CHAPTER 5

Proprietary Rights in Digital Assets and the Conflict of Laws

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Digital assets – from raw data to software to Bitcoin – are among the most valuable assets in our modern economies. Their sheer variety and their novelty pose challenges not only for substantive law, but also for conflict of laws.¹ This is partly due to the speed of technological progress, but also to grey areas between the law of obligations, intellectual property law, (tangible) property law and a range of overriding mandatory provisions of a more regulatory nature, which results in a challenge for both classification and the identification of the most appropriate connecting factor(s). While the contractual aspects of transactions may be covered by the Rome I Regulation² and similar conflict-of-laws legislation outside the EU, including the 2015 Hague Principles on Choice of Law in International Commercial Contracts,³ the proprietary aspects are still very much unchartered territory. This includes, for example, the question of who has rights in crypto assets that take effect vis-à-vis third parties and how such rights can be assigned, with assignment meaning anything from full transfer of title to transfer of title by way of security to the

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provision of a security interest such as a pledge. Rights that take effect vis-à-vis third parties may be akin to ownership, but they may also be of a very different, data-specific nature. Recently, the debate has focused on crypto assets, but it seems worthwhile to set the broader scene of digital assets in general.

1 Digital Assets and Other Digital Phenomena

There is no generally recognised definition of what counts as a ‘digital asset’. Generally speaking, digital assets are items consisting of, or represented by, digital data, which are subject to a person’s control. The notion of ‘digital’ is to be understood broadly, and includes phenomena such as analogous or quantum computing. What is more difficult to define is ‘control’. Arguably, at this very abstract level of delineating the topic, control should be understood primarily as a factual concept, which refers to a degree of factual influence or power a person has over a digital asset, such as by being able to use it or to enable others to use it. This does not exclude in any way that control may normally correlate with legal authority (such as where access to an asset requires authentication

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5 See the more elaborate definition used by the 2022 ELI Principles on the Use of Digital Assets as Security: “digital asset” means any record or representation of value that fulfils the following criteria: (i) it is exclusively stored, displayed and administered electronically, on or through a virtual platform or database, including where it is a record or representation of a real-world, tradeable asset, and whether or not the digital asset itself is held directly or through an account with an intermediary; (ii) it is capable of being subject to a right of control, enjoyment or use, regardless of whether such rights are legally characterised as being of a proprietary, obligational or other nature; and (iii) it is capable of being transferred from one party to another, including by way of voluntary disposition.” European Law Institute, “ELI Principles on the Use of Digital Assets as Security” (ELI, 2022) <https://www.europeanlawinstitute.eu/fileadmin/user_upload/p_eli/Publications/ELI_Principles_on_the_Use_of_Digital_Assets_as_Security.pdf> accessed 15 March 2023.

6 See draft Principle 6(1) of the International Institute for the Unification of Private Law (UNIDROIT) Working Group on Digital Assets and Private Law, “Working Document Study LXXXI – WG.8 – Doc. 2” (UNIDROIT, March 2023), discussed at the Working Group meeting 8 to 10 March 2023 <https://www.unidroit.org/wp-content/uploads/2023/03/WG.8-Doc.-2-Draft-Principles-and-Commentary-Clean.pdf> accessed 15 March 2023: “(1) A person has ‘control’ of a digital asset if: (a) [...] the digital asset or the relevant protocol or system confers on that person: (i) the exclusive ability to change the control of the digital asset to another person ...; (ii) the ability to obtain substantially all the benefit from the digital asset; and (iii) the exclusive ability to transfer the abilities in sub-paragraphs (a)(i), (a)(ii) and (a)(iii) to another person [...] (b) the digital asset or its associated records allows that person to identify itself as having the abilities set out in paragraph (1)(a).”
and the key is provided only to the rightful holder) and/or may depend on a particular legal relationship (such as an account held with a platform operator).\(^7\) For particular purposes, such as perfection of a security interest, more specific notions of ‘control’ may need to be introduced. Looking at the landscape of digital phenomena fulfilling these conditions, it becomes clear that the relevant phenomena differ widely, which makes it difficult to imagine that there could be a uniform conflict rule for all digital assets in the broader sense. Rather, the first step must be some sort of classification, grouping digital assets into different categories that are meaningful for the purposes of a conflict-of-laws analysis. One meaningful way of classifying digital assets into different categories is putting a focus on the extent to which assets are of a rival or non-rival nature. ‘Rivalrousness’ is understood in this paper as referring to the possibility of duplicating an asset at will, and at basically no cost or delay, so that it can be used by multiple parties without being exhausted. Even where a resource is non-rival, such as a particular intellectual achievement, the law can afford a party the exclusive right to use it or to allow others to use it (legal exclusivity), or a party can apply technical measures to protect a resource from being used by others (technical exclusivity). The following table identifies five different categories of assets, relying on their relative degree of rivalrousness and/or exclusivity.

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<td>Duplication technically and legally possible for anyone in control</td>
<td>Duplication technically possible for anyone in control, but rightholder’s consent required</td>
<td>Duplication technically and legally possible for rightholder/system owner</td>
<td>Duplication technically possible for system owner, but legally binding promise not to duplicate</td>
<td>Duplication technically impossible, even for system owner.</td>
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\(^7\) The ELI Principles (n 5) use a hybrid concept instead: “control’ in respect of a digital asset means the legal power or factual capability of any natural or legal person to deal in and/or extinguish such assets, as the case may be.” However, for perfection and some other purposes, only factual control counts; see id. at 20.
The category of assets that most obviously requires analysis from a proprietary rights point of view, and that most obviously requires appropriate conflict rules for such rights, is category 3. In particular, it comprises crypto-assets and similar fully rival assets.

2 Crypto Assets – The General Background

2.1 Distributed Ledger Technology (DLT)

Data (or electronic records) can represent assets that cannot be duplicated and can only be allocated to one person at a time (or to several persons jointly), i.e., that are fully rival, and that can be subject to exclusive control. Where data fulfils these conditions it can in principle qualify as a form of ‘property’ under many legal systems in the world. In recent years, the discussion has focused on ‘virtual currencies’, ‘coins’, ‘tokens’, and similar phenomena. In order to represent rival assets, there must be a technical solution to the problem of ‘double spending’, which is achieved through a series of cryptographic procedures. Therefore, such assets are commonly referred to as ‘crypto assets’, ‘cryptocurrencies’, etc. The 2020 Proposal for a Regulation on Markets in Crypto-assets (MiCA) defines the term ‘crypto-asset’ as meaning a digital representation of value which may be transferred and stored electronically, using distributed ledger technology or similar technology. As the individual units only exist virtually, they are fully dependent on some kind of digital platform or ledger on which they are recorded and transferred. The AMLD IV (as amended by the AMLD V) defines ‘virtual currencies’ as a digital representation of value.

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8 For instance, data may qualify as a ‘bien’ pursuant to the French Civil Code, arts. 516 et seqq. or as a ‘Sache’ pursuant to the Austrian Civil Code, art. 285.


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. Strictly speaking, this definition is a little outdated since sovereign states, such as Ecuador and the Central African Republic, have recognised Bitcoin as legal tender.

Because centralised systems, where a system operator could theoretically switch off or manipulate the system, would reduce their value as property, crypto assets usually exist on distributed ledgers, in particular blockchains, which also allow for appropriate cryptography. Distributed ledger technology (DLT) is characterised by the fact that certain desired properties of a booking system – in particular protection against subsequent tampering or damage as well as independence from a central instance – are achieved by a large number of computers (‘nodes’) having each stored the identical data record. This requires constant synchronisation between the computers and a consensus mechanism, i.e., a procedure with the help of which a ‘correct’ data record is identified and finally adopted by all computers in the network. The ‘proof of work’ approach of the Bitcoin blockchain is just one of many ways of designing the consensus mechanism, in which so-called ‘miners’ solve a task at the cost of considerable computing power and are rewarded with new bitcoin if they win the validation race. Other popular consensus mechanisms include ‘proof of authority’ and ‘proof of stake’. The latter has been announced as Ethereum’s future consensus mechanism, which will leave validation to the nodes that have ‘locked up’ the highest amount of Ether.\textsuperscript{12}

Tokens are called ‘fungible’ tokens where they are exchangeable against other tokens of the same class because each token of that class represents a right or value of the same kind, and they can usually be divided into fractions. By contrast, so-called ‘non-fungible tokens’ (NFTs) are uniquely identified and thus suitable for the representation of (rights in) unique objects existing outside the ledger, such as a painting or a diamond, or of (rights in) objects existing on a different ledger (distributed or not), like a piece of digital art.\textsuperscript{13}

\textsuperscript{12} Dirk Siegel, “Technische Grundlagen,” in Sebastian Omlor and Mathias Link (eds), Kryptowährungen und Token (1st edn, Recht und Wirtschaft 2021), 101.

\textsuperscript{13} Sebastian Omlor, “Allgemeines Privatrecht,” in Sebastian Omlor and Mathias Link (eds), Kryptowährungen und Token (1st edn, Recht und Wirtschaft 2021), 257.
2.2 Endogenous and Exogenous Tokens

A central distinction is that between endogenous tokens and exogenous tokens. Endogenous tokens represent a value that only exists within the ledger. Theoretically, they serve payment purposes and are often referred to as ‘payment tokens’, ‘currency tokens’ or ‘coins’, but in reality, they are objects of speculation, as investors buy them with the expectation that their value will rise over time. Bitcoin and Ether are the two most famous types of endogenous tokens. While Bitcoin and some other endogenous tokens exist on their own blockchain, most payment tokens exist on larger platforms that host a range of different tokens or applications, such as the Ethereum blockchain. As the high volatility of most payment tokens make them attractive for high-risk investment, but unattractive as an alternative means of payment, so-called ‘stablecoins’ have been introduced, whose value does not oscillate to the same extent. The 2020 MiCA Proposal defines ‘asset-referenced token’ as a type of crypto asset that purports to maintain a stable value by referring to the value of several fiat currencies that are legal tender, one or several commodities, one or several crypto assets or a combination of such assets.

Exogenous tokens, on the other hand, are tokens representing rights that exist outside the ledger, be it claims of any sort, shares in a company or property rights. A line is drawn between so-called ‘security tokens’ and ‘utility tokens’, with the latter functioning like digital vouchers and providing digital access to a good or service supplied by the issuer of that token. The creation of a link between the digital representation on DLT and the represented right is called ‘tokenisation’. It is comparable to the process of creating traditional securities. Like with traditional securities, the issuer can create the rights and the tokens at the same time, such as by promising to grant certain rights to anyone holding the token, or it can ‘tokenise’ already existing assets. For the purpose of conflict of laws, exogenous tokens pose particular problems because there are two assets involved: the digital asset and the asset the digital asset represents.

Furthermore, some differentiate, for exogenous tokens, between so-called ‘token ledgers’ or ‘title ledgers’ on the one hand and mere ‘record ledgers’ on the other.

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14 Stefan Möllenkamp and Leonid Shmatenko, “Blockchain und Kryptowährungen,” in Thomas Hoeren, Ulrich Sieber and Bernd Holznagel (eds), Handbuch Multimedia-Recht (Werkstand 50, October 2019), n. 29 et seq.
15 MiCA Proposal (n 9), art. 3(1)(3).
16 Armin Varmaz et al., “Rechtliche und finanzökonomische Grundlagen,” in Sebastian Omlor and Mathias Link (eds), Kryptowährungen und Token (1st edn, Recht und Wirtschaft 2021), 21 et seq.
17 Wendehorst, “Art. 43 EGBGB” (n 1), n. 310.
the other hand.\textsuperscript{18} The idea of a title ledger is that, theoretically, proprietary rights regarding the represented asset should follow proprietary rights regarding the token, mirroring the situation with certificated or book-entry securities. Conversely, in the case of a mere record ledger, transactions with proprietary effect occur exclusively or primarily outside the ledger according to the law governing the represented asset, and the only asset in which there exist any independent proprietary right is the represented asset.

2.3 \textbf{The Necessity of Assigning Proprietary Rights in Crypto Assets}

Various types of crypto assets have become popular objects of speculation for both private and professional investors, and in some cases such assets account for a significant share of a natural or legal person's estate.\textsuperscript{19} Consequently, digital assets may serve similar purposes as traditional classes of assets. For instance, crypto assets may be used as collateral to secure a loan, necessitating the determination of the applicable law for the effective provision of security interests.\textsuperscript{20} Furthermore, in the event of a natural or legal person's default or bankruptcy, crypto assets 'belong' to the debtor's bankruptcy estate and thus may be liquidated for the satisfaction of creditors. In many cases, the transfer of ownership in crypto assets may take place outside the ledger. This becomes particularly clear in the case of intestate succession. The heirs acquire ownership of digital assets although they will very likely not be in actual (albeit possibly fictional) possession of public and private keys.\textsuperscript{21} Most transfers of ownership, however, occur by means of voluntary transactions on the ledger or accompanied by a booking on the ledger.

3 \textbf{Special Conflict Rules for Proprietary Rights in Crypto Assets}

If it is necessary to assign proprietary rights in crypto assets to particular parties, and to do this in a way that provides both fairness and certainty, the first question that arises is the one of which is the governing law.


\textsuperscript{21} Lehmann (n 1), 130.
3.1 Selected National Legislation

Since existing property laws and PIL rules struggle to cover all kinds of crypto assets, some countries have decided to implement specific laws to tackle these issues. However, to date, only few conflict rules exist regarding the law applicable to proprietary interests in crypto assets and similar digital assets, and many of them are mere soft law. The following overview is far from being complete and just highlights some selected approaches.

3.1.1 Liechtenstein

The Liechtenstein Law of 3 October 2019 on Tokens and VT Service Providers (Token and VT Service Provider Act; TVTG) was one of the first well developed regulatory models in Europe. According to its Article 3, the TVTG governs the legal qualification of tokens and token transfers, including with regard to third-party effects, if tokens are generated or issued by a VT Service Provider with its headquarters or place of residence in Liechtenstein, or where the parties to a transaction choose Liechtenstein law to apply in a legal transaction over tokens. The latter is particularly remarkable, as it allows parties with no connection whatsoever to the territory of Liechtenstein to subject their transaction to the laws of Liechtenstein, including regarding aspects affecting third parties. The TVTG includes a rule in Article 6 stating the requirements for a transfer or granting of a right in rem having third-party effects, with Articles 7 and 8 addressing the effects of the transfer or granting of right in rem and Article 9 dealing with bona fide purchase.

3.1.2 Switzerland

In 2020, Switzerland adapted its legal system to some of the challenges associated with DLT. With regard to conflict of laws, a very cautious approach was taken. Basically, the new Sec. 145a, which was inserted into the 1987 Federal Act on Private International Law, states that the question of whether a claim is represented by a title in paper or equivalent form (including DLT) and transferred by means of that title is determined by the law designated therein. Swiss law therefore allows for choice of a particular law for the whole DLT system. If no law is specified in the title, the law of the country in which the issuer has its

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22 Law of 3 October 2019 on Tokens and VT Service Providers Act, Liechtensteinisches Landesgesetzblatt, 2019, No. 301 (Token- und VT-Dienstleister-Gesetz; “TVTG”).


24 Federal Act of 25 September 2020 adapting federal law to developments with regard to distributed ledger technologies, in force since 1 February 2021, AS 2021 33; BBl 2020 233.
registered office or, if there is no such office, its habitual residence, shall apply. With respect to proprietary interests in physical titles, reference is made to Chapter 7 on international property law.

3.1.3 Germany

In 2021, Germany passed the Electronic Securities Act (eWpG), which is restricted to electronic bearer bonds and similar investment tools but may serve as a model for other types of securities. It introduces the possibility of creating electronic securities by way of a book-entry in either a central register (to be maintained by central securities depositories or another custodian, provided that the issuer expressly authorises the custodian to do so) or a crypto securities register (to be maintained on a tamper-proof ledger by the issuer or an entity designated as such by the issuer).

Section 32(1) of the eWpG provides that the conflict rules in Section 17a of the Custody Act (DepotG) for intermediated securities take priority within their scope of application. This concerns cases where the DepotG is applicable because electronic securities are held in collective custody, i.e., as a rule in the case of electronic securities held in collective custody based on collective entry as well as in the case of electronic securities which are registered in collective entry and which are booked by the depositary in a deposit account of the depositor pursuant to Section 9b(1) of the DepotG. Where these rules do not apply, e.g., because the electronic securities are not held through an intermediary, rights in an electronic security and transfers of electronic securities or the granting of rights in rem are governed by the law of the state under whose supervision the relevant register-keeping body operates. If the entity keeping the register is not subject to supervision, the seat of the entity keeping the register shall be taken as a connecting factor, and failing that, the registered office of the issuer.

3.1.4 United States

In the United States, conflict of laws, including with regard to digital assets, is largely state law. It was only recently that the Uniform Commercial Code Amendments 2022 were published, after having been drafted by the Uniform Law Commission (ULC) in partnership with the American Law Institute (ALI). They were approved and recommended for enactment in all the states


at the ULC meeting in Philadelphia in July 2022, after they had already been approved by the ALI Membership in May 2022. The new Article 12 contains several Sections on governing law with regard to digital assets as far as they qualify as ‘controllable electronic records’ within the meaning of the new UCC provisions. Section 12–107, in particular, determines a controllable electronic record’s jurisdiction.

In the first place, the UCC follows the principle of elective situs: if the controllable electronic record, or a record attached to or logically associated with the controllable electronic record and readily available for review, expressly provides that a particular jurisdiction is the controllable electronic record’s jurisdiction, the law of that jurisdiction applies. Where there is no such express provision at the level of the controllable electronic record (e.g. a particular class of tokens) itself, but where the rules of the system in which the controllable electronic record is recorded (e.g. the Ethereum blockchain) are readily available for review and expressly provide that a particular jurisdiction is the controllable electronic record’s jurisdiction, the law of that jurisdiction applies. In either case, an express provision that makes reference to Article 12 UCC takes precedence over a more general provision. If no such provision exists the controllable electronic record’s jurisdiction is the District of Columbia.

3.2 Proposed Legislation and Soft Law

Given the novelty of crypto assets as a phenomenon, many countries and regions as well as international organisations are still in the phase of preparing legislation, model rules and principles to guide legislators worldwide, or draft international conventions.

3.2.1 The Proposed EU Regulation on Third Party Effects of Assignments of Claims

In 2018, the European Commission published a Proposal for an EU Regulation on the law applicable to the third-party effects of assignments of claims (TPE Regulation). The original proposal does not mention crypto assets at all, but only claims in general. However, this has changed in the course of legislative work, in particular work by the Council working group. The latest document is a Council document dated 3 December 2021, displaying a 4-column table for the Regulation as resulting from the initial positions of the three EU institutions.
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The proposed TPE Regulation will most likely not apply to the third-party effects of the transfer of crypto assets, whether or not they qualify as financial instruments, including by way of security, pledges or other security rights over such crypto assets, like it will not apply to the third-party effects of the transfer of financial instruments, including by way of security. However, while claims incorporated in a certificate or represented by a book-entry, as well as claims arising out of a transferable security, will probably be excluded from the scope altogether, claims arising from other financial instruments and from crypto assets are currently proposed by the Council to be included. However, they enjoy special treatment. While the default rule for claims is that third-party effects of an assignment shall be governed by the law of the State in which the assignor has its habitual residence at the material time of the conclusion of the assignment contract, the third-party effects of the assignment of cash claims and electronic money claims, as well as claims arising out of, inter alia, financial instruments and crypto assets, shall be governed by the law applicable to the assigned claim.

As the TPE Regulation will not apply to the transfer of crypto assets as such, its significance for the law applicable to proprietary rights in crypto assets will be limited, but the fact that third party effects of the assignment of claims arising from crypto assets will most likely be subjected to the law governing the assigned claim, this may be an argument for considering this law also for the proprietary rights in the underlying assets themselves.

3.2.2 ELI Principles on the Use of Digital Assets as Security

In early 2022, the European Law Institute (ELI) published the ‘ELI Principles on the Use of Digital Assets as Security’. These address only security interests such as a pledge, but, as it would be difficult to apply a different law to transfers of title (considering, in particular, that full title may be transferred also for security interest purposes), the views expressed by its authors are relevant for proprietary interests in digital assets in general. The Principles start by clarifying that they are without prejudice to the treatment of digital assets already regulated as financial instruments under national law and, where applicable, EU or other supranational law. The Comments elaborate that the Principles do not apply at all, inter alia, to financial instruments within the meaning of Article 4(1)(15) of the Second Markets in Financial Instruments Directive.
(MiFID II)\textsuperscript{32} and to electronic money within the meaning of Article 2(2) of the Second E-Money Directive\textsuperscript{33} (unless tokenised).\textsuperscript{34} This is in order not to interfere, in particular, with the Financial Collateral Directive (FCD)\textsuperscript{35} and the Settlement Finality Directive (SFD).\textsuperscript{36}

The Principles designate primarily the law of the jurisdiction in which the security provider has, at the time of the creation or perfection of the security interest, its place of business, or its central administration (if it has a place of business in more than one jurisdiction) or the law of the jurisdiction in which the security provider has its habitual residence as the law applicable to both creation and perfection of a security interest. However, this is not the case where the digital asset itself is clearly connected with one particular jurisdiction, in which case the law of that jurisdiction is to be the applicable law. The Comments give the example of a permissioned DLT system, established by an identifiable issuer in an identifiable jurisdiction, operating subject to the laws of that jurisdiction and intended to operate within a single legal system which is known to all permissioned participants. By contrast, the general rule of the place of the security provider should, according to the Comments, prevail for digital assets held through a custodian or another intermediary, as the law of such custodian or intermediary could also be relevant in designating the law that is most closely connected with a security arrangement.

3.2.3 UNIDROIT Work in the Field
As part of 2020–2022 Triennial Work Programme, a Working Group of the International Institute for the Unification of Private Law (UNIDROIT) has been


\textsuperscript{34} \textit{Id.} at Principle 1(4). A range of further types of assets has been excluded, mirroring exclusions from the scope of application of the MiCA Proposal. It is not clear, though, why this has been done as the relevant EU law focuses on supervisory matters.


established with the objective to develop a future legal instrument containing principles and legislative guidance in the area of private law and digital assets. The preparation of a guidance document is expected to be adopted in 2023.

The **UNIDROIT** Working Group (Working Group on Digital Assets and Private Law – DAPL WG) had pursued, from the beginning, an approach according to which the law applicable to propriety questions in respect of digital assets should be identical for all digital assets of the same description. This is significantly different as compared with the ELI Principles, which favour the location of the security provider, thereby accepting that very different laws apply regarding digital assets of the same description. The **UNIDROIT** drafts then continue by setting out a waterfall of connecting factors, referring to the law chosen at the moment of the first issuance of assets being of a specific description, and, failing that, the law generally chosen for the network/system on which the relevant digital assets are created. On the question of what should be the third step of the waterfall, there have been remarkable changes during the work of the Working Group. Study LXXXII - W.G.5 - Doc. 3 of February 2022 still referred to the law of the State with which the network/system has the strongest factual connection, in particular through any location of the network operator. Following the adoption of the new Article 12 **UCC** by both the ALI and the ULC, the **UNIDROIT** Working Group, in its subsequent Working Group meetings, clearly sought to align Principle 5 with the solutions now favoured by U.S. law by referring, at the third step of the waterfall, to the Principles themselves. However, the negotiations during the 8th session of the Working Group in March 2023 seem to have reversed this course, with the latest version of the conflict-of-laws provision showing much less U.S. influence and a more nuanced approach.

Principle 5 of Study LXXXII - W.G.8 - Doc. 6, dated March 2023, determines the law applicable to property issues in relation to a digital asset to be primarily the domestic law of the State, or these Principles, or the relevant Principles or aspects of these Principles governing property issues, expressly identified in the digital asset as the law applicable to such issues. Where this is not the case, reference will be made to the national law of the State which is expressly identified in the system or platform on which the digital asset is recorded as the law applicable to such matters. At the third step of the waterfall, there is now a reference to the issuer, which is defined as the legal entity that has placed the digital asset into the stream of commerce for value. There are still several

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options at the bottom of the waterfall, all of which give a state considerable freedom to choose the appropriate rules for a forum located in that state. The current design of the UNIDROIT conflict-of-law rule is therefore a combination of the US model and the Swiss approach, although other influences are also evident. According to its mandate, the DAPL WG aims to finalise the draft UNIDROIT Principles in 2023.  

3.2.4 HCCH Work in the Field  
The Hague Conference has been considering starting work on private international law aspects of digital assets for some time. At its 2020 meeting, the Council on General Affairs and Policy (CGAP) invited the Permanent Bureau (PB) to monitor developments. At the 2021 CGAP meeting, the PB invited CGAP to consider creating an Experts’ Group to assess the desirability, necessity and feasibility of a new instrument on jurisdiction, applicable law, recognition and enforcement in respect of digital assets. The Preliminary Document No. 4 of November 2020, which was discussed at the 2021 CGAP meeting, includes a table with no less than 12 alternative connecting factors for determining the law applicable to proprietary rights in digital assets which lists the benefits and downsides of each solution without indicating a clear preference. The document relies heavily on a study conducted in 2018 by the UK Financial Markets Law Committee, which listed an equal number of connecting factors without a clear conclusion. At the 2022 CGAP meeting, an extended report on current developments was submitted, and the 2023 CGAP meeting revealed that the HCCH will closely cooperate with UNIDROIT in the field as the PB and the UNIDROIT Secretariat have discussed continued cooperative work on a joint project focused on digital assets and tokens (“HCCH-UNIDROIT Digital Assets and Tokens Project”). The project would, broadly, build on and expand the work that has been carried out by the DAPL WG, in particular Principle 5 of the draft UNIDROIT Principles.
4 Use of DLT for Traditional Classes of Assets

Due to the broad variety of digital assets, including crypto assets, it may be difficult to formulate one single set of conflict-of-laws rules, and different classes of assets may require differential treatment. To start with, DLT may be used to complete transactions in very traditional classes of assets.

4.1 Central Bank Digital Currencies (CBDC)

Central banks can, in principle, issue currencies that are legal tender in whatever form. Historically, central bank currencies have been coins and banknotes, with additional money being created by commercial banks handing out loans and lending money from the central bank. Theoretically, a central bank can decide to no longer mint metal coins and print paper banknotes, but to issue digital coins instead and give them the same status as cash has today. For CBDC to become legal tender, existing legislation usually needs to be amended, stating, or at least clarifying, that CBDC have the same status as cash. Ideally, this legislation would then also clarify whether units of the CBDC are to be treated analogously to tangible property or in some different manner, or even include an explicit conflict-of-laws rule.

For CBDC that replace physical coins and banknotes, there are, in principle, two alternative connecting factors: (i) the seat of the issuing central bank; or (ii) the place of the relevant holder, with the usual uncertainties as to how this place is to be determined (e.g., whether it is physical presence that counts, or residence, habitual residence, domicile, central administration, relevant branch office etc.). Alternatively, CBDC could be submitted to the same conflict-of-law rules as other crypto assets.

At a closer look, it seems to be preferable to go for the first solution, i.e., to apply the law of the state where the issuing central bank has its seat. This seat will not only be much easier to determine than the place of the current holder (not to mention the possibility of joint holders in different countries) and be much more stable, but the law of that state will naturally also include legislation about the CBDC in general, including on the conditions under which the CBDC is issued, whether it is to be treated analogously to cash under a legal fiction or in some different manner and other details. It would be unfortunate to risk a clash between any provisions in such legislation and another law applicable to proprietary rights in CBDC. Therefore, proprietary rights in CBDC should be governed by the law of the state where the issuing central bank has its seat.

4.2 **Tokens Qualifying as Electronic Money**

Furthermore, credit institutions and other institutions are authorised to issue electronic money under the legal provisions implementing the E-Money Directive and can, in principle, do so in any appropriate electronic form. For instance, it would be admissible to have the e-money stored on a magnetic strip or chip embedded in a prepaid card, or within software on a terminal device, but there is nothing that would prohibit issuing electronic money with the help of DLT. Therefore, tokens may already today directly qualify as e-money given that they entail a claim of the holder against the issuer.

However, there exist also crypto assets referencing a single fiat currency but failing to provide their holders a contractual right to redeem their electronic money at any moment against fiat currency that is legal tender at par value with that currency. To avoid circumvention of the rules laid down in the E-Money Directive, the MiCA Proposal now suggests extending the strict provisions that apply to the issuers of e-money to the issuers of crypto assets referencing a single fiat currency (‘e-money tokens’), so such tokens would, in the future, be subject both to the E-Money Directive and the proposed MiCA Regulation.

Neither the E-Money Directive nor the proposed MiCA Regulation include any provisions on applicable law. Again, there is basically the choice between (i) the seat of the issuer of the e-money, or rather the state under whose supervision the issuer of the e-money operates, and (ii) the place of the current holder of the e-money. Whereas the state under whose supervision the issuer operates (and which will normally coincide with the seat of the issuer) may not be as obvious and as stable as that of a central bank, there may still be convincing reasons to go for the law of that state rather than for the law at the place of the current holder: given that the law of the relevant supervisory authorities will normally also define the conditions under which e-money may be issued, redeemed against fiat currency, etc., it would be unfortunate to risk a clash between that law and any other law deciding about proprietary rights in e-money.

4.3 **Tokens Qualifying as Financial Instruments**

Finally, there is nothing to stop a legislator from introducing financial instruments, in particular securities, in electronic form and/or on DLT. Nowadays, much of the market in financial instruments is electronic anyway, with a book entry in an account replacing possession of the physical certificate.

4.3.1 Traditional Rules for Intermediated Securities

Even though certified (paper) securities are a phenomenon of the past, some countries, such as Austria or Germany, have been clinging to a ‘quasi-physical
fiction’ until today\textsuperscript{45} with holders becoming co-owners of a fraction of a global certificate held in collective safe custody. The holder’s co-ownership share in the securities portfolio is evidenced by the account statement of the holder’s commercial bank. The actual custody and administration of securities from domestic issuers takes place at the relevant Central Securities Depository (CSD). Securities from foreign issuers are held in safe custody with a foreign central administrator, which maintains mutual account details with the domestic CSD. When Germany introduced ‘electronic securities’ to be registered either in a central register or in a crypto securities register (see above at 3.1.3), the ‘quasi-physical fiction’ was upheld, \textit{i.e.}, even electronic securities are treated analogously to tangible property under German law. Other countries, such as Switzerland, have long taken the step to introduce fully ‘paperless’ securities, with registration in a securities registry required in lieu of issuance of individual or global certificates, with transfer occurring by way of assignment.\textsuperscript{46} There are also many countries adhering to the securities entitlement system, such as the U.S.,\textsuperscript{47} whereby the holder normally has rights only against the next intermediary with whom the holder has an account.

Tokens which directly qualify as financial instruments, in particular securities, should also be treated like financial instruments for conflict-of-laws purposes. This means for EU Member States that provisions implementing Article 9(1) of the FCD and Article 9(2) of the SFD apply in the first place. Although they have a somewhat limited scope of application, it is arguably not advisable to restrict the conflict rules expressed therein to that narrow scope, but instead to take them as the basis for a more general principle designating the law applicable to intermediated financial instruments. Reference is made to ‘the law of the country in which the relevant account is maintained’ and to the law of the Member State in which the ‘register, account or centralised deposit system’ is located in which security rights are ‘legally recorded’. The applicable law is therefore more generally the law of the state of the account where the right in question is recorded, which, in the case of intermediated securities, is the security provider’s account in the case of a pledge or similar security right, and the transferee’s account in the case of a full transfer of title.\textsuperscript{48}

\textsuperscript{45} Cf. Austrian Securities Deposit Act (\textit{Depotgesetz}), section 5; German Safe Custody Act (\textit{Depotgesetz}), section 6.
\textsuperscript{46} Matthias Lehmann, \textit{Finanzinstrumente} (Mohr Siebeck 2009), 83 \textit{et seq}.
\textsuperscript{47} See Part 5 of the Uniform Commercial Code (\textit{UCC}).
\textsuperscript{48} Wendehorst, “Art. 43 EGBGB,” (n 1), n. 233, 243 \textit{et seq}. 
For the Contracting States applying the 2006 Hague Securities Convention, the conflict rules provided by that Convention will apply instead. However, the question arises what this may mean for digital assets.

4.3.2 When Do Intermediated Digital Assets Qualify as Intermediated Securities?

Digital assets held by an intermediary may fall under the rules for intermediated securities, and if they do, the conflict rules derived from the FCD and SFD or the 2006 Hague Securities Convention will take priority. Looking at the wording of the relevant provisions, there is not much guidance concerning the types of custody covered. However, it is also clear that the relevant rules have been drafted with the centralistic and highly regulated system of clearing and settlement mechanisms in mind, which exists regarding transferable securities in current accounts and where a book-entry may trigger immediate proprietary or quasi-proprietary effects.

Originally, reducing reliance on intermediaries was one of the main reasons for parties to use DLT, as DLT may allow participants in a peer-to-peer network to hold and transfer assets without any additional service providers. In reality, though, this is hardly ever the case. Rather, a very diverse ecosystem of different service providers has come into existence. The MiCA Proposal already lists eight different types of ‘crypto-asset services’: the custody and administration of crypto assets on behalf of third parties, the operation of a trading platform for crypto assets, the exchange of crypto assets for fiat currency that is legal tender, the exchange of crypto assets for other crypto assets, the execution of orders for crypto assets on behalf of third parties, the placing of crypto assets, the reception and transmission of orders for crypto assets on behalf of third parties and providing advice on crypto assets. The service that is most akin to the service provided by intermediaries which the drafters of the FCD, SFD or the 2006 Hague Securities Convention had in mind is the custody and administration of crypto assets on behalf of third parties, i.e., a type of service normally provided by wallet providers and crypto exchanges.

Where crypto assets directly qualify as securities or other financial instruments, and where a provider of custody services actually holds the crypto assets in a register of positions, opened in the name of each client, corresponding to each client’s rights to the crypto assets, it will at first sight be difficult to argue why the existing conflict rules for intermediated securities...
should not apply. At a closer look, a major difference seems to be that the register in which the entry triggering proprietary or quasi-proprietary effects is made is not the account opened for the individual client, but the distributed ledger on which the relevant crypto asset exists. In other words: where Alice transfers traditional book-entry securities to Bob, Bob will hold a proprietary or quasi-proprietary right in the book-entry securities once they have been booked to his account, with an intermediary taking part in the relevant clearing and settlement system. However, where Alice transfers to Bob crypto assets via a crypto-assets service provider, what counts is whether Bob’s custody provider has actually acquired the assets for Bob on the distributed ledger on which they exist. So, the relevant book-entry with proprietary effects is in the distributed ledger, not in the register of positions held with the intermediary.

At the end of the day, this difference may be relevant for the EU approach, which still relies on the actual ‘location’ (in terms of state supervision or seat) of the relevant register or account in which the proprietary or quasi-proprietary effects are triggered. Countries adhering to this approach will apply PRIMA only where the effect of a book-entry with regard to electronic securities is comparable to the effects of a book-entry with traditional securities. However, for countries that have largely given up the idea of actual ‘location’ of a register or account, including countries following the Hague Convention approach of relying on the law chosen by the parties to the account agreement (with certain limitations to choice), the difference will be less relevant. So, at least for those countries, the conflict rules applied for intermediated securities may already be applicable to DLT-based securities.

5 The Law Applicable to Proprietary Interests in Tokens beyond Existing Conflict Rules

This leaves a gap for digital assets that either (i) do not qualify as securities or other financial instruments and therefore do not fall under any of the recognised conflict rules (e.g., bitcoin, stablecoins, utility tokens or NFTs); or that (ii) qualify as securities or other financial instruments within the meaning of financial markets law, but for which existing conflict rules do not fit. The latter may be the case, e.g., where a legal system has rules only for intermediated securities, but the securities in question are not held through an intermediary, or the relevant conflict rules for intermediated securities do not fit the situation with DLT and the legal system has not yet created a fall-back regime, such as Germany has created with Section 32 of the eWpG.
5.1 **Special Conflict Rules for Exogenous Tokens?**

In a first step, the question arises whether proprietary rights in exogenous tokens (see above at 2.2) are potentially governed by a different law than the law governing proprietary rights in the represented asset, or whether the former is always identical with the latter.

5.1.1 **The Law Governing the Effects of Tokenisation as Such**

At a closer look, the question falls into two parts, the first being that of the link between the digital asset and the represented asset. If, for example, the ownership of a painting is ‘tokenised’ the question arises whether and, if so, under what conditions the transfer of the token to another participant in the network also transfers ownership of the painting. By and large, this must be decided by the law governing proprietary rights in the represented asset, i.e., in the example of the painting, usually the place where the painting is located (according to the *lex situs rule*, which is almost universally recognised), in the case of claims, the law governing the claim (according to Article 14 (2) Rome I Regulation) and in the case of company shares, the law governing the company, etc.

Ideally, the law governing proprietary rights in the represented asset will fully clarify the relationship with the digital asset. The Liechtenstein Law on Tokens and Trusted Technology Service Providers (TVTG) can be cited as an example. Article 7(1) of the TVTG states that the transfer of the token has the effect of the transfer of the right vested in the token. However, if the legal effect does not occur by operation of law – for example, because registration is required – the transferor must ensure by appropriate measures that the transfer of the token directly or indirectly leads to the transfer of the right represented, and the represented right cannot be transferred to a different person in the meantime. Furthermore, pursuant to Article 8 of the TVTG, the person entitled to transfer the token as identified by the system shall be deemed to be the lawful owner of the right represented in the token vis-à-vis a third-party debtor, and the debtor shall be discharged by payment to the person designated by the system as the owner of the token, unless the debtor knew or should have known that the designated owner is not the lawful creditor.

Where the law governing proprietary rights in the represented asset does not recognise the proprietary effects which the parties tried to achieve through tokenisation, there is still the possibility that a consensual transaction in the booking system can be construed as an exchange of at least implied declarations of intent which, according to the rules applicable outside the booking system, can nevertheless bring about legal effects. This will often be the case,

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50 Wendehorst, “Art. 43 EGBGB,” (n 1), n. 200.
51 See now, however, the TPE Regulation (n 27).
for example, with assignments of claims and other intangibles, but also potentially with tangible property if the law applicable to proprietary rights follows the consensus principle. Even where this is not the case, the transaction on the ledger may produce a contractual obligation to transfer the represented right outside the ledger by conventional means.

5.1.2 The Law Governing Proprietary Rights in the Digital Asset

While it is not very controversial that the law governing proprietary interests in the represented asset must decide about the effects of tokenisation, including about the effects a transfer of the digital asset has on the represented asset, it is not clear whether the third-party effects of a transfer of the digital asset are governed by the same law or by a different law.

Obviously, having proprietary interests in the token be governed by the same law that is already governing proprietary interests in the represented asset would have a range of advantages. There would be a clear connecting factor, and clashes between possibly diverging results achieved by the one law or by the other would be avoided. For instance, if the token represents ownership in a (physical) painting and the lex situs with regard to the painting would not allow a bona fide purchase where the purchaser buys from a thief, it would be consistent not to allow a bona fide purchase of the token where the private key had been stolen from the legitimate holder. On the other hand, this would also mean that where the painting is moved across borders to the territory of a State whose law does allow a bona fide purchase in this situation, the same would apply for the token, i.e., the law applicable to proprietary interests in the token would change as the law applicable to proprietary interests in the represented asset changes. This would be inconsistent with the desire for certainty and security which the parties to a token transaction usually have and which is the main motivation for tokenisation.

Interestingly, among the many different options discussed in legal literature and by UNIDROIT (see above at 3.2.3) and HCCH (see above at 3.2.4), having the law governing proprietary interests in the represented asset automatically govern proprietary rights in the token does not seem to be very popular either. At the end of the day, it seems that the law governing proprietary rights in the digital asset should not automatically coincide with the law governing proprietary rights in the represented asset.

5.2 Connecting Factors Focusing on the Parties Involved

By and large, two different types of connecting factors exist: connecting factors focusing on the parties involved in a transaction and connecting factors focusing on the asset itself. The former can be divided into connecting factors focusing on the location of the holder or transferor and connecting factors focusing on an intermediary or account.
In the law of obligations, the applicable law is usually determined by connecting factors that have something to do with the parties, be it a choice of law by the parties, the parties' habitual residence or the place where some activity of a party occurred. As far as proprietary aspects are concerned, and at least where the legitimate interests of third parties come into play, this kind of connecting factor is less common. The habitual residence of the assignor is now being proposed as a default rule in the draft EU Regulation on Third-Party Effects of Assignments of Claims (see above 3.2.1), but not for electronic money claims or claims arising from financial instruments or crypto assets. A similar rule has been proposed by the UNCITRAL Model Rules on Secured Transactions,\(^52\) but generally as a default rule with regard to intangible assets, with many exceptions for particular types of intangible assets and without having considered the specificities of crypto assets at the time. The only major instrument that seems to be proposing the place of the security provider as a connecting factor specifically for digital assets is the ELI Principles on the Use of Digital Assets as Security (above at 3.2.2).

A very different group of party-focused connecting factors are used by the many variants of the PRIMA (Place of the Relevant InterMediary Approach) principle, including its modification by the Hague Securities Convention, which is better characterised as AAA (Account Agreement Approach). These connecting factors are not focused on the parties to a transaction, but on the intermediary or the account agreement, chosen by one of the parties to a transaction, be it the transferor (security provider) or transferee (security taker). As has been explained in more detail above (see at 4.3.2), the type of intermediaries we find in the context of crypto assets (custody providers) are not fully comparable to the type of intermediaries we see in the context of intermediated securities, as the book-entry that triggers proprietary or quasi-proprietary effects does not occur in the account which the individual holder has with its intermediary but in the distributed ledger. Interestingly, the approach is hardly being discussed in the context of crypto assets, except under the heading of 'location of private user key'.\(^53\)

5.3 Connecting Factors Focusing on the Digital Assets

Another group of connecting factors focuses on the digital assets themselves, trying to achieve uniformity of solutions within the same type of digital assets, such as a particular type of tokens issued by a particular issuer. This is an


\(^{53}\) Financial Markets Law Committee (n 18), 18.
objective stressed, in particular, by the UNIDROIT work in the field (see above at 3.2.3). Such connecting factors would normally be associated with a public register, with the issuer, with the network operator or with another person (different from the parties to a transaction) that has something to do with the digital assets.

5.3.1 Lex Libri Siti
Where digital assets require, by virtue of public law, an entry in a public register, the place of that register is an obvious connecting factor. The 'place' cannot mean the location of the relevant servers, though, as server location is hardly an appropriate and reliable criterion. Rather, the place of a register is primarily the state under whose supervision the register is maintained, i.e., to whose regulation the entity maintaining the register submits its activities, and if the entity maintaining the register is not under supervision, the state where that entity has its seat.\(^\text{54}\)

5.3.2 Elective Situs
Another possible connecting factor is choice of law by the issuer (i.e., at the level of the class of digital assets, such as tokens resulting from one and the same ICO), or by the system administrator (i.e., at the level of the DLT network) in a way that is visible to all relevant participants, so that any person participating in the system can be deemed to have accepted the choice ('elective situs').\(^\text{55}\) The arguments otherwise put forward against the choice of the applicable law in international property law would not apply, provided that this choice of law is recognisable to any third party at first glance. Of course, there remain concerns that the interests of certain parties could be harmed by the choice of the most liberal law possible, which is why one could also consider restricting available legal systems to those that have some minimum contacts with the issuer or the system administrator.\(^\text{56}\)

Where digital assets are subject to registration under a particular legal system, there are strong arguments for deeming the issuer to have chosen the law of the relevant state. In any case, the choice of law would neither affect supervisory law nor investor protection law, but only property law.

\(^{54}\) Wendehorst, “Art. 43 EGBGB,” (n 1), n. 212; Michael Born, Europäisches Kollisionsrecht des Effektengiros (Mohr Siebeck 2014), 71.


\(^{56}\) Financial Markets Law Committee (n 18), 16.
5.3.3 LIMA
If the issuer of a digital asset is known and its seat is sufficiently clearly recognisable for third parties, the seat of the producer or issuer seems to lend itself *(Location of the Issuer Master Account; ‘LIMA’ principle).*\(^{57}\) According to the TVTG of Liechtenstein, tokens are also considered domestic assets if they are created or issued by a provider of so-called ‘trusted technologies’ *(vt service provider)* domiciled in Liechtenstein. However, a link to the seat of the issuer requires that its identity and domicile are clearly recognisable to third parties, which is not necessarily the case, particularly with cryptocurrencies (which often do not have an identified issuer), but also with many tokens.

5.3.4 PROPA and PREMA
As an alternative to LIMA – especially if a creator or issuer in the narrower sense does not exist or its registered office is not precisely known – it is also possible to focus on the location of another central authority, if such an authority exists.\(^{58}\) This can be a state authority or a body *(e.g., a foundation)* that takes over the administration of the system *(Place of the Relevant Operating Authority/Administrator; ‘PROPA’ principle)*. The seat of a body that holds a system-relevant master key, with the help of which coercive transactions can be carried out, for example, based on a court order *(Primary Residence of the Private Encryption Master key-holder; ‘PREMA’ principle)*, can also be considered. However, the PREMA principle leads to problems if several authorities hold a master key.\(^{59}\)

5.3.5 Other
Other connecting factors mentioned, such as the residence of the programmer *(Primary Residence of the Coder; ‘PResc’ principle)*,\(^{60}\) seem to be rather far-fetched. Be that as it may, it is clear that, for many types of assets – such as bitcoin – almost all attempts to establish a clear connection with a particular state will lead to less than satisfactory results. However, from the beginning, there will always be some entity connected in some meaningful way with a cryptocurrency. Scholars have proposed, for example, to seek a connection

\(^{57}\) Frank Schäfer and Thomas Eckhold, in Heinz-Dieter Assmann, Rolf A. Schütze and Petra Buck-Heeb (eds), *Handbuch des Kapitalanlageerrechts*, (5th edn, C.H. Beck 2023), § 16a n. 49, assuming this as the only possible connection.


\(^{60}\) Ng, (n 55), 334; Financial Markets Law Committee (n 18), 22.
to the law of the US state of Massachusetts as a way out for the Bitcoin blockchain.\footnote{Ng, (n 55), 336 et seq.}

5.4 Discussion

Arguments put forward by the ELI Principles in favour of having proprietary rights in crypto assets governed by the place of the transferor (security providers, etc.) are: that the rule is straightforward in its application and does not require any complicated classification of digital assets, that it is relatively stable and transparent vis-à-vis security takers, that it offers a point of reference for deciding on the relative priority of competing claims, that it would in most cases coincide with the relevant insolvency law and that it would facilitate bulk transfers, thus serving the interests of the takers of security in heterogeneous portfolios of assets.\footnote{European Law Institute (n 5), 27}

Arguments put forward against this rule are: that it requires a complicated mechanism for determining priority of security interests, poses problems in cases of joint transferors, chains of assignments or change of habitual residence, that the rule artificially splits up the DLT record and may harm the interests of third parties for whom it may be difficult or impossible, in particular in a pseudonymised DLT environment, to determine the habitual residence of a participant at a given point in time.\footnote{HCCH (n 49), 10.} Also, it would not coincide with law applicable to claims arising from crypto assets under the proposed TPE Regulation, nor would it coincide with the law applicable to intermediated securities.

Conversely, the advantage of connecting factors that focus on the digital assets themselves is that proprietary rights in one and the same identified asset, as well as in one and the same class of assets, will be governed by one law, which greatly helps with chains of assignment and determining priority of competing claims. These connecting factors are also immune against changes in habitual residence, changes of custody service provider and problems of joint ownership. Provided the law applicable regarding the same class of digital assets is sufficiently visible to third parties, this guarantees the kind of certainty required regarding proprietary aspects. Also, given that claims arising from crypto assets will most likely be governed by the same law as the crypto assets themselves, a connecting factor focusing on the crypto assets would more likely coincide with the law designated by the proposed TPE Regulation for claims.

Not surprisingly, the downside is that bulk transactions (such as the creation and perfection of security interests in heterogeneous portfolios of assets) are made more complicated, as each type of asset included in the portfolio
would potentially be governed by a different law. Conflict rules would take the form of rather complicated waterfalls, and waterfalls may be different from country to country.

6 Summary

The law governing rights with third party effect (proprietary rights, rights in rem) in digital assets has been a point of controversy for some time, particularly regarding crypto assets. Part of the problem stems from the fact that crypto assets exist on distributed ledgers and therefore cannot be ‘located’ in the way tangible assets can, but that they cannot readily be qualified as ‘rights’, either.

Theoretically, a similar phenomenon has existed for a long time with book-entry securities, which are also intangible but at the same time distinct from any underlying shares or claims and designed to facilitate the latter’s circulation. There is no unanimous view globally as to how proprietary rights in book-entry securities should be dealt with under the conflict of laws, but most approaches would try to ‘locate’ the relevant book-entry that records the proprietary right in question. There are different methods of ‘locating’ book-entries, such as by reference to the place of the intermediary maintaining the relevant account (PRIMA), to the law designated to govern the relevant account agreement (AAA) or combinations thereof. As the world is seeing a convergence between certified, book-entry and electronic securities, as well as between cash, bank and cryptocurrencies, analogies may be drawn. However, this must be done with caution, e.g., while there exists a rather clear notion of what counts as an ‘intermediary’ in the context of intermediated securities, this is much less clear in the case of crypto assets.

By and large, two main opposing views seem to exist. The one, taken by the ELI Principles on the Use of Digital Assets as Security, takes the location of the holder (transferor, security provider) as the connecting factor for all crypto assets that are not already subject to existing conflict rules. The advantage of this rule is its simplicity and uniformity, as well as the legal certainty it provides for bulk transactions where the identity of the transferor is known to the transferee. Its downsides are complications in the context of chains of assignments, joint holders and changes of location, and it fails altogether in contexts where the identity and location of the holder is unknown. The other approach, which seems to be the prevailing view so far, seeks to achieve uniformity of results within one and the same class of assets, such as coins generated in the course of one and the same issue, trying to ‘locate’ a particular crypto asset in
accordance with a choice of law (elective situs) or some objective criterion (such as the seat of the issuer), usually ending up with a waterfall of connecting factors or several different waterfalls. With crypto assets such as bitcoin, any convincing 'location' will normally fail, so there needs to be a solution for the bottom of the waterfall.

With the imminent adoption and publication of UNIDROIT’s work on Digital Assets and Private Law, in particular its Principle 5, a major step forward will be taken. Broadly speaking, it introduces a waterfall that starts with choice of law made for digital assets of the same description, failing that choice of law made for the relevant network or system. The waterfall continues with the seat of the issuer and ends with a range of solutions close to a lex fori principle. As HCCH and UNIDROIT have now jointly announced to start a “HCCH-UNIDROIT Digital Assets and Tokens Project”, more clarity is to be expected soon: there is thus light at the end of the tunnel.