetary authority establish that they are),¹⁶ neither are they issued by a central bank or public authority,¹⁷ nor necessarily attached to a fiat

scambio per l'acquisto di beni e servizi o per finalità di investimento e trasferita, archiviata e negoziata elettronicamente.” See also Uniform Law Commission, Uniform Regulation of Virtual-Currency Businesses Act (URVCBA), Sec. 102 n 23: “Virtual currency:’ (A) means a digital representation of value that: (i) is used as a medium of exchange, unit of account, or store of value; and (ii) is not legal tender, whether or not denominated in legal tender;” Matthias Lehmann, “National Blockchain Laws as a Threat to Capital Markets Integration” (2021) *Uniform Law Review* 148, 162 ff.

- 12 Dong He et al., “Virtual Currencies and Beyond: Initial Considerations (IMF Staff Discussion Note)” (*International Monetary Fund*, January 2016), 7 <<https://www.imf.org/external/pubs/ft/sdn/2016/sdn1603.pdf>> accessed 27 November 2021; European Banking Authority (EBA), “EBA Opinion on ‘Virtual Currencies’” (EBA, 4 July 2014), 11, para. 20 <<https://www.eba.europa.eu/sites/default/documents/files/documents/10180/657547/81409b94-4222-45d7-ba3b-7deb5863ab57/EBA-Op-2014-08%20Opinion%20on%20Virtual%20Currencies.pdf?retry=1>> (“EBA Opinion”): “This part of the definition refers to the fact that the value is essentially represented in digital form. This does not exclude the possibility that it may also be physically represented, such as through paper printouts or an engraved metal object. The term ‘digital representation of value’ is close to the monetary concept of a ‘unit of account’ but includes the option to consider vcs as private money or a commodity. It also avoids making reference to a standard numerical unit of account for the measurement of value and costs of goods, services, assets and liabilities, which might (according to some views), imply that it needs to be stable over time.”
- 13 Houben and Snyers (n 7), 32.
- 14 Bank for International Settlements, Committee on Payments and Market Infrastructures, “Digital Currencies” (November 2015), 5 <<https://www.bis.org/cpmi/publ/d137.htm>>; Caroline Kleiner, “Cryptocurrencies as Transnational Currencies?,” in Christoph Benicke and Stefan Huber (eds), *National, International, Transnational: Harmonischer Dreiklang im Recht. Festschrift für Herbert Kronke zum 70. Geburtstag* (Ernst and Werner Gieseking 2020), 979 ff.
- 15 World Bank Group (Harish Natarajan, Solvej Krause, and Harish Gradstein), “Distributed Ledger Technology (DLT) and blockchain (FinTech Note No. 1)” Washington, (*World Bank*, 2017), 1v <<http://documents.worldbank.org/curated/en/17791513714062215/pdf/1221140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes.pdf>> accessed 27 November 2021.
- 16 On 7 September 2021, El Salvador became the first country to adopt Bitcoin as a legal tender. See *infra* (n 50).
- 17 European Securities and Markets Authority (ESMA), European Banking Authority (EBA), and European Insurance and Occupational Pensions Authority (EIOPA), “ESMA, EBA and EIOPA warn consumers on the risks of Virtual Currencies” (ESMA, 12 February 2018), 1

currency,¹⁸ but they may well be converted into fiat currencies and vice versa,¹⁹ their economic value being determined by supply and demand.²⁰ Accordingly, despite their volatility,²¹ cryptocurrencies are “designed to work as a medium of exchange”²² and, actually, as acknowledged by certain pieces of legislation, are “accepted by natural or legal persons as a means of exchange and... can be transferred, stored and traded electronically.”²³ Moreover, in fact, cryptocurrencies may represent an investment vehicle, though a rather risky one, whereby their status as a store of value is largely dependent on their success as medium of exchange, hence, the rise of stablecoins, which are established with the purpose of eliminating the volatility of traditional cryptocurrencies by consistently holding a stable value. In most cases, one unit of a stablecoin is “pegged” at the value of the US dollar or the Japanese yen (fiat-backed).

The aforementioned characteristics of cryptocurrencies and, in particular, their intrinsic cross-border reach prompt the question of their PIL regime and, namely, (i) the need to identify, among the existing PIL rules, those which are applicable to transactions involving cryptocurrencies, both as payment instruments and as (possible) store of value, and to investigate whether those rules are suitable for framing them, either in terms of legal characterisation or of connecting factors and other techniques to establish the applicable law. If, and to the extent that the answer to the first question is negative, this paper

<https://www.esma.europa.eu/sites/default/files/library/esma50-164-1284_joint_esas_warning_on_virtual_currenciesl.pdf>.

- 18 EBA Opinion (n 12), 7. According to the European Central Bank (European Central Bank, “Virtual Currency Schemes” (*ECB*, October 2012), 14 <https://www.ecb.europa.eu/pub/pdf/other/virtualcurrencyschemes201210en.pdf> accessed 27 November 2021), cryptocurrencies fall under the notion of “virtual currency schemes with bidirectional flow,” in that users can buy and sell virtual money according to the exchange rates with their currency so that the virtual currency is “similar to any other convertible currency with regard to the interoperability with the real world;” *cf.* Houben and Snyers (n 7), 21–22; Roberto Bocchini, “Lo sviluppo della moneta virtuale: primi tentativi di inquadramento e disciplina tra prospettive economiche e giuridiche” (2017) 27 *Il diritto dell’informazione e dell’informatica* 39.
- 19 Houben and Snyers (n 7), 23.
- 20 Bank for International Settlements (n 14) 4; Financial Markets Law Committee, “Issues of Legal Uncertainty Arising in the Context of Virtual Currencies” (*FMLC*, July 2016), 4 <http://fmlc.org/wp-content/uploads/2018/03/virtual_currencies_paper_-_edited_january_2017.pdf> accessed 27 November 2021.
- 21 See, *e.g.*, European Central Bank (n 7), 16.
- 22 *Wright* (n 2).
- 23 Directive (EU) 2015/849 (n 23), art. 3 n 18; European Parliament resolution of 26 May 2016 on virtual currencies, [2016] OJ/C 76 (2018/C 076/13); *decreto legislativo* n 90 del 25 maggio 2017, art. 1 para. 2 *litt* qq, *Gazzetta Ufficiale* n 140, 19 June 2017 - Suppl. Ord. n 28.

will then explore (ii) if cryptocurrencies deserve, also in light of their growing economic relevance, or require, because of their potential systemic relevance, differentiated PIL rules, not only in comparison to traditional assets, but also in relation to other crypto assets, depending upon their intrinsic technical features and/or their use case, and (iii) whether territorial connecting factors are still relevant for or can apply at all to that context or, instead, whether different (combinations) of PIL techniques could be more fit for purpose.

The first obstacle on the road to determining the law applicable to cryptocurrencies, and, more generally, to the DLT ecosystem, has often been identified in its autonomy: notably, such opinion is premised on the fact that technology operates independently from the law, according to internal cryptographic protocols and mechanisms of consent-validation, in principle without considering whether the outcomes of those processes are legally sound. Moreover, distributed ledgers are often seen as “immutable,” although the data contained in such networks can indeed be manipulated in extraordinary circumstances, such as a collusion between participants to the network. Actually, the tamper-evident nature of DLTs and, particularly, blockchains, – linked with the cryptographic hash-chaining following the creation of a new block²⁴ – means that there are often “no technical means, short of undermining the integrity of the entire system, to unwind a transfer.”²⁵ Because blocks are linked through hashes, changing pieces of information that constitute the hashes is difficult and expensive, although not impossible.²⁶ This creates regulatory challenges, for example, to enforce a court order. Moreover, where a smart contract is embedded in the blockchain to perform part of a transaction, its functioning cannot in principle be halted, or reversed, even where prescribed by law (at least in a public permissionless chain, whilst in a private permissioned chain such modifications are said to be more feasible). Although it is possible to incorporate exceptions or conditions into a smart contract to align with legal provisions, such flexibility should, in any case, be coded into the smart contract at the outset, which takes away from the decentralisation and efficiency that make smart contracts attractive.²⁷

24 Michèle Finck, *Blockchain Regulation and Governance in Europe* (Cambridge University Press 2018), 5.

25 Kevin Werbach and Nicolas Cornell, “Contracts Ex Machina” (2017) 67 *Duke Law Journal* 313, 335.

26 Amanda Anderberg et al., *Blockchain Now And Tomorrow: Assessing Multidimensional Impacts of Distributed Ledger Technologies*, Susana Nascimento and Alexandre Pólvara (eds) (Publications Office of the European Union 2019), 16 ff.

27 Werbach and Cornell (n 25), 335.

Notwithstanding the aforementioned technical difficulties and irrespective of both the expectations of the participants to a blockchain system and certain scholarly assertions,²⁸ blockchain transactions cannot, actually, eschew the law, nor should parties to those transactions have an interest in keeping completely away from the law: at least, this is the case insofar as they wish to be able to rely on the enforcement mechanisms that only state authority has the power to operate, should any player involved in said transactions behave unfairly or be unable to perform its functions in the relevant transaction scheme.²⁹ Therefore, the present paper aims to provide some (tentative) answers to the three questions set out above, starting from the basic issue of characterisation.

2 Characterisation of Cryptocurrencies

From a legal perspective, the classification of cryptocurrencies is (very) far from being definite, let alone uniform, under domestic laws.

2.1 “Cryptocurrencies” under National Substantive Laws

English case-law and scholars have progressively converged on the idea of a cryptocurrency as a “particularly odd type of incorporeal”³⁰ or “intangible personal property,” insofar as, unlike *choses* in action, they do not themselves constitute a right which has a concomitant obligation in another.³¹ Namely, cryptocurrencies are deemed to possess the characteristics of property, as summarised in *National Bank v Ainsworth*,³² which entails that they are “definable, identifiable by third parties, capable in [their] nature of assumption by third parties and have some degree of permanence and stability” according to the assessment conducted by the UK Jurisdiction Taskforce³³ endorsed by

28 Aaron Wright and Primavera De Filippi, “Decentralized Blockchain Technology and the Rise of Lex Cryptographia” (*SSRN*, 10 March 2015), 48 <<https://papers.ssrn.com/abstract=2580664>>.

29 See EBA Opinion (n 12), 23 ff for an assessment of risks that can arise from virtual currencies.

30 Daniel Carr, “Cryptocurrencies as Property in Civilian and Mixed Legal Systems,” in David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019), 180 f para. 7.07.

31 David Fox, “Cryptocurrencies in the Common Law of Property” in David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019), 150 ff.

32 *National Provincial Bank v Ainsworth* [1965] UKHL 1, 19.

33 Financial Markets Law Committee (n 20), 5, 23; UK Jurisdiction Taskforce, “Legal statement on crypto-assets and smart contracts” (*Tech Nation*, November 2019), 49–57

subsequent jurisprudence.³⁴ Following a call for evidence, on 24 November 2021 the Law Commission published an “Interim Update” concerning the

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- <<https://technation.io/about-us/lawtech-panel>> accessed 5 June 2022. The UK Jurisdiction Taskforce is one of the six taskforces of the LawTech Delivery Panel within The Law Society of England and Wales. According to the website of The Law Society (<<https://www.lawsociety.org.uk/campaigns/lawtech/guides/lawtech-delivery-panel>>), the LawTech Delivery Panel is “a team of industry experts and leading figures from government and the judiciary, has been formed to help the UK legal sector grow and fulfil its potential. By identifying both barriers to and catalysts for growth, the panel will provide direction to the legal sector and help foster an environment in which new technology can thrive.” The position taken by the UK Jurisdiction Taskforce had been anticipated, albeit concisely, in a couple of judgments: *Vorotyntseva v MONEY-4 Ltd (t/a nebeus.com) & Ors* [2018] EWHC 2596 (Ch), 13; *Liam David Robertson v Persons Unknown* (unreported), quoted in *AA v Persons Unknown & Ors, Re Bitcoin* [2019] EWHC 3556 (Comm), 13.
- 34 *Ion Science & Duncan Johns v Persons Unknown* (unreported) (21 December 2020), 13, as summarised by Lorna Sleave, “Cryptocurrency Fraud - The High Court Considers The Position Of ‘Crypto-assets’” (Mondaq Business Briefing, 6 May 2021) <<https://link.gale.com/apps/doc/A663644295/IТОF?u=milano&sid=bookmark-IТОF&xid=03ffe69d>>. The case is said to have arisen from proceedings brought by Ion Science Limited (ISL) and its sole director Duncan Johns, who claimed to be victims of a cryptocurrency initial coin offering, or ICO, fraud. Mr. Johns claimed he was persuaded by an individual, Ms. Black, said to be connected to a Swiss entity called Neo Capital, to transfer funds which were converted into Bitcoin by Ms. Black, granting Ms. Black remote access to his computer to manage this. Mr. Johns also made further transfers to an escrow account, claiming Ms. Black informed him these payments were needed to release commission payments from one of the investments, the Oileum ICO. Allegedly, the applicants subsequently discovered that Neo Capital was not a real company and that the Swiss regulator had issued a warning that it may be providing unauthorised services. Neither Mr. Johns nor ISL received any profits supposedly made in relation to the Oileum ICO or received back any of the funds invested. The court heard evidence from an expert in cryptocurrency fraud who concluded that (i) a substantial part of the bitcoins transferred or their traceable proceeds were held by the Binance and Kraken cryptocurrency exchanges; and (ii) both exchanges held information about the customers to whom those accounts belong. Alleging the sums invested had been misappropriated, the applicants applied for a proprietary injunction, a worldwide freezing order, and an ancillary disclosure order against persons unknown, the individuals or companies describing themselves as being or connected to Neo Capital. In addition, the applicants sought a disclosure order against Binance Holdings Limited, a Cayman company believed to be the parent of the group of companies that operates the Binance Cryptocurrency Exchange and Payments Ventures, a US entity believed to be the parent of the group of companies that operates the Kraken Cryptocurrency Exchange. The applicants further asked for permission to serve the proceedings out of the jurisdiction and by alternative means. Drawing (also) on analysis of the position in the UK Jurisdiction Taskforce (n 33), the court found there was at least a serious issue to be tried that Bitcoin was property under the common law definition. See also *AA* (n 33), 59; *Fetch.AI Lrd & Anor v Persons Unknown Category A & Ors* [2021] EWHC 2254 (Comm), 9.

“Digital Asset Project,” whereby, while “acknowledging that ‘digital asset is an extremely broad term that requires further subdivision,’” it “recognise[d] that certain digital assets could fall within a new ‘third category’ of personal property.” As “indicia” to determine whether or not a digital thing falls within that category the Law Commission proposes the following: (i) that the digital thing has an existence independent of both persons and the legal system, (ii) that the digital thing is rivalrous, *i.e.* that the use or consumption of the thing by one person, or a specific group of persons, inhibits use or consumption of that thing by others, and finally (iii) that the digital thing is fully divestible on transfer.³⁵ The classification as property has also been upheld by Singapore³⁶ and Russia,³⁷ as well as certain Italian judgments.³⁸

On the other hand, in the statement above, the UK Jurisdiction Taskforce has included crypto assets in general among “conventional financial assets.”³⁹ Along the same lines, the German Federal Financial Supervisory Authority (“BaFin”) issued a communication, according to which “[i]n accordance with BaFin’s legally binding decision on units of account within the meaning of section 1(11) sentence 1 of the *KWG* [Banking Act – *Kreditwesengesetz*], bitcoins are financial instruments” and, namely, “units of account... comparable to foreign exchange with the difference that they do not refer to a legal tender.”⁴⁰ Following a successful challenge in court, the German legislator has introduced a new provision into the *KWG* defining crypto assets (*Kryptowerte*) as financial instruments.⁴¹

35 Law Commission, “Digital Assets Interim Update” (*Law Commission*, 24 November 2021), 1.14–1.17 <<https://www.lawcom.gov.uk/project/digital-assets/>>.

36 *B2C2 Ltd v Quoine Pte Ltd* [2019] SGHC(1) 03, 142, quoting *National Provincial Bank* (n 32).

37 Matthias Haentjens, Tycho De Graaf, and Ilya Kokorin, “The Failed Hopes of Disintermediation: Crypto-Custodian Insolvency, Legal Risks and How to Avoid Them” (2020) *Singapore Journal of Legal Studies* 526, 551.

38 Trib Firenze 19 December 2018, *Contratti* 2019, 6, 661 note Domenico Fauceglia, “Il deposito e la restituzione delle criptovalute,” Trib Firenze (Sez fall) 21 January 2019, *Giur. It.* 2020, 2657, note Domenico Fauceglia.

39 UK Jurisdiction Taskforce (n 33), 52.

40 German Federal Financial Supervisory Authority (“BaFin”), “Virtual Currency (vc)” (*BaFin*, 11 December 2017) <https://www.bafin.de/EN/Aufsicht/FinTech/VirtualCurrency/virtual_currency_node_en.html>. Along the same line of reasoning see Cass pen (2) 17 September 2020 n 26807, *Giur It* 2021, 2224, note Rosa Maria Vadalà, “La dimensione finanziaria delle valute virtuali. Profili assiologici di tutela penale.”

41 See section 1(11) no. 10 of the *KWG*. In section 1(11) sentence 4 of the *KWG*, crypto assets are defined as a digital representation of value which has neither been issued nor guaranteed by a central bank or public body; it does not have the legal status of currency or money but, on the basis of an agreement or actual practice, is accepted by natural

Turning to the other side of the Atlantic Ocean, in July 2018 the Uniform Law Commission adopted the “Uniform Supplemental Commercial Law for the Uniform Regulation of Virtual-Currency Businesses Act” (“USCL for URVCBA”) and recommended its enactment in all the United States.⁴² According to Section 4, by virtue of agreement between parties to virtual currency transactions, the virtual currency may be “treated as a financial asset credited or held for credit to the securities account of the user,” thereby collocating said transactions into the realm of Article 8 of the Uniform Commercial Code (UCC). As it has been rightly pointed out, however, the notion of securities entitlement embodied in Article 8 UCC – whereby holders of securities are granted with a claim for securities against the relevant intermediary – seems “incongruous” with the pattern of traceability that is commonly reconnected with crypto assets because of the DLTs supporting the creation and “transfer” of said assets. Therefore, Section 502(a) URVCBA requires that “A licensee or registrant that has control of virtual currency for one or more persons (...) maintain in its control an amount of each type of virtual currency sufficient to satisfy the aggregate entitlements of the persons to the type of virtual currency.”⁴³ Anyway, according to Section 7

or legal persons as a means of exchange or payment or serves investment purposes; it can be transferred, stored, and traded by electronic means. See BaFin, “Guidance notice – guidelines concerning the statutory definition of crypto custody business (section 1 (1a) sentence 2 no. 6 of the German Banking Act (Kreditwesengesetz – KWG)” (*BaFin*, 2 March 2020), <https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Merkblatt/mb_200302_kryptoverwahrgeschaef_en.html?nn=9451720#04>.

42 The Final Text can be retrieved at the Uniform Law Commission website, namely <<https://www.uniformlaws.org/viewdocument/final-act-154?CommunityKey=e104aaa8-c10f-45a7-a34a-0423c2106778&tab=librarydocuments>> accessed 20 February 2022. See Zachary Hubbell, “The Uniform Regulation of Virtual-Currency Business Act: Advancing State Regulatory Interests in a Truly Cashless Economy” (2019) 59 *Jurimetrics* 313.

43 However, whilst Rhode Island enacted the above mentioned provisions of the USCL for URVCBA – namely under R.I. Gen. Laws § 6-56-1-6-56-11 (Current through Chapter 429 (all legislation) of the 2021 Session, including all corrections and changes made by the Director of Law Revision) <<https://advance-lexis-com.pros2.lib.unimi.it/api/document?collection=statutes-legislation&id=urn:contentItem:62DF-62M1-DYB7-W0YY-00000-00&context=1516831>> accessed 22 February 2022. Wyoming has followed a different approach, whereby a digital asset, even if treated as a financial asset for the purpose of art 8 UCC, shall remain intangible personal property. Moreover, according to said provision, “[v]irtual currency is intangible personal property and shall be considered money;” see § 34-29-102. Classification of digital assets as property; applicability to Uniform Commercial Code; application of other law, Wyo. Stat. § 34-29-102 (Current through 2021 General Session and Special Session of the Wyoming Legislature. Subject to revisions by LSO) <<https://advance-lexis-com.pros2.lib.unimi.it/api/document?collection=statutes-legislation&id=urn:contentItem:62DC-SNC3-CHiB-T54F-00000-00&context=1516831>> accessed 22

USCL for URVCBA “Treatment of virtual currency as a financial asset credited to a securities account under this [act] and Article 8 does not determine the characterisation or treatment of the virtual currency under any other statute or rule.”

In fact, on 10 June 2021, the Securities and Exchange Commission (SEC)’s Office of Investor Education and Advocacy (OIEA) and the Commodity Futures Trading Commission (CFTC)’s Office of Customer Education and Outreach (OCEO) published an “Investor Bulletin,” whereby, while urging “investors considering a fund with exposure to the Bitcoin futures market to weigh carefully the potential risks and benefits of the investment,” in light of “the volatility of Bitcoin and the Bitcoin futures market, as well as the lack of regulation and potential for fraud or manipulation in the underlying Bitcoin market,” expressed the view that “in the United States, Bitcoin is a commodity, and commodity futures trading is required to take place on futures exchanges regulated and supervised by the CFTC.”⁴⁴ Although the “Investor Bulletin” only represents the views of the staff of the SEC’s Office of Investor Education and Advocacy and CFTC’s Office of Customer Education and Outreach and it is not a rule, regulation, or statement of the SEC or the CFTC, on 28 September 2021 the latter authority issued an order, filing and settling of charges against Payward Ventures, Inc. d/b/a Kraken, one of the cryptocurrency industry’s largest market participants, for offering margined retail commodity transactions in cryptocurrency — including Bitcoin — and failing to register as a futures commission merchant (FCM).⁴⁵

February 2022. See Lehmann (n 11), 164 f.; Matt Crockett, “Wyoming’s DIY Project Gets Western with the UCC” (2020) 20 Wyoming Law Review 105; Sarah Jane Hughes, “Property, Agency, and the Blockchain: New Technology and Longstanding Legal Paradigms” (2019) 65 Wayne Law Review 57. Wyo. Stat. § 34-29-102.

44 The joint statement is contained in US Securities and Exchange Commission, “Funds Trading in Bitcoin Futures – Investor Bulletin” (SEC, 10 June 2021) <<https://www.investor.gov/introduction-investing/general-resources/news-alerts/alerts-bulletins/investor-bulletins/funds>>.

45 The CFTC alleged that each of the defendants was acting as an unregistered FCM. Under Section 1a(28)(a) of the Commodity Exchange Act, 7 U.S.C. § 1(a)(28)(A), an FCM is any “individual, association, partnership, or trust that is engaged in soliciting or accepting orders for the purchase or sale of a commodity for future delivery; a security futures product; a swap... any commodity option authorized under section 6c of this title; or any leverage transaction authorized under section 23 of this title.” To be considered an FCM, that entity must also “accept money, securities, or property (or extends credit in lieu thereof) to margin, guarantee, or secure any trades or contracts that result or may result therefrom.” See 7 U.S.C. § 1(a)(28)(A)(II). 7 U.S.C. § 6d(1) requires FCMs to be registered with the CFTC. See Joseph B. Evans and Alexandra C. Scheibe, “A Flurry of CFTC Actions Shock

A different approach has been followed under the Swiss Act to Adapt Federal Law to Developments in Distributed Ledger Technology (“DLT Act”), some parts of which entered into force on 1 February 2021.⁴⁶ That piece of legislation, actually, acknowledges the distinction between tokens in the form of cryptocurrencies, that are classified as intangible assets under civil law, for which that law does not provide any specific requirements nor obstacles to their transfer, and a new category of ledger-based securities (*Registerwertrecht*) that is introduced in the Code of Obligations (*Obligationenrecht*, OR, Art. 622 para 1; Art. 973d).⁴⁷ The wording of the provision is technology-neutral and does not mention the term DLT, but describes its characteristics instead. A ledger-based security is defined as a right that, according to an agreement of the parties, is registered in a ledger-based security register and can be asserted and transferred only via this register (Art. 973d para 1 OR). The ledger-based security register must fulfil the following requirements: it gives creditors, but not the debtor, power of disposal over their assets by means of a technical process. Its integrity is protected through appropriate technical and organisational measures to prevent unauthorised modifications, such as joint management by several participants that are independent of each other. The content of the rights, the functioning of the register, and the register agreement are recorded in the register or in the accompanying data. Creditors may access information and register entries that concern them, and may test the integrity of the register entry that concerns them without the help of third parties (Art 973d para 2 OR). Debtors of ledger-based securities are obligated and allowed to render performance only to a creditor whose name is registered in the ledger-based security register (Art. 973e para 1 OR). A *bona fide* purchaser may rely on the content of the register (protection of good faith) (Art 973e para 3 OR). The transfer of the ledger-based security is subject to the terms of the registry agreement (Art. 973f para 1 OR). According to Article 973c ff OR, ledger-based securities are, thus, equated, in many respects, to negotiable instruments and the Federal Act on Private International Law (PILA) of 18 December 1987 has

the Cryptocurrency Industry” (*McDermott*, 1 October 2021) <<https://www.mwe.com/it/insights/a-flurry-of-cftc-actions-shock-the-cryptocurrency-industry/>>.

- 46 Bundesgesetz zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register vom 25. September 2020, RO 2021 33. The Act to Adapt Federal Law to Developments in Distributed Ledger Technology (DLT Act) has been complemented with an Order (Verordnung zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register vom 18. Juni 2021, RO 2021 400) to introduce further amendments into Swiss financial markets law.
- 47 Bundesgesetz betreffend die Ergänzung des Schweizerischen Zivilgesetzbuches (Fünfter Teil: Obligationenrecht) vom 30. März 1911, SR 220 (Swiss Civil Code of Obligations).

been amended accordingly (see especially Article 145a PILA).⁴⁸ Moreover, the DLT Act has been complemented with an Order to introduce further amendments into Swiss financial markets law.⁴⁹

Last but not least, on 8 June 2021 the government of El Salvador adopted the Ley Bitcoin and on 7 September 2021, El Salvador became the first country to make bitcoin legal tender.⁵⁰

2.2 *Towards a Common Understanding of Cryptocurrencies*

The aforesaid attempts to frame cryptocurrencies into substantive law clearly show, firstly, that they are not treated as the cryptographic strings of characters that they in fact are, *i.e.* data or information, but rather for the notional status that they have,⁵¹ which is based on an implicit agreement or, rather,

48 Bundesgesetz über das Internationale Privatrecht (IPRG) vom 18. Dezember 1987, SR 291.

49 Ordinanza del Consiglio federale sull'adeguamento del diritto federale agli sviluppi della tecnologia di registro distribuito del 18 giugno 2021, RO 2021 400.

50 Cf. Asamblea Legislativa, "El Salvador, the first country in the world to recognise Bitcoin as legal tender" (*Asamblea Legislativa*, 9 June 2021) <<https://www.asamblea.gob.sv/node/11282>>. While the law maintains the U.S. dollar as the national unit of account, it mandates the acceptance of Bitcoin by agents unless technical impediments exist. A new digital means of payments, *i.e.*, the e-wallet Chivo operating in both U.S. dollars and bitcoin, has been introduced and heavily supported by the government to promote financial inclusion (each qualifying citizen who downloaded the application received an endowment of USD 30). This led to protests and resulted in skepticism from economists and others. As a result, El Salvador President Nayib Bukele tweeted in August that businesses did not have to accept bitcoin. The law also guarantees the automatic conversion from bitcoin to U.S. dollars through a trust fund funded with USD 150 million from the budget, and in practice the conversion is done in Chivo. Later on, in International Monetary Fund, "Staff Concluding Statement of the 2021 Article IV Mission" (*IMF*, 22 November 2021) <<https://www.imf.org/en/News/Articles/2021/11/22/mcs-el-salvador-staff-concluding-statement-of-the-2021-article-iv-mission>>, the IMF concluded that "[g]iven Bitcoin's high price volatility, its use as a legal tender entails significant risks to consumer protection, financial integrity, and financial stability. Its use also gives rise to fiscal contingent liabilities. Because of those risks, Bitcoin should not be used as a legal tender. Staff recommends narrowing the scope of the Bitcoin law and urges strengthening the regulation and supervision of the new payment ecosystem. Like for other e-wallets, Chivo should be required to fully safeguard customers' funds, both in U.S. dollars and Bitcoin, by segregating and ring-fencing reserve assets. Stronger regulation and oversight of the new payment ecosystem should be immediately implemented for consumer protection, anti-money laundering and counter financing of terrorism (AML/CFT), and risk management. Banking regulation should incorporate prudential safeguards such as conservative capital and liquidity requirements related to Bitcoin exposure. Measures to limit fiscal contingent liabilities, such as winding down the trust fund or withdrawing public subsidies to Chivo, should also be promptly considered."

51 Fox (n 31), para. 6.18.

expectations, between participants to the systems where cryptocurrencies are created and transferred, that those strings actually represent a value, resulting from supply and demand balancing, and that “the consensus rules which underpin the system will be applied and will not be altered fundamentally such as to deprive each participant of the association to particular units within the system and the power to deal with those units.”⁵² Second, the classification of cryptocurrencies varies depending on the diverse use cases, *i.e.* store of value, tools for investment or means of payment. Third, the notional value of cryptocurrencies, their status as creatures of the law (albeit the law here is, at least at the outset, a code), and the fact that, because of the notional embodiment of the value in cryptographic strings, they represent a safe vehicle to transfer value from one person to another,⁵³ on one hand, might place cryptocurrencies in the realm of negotiable instruments (or even of money) and, on the other hand, those very same features, are a driver for their use as investment vehicles.

2.2.1 Cryptocurrencies as “Purely *de facto* Assets”

However, along the many discussions concerning the intrinsic nature of cryptocurrencies, there is a common understanding that cryptocurrencies, and namely bitcoins, neither represent nor give a claim against an issuer,⁵⁴ hence the classification as “purely *de facto* assets” acknowledged, for instance, in the Swiss Federal Council message accompanying the proposal for the DLT Act.⁵⁵ This, actually, seems to be the key distinctive feature of “pure” cryptocurrencies from other crypto assets, including stablecoins,⁵⁶ which may also be used and accepted as payment instruments.

52 Andrew Dickinson, “Cryptocurrencies and the Conflict of Laws” in David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019), 181–182 para. 5.107.

53 Fox (n 31), para. 6.18.

54 EBA Opinion (n 12), para. 30; Financial Conduct Authority (FCA), “Guidance on Crypto-assets (Consultation Paper CP19/3)” (FCA, January 2019), paras. 3.35, 3.60 <<https://www.fca.org.uk/publication/consultation/cp19-03.pdf>> accessed 5 June 2022; Swiss Federal Council report, “Legal framework for distributed ledger technology and blockchain in Switzerland. An overview with a focus on the financial sector” (*Federal Council*, 14 December 2018), 46 para. 5.1.2.1 <<https://www.news.admin.ch/news/message/attachments/55153.pdf>>; Iris M. Barsan, “Legal Challenges of Initial Coin Offerings (ICO)” (2017) 3 *Revue Trimestrielle de Droit Financier* (RTDF) 54, 58; Fox (n 31), para. 6.30; Carr (n 30), 180–181 para. 7.07.

55 See Messaggio concernente la legge federale sull’adeguamento del diritto federale agli sviluppi della tecnologia di registro distribuito del 27 novembre 2019, FF 2020 223, 232.

56 ECB Crypto-Assets Task Force, “Stablecoins: Implications for monetary policy, financial stability, market infrastructure and payments, and banking supervision in the euro area

Notably, the recent Proposal for an EU Regulation on Markets in Crypto-assets,⁵⁷ as resulting from the latest steps of the legislative procedure, seems to have acknowledged that distinction, insofar as it provides for a differentiated treatment between e-money token, the users of which shall be granted with a claim on the issuer of such tokens, *i.e.* the right to redeem their tokens at any moment and at par value against the currency referencing those tokens, and “other crypto-asset referencing one official currency of a country” that “do not provide a claim at par with the currency they are referencing or limit the redemption period.”⁵⁸ Namely, the Proposal provides for different regimes, respectively, for “asset referenced tokens” (Title III of the Proposal),⁵⁹ “electronic money tokens” (Title IV) and “crypto-assets, other than asset referenced tokens or electronic money tokens” (Title II), including, but not limited, to utility tokens.⁶⁰ Moreover, for the purpose of the Proposal, the definition of “crypto asset” refers to “a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology,”⁶¹ whereby “value includes external, non-intrinsic value

(Occasional Paper Series No. 247)” (ECB, September 2020), 8 <<https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op247~fe3df92991.en.pdf>> accessed 30 November 2021.

- 57 Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937, [2020] COM/2020/593 final, 2020/0265(COD), art. 44 (hereinafter “MiCA Proposal”).
- 58 See *Council of the European Union, Proposal for a Regulation of the European Parliament and of the Council on Markets in Crypto-assets, and amending Directive (EU) 2019/1937 - Mandate for negotiations with the European Parliament (14067/21 of 19 November 2021)*, Recital 10 (hereinafter, ‘Council Mandate for negotiations’), and *European Parliament Economic and Social Committee, Report on the proposal for a regulation of the European Parliament and of the Council on markets in crypto-assets and amending Directive (EU) 2019/1937 (A9-0052/2022 pf 17 March 2022)*, Recital 10 (hereinafter, ‘ESC Report’). Accordingly, the EBA had previously pointed out that “the difference between electronic money and a virtual currency is that the latter is not necessarily attached to a FC [i.e., a fiat currency], *i.e.* it does not have a fixed value in a FC and, furthermore, is not necessarily fixed to be redeemed at par value by an issuer.” EBA Opinion (n 12), para. 31. The view is upheld also by the Financial Conduct Authority (n 54), 31 para. 3.61.
- 59 According to Dirk A. Zetzsche et al., “The Markets in Crypto-Assets Regulation (MiCA) and the EU Digital Finance Strategy (EBI Working Paper Series No. 2020/77)” (SSRN, 5 November 2020), 12 <<http://dx.doi.org/10.2139/ssrn.3725395>>, the proposed global stablecoin Libra would fall under this category. See *infra* (n 70).
- 60 Council Mandate for negotiations (n 58), Recital 9, and ESC Report (n 58), Recital 9.
- 61 Council Mandate for negotiations (n 58), art. 3 para. 1(2). The Economic and Social Committee of the European Parliament has specified the notion of “digital representation” by adding the requirement that it “is in the form of a coin or a token or any other digital medium”: see ESC Report (n 58), art. 3 para. 1(2).

attributed to a crypto-asset by parties concerned or market participants, meaning the value can be subjective and can be attributed only by the interest of someone purchasing the crypto-asset.”⁶² Therefore, despite the claim that “any definition of ‘e-money tokens’ should be as wide as possible to capture all the types of crypto-assets referencing one single official currency of a country” and that “strict conditions on the issuance of e-money tokens should be laid down, including the obligation for such e-money tokens to be issued either by a credit institution as defined in Regulation (EU) No 575/2013⁶³ of the European Parliament and of the Council, or by an electronic money institution authorised under Directive 2009/110/EC,”⁶⁴ “pure” cryptocurrencies seem to fall under the residual category of “other crypto assets.”⁶⁴ The same Proposal envisages a more general distinction between crypto assets that may qualify as “financial instruments as defined in Article 4(1), point (15), of Directive 2014/65/EU” (*i.e.*, MiFID II Directive)⁶⁵ (or as deposits, funds, securitisation positions, insurance or pension products according to the respective relevant EU provisions,⁶⁶ which, incidentally, should be neutral as regards the use of technology),⁶⁷ and those which are not covered by those regimes and are, accordingly, included in the Proposal, with the additional aforesaid sub-distinction. With regard to pure payment-type crypto assets, however, the European Securities and Markets Authority (ESMA), in its “Advice” concerning “Initial Coin Offerings and Crypto-Assets” of 9 January 2019 held as “unlikely” that they qualify as financial instruments.⁶⁸

62 Council Mandate for negotiations (n 58), Recital 2.

63 *Id.*

64 Also, Zetzsche et al. (n 59), 25, seem to concur with this view.

65 See Council Mandate for negotiations (n 58), art. 2 para. 2 *litt.* b and Recital 3. The Economic and Social Committee, “because of the specific features linked to their innovative and technological aspects”, has recalled the need “to identify clearly the requirements for classifying a crypto-asset as a financial instrument”, recommending that, for that purpose, the European Securities and Markets Authority (ESMA) is tasked by the Commission with publishing “guidelines in order to reduce legal uncertainty and guarantee a level playing field for market operators”: ESC Report (n 58), Recital 2a.

66 Council Mandate for negotiations (n 58), art. 2 para. 2 *litt.* c-k and Recital 3.

67 *Id.*, Recital 3.

68 European Securities and Markets Authority (ESMA), “Advice: Initial Coin Offerings and Crypto-Assets” (ESMA, 9 January 2019), 19 para. 80 <https://www.esma.europa.eu/sites/default/files/library/esma50-157-1391_crypto_advice.pdf>. *Contra* Cass pen (2), 30 November 2021 n 44337 (unpublished).

Although the opposite view, that cryptocurrencies may well embody claims, has also been sometimes maintained both with regard to bitcoins⁶⁹ and to Libra Coins,⁷⁰ recently re-nominated Diem Coins,⁷¹ what is more relevant here is that, if a general conflict-of-laws regime for crypto assets is to be conceived, any legislative policy option (and, namely, any connecting factor) based on the idea that a claim is embedded in those assets might struggle to apply to “pure” cryptocurrencies.

However, although the aforesaid distinction might be of relevance to identify the most suitable connecting factors, it is hardly deniable that, once it is acknowledged that cryptocurrencies may be regarded as store of value – purely notional or linked to the value of a fiat currency –, and are susceptible to be transferred and traded,⁷² on one hand, it may well be that exclusive rights are asserted over them and that a law regards those claims as worthy of protection against conflicting or competing interests of other parties. On the other hand, it is also hardly deniable that the transfers of cryptocurrencies which take place through the blockchain represent the implementation of a transaction of whichever nature.

Overall, the definition of cryptocurrencies as purely *de facto* assets – that do not incorporate, nor represent, claims, but because of their (notional) value may be the object of transactions – seems sufficient to call for a specific conflict-of-laws analysis.

2.2.2 The Knowledge of the Private Key as (the Only) Basis for Control over Cryptocurrencies

In at least apparent contrast to the above, with a view to reconciling the autonomy and immutability of blockchain transfers with the requirement of private justice, a very thorough theory has been recently developed according to which, since the power of the holder of bitcoins resides in his/her knowledge

69 Cf. Kelvin F.K. Low, “Bitcoins as Property: Welcome Clarity?” (2020) 136 *Law Quarterly Review* 345, criticising the court’s findings in *AA* (n 33) that bitcoins are an intangible property but not a chose in action.

70 Antoine d’Ornano, “Sur le projet Libra” (2020) *Revue critique de droit international privé*, 179 ff. The description of the original features of the Libra system and coins may be found in the historical White Paper at <<https://www.diem.com/en-us/white-paper/>> accessed 30 November 2021.

71 See the website of the Diem Association, “Welcome to the Diem project” (*Diem Association*) <<https://www.diem.com/en-us/>> accessed 5 June 2022, whereby the whole system seems still under development.

72 Matteo Solinas, “Investors’ Rights in (Crypto) Custodial Holdings: *Ruscoe v Cryptopia Ltd* (in *Liquidation*)” (2020) 81 *Modern Law Review* 155, 160.

of the private key (that allows him to initiate the transfer to the address, *i.e.*, the public key, of the recipient),⁷³ one should accept the record on the blockchain as a fact that reveals the current holder of the bitcoin and creates a legal presumption of him being the legitimate holder of that crypto asset (unless it can be proven that the crypto asset has been obtained illegally).⁷⁴ Therefore, the law should regard that transfer as immutable and “substitute a conceptualization of the transfer in terms of property law by an analysis that is based on remedies under the law of obligations.”⁷⁵ Accordingly, in case of mistakes or *exceptio inadimplendi*, the transferor should rely on the “reverse transfer,” *i.e.* on the possibility for the law to impose an obligation on the recipient of the crypto asset to return it, whilst, exceptionally, in cases of hacking, blackmail or fraud the transaction could be invalidated.⁷⁶ It might be, further, worth

73 In the Bitcoin system, users are represented by addresses, which can be regarded as being like a bank account number. An example of a Bitcoin address is a string of letters and numbers (*e.g.*, 3PtFPuXZxS1CBHdG2E5EeU6FcFqGGmzepF). In this way, Bitcoin accounts are pseudonymous. Addresses are created using public key cryptography. The owner of the address is the holder of the private key that corresponds to the public key that has been used to create the address. Therefore, the private key is the proof that a specific address belongs to this user. As a result, private keys must be protected, as their loss means loss of proof that this address belongs to the user and, as a direct consequence, the inability to use the bitcoins in the corresponding accounts. As Bitcoin is not controlled by an entity, it is impossible to claim missing private keys. Addresses are used to hold bitcoins; a user is usually the holder of many addresses. There is no limit on how many addresses a user can have; rather, it is advised to use a new address when receiving bitcoins rather than reusing addresses. This makes the tracking of addresses and linking them to the owners more difficult. To perform a transaction – for example, Alice wants to send 20 bitcoins (BTC) to Bob – Alice will have to prove that she is the owner of an account or a number of accounts that hold at least 20 BTCs. She does this by digitally signing the transaction with the private keys of these accounts. Once signed, rather than being sent directly to Bob, the transaction is broadcast on the whole Bitcoin network. Alice's transaction is pending until a special entity in Bitcoin, known as a “miner,” verifies it. The miners collect pending transactions, then confirm their correctness before verifying them. To summarise, Alice wants to send 20 BTC to Bob. The closest sum of her addresses to the targeted amount is 21.1 BTC. The transaction is broadcast on the Bitcoin network and once verified, Bob receives the 20 BTC, the miner receives 0.1 BTC as a transaction fee, and 1 BTC is returned to Alice as change. Once the transactions have been verified, they are stored in a tamper-resistant and shared data structure comprising of a list of blocks which are chained together, known as a blockchain. New transactions are inserted into a block at the end of the chain and linked to the previous block of transactions, as each block references the previous block's hash.

74 Matthias Lehmann, “Who Owns Bitcoin? Private Law Facing the Blockchain,” (2019) 21 *Minnesota Journal of Law, Science & Technology* 93, 119–120.

75 *Id.*, 123.

76 *Id.*, 128–130.

considering that, according to that theory, the factual position – *i.e.* the knowledge or, otherwise said, the possession – of the private key is seen as legally protected by way of the applicable tort, contract or security law.⁷⁷

No matter how sound and effective the aforesaid approach may be, given the intrinsically cross-border nature of DLT, enacting the premise of such an approach – namely, the aforesaid legal presumption – would entail the general acceptance, either through the adoption of a single international instrument providing for uniform substantive rules or via parallel pieces of national legislation, that what results from the blockchain deserves, with few exceptions, to be upheld and protected by the law. For the moment, however, the above-mentioned first stance taken by national lawmakers and case-law seems rather inclined to frame bitcoins into more traditional patterns of property law.

Be that as it may, the aforesaid theory has (also) the merit of drawing attention to the *de facto* situation connected with the knowledge of the private key. In the same vein, the UNIDROIT Working Group on Digital Assets and Private Law, while elaborating a set of Principles to support States in adopting substantive and conflict-of-laws rules on digital assets, has identified that situation with the term “control” and clarified that “a person has ‘control’ of a digital asset if: (a) ...the digital asset or the relevant protocol or system confers on the person: (i) the exclusive ability to change the control of the digital asset to another person (a change of control); (ii) the exclusive ability to prevent others from obtaining substantially all of the benefit from the digital asset; and (iii) the ability to obtain substantially all the benefit from the digital asset; and (b) the digital asset or its associated records allows the person to identify itself as having” those abilities. What is more relevant here is, first, that, according to the draft Commentary to those draft Principles, the “‘control’ assumes a role that is a functional equivalent to that of ‘possession’ of movables,” insofar as in the markets for digital assets, those who acquire control over the assets “expect and believe” that they have obtained, through control, the relevant exclusive abilities, and, second, that, for the purpose of the identification requirement set forth under (b), an identifying number, a cryptographic key, an office, or an account number may be of relevance, “even if the identification does not indicate the name or identity of the person to be identified.”⁷⁸ Moreover, the relevance of the “exclusive ability” requirements for the purpose of said

77 *Id.*, 128.

78 Unidroit Working Group on Digital Asset and Private Law, “Issues Paper (UNIDROIT 2021 Study LXXXII-W.G.4 – Doc. 2)” (*UNIDROIT*, October 2021), 38–39 <<https://www.unidroit.org/work-in-progress/digital-assets-and-private-law/#1622753957479-e442fd67-036d>> accessed 30 November 2021.

Principles as “an inherent aspect of proprietary rights” acknowledges the tendency to frame the relationship between users and digital assets in terms of property rights.⁷⁹

Therefore, the following section will address the PIL regime of cryptocurrencies, considering first their function of payment instruments and, second, their (possible, though uncertain) role as store of value. Whilst the former perspective seems relatively smooth and will be (briefly) addressed against the backdrop of the existing PIL rules concerning payment obligations, the latter is far more complicated and suggests that the tentative answers that will be offered are further tested in business scenarios.

3 The PIL Regime of Cryptocurrencies as Payment Instruments

In principle, as long as cryptocurrencies do not amount to legal tender in a country, their use as means of payment is dependent upon the will of parties, since it is for them, mainly, to accept a payment, for instance, in bitcoins, as a way of performing an obligation to pay the consideration for a good or service, subject, of course, to any relevant mandatory provision established under the law governing the contractual (or even non-contractual) obligation in question.⁸⁰ It might, indeed, be the case that the *lex contractus* mandatorily requires that any payment is delivered in a fiat currency; if so, the creditor may reject an offer to pay in any different way; otherwise parties may agree on a payment in bitcoins or something else.⁸¹ Moreover, the *lex contractus* will be of relevance to determine whether a consideration agreed in form of cryptocurrencies, in lieu of a fiat currency, transmutes the contract into a different type, *e.g.*, a sale of goods into a barter,⁸² as well as that law will govern the effects (if any) of a depreciation (or appreciation) of the cryptocurrency and the possibility for the parties to protect themselves against any fluctuation by

79 *Id.*, 39.

80 Paolo Bertoli, “Virtual Currencies and Private International Law” (2018) 54 *Rivista di diritto internazionale privato e processuale* 583, 599. It seems rather difficult to figure out how the principle of nominalism embodied in the *lex monetae* principle could apply to cryptocurrencies.

81 Mathias Audit, “Le droit international privé confronté à la blockchain” (2020) *Revue critique de droit international privé* 669, para. II.A.

82 The question is discussed against the background of English and Scot Law in the paper of the Financial Markets Law Committee (n 20), 8. See also Sarah Green, “It’s Virtually Money,” in David Fox and Sarah Green (eds), *Cryptocurrencies in Public and Private Law* (OUP 2019), 28–29 para. 2.42.

means of specific agreements.⁸³ Additionally, in case of non-performance of the payment in bitcoins, it will be for that law to establish to what extent and upon which conditions the obligation in question may be discharged through a payment in a fiat currency, as well as any other consequence, also in terms of interests or damage, connected with the nonperformance.⁸⁴ On the other hand, in relation to the manner of performance and the steps to be taken in the event of defective performance, regard shall also be had to the law of the country in which performance takes place,⁸⁵ whereby a creditor might be entitled to reject a payment in a currency other than local fiat currency, such as a cryptocurrency.⁸⁶

Additionally, in providing for an obligation to be delivered in cryptocurrencies, parties shall take into account the possibility that overriding mandatory provisions of the law of the (foreseeable) forum ban the use of cryptocurrencies as instrument of payment, or qualify, as unlawful, a contract involving cryptocurrencies, either *per se* or because in breach of anti-money laundering or anti-terrorism regulations, or, even, of unilateral or multilateral economic sanctions. Moreover, also similar overriding mandatory provisions of the law of the country where the obligations arising out of the contract have to be or have been performed may come to be relevant for the same purpose, “in so far as those provisions render the performance of the contract unlawful” and having regard “to their nature and purpose and to the consequences of their application or non-application.”⁸⁷ With regard to payment in cryptocurrencies, it should be, however, noted that the effectiveness of said provisions run the risk of being seriously impaired, both by virtue of the possibility for the parties to agree on a place of payment where those provisions are not applicable, and because of the practical difficulty in identifying the actual place of payment in DLT’s settings.

83 Cf. Regulation (EC) No 593/2008 of the European Parliament and of the Council of 17 June 2008 on the law applicable to contractual obligations (Rome I), [2008] OJ L177/6, art. 12 para. 1 *litt. d* (hereinafter “Rome I”), and Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II), [2007] OJ L199/40, art. 15 *litt. H* (hereinafter “Rome II”). See Lord Collins of Mapesbury and Jonathan Harris (eds), *Dicey, Morris & Collins on the Conflict of Laws* (15th edn, London: Sweet & Maxwell 2012), Rule 261.

84 Richard Plender and Michael Wilderspin, *The European Private International Law of Obligations* (4th edn, Sweet & Maxwell 2015), paras. 14-030–14-032.

85 Cf. Rome I (n 83), art. 12 para. 2.

86 Audit (n 81).

87 Cf. Rome I (n 83), art. 9. See esp. Charles Proctor, Caroline Kleiner, and Florian Mohs, *Mann on the Legal Aspect of Money* (7th edn, OUP 2012), paras. 4-24-4.29.

4 ...and as “Property”

Turning to the role played by cryptocurrencies as a store of value, according to the traditional pattern in property matters, it is for the law governing property rights, as determined through the relevant conflict-of-laws provision – in principle the *lex situs* –, to establish whether a specific “thing” can be the subject matter of property rights, the classification of that thing as immovable or movable (or else), as well as the types and contents of those rights, *i.e.* the prerogatives of the person who “holds” the thing. When it comes to intangible assets, and especially, digital assets, however, the effectiveness of such a paradigm is largely put to the test, first and foremost, due to the difficulty, or rather impossibility, to identify a physical location for them, though not only because of that objective issue. Conversely, with regard to intangible assets incorporating claims, the further specificities, both in terms of notion of property rights and of applicable connecting factors, lie in the fact that the asset *is* the relationship with the debtor, which has its own governing law.

Once it is generally accepted that the factual relationship between a cryptocurrency and its holder entails that the latter has the exclusive ability to dispose of the former and to exclude others from the benefits thereof and that accordingly such relationship may be construed as property, the applicable law will determine the conditions upon which a person has a proprietary right in a cryptocurrency and that right may be validly transferred,⁸⁸ including the rules for the original acquisition of title (*e.g.* the possibility to invoke the defences of good faith purchase for value)⁸⁹ and the derivative transfer of title (generally, either through party’s consent or delivery of the asset), as well as any requirements regarding time of perfection, publicity,⁹⁰ need for specification,⁹¹ and the realisation of the right over the asset,⁹² both having regard to the rights as between the transferor and the transferee *inter se*, and to the legal consequences of the transfer *vis-à-vis* third parties,⁹³ including the transferor’s creditors.⁹⁴ As unlikely as it might seem because of the validation mechanisms

88 Lehmann (n 11), 150.

89 Fox (n 31), para. 6.57 ff.

90 Carr (n 30), paras. 7.18–7.20.

91 *Id.*, paras. 7.16–7.17.

92 Financial Markets Law Committee, “Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty” (*FMLC*, March 2018), 11 para. 4.7 <http://fmlc.org/wp-content/uploads/2018/05/dlt_paper.pdf> accessed 30 November 2021.

93 Unidroit Working Group on Digital Asset and Private Law (n 78), 41, 43–44.

94 Council of the European Union, “Proposal for a Regulation of the European Parliament and of the Council on the law applicable to the third-party effects of assignments of claims -

embedded in the blockchain systems, which are precisely aimed at preventing any double transfer of the same token, the same law will govern the priority of the rights among competing transferees of the same token. Moreover, the same law will establish the forms of security that may be validly granted over the cryptocurrency.⁹⁵

It is now time to explore some policy options for a conflict-of-laws regime for said property aspects of cryptocurrencies.

First and foremost, among the solutions that have been so far envisaged by scholars and think-tanks for crypto assets, the approach which favours the application of the law under which the right/claim represented by the crypto asset, as admitted by its own promoters,⁹⁶ cannot apply to intrinsic tokens, such as “pure” cryptocurrencies. In fact, as anticipated, cryptocurrencies do not represent nor incorporate rights.⁹⁷ The same goes for any approach centered around the issuer of the crypto assets, since cryptocurrencies do not embed a claim against an issuer, whereas the original coder does not undertake any obligation towards the subsequent transferees of the assets.⁹⁸

The absence of any underlying claim, coupled with the inherent nature of “pure” cryptocurrencies as items representing value, albeit a notional and volatile one, would, thus, locate their conflict-of laws regime into the realm of the *lex rei sitae* principle. This is premised (also) on the need for “an objective and easily ascertainable connecting factor to which third parties might reasonably

General approach (9050/21)” (CEU, 28 May 2021), art 5 *litt. c* <<https://data.consilium.europa.eu/doc/document/ST-9050-2021-INIT/en/pdf>>.

- 95 UK Jurisdiction Taskforce (n 33), 25; ISDA, McCann FittsGerald, and r3, “Private International Law Aspects of Smart Derivatives Contracts Utilizing Distributed Ledger Technology: Irish Law” (ISDA, October 2020), 29 <<https://www.isda.org/a/ACrTE/Private-International-Law-Aspects-of-Smart-Contracts-Utilizing-Distributed-Ledger-Technology-Irish-Law.pdf>> accessed 30 November 2021.
- 96 Koji Takahashi, “Blockchain-based Negotiable Instruments (with Particular Reference to Bills of Lading and Investment Securities)” (SSRN, 6 October 2021), para. 5.6.3 <<https://ssrn.com/abstract=3937664>>.
- 97 Financial Markets Law Committee (n 92), 20 para. 6.27; Michael Ng, “Choice of law for property issues regarding Bitcoin under English law” (2019) 15 Journal of Private International Law 315.
- 98 European Parliament resolution of 8 October 2020 (n 3), Recital AN; Filippo Annunziata, “Speak, If You Can: What Are You? An Alternative Approach to the Qualification of Tokens and Initial Coin Offering” (2020) 17 European Company and Financial Law Review 129, 150–53; ISDA, Jones Day, and r3, “Private International Law Aspects of Smart Derivatives Contracts Utilizing Distributed Ledger Technology: French Law” (ISDA, October 2020), 19 <<https://www.isda.org/a/ZCrTE/Private-International-Law-Aspects-of-Smart-Derivatives-Contracts-Utilizing-DLT-French-Law.pdf>> accessed 30 November 2021.

look to ascertain questions of title,” which represents the first component of the rationale underlying the application of that principle in property matters⁹⁹ and is even more relevant for assets that could be used by companies to obtain liquidity and have access to credit through collateralisation.¹⁰⁰

However, the aforementioned technical features of cryptocurrencies, which originate in and are transferred through a ledger system that is dematerialised and distributed, make the application of the *situs* principle, at least in its traditional form, impossible in practice and unsuitable for the second limb of its rationale, which lies in the fact that “the country of the *situs* has control over the property and a judgment in conflict with the *lex situs* will often be ineffective,”¹⁰¹ since the actual possibility for an authority to have any form of control over crypto assets, including to enforce any regulation, should rely on different grounds. Nevertheless, both limbs of that rationale should be included in the parameters against which to test the soundness of any conflict-of-laws regime for cryptocurrencies too, besides those related to the foreseeable use-cases of those assets.

In that regard, the need to find appropriate PIL solutions is reinforced by the pattern of disintermediation that is (or should be) intrinsic to DLT ecosystems by virtue of the traceability and collective validation of transactions taking place in and through those ecosystems. Disintermediation should *per se* rule out the possibility to envisage conflict-of-laws rules modelled on the ones related to book-entry securities that are based on the location of the relevant intermediary. Nevertheless, the current practice reveals that the prevailing framework for cryptocurrencies has become an indirect holding pattern, characterised by a combination of two-tier networks based on a distributed and decentralised scheme where the nodes are often represented by exchanges, *i.e.* crypto asset service providers in the language of the proposed EU Regulation on Markets in Crypto-assets,¹⁰² that are connected to the adjacent nodes within the blockchain (*i.e.* a distributed network) and where additional nodes are also formed among investors in cryptocurrencies at the level of the relevant exchanges (*i.e.* a decentralised network).¹⁰³ Such practice may neither affect the technical features of the cryptocurrencies’ holding and transfer schemes, as far

99 Lord Collins of Mapesbury and Jonathan Harris (n 83), para. 22-025.

100 Proposal for a Regulation of the European Parliament and of the Council on the law applicable to the third-party effects of assignments of claims, [2018] COM(2018) 96 final, 2018/044 (COD), 2.

101 Lord Collins of Mapesbury and Jonathan Harris (n 83), para. 22-025.

102 MiCA Proposal (n 58), art. 3 para. 1 n 9.

103 Solinas (n 72), 156.

as the exchanges/intermediaries' holding pattern applies the same schemes, nor, accordingly, the need to have legislative solutions well aligned with technology, but may have relevance when testing any legislative option against the substantive interests and aptitudes of the end-users. In fact, it might turn out that more often than expected, DLT end-users are professional operators.

Furthermore, a basic theoretical question (with relevant practical consequences) should be considered. Conceptualising the relationship between persons and cryptocurrencies in terms of property rights entails a generalised acceptance of the preliminary proposition(s) that (i) a notional value is worthy of being regarded as the subject matter of property rights, and (ii) the transfer of that value, *i.e.* the cryptocurrencies, according to the technical requirements of DLTs, implies a transfer of property right(s) over that value or, in other words, that a transfer of cryptocurrencies through the system is a legally sound way to dispose of said assets. However, this second proposition does not necessarily mean that a "transfer" within the system from which cryptocurrencies derive their existence is the only way to "dispose of" property rights over the same, unless a law establishes that it is so in terms of conditions for the validity of the transfer and opposability of the same against third parties. The last question is particularly relevant when it comes to investigating desirable conflict-of-laws approaches (and, particularly, about connecting factors) and the (possible) need to take into account both on-chain and off-chain acts of disposition for that purpose. In that regard, the business practice may, of course, offer some very much useful data to construct some answers, but the final say rests with the relevant applicable law, ...which leads to a kind of circular argument.

However, as advanced above,¹⁰⁴ an alternative theory has suggested that the proposition under (i) is replaced by a "protection by private law" that goes "beyond traditional conceptions of property in physical objects" and is "independent of any showing of legal title," whereby "the mere factual situation that the private key was created for some person should suffice as a basis for claim of return"¹⁰⁵ and for the recognition of "some form of legal status" that is "also necessary for the creation of a security right over the crypto asset" in question. The same doctrine has further argued that it could be left "to the applicable tort, contract, or security law" to "call" that status as "property" or

¹⁰⁴ *Supra* para 2.2.2.

¹⁰⁵ Lehmann (n 74), 128.

“possession” or “by another term,”¹⁰⁶ as well as to protect it through the relevant remedy.¹⁰⁷

In-between stands, so to say, a third approach, which does not give up on characterising cryptocurrencies – or, rather, the “factual” benefit accruing to a person as a participant to a cryptocurrency system (the value of which relies upon “a legitimate expectation, founded on the technological features of the system, that the consensus rules which underpin the system will be applied and will not be altered fundamentally such as to deprive each participant of the association to particular units within the system”) – as “a form of intangible property within the conflict-of-laws.”¹⁰⁸ Yet, a distinction is made between “internal effects” of transactions within a cryptocurrencies system, which should be resolved by reference to the system’s consensus rules and any law applicable by virtue of the relevant conflict-of-laws rules concerning contractual obligations,¹⁰⁹ on one hand, and the “external effects,” to which separate choice of law rules apply, on the other. At the same time, however, this doctrine admits that the proprietary character of a cryptocurrency “depends” on relationships within the system,¹¹⁰ illustrating that proposition through the case of parties wishing to create a security interest over units of a cryptocurrency. To this end, said parties may, or may not, enter into an arrangement which involves a transaction within the blockchain initiated by the grantor for the benefit of the grantee. In the second scenario the creation of the security may entail, for instance, that the grantor gives the grantee control over or access to a cryptocurrency wallet. In the first scenario, instead, the initiation of a transaction within the DLT system would engage “the separate relationships of the grantor, grantee, and many others as participants in the system.”¹¹¹ By way of further example, it is mentioned that, if, for some technical reasons, the transaction within the system is ineffective, the grantee may need to rely on a proprietary entitlement existing outside the system. Also, if the transaction within the system is successfully validated but the system lacks the technical possibility to re-vest the cryptocurrency in the grantor upon redemption, the

¹⁰⁶ *Id.*, 127–128.

¹⁰⁷ For a similar critique of the adoption of the “Physical Model” to frame the relationship between persons and intangible assets in the wake of the advent of the electronic era see Joanna Benjamin, *Interests in Securities: A Proprietary Law Analysis of the International Securities Markets* (Oxford: OUP 2000), 303 ff.

¹⁰⁸ Dickinson (n 52), 127 para. 5.97.

¹⁰⁹ *Id.*, 106 ff.

¹¹⁰ *Id.*, 127 para. 5.95.

¹¹¹ *Id.*, 127 para. 5.94.

grantor may benefit from the protection afforded by the “external” proprietary entitlement. By the way, the aforesaid examples seem to provide support to the conceptualisation of cryptocurrencies holding pattern in terms of property rights, while, at the same time, demonstrating the relevance of and the need for “external” legal remedies to enforce those rights.

5 Available Options for a Conflict-of-Laws Regime

In going over the various possible approaches to determine the law applicable to “pure” cryptocurrencies, first, certain objective connecting factors that are pegged to the ecosystem in which cryptocurrencies originate and are transferred will be considered, then, some propositions centered around the transferor and/or the transferee will be addressed, and, finally, schemes based on party autonomy will be explored.

5.1 *The “PROPA” and “PREMA” Criteria*

A first batch of proposals looks to the place of the relevant operating authority or administrator (“PROPA”),¹¹² either in form of objective connecting factor or by empowering that authority to establish the applicable law. The significance of that connection would be, of course, particularly relevant in case of an operator which is registered and supervised under some national law.¹¹³ Both versions, indeed, reflect the wish for a single law to govern all aspects of transactions within the system.¹¹⁴ Such an approach presupposes that the relevant DLT system is permissioned and not decentralised,¹¹⁵ with a single entity performing core functions, such as management activities, and acting as a point of contact and a gatekeeper on behalf of the regulators. Moreover, the enactment of a rule grounded on PROPA would, in any case, require a clarification of the

112 In the opinion of the UK Jurisdiction Taskforce (n 33), 99, in determining whether English and Welsh law governs the proprietary aspects of dealings in crypto assets, one of the factors that might be “particularly relevant” is whether there is any centralised control in England and Wales.

113 Lehmann (n 11), 169.

114 Maisie Ooi, “Choice of Law in the Shifting Sands of Securities Trading,” in Andrew Dickinson and Edwin Peel (eds), *A Conflict of Laws Companion. Essays in Honour of Adrian Briggs* (Oxford: OUP 2021), 213.

115 Hubert de Vauplane, “Blockchain And Conflict of Laws” (2017) *Revue Trimestrielle de Droit Financier*, 52.

actual role of the “relevant administrator,” by specifying the activities which represent the essence of that role and a threshold of “relevance,” especially in cases where the entity in question only performs limited functions, such as providing technical access to the system, or where there are two (or more) entities performing similar functions located in different states.¹¹⁶ However, PROPA seems unable to work for permissionless/public systems like Bitcoin.

The same rationale would underlie an approach based on the location of the original coder of the DLT system or the private master key for the same (usually the primary residence of the keyholder; hence the acronym “PREMA”), that is the key by which the relevant operator or administrator is enabled to control all transfer of assets within the system, in that such master key is used to encrypt and store all other keys in the system. In either case, besides the costs to market participants of ascertaining the location of these entities, one may question why the original coder should affect the ongoing life of the system (and all the transactions therein executed), especially where (s)he is not also the system administrator.

5.2 *The Transferor’s or the Transferee’s Location*

A second group of theories looks to the location of the parties to the transactions, either in the form of their habitual residence (or centre of main interest or domicile) or of their private encryption key (or of the wallet where private keys are stored).¹¹⁷

The solutions based on the transferor mirror the approach undertaken in the latest available text of the Proposal for Regulation on the law applicable to third party effects of assignment of claims (*per se* not applicable to the

¹¹⁶ Financial Markets Law Committee (n 20), 18 paras. 6.16–6.17.

¹¹⁷ This approach is supported by de Vauplane (n 115), 50 and Sarah Green and Ferdisha Snagg, “Intermediated Securities and Distributed Ledger Technology,” in Louise Gullifer and Jennifer Payne (eds), *Intermediation and Beyond* (Oxford: Hart 2019), 357, based on the analogy with traditional bearer securities. The UK Jurisdiction Taskforce (n 33), 99, qualifies as “particularly relevant” also “whether a particular crypto asset is controlled by particular participant in England and Wales because, for example, a private key is stored here.”

third party effects of the transfer of crypto assets)¹¹⁸ as a general rule.¹¹⁹ In both frameworks, the main advantage of said criterion has been identified in the convenience it brings to the transfer of claims/assets in bulk, in that all the claims/assets held by the transferor-assignor-borrower become subject to the same law with regard to third party effect of the transfer-assignment.¹²⁰ Moreover, that criterion offers the additional advantage that it does not put the transferee-financier in a more favourable position than other possible competing claimants seeking to challenge the transfer.

On the other hand, the solutions based on the location of the transferee (or of her private key) mirror the *PRIMA* principle embodied in the *FCD*¹²¹ and, with certain differences, in the Hague Securities Convention,¹²² where the relevant factor is also in the control of the transferee, *i.e.* the financier, who, therefore, is allowed to ascertain the applicable law much more easily and before anyone else. The main advantage of the transferee/current holder rule has been identified in that it applies the law of the state which can effectively enforce any judgment.¹²³

However, against approaches based on the transferor's or transferee's location the following critiques have been raised: the blockchain becomes subject to as many laws as the number of states where the users or their private keys

118 Council of the European Union (n 94), art. 1 para. 1ab. Conversely, pursuant to art. 4 para. 2 of the same Proposal, “[t]he law applicable to the assigned claim shall govern the third-party effects of the assignment of: ... (ba) claims arising out of crypto-assets that do not qualify as financial instruments or electronic money.” See also Recital 16bis and Recital 27bis. According to Recital 16bis, last sentence, “[i]n order to avoid characterisation problems as to whether a certain crypto-asset qualifies as a financial instrument or another type of crypto-asset, claims arising from all crypto-assets should be covered by th[e] Regulation, with the exception of claims arising out of crypto-assets that qualify as transferable securities, money-market instruments or units in a collective investment undertaking.” That provision will, of course, apply to all crypto assets capable of giving rise to “claims” according to the definition provided in art. 2 *litt. d*, *i.e.*, “the right to claim a debt of whatever nature, whether monetary or non-monetary, and whether arising out of a contractual or a non-contractual obligation.” It is worth noting that art. 2 *litt. hc* and Recital 16bis of the Proposal expressly refer to the definition of “crypto-asset” “as defined” in the relevant provision of the MiCa Proposal (n 58).

119 Council of the European Union (n 94), art. 4 para. 1.

120 Ooi (n 114), 216.

121 Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements, [2002] OJ L168/43, art. 9.

122 Hague Conference on Private International Law, “Convention of 5 July 2006 on the Law Applicable to Certain Rights in Respect of Securities held with an Intermediary” (*HCCCH*, 5 July 2006), art. 4 <<https://www.hcch.net/en/instruments/conventions/full-text/?cid=72>>.

123 Ng (n 97), 335.

are located, the identity of users is often unknown (or difficult to trace) and, accordingly, it is difficult to identify the place of the private key.¹²⁴ Moreover, the private key is a code that may or may not be associated with any particular tangible device which generates it or stores it.¹²⁵ An additional significant disadvantage of the criteria based on the transferor's location would be that they would often provide unclear answer to questions of entitlement in cases of joint transferors or a change in the transferor's habitual residence or domicile.¹²⁶

The same objections have been raised against another doctrine, likewise centered on the transferor's location. In fact, building upon the analogy between the factual benefit accruing to a person as participant in the blockchain and the goodwill of a business, which in English conflict of laws is equally qualified as a species of intangible property, it is argued that "proprietary effects outside the cryptocurrency system of a transaction relating to cryptocurrency shall in general be governed by the law of the country where the participant resides or carries on business at the relevant time."¹²⁷ In case that the relevant user resides or carries on business in more than one state at that time, the relevant place would be the place of residence or business of the user "with which the participation [in the cryptocurrency] that is the object of the transaction is most closely connected."¹²⁸ The emphasis on the effects of transactions outside the cryptocurrencies system, on one hand, allows that doctrine to highlight the predictability and ease of application in comparison with other possible choice of law approaches, as well as the close alignment with the rules

124 Audit (n 81), para. I.B; Ooi (n 114), 215.

125 Ooi (n 114), 215.

126 Financial Markets Law Committee, (n 20), 20 para. 6.22.

127 This approach has been applied in *Ion Science & Duncan Johns* (n 34), 13, whereby, as reported by Lorna Sleave (n 34), English law was found to apply, as England was the place where the damage occurred. This was on the basis that Mr. Johns' bank account was an English account, or that the funds were taken from the applicants' control in England, because either Mr. Johns' computer was in England, or because the relevant bitcoin was located in England prior to the transfer. As to the latter point, this was said to be because the *lex situs* of a crypto asset is the place where the person or company who owns it is domiciled, although Mr. Justice Butcher acknowledged there is no decided case on this point and relied on textbook authorities (which, incidentally, has been identified with Andrew Dickinson in the following online posting: Andrew Moir et al., "High Court considers where cryptocurrencies are located and compels disclosure of information by cryptocurrency exchanges outside the UK" (*Herbert Smith Freehills*, 24 February 2021) <<https://hsfnotes.com/litigation/2021/02/24/high-court-considers-where-cryptocurrencies-are-located-and-compels-disclosure-of-information-by-cryptocurrency-exchanges-outside-the-uk/>>).

128 Dickinson (n 52), 132 para. 5.109.

that apply to cross-border insolvency.¹²⁹ On the other hand, the distinction between the external effects, governed by the law of the state of the transferor's residence or business, and the internal effects, tentatively attributed by this doctrine to the law governing the (contractual) relationship between participants in the system, would allow the assertion of proprietary rights based on the law applicable to "external effects" against another user who, after being granted "externally" with security interests in a cryptocurrency, uses the information provided to him by the owner of the cryptocurrency (and grantor of the security interest) to initiate an irreversible transaction within the system in favour of a third party. One may reply that distinguishing between external and internal proprietary effects for the purpose of identifying the applicable law creates exposure to misalignments, for instance, in the substantive requirements for the opposability of property rights, thereby paving the way for inextricable conflicts of competing assertions of proprietary rights on the part of different persons. While advocating for uniform substantive rules, especially on this aspect, one should not overrate the actual impact of such misalignments, keeping in mind that the existence of different proprietary rights, each governed by a different law, is a very common pattern in the framework of proprietary rights over intermediated securities.¹³⁰ Yet, an additional warning is to be given about the need to have in place some kind of settlement regime, capable of (i) combining coherently both the external and the internal proprietary effects of transactions over cryptocurrencies, and (ii) counterbalancing the lack of deterministic operational finality of said transactions¹³¹ with legal mechanisms to define the moment(s) of settlement finality.¹³²

129 *Id.*, 132–133 para. 5.110.

130 See Victoria Dixon, "The Legal Nature of Intermediated Securities: An Insurmountable obstacle to Legal Certainty?," in Louise Gullifer and Jennifer Payne (eds), *Intermediation and Beyond* (Oxford: Hart 2019), 70 ff, for a detailed analysis of that pattern in cross-border settings.

131 The finality of payments and settlements on the Bitcoin blockchain is viewed as probabilistic due to the likelihood that the most recent transactions embedded in the blockchain may be undone or bitcoins may be double spent due to a formation of a fork: see Bank for International Settlements, "Annual Economic Report" (*BIS*, June 2018), 101–104 <<https://www.bis.org/publ/arpdf/ar2018e.htm>> accessed 22 February 2022. However, the same applies to the operational settlement with cash and any other means of electronic payments, as there is always a theoretical possibility of taking the cash back by using brute force or reversing the transaction due to a technical failure in the payment system, including that of a central bank.

132 The need for (and the difficulties linked to) the establishment of a regime capable of providing legal finality in Proof-of-Work blockchains are pointed out by Hossein Nabilou, "Probabilistic Settlement Finality in Proof-of-Work Blockchains: Legal Considerations" (*SSRN*, 31 January 2022) <<http://dx.doi.org/10.2139/ssrn.4022676>>. On this topic see

5.3 *The Elective Situs/Lex Creationis Approach...*

The intrinsic connection between “pure” cryptocurrencies and the system in which they originate and through which they are transferred is, instead, at the core of the approach which looks to the law governing the system, alternatively, as the “*situs*” of the assets or the *lex creationis*, *i.e.* the law of the system by which cryptocurrencies are created.¹³³ In either case, the law applicable to the system is identified with the law agreed to by participants to the system (the originator and the nodes) either explicitly or implicitly by dealing with crypto assets within the system.¹³⁴ The advantages of this approach, sometimes referred to as the “elective situs” following the model of the “contractual *PRIMA*” which labels the Hague Securities Convention, is said to lie in the fact that the effects of all the transactions within the system are governed by the same law and that participants in the system cannot complain about the application of that law since it is the law to which they have submitted, which, moreover, has the most significant connection with the crypto assets, and especially native tokens. Moreover, the law governing the system is said to be easily ascertainable both by parties to each transaction, as well as by third parties, themselves likely to be participant in the same system. The main obstacles to the elective *situs/lex creationis* approach lie, on one hand, in the possible reluctance to see the effects of a choice-of-law agreement extended to third parties who do not participate in the relevant system, and, on the other hand, in possible concerns regarding the risk of circumvention of regulatory requirements or related to the choice of a law which might be subject to undue external or private influence. The latter concerns could, however, be addressed by combining the elective *situs* rule with a requirement that the selected law has an objective connection with the system, which could, moreover, be specified through a list of factual elements which should be considered for that purpose. Alternatively, the effectiveness of the choice-of-law agreement could be made conditional upon the approval of the relevant regulatory authority (which would entail, however, the need for the relevant legislative forum to be entitled to adopt both conflict-of-laws and regulatory rules within the same national or international framework). It

also Committee on Payments and Market Infrastructures, “Distributed ledger technology in payment, clearing and settlement: An analytical framework” (*BIS*, February 2017) <<https://www.bis.org/cpmi/publ/d157.pdf>> accessed 22 February 2022; Advisory Groups on Market Infrastructures for Securities and Collateral and for Payments, “The use of DLT in post-trade processes” (*ECB*, April 2021) <https://www.ecb.europa.eu/pub/pdf/other/ecb.20210412_useofdltpostradeprocesses~958e3afic8.en.pdf?2779d0668b55434a0e67174b3f1183a4> accessed 22 February 2022.

133 Ooi (n 114), 220–221.

134 *Id.*, 219.

might be worth noticing, however, that the Council Mandate for negotiations regarding the MiCA Proposal provides that the crypto-asset white paper which, according to Article 4 para 1 litt. b, shall accompany a request for admission of a crypto asset to trading on a trading platform for crypto assets, shall contain, on one hand “the applicable law and the competent court of the offer and of the crypto-asset” (Art. 5 para 1 litt. h), and on the other, “...the following clear and prominent statement on the first page: ‘This crypto-asset white paper has not been reviewed or approved by any competent authority in any Member State of the European Union...’” (art 5 para 3).

5.4 ...with Some Addenda

However, what the elective *situs* approach fails to provide is a solution for systems (or assets) which lack any agreement as to the applicable law, and this might often be the case for permissionless systems. A comprehensive conflict-of-laws regime for proprietary effects of transactions over cryptocurrencies, based on the elective *situs* and some requirements in terms of objective connection of the selected law, therefore requires a fall-back rule,¹³⁵ which should provide different sub-rules for permissioned and permissionless systems. As for the former, the PROPA approach might be a workable solution which, like the main rule, would lead to a single law applicable to the effects of all transactions within the system. For the latter systems, the reasons for having a single law applicable to all transactions seem much weaker and, in any case, it would be very complicated to achieve this goal in light of the aforesaid difficulty to identify a meaningful objective connecting factor for permissionless systems. For those systems, the transferor’s habitual residence or registered seat might represent a practical solution, at least for the effects of transaction in cryptocurrencies outside the system, whereby in most cases it should be possible to ascertain the identity and the location of the relevant parties. For the proprietary effects of transactions relating to cryptocurrencies within the system, the principle embodied in recital 38 of the Rome I Regulation – according to which the law that applies to the contract between the assignor and assignee under that Regulation “also applies to the property aspects of an assignment, as between assignor and assignee, in legal orders where such aspects are treated separately from the aspects under the law of obligations” might serve

135 In the opinion of Florence Guillame, “*Blockchain : le pont du droit international privé entre l’espace numérique et l’espace physique*,” in Ilaria Pretelli (ed), *Conflict of Law in the Maze of Digital Platforms* (Schultess 2018), 180, in the absence of a valid choice of law agreement, the *lex fori* would be applicable, since any territorial connecting factor would be devoid of any relevance in DLT’s settings.

as a basis for discussion, at least in case the recently advanced proposition to create a legal identifier of securities for PIL purpose, which would make visible the applicable law as determined under the relevant conflict-of-law rules, will be adopted and extended to crypto assets.¹³⁶

All in all, the elective *situs* approach resonates both with the overall concept of DLTs, as a “space” where party autonomy, as embedded into the digital processes (*i.e.*, the code), creates the assets and handle them, and with the notional value of cryptocurrencies. Yet, the spontaneous process of aggregation underlying the establishment of DLT systems – at least the permissionless ones – calls for fall-back rules, based on objective connecting factors, that pursue predictability of the applicable law. Identifying the relevant party for whom, primarily, predictability should be achieved is only one of the manifold challenges ahead for lawmakers. Finding a compromise between the temptation to walk along well-known paths and the feeling (or fear) that new technologies discard even the need for (private international) law is, of course, a preliminary one.

136 Philipp Paech, “Conflict of Laws and Relational Rights,” in Louise Gullifer and Jennifer Payne (eds), *Intermediation and Beyond* (Oxford: Hart 2019), 305–307.