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DIGITAL ASSETS IN THE CONFLICT OF LAWS: A COMPARATIVE SEARCH FOR THE "IDEAL RULE"

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Which law governs assets recorded on the blockchain? This question has long eluded legal academia and practice. Now, states have begun to enact hard and fast rules. This contribution compares legislative provisions of a number of states and a recently adopted text by UNIDROIT. The analysis of these rules shows the emergence of a new gulf in the conflict of laws. This gap must be overcome before the differences are further entrenched and reciprocated by other states which have not yet regulated the question. The means to do so is a uniform text of conflict of laws. An attempt will be made to distill an "ideal" conflicts rule for digital assets from the existing provisions. The proposal made here can serve as a blueprint for national legislation or case law. It is hoped that it will lead to a worldwide consensus in determining the law applicable to digital assets.

I. Introduction

The question of the applicable private law rules to assets recorded on a blockchain is one of the most significant problems raised by Distributed Ledger Technology ("DLT").[1] Only die-hard crypto enthusiasts take the slogan "code is law" at face value and believe the technology will work without legal rules. Countless instances of crypto theft, hard forks, and bankruptcies of crypto exchanges, like FTX, provide ample proof of the need for a legal system as a secure framework.

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[1] On the notion of DLT, see Daniel T Stabile, Kimberly A Prior & Andrew M Hinkes, *Digital Assets and Blockchain Technology: US Law and Regulation* (Cheltenham: Edward Elgar, 2020) at 7–26; Andreas M Antonopoulos, *Mastering Bitcoin* (Sebastopol: O'Reilly, 2015) at 15, 24; Michel Rauchs *et al*, "Distributed Ledger Technology Systems: A Conceptual Framework", Cambridge Centre for Alternative Finance <https://www.jbs.cam.ac.uk/wp-content/uploads/2020/08/2018-10-26-conceptualising-dlt-systems.pdf> (August 2018) at 15; Roger Maull *et al*, "Distributed ledger technology: Applications and implications" (2017) 26(5) Strategic Change 481 at 483 *et seq*; Claudia Antal *et al*, "Distributed Ledger Technology Review and Decentralized Applications Development Guidelines" (2021) 13(3) Future Internet 62.

But which legal system? This is the question of conflict of laws. Its importance for the crypto economy can hardly be overstated. Without a secure determination of the applicable private law, any acquisition of cryptocurrencies and other digital assets will be subject to grave legal uncertainty. This would deter potential investors and deprive the blockchain of its efficiency and attractiveness.

The notion of "digital assets" as it is used here primarily covers crypto-assets, *ie*, assets recorded on a blockchain, such as cryptocurrencies, tokens, stablecoins, and Non-Fungible Tokens ("NFTs"). Yet it also encompasses other assets recorded electronically, such as items in computer games (*eg*, characters, skins or weapons), which may be of significant economic value.

A passionate debate about the conflict-of-laws rules appropriate for digital assets has unfolded in literature.[2] Meanwhile, national legislators and courts have grappled with the problem. This contribution compares new statutory, judicial and soft-law approaches to this question, which serves several purposes: first, to guide private actors on how to navigate the maze of different legal systems. Second, to inform other states on the preferable approach and perhaps cause those that have already adopted a rule to rethink it. Third, to suggest to international institutions how to further harmonise such conflict-of-laws rules, for instance, the Hague Conference on Private International Law ("HCCH") and its recent project on "digital tokens".[3]

The jurisdictions analysed in this contribution have been selected following a simple principle: only specific conflict-of-laws rules for blockchain issues are covered. In other words, only black letter rules are considered, irrespective of whether their origin is legislation, case law or soft law. Countries or international organisations that do not address the issue but only plan to introduce a specific rule or solve the problem based on general principles are ignored. The methodological approach followed is empirical: it will primarily be examined what the rules actually say to find out how the law should be. The underlying assumption is that these rules have been developed for good reasons and respond to social needs, which is why they may serve other states as a blueprint for fashioning their own rules. Yet, they cannot all be adopted and applied simultaneously as a universal set of rules, given that some contradict others. That is why, in the end, some choices will be made to combine them into an "ideal rule".

The rest of this contribution is structured as follows: the ensuing part will present and analyse the various black letter rules that have been adopted. The third part justifies why they can be compared. The fourth part then develops an "ideal rule" based on the existing legal rules. Finally, the fifth part concludes the findings of this study with the proposal of a precise rule.

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[2] Michael Ng, "Choice of law for property issues regarding Bitcoin under English law" (2019) 15(2) J Priv Intl L 315; Koji Takahashi, "Law applicable to proprietary issues of crypto-assets" (2022) 18(3) J Priv Intl L 339; Tan Shao Wei, "Transnational Transactions on Cryptoasset Exchanges: A Conflict of Laws Perspective" [2022] Sing JLS 384; Mathias Audit, "Le droit international privé confronté à la blockchain" [2020] Rev crit dr int privé 669; Matthias Lehmann, "Internationales Privat- und Zivilprozessrecht" in Sebastian Omlor & Mathias Link, eds. *Kryptowährungen und Token* (Frankfurt: R&W, 2023) 173 at 181–277. See also the various contributions in Andrea Bonomi, Matthias Lehmann & Shaheeza Lalani, eds. *Blockchain and Private International Law* (Leiden: Brill, 2023) [Bonomi, Lehmann & Lalani, *Blockchain and Private International Law*].

[3] The HCCH has received a mandate to study the Private International Law issues relating to tokens, see HCCH Council on General Affairs and Policy, "Conclusions & Decisions" (March 2024) at [12].

II. The Black Letter Rules

Seven jurisdictions can be identified where special conflict-of-laws rules for digital assets have emerged. Five of them have adopted a statute (US, Germany, Switzerland, Liechtenstein and Spain), and two have developed a judicial rule (England and Wales as well as Singapore). To these seven national rules, an international conflict-of-laws principle has been added by UNIDROIT, the international organisation for the unification of private law, seated in Rome. In the following, the content of these rules will be presented and compared.

A. *United States of America*

In 2022, the Uniform Law Commission introduced a new article to the Uniform Commercial Code ("UCC") regarding "controllable electronic records". As with all of the UCC, this article is a recommendation addressed to the federal states of the US; in other words, it is soft law. Nevertheless, it is very significant, given that most states follow the UCC as a model. Part of this new article is a conflict-of-laws rule in s 12-107.[4]

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[4] UCC, s 12-107:

"(a) [Governing law: general rule.] Except as provided in subsection (b), the local law of a controllable electronic record's jurisdiction governs a matter covered by this article.

(b) [Governing law: Section 12-106.] For a controllable electronic record that evidences a controllable account or controllable payment intangible, the local law of the controllable electronic record's jurisdiction governs a matter covered by Section 12-106 unless an effective agreement determines that the local law of another jurisdiction governs.

(c) [Controllable electronic record's jurisdiction.] The following rules determine a controllable electronic record's jurisdiction under this section:

(1) 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 for purposes of this article or [the Uniform Commercial Code], that jurisdiction is the controllable electronic record's jurisdiction.

(2) If paragraph (1) does not apply and the rules of the system in which the controllable electronic record is recorded are readily available for review and expressly provide that a particular jurisdiction is the controllable electronic record's jurisdiction for purposes of this article or [the Uniform Commercial Code], that jurisdiction is the controllable electronic record's jurisdiction.

(3) If paragraphs (1) and (2) do not apply and 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 the controllable electronic record is governed by the law of a particular jurisdiction, that jurisdiction is the controllable electronic record's jurisdiction.

(4) If paragraphs (1), (2), and (3) do not apply and the rules of the system in which the controllable electronic record is recorded are readily available for review and expressly provide that the controllable electronic record or the system is governed by the law of a particular jurisdiction, that jurisdiction is the controllable electronic record's jurisdiction.

(5) If paragraphs (1) through (4) do not apply, the controllable electronic record's jurisdiction is the District of Columbia.

(d) [Applicability of Article 12.] If subsection (c)(5) applies and Article 12 is not in effect in the District of Columbia without material modification, the governing law for a matter covered by this article is the law of the District of Columbia as though Article 12 were in effect in the District

Though the rule is quite recent, it has already been transposed into the law of some states.[5] Its content can be summarised as follows: s 12-107(c) contains a "waterfall", in the sense that if one connecting factor is not present, one must go down one step and use the next connecting factor. The first four connecting factors mentioned in s 12-107(c)(1)–(4) UCC all reflect the principle of party autonomy. Accordingly, parties can choose the applicable law. They can do so either by selecting the competent jurisdiction or the governing law directly. And they can do so in the electronic record (*ie*, the digital asset itself), an attached or a logically associated record (*ie*, any record that is appropriately and reasonably attributable to the asset[6]), or in the system (*eg*, the blockchain) in which the asset is recorded. The text makes it clear that the choice must be made "expressly" and that any attached or associated records as well as the rules of the system must be "readily available". This is done to protect the interests of third parties, who need to be informed about the law governing the assets, *eg*, creditors, insolvency administrators or potential acquirers.

In case no law has been chosen, s 107(c)(5) UCC provides that the law of Washington DC shall apply. No substantial reason is given why this jurisdiction has been preferred. The official comment merely mentions that the District of Columbia has historically followed the UCC and that its role as the default jurisdiction will not confer any economic benefits or fees.[7] This suggests that the law of DC serves as a neutral tiebreaker. While this may be appropriate in intra-US cases, it is quite unusual for international situations. It would mean, for instance, that a dispute between two parties from different countries, say Argentina and Australia, over the property in bitcoins would be governed by the law of Washington DC. Even though this rule ensures predictable results, it is hard to defend in terms of the closest connection.

B. *England and Wales*

A statutory rule on conflict-of-laws issues regarding digital assets has yet to be adopted in England and Wales; the English Law Commission is currently discussing how such a rule could look like.[8] Meanwhile, English courts have already begun

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of Columbia without material modification. In this subsection, "Article 12" means Article 12 of Uniform Commercial Code Amendments (2022).

(e) [Relation of matter or transaction to controllable electronic record's jurisdiction not necessary.] To the extent subsections (a) and (b) provide that the local law of the controllable electronic record's jurisdiction governs a matter covered by this article, that law governs even if the matter or a transaction to which the matter relates does not bear any relation to the controllable electronic record's jurisdiction.

(f) [Rights of purchasers determined at time of purchase.] The rights acquired under Section 12-104 by a purchaser or qualifying purchaser are governed by the law applicable under this section at the time of purchase."

5 For an overview of the current status of the transposition, see Uniform Law Commission, 2022 Amendments to the Uniform Commercial Code <https://www.uniformlaws.org/committees/community-home?communitykey=1457c422-ddb7-40b0-8c76-39a1991651ac#LegBillTrackingAnchor> (2022) [UCC Amendments].

6 UCC, s 12-105, official comment 2.

7 UCC, s 12-107, official comment 7.

8 Law Commission, "Digital assets and ETDs in private international law: which law, which court?" <https://lawcom.gov.uk/project/digital-assets-and-etds-in-private-international-law-which-court-which-law/>.

determining the applicable law to digital assets in the context of tort and restitution claims. Several decisions have followed a localisation approach, which is summarised by the following quote: "*lex situs* of a cryptoasset is where the person or company who owns it is domiciled".[9]

The idea of this approach goes back to Andrew Dickinson.[10] It was first adopted by the High Court of Justice of England and Wales in *Ion Science v Persons Unknown*, a case in which it was alleged that a "Ms Black" had fraudulently obtained remote control over the claimant's laptop and transferred a substantial amount of the claimant's bitcoins to her own account.[11] The approach was confirmed by the court in *Fetch.AI v Persons Unknown*, where the unknown defendants were alleged to have fraudulently accessed the claimant's accounts with a crypto exchange and sold assets belonging to the claimant to third parties at massive undervalues.[12] In both cases, the victims resided in England, from which the court deduced the applicability of English law.

A slightly different route was adopted by the High Court in the case *Tulip Trading Limited v Wladimir van der Laan et al*, in which a person claiming to be the Bitcoin inventor Satoshi Nakamoto sued a group of Bitcoin software developers to restore his allegedly lost private keys to him.[13] Justice Falk corrected the approach taken by his colleagues by clarifying that the citation of Andrew Dickinson did not refer to the place of *domicile*, but to the place of *residence* or *business* of the owner of the assets.[14] Hence, this place, and not the domicile, should decide the applicable law.

These rulings suggest determining the law applicable to digital assets depending on their "owner". The owner, however, can only be identified once the applicable law to proprietary issues is determined. Hence, there is a certain circularity in these rulings.[15] Yet, all of them concerned tort claims and the "owner" was merely shorthand for the victim.

These decisions must be taken with a pinch of salt, though. They merely concern the question of whether service out of the jurisdiction was appropriate and not the merits of the cases. The appropriateness of service out hinges on, *inter alia*, the gateways of Practice Direction 6B.[16] Under para 3.1(9), a claim in tort may be served out where (a) damage was sustained, or will be sustained, within England and Wales; (b) damage which has been or will be sustained results from an act committed, or likely to be committed, within England and Wales; or (c) the claim is governed by the law of England and Wales. While some cases related to (a), *ie*, the place

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9 *Ion Science Ltd v Persons Unknown* (2020) at [13] (High Court for England and Wales, UK) [*Ion Science*]; *Fetch.AI Limited et al v Persons Unknown et al* [2021] EWHC 2254 (Comm) at [14] [*Fetch.AI*].

10 Andrew Dickinson, "Cryptocurrencies and the Conflict of Laws" in David Fox & Sara Green, eds. *Cryptocurrencies in Public and Private Law* (Oxford: Oxford University Press, 2019) 181 at [5.108].

11 Though the case is unreported, it is discussed in Amy Held, "Does Situs Actually Matter When Ownership to Bitcoin is in Dispute?" (2021) 4 JIBFL 269 [Held, "Does Situs Actually Matter?"].

12 *Fetch.AI*, *supra* note 9 at [14].

13 *Tulip Trading Limited v Wladimir van der Laan et al* [2022] EWHC 667 (Ch) [*Tulip Trading* [2022]]. The ruling on jurisdiction and the location of the digital asset was not challenged at the appeal level, see *Tulip Trading Limited v Wladimir van der Laan et al* [2023] EWCA Civ 83 at [7] [*Tulip Trading* [2023]].

14 *Tulip Trading* [2022], *supra* note 13 at [145].

15 Amy Held & Matthias Lehmann, "Hacked crypto-accounts, the English tort of breach of confidence and localising financial loss under Rome II" (2021) 10 JIBFL 708 at 710.

16 Civil Procedure Rules 1998 Practice Direction 6B (UK), para 3.1.

of damage, others specifically addressed (c), *ie*, the governing law.[17] Nevertheless, for the purposes of service out, a "good arguable case" that one of these gateways applies is sufficient.[18] Hence, one may doubt the legal value of these decisions as binding precedents.[19] Still, it remains that in the English High Court's view, there is at least a good arguable case that the location of a digital asset is at the place of business or residence of the person in control of the asset.

C. *Singapore*

In 2024, the High Court of Singapore had to confront for the first time the question of the "*situs*" of digital assets in *Cheong Jun Yoong v Three Arrows Capital Ltd*.[20] The claimant was a Singapore resident, who had set up a fund within a larger master-feeder structure run by a company in the British Virgin Islands ("BVI"). The fund was exclusively managed by the claimant. It included several cryptocurrencies, over which the claimant had full control, as well as other assets. When the company was placed under liquidation in the BVI, the administrator and the claimant started to quarrel about the assets. The claimant brought a case in Singapore against the administrator, and the High Court had to decide over the claimant's application for service out of the jurisdiction.

The procedural standard for such an application is, very similar to the situation in English law, a good arguable case for a sufficient nexus of the litigation to Singapore.[21] Such a nexus is said to exist, *inter alia*, where a claim is "… made to assert, declare or determine proprietary or possessory rights, or rights of security, in or over movable property, or to obtain authority to dispose of movable property, situated in Singapore".[22] Relying on the English case law, the claimant argued the property was situated in Singapore. Justice Chua Lee Ming agreed on the significance of location but slightly deviated from the English precedent. In his view, the location of a digital asset must be determined by looking at the person in control since the asset "best manifests itself through the exercise of control over it".[23] As the Singaporean claimant controlled the assets, they were deemed to be located in Singapore. Thus, a sufficient nexus was established, and service out was allowed.

The case is essential because it substitutes ownership over the digital asset with control. This is more appropriate where litigation centres on questions of ownership rather than problems of tort law. However, one must be careful because, similar to their English colleagues, the Singapore High Court ruled in a purely procedural context; the ruling also established a "good arguable case" and not the final outcome. Still, the case provides valuable precision and refinement of the English case law in that it shows the paramount role played by control.

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17 *Ion Science*, *supra* note 9 at [13].

18 See *Tulip Trading* [2023], *supra* note 13 at [40]–[45] and cases cited there.

19 See with regard to *Fetch.AI*, *supra* note 9: Held, "Does Situs Actually Matter?", *supra* note 11 at 272.

20 *Cheong Jun Yoong v Three Arrows Capital Ltd and others* [2024] SGHC 21 [*Three Arrows*].

21 Supreme Court Practice Directions 2021, para 63(2).

22 Supreme Court Practice Directions 2021, para 63(3)(*i*).

23 *Three Arrows*, *supra* note 20.

D. *Germany*

In 2020, Germany introduced an Act on Electronic Securities.[24] Its § 32 contains a special conflict-of-laws rule.[25] To understand the provision, first, a remark on its scope is necessary. Section 32 eWpG covers "electronic securities", such as bonds, investment fund participations, and also shares recorded on a blockchain.[26] The importance of the provision may be deemed limited because it is made subject to § 17a Securities Custody Act in the first paragraph.[27] Yet this provision concerns only centrally registered securities[28] and can be ignored here because blockchains are decentralised registers.

Now to the content: § 32 eWpG primarily points to the law of the state whose authorities supervise the registrar, *ie*, the operator of the blockchain. By way of background, German law foresees state supervision of blockchains on which German securities are issued. Of course, this is not necessarily the case in other jurisdictions. Therefore, the conflicts rule includes the seat of the registrar as a backup criterion (in the first sentence of § 32(2) eWpG), which means the operator's registered office, not the location of its head office.[29] In case there is no such registrar, the provision refers to the seat of the issuer of the electronic security (in the second sentence of § 32(2) eWpG).

However, the provision has a significant gap in cases where supervision is lacking and neither the registrar nor the issuer is identifiable or has a discernible seat.

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[24] Gesetz über elektronische Wertpapiere 2021 (Germany), Electronic Securities Act 2021 [eWpG].

[25] eWpG, § 32:

"(1) To the extent that § 17a Securities Custody Act does not apply, rights regarding an electronic security and dispositions about an electronic security are governed by the law of the State who supervises the registrar in whose electronic security register the electronic security is recorded.

(2) If the registrar is not under supervision, its seat is decisive. If the seat of the registrar cannot be determined, the seat of the issuer of the electronic security is decisive."

Translation by the author. On this rule, see Felix Wilke, "A German Approach: *Lex Supervisionis Registri* and Subordinate Connecting Factors" in Bonomi, Lehmann & Lalani, *Blockchain and Private International Law*, *supra* note 2, 727.

[26] See eWpG, § 1 and German Act on Capital Investments, *Kapitalanlagengesetzbuch* 2013 (Germany), § 95(1), which originally covered only bonds investment participations. An extension to shares has been adopted by the German Parliament in the Act on Financing the Future, *Zukunftsfinanzierungsgesetz*, in force since 15 December 2023.

[27] Gesetz über die Verwahrung und Anschaffung von Westpapieren (*Depotgesetz* – DepotG) 1937 (Germany), Securities Custody Act 1937 [Securities Custody Act].

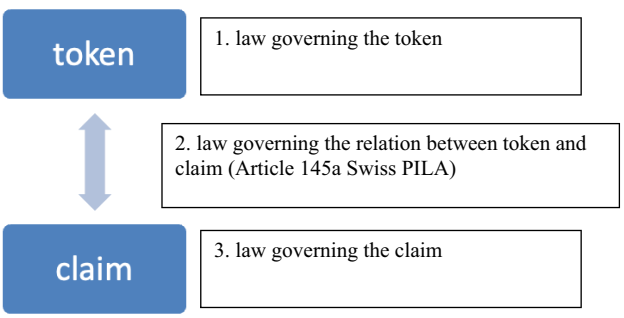
[28] § 17a Securities Custody Act transposes two EU rules into German law: Settlement Finality Directive (Directive on settlement finality in payment and securities settlement systems), EC Council Directive 98/26/EC, [1998] OJ L 166/45 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31998L0026>, art 9; Financial Collateral Directive (Directive on financial collateral arrangements), EC Council Directive 2002/47/EC, [2002] OJ L 168/43 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0047>, art 9(2). Both directives have been adopted before the invention of the blockchain and are targeted towards centralised securities holding systems.

[29] Felix Wilke, "Das IPR der elektronischen Wertpapiere" (2021) 41(6) Praxis des internationalen Privat- und Verfahrensrechts 502 at 507 [Wilke, "Das IPR"]; Oliver L Knöfel, "Elektronische Wertpapiere im Internationalen Privatrecht" in Helmut Grothe, Peter Mankowski & Frederick Rieländer, eds. *Europäisches und internationales Privatrecht: Festschrift für Christian von Bar zum 70. Geburtstag* (Munich: CH Beck, 2022) 157 at 171; Michael F Müller, "§ 32 eWpG" in Michael F Müller & Christian Pieper, eds. *eWpG* (Munich: CH Beck, 2022) at [31].

This concerns, for instance, such widespread digital assets as Bitcoin or Ether. For these and similar situations, Germany does not provide a conflict-of-laws rule.

E. *Switzerland*

The Swiss legislator has adapted its law to the challenges posed by DLT in 2020.[30] In this context, it has amended the Federal Private International Law Act in three ways.[31] First, a new art 145a was added.[32] The provision is – for Swiss standards – uncharacteristically tricky to understand. It deals with negotiable titles "or equivalent instruments" that embody claims, with the expression "or equivalent form" intended to cover digital assets.[33] As a result, the provision applies to digital tokens that represent claims – *ie*, receivables – such as "stablecoins" or other asset-backed tokens aimed at putting one or several claims on a blockchain and making them tradable. An example could be a portfolio of tokenised mortgages, credit card claims or consumer loan claims. Article 145a PILA does not regulate the law applicable to the token or the claims. Instead, it concerns the relation between the two, *ie*, whether the token represents the claims.[34] Its precise role is shown as number 2 in the illustration below.



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[30] *Bundesgesetz zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register* 2021 (Switzerland), Federal Act on the Adaptation of Federal Law to Developments in Distributed Electronic Register Technology [*Bundesgesetz*].

[31] *Loi fédérale sur le droit international privé* 1987 (Switzerland), Federal Private International Law Act 1987 [PILA].

[32] PILA, art 145a:

"(1) Whether a claim is represented by a title in paper or equivalent form and transferred by means of that title is determined by the law designated therein. If no law is specified in the title, the law of the country in which the issuer has his registered office or, if there is no such office, his habitual residence, shall apply.

(2) …"

Translation by the author.

[33] *Bundesgesetz* at 298; Andrea Bonomi, "Art. 145a" in Bernard Dutoit & Andrea Bonomi, eds. *Droit international privé Suisse: commentaire de la loi fédérale du 18 décembre 1987*, 6th edn (Basel: Helbing & Lichtenhahn, 2022) at [4] [Bonomi, "Art. 145a"].

[34] On the need to distinguish between these questions, see Matthias Lehmann & Hannes Meyle, "The Law Applicable to Stablecoins" in Bonomi, Lehmann & Lalani, *Blockchain and Private International Law*, *supra* note 2, 372 [Lehmann & Meyle, "The Law Applicable to Stablecoins"].

Article 145a(1) PILA allows the issuer to choose the law governing this question in the token itself. In other words, it follows the principle of party autonomy, which is also followed in the US. Although the rule does not address this question explicitly, it may be concluded that the law governing the token itself (law number 1 in the above chart) can also be chosen.[35] If no law is chosen, art 145a(1) PILA refers to the law of the statutory seat of the token issuer or, failing that, to its principal place of business. In sum, this provision gives the crypto economy dominance over the real economy: whether a token represents a claim will be determined by a choice of law in the token or by the law of the token issuer. In contrast, the law governing the claim is of no importance.

Second, the Swiss legislator has amended art 106 PILA.[36] This provision covers titles representing goods, *eg*, metals, diamonds, agricultural products and other commodities.[37] They are submitted to art 145a(1) PILA, with the effect that the conflicts rule in the latter provision covers titles representing goods as well. As a result, the law applicable to the representation of the goods is determined by the choice in the token or by the token issuer's statutory seat or principal place of business. However, art 106(3) PILA provides a different rule for the particular case of a priority conflict between two persons pretending to be the owner of the tokenised goods. This conflict will not be decided by the law chosen in the token or the law of the token issuer but rather by the law applicable to the goods themselves. This law will be determined by the classic *lex rei sitae* principle, according to which rights *in rem* in movable or immovable goods are governed by the law where the goods are situated.[38] This marks a significant divergence from art 145a PILA governing tokenised claims. For tangible goods, the real economy remains dominant over the crypto economy.

Finally, the Swiss legislator has introduced art 108a PILA.[39] This rule, which does not expressly mention digital assets, is intended to clarify that the Hague Intermediated Securities Convention[40] will decide which assets qualify as

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35 In a similar sense, Andrea Bonomi, "Art. 145a", *supra* note 33 at [6] (referring to the nature of the token for which the applicable law can be chosen); Pascal Favrod-Coune & Kévin Belet, "Conflict of Laws and Tokens in Swiss Private International Law" in Bonomi, Lehmann & Lalani, *Blockchain and Private International Law*, *supra* note 2, 673 at 684 (pointing to freedom of contract).

36 PILA, art 106:
"(1) The law referred to in Article 145a paragraph 1 shall determine whether a title represents goods.
(2) ...
(3) If different parties assert rights in rem in the goods, one directly and the other by virtue of a title, priority shall be determined by the law applicable to the goods themselves."
Translation by the author.

37 Andrea Bonomi, "Art. 145a", *supra* note 33 at [5].

38 PILA, arts 99 and 100.

39 PILA, art 108a:
"The term 'securities held with an intermediary' shall be understood in the sense of the Hague Convention of 5 July 2006 on the law applicable to certain rights in respect of securities held with an intermediary."
Translation by the author.

40 Convention of 5 July 2006 on the Law Applicable to Certain Rights in Respect of Securities held with an Intermediary (5 July 2006) <https://www.hcch.net/en/instruments/conventions/full-text/?cid=72> [Hague Convention].

"securities".[41] It may be relevant, in particular, for digital assets having features of securities, such as "security tokens". If the Hague Convention applied to them, it would open up the possibility of a choice of law; however, this choice is limited to countries in which the respective intermediary has a branch.[42] In the absence of a choice, the law of the intermediary's principal place of business would apply (so-called Place of the Relevant Intermediary Approach – PRIMA).[43] Whether the Hague Convention is actually appropriate to govern digital assets is another matter, which will be discussed later.[44]

F. *Liechtenstein and Spain*

As early as 2019, the Principality of Liechtenstein adopted the Token and Trusted Technology Service Provider Act, which entered into force on 1 January 2020.[45] This Act contains both supervisory and private law rules for the issuance of tokens. Its art 3 defines the scope of the Act by referring to either: (a) the domicile or residence of the token creator or issuer in the Principality; or (b) the choice of the law of the Principality.[46] A similar rule has recently been adopted by Spain in its Law on Markets for Financial Instruments and Investment Services, which defines the scope of the chapter on private rights in electronic securities.[47]

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41 *Bundesgesetz*, at 297, 298.

42 Hague Convention, art 4(1).

43 Royston Miles Goode, Hideki Kanda & Karl Kreuzer, *Hague Securities Convention Explanatory Report*, 2nd ed (Leiden: Brill, 2005) at 10; Thomas Keijser & Charles Mooney, "Intermediated Securities Holding Systems Revisited: A View Through the Prism of Transparency" in Louise Gullifer & Jennifer Payne, eds. *Intermediation and Beyond* (Oxford: Hart Publishing, 2019) 309 at 322; Matthias Lehmann, "Financial instruments" in Jürgen Basedow *et al*, eds. *Encyclopedia of Private International Law* (Cheltenham: Edward Elgar, 2017) [Basedow *et al*, *Encyclopedia of Private International Law*] 739 at 745.

44 See Part IV.B below.

45 *Token- und VT-Dienstleister-Gesetz* 2019 (Liechtenstein), Token and Trusted Technology Service Provider Act 2019 [TTA].

46 TTA, art 3 – Subject and Scope of Application:
"(1) ...
(2) It [the Act] applies if either:
(a) tokens are created or issued by a TT service provider domiciled or resident in the Principality; or
(b) parties in a legal transaction concerning tokens expressly declare its provisions to be applicable.
(3) …"
Unofficial translation of the draft TTA available at <https://nlaw.li/25> (last accessed 10 May 2023).

47 *Ley de los Mercados de Valores y de los Servicios de Inversión* 2023 (Spain), Spanish Law on Markets for Financial Instruments and Investment Services 2023, art 5(1), as amended:
"The provisions of this Chapter shall also apply to those transferable securities registered or represented by systems based on distributed registry technology whose terms and conditions of issue, as regards the registration, transfer and form of representation of securities, provide for the application of this law, provided that such agreement is valid in accordance with the law applicable to the issuer and the law applicable to the terms and conditions of the issue.
In the absence of express mention in the issue document, the provisions of this Chapter shall also apply, as regards the registration, transfer and form of representation of the securities, to those securities registered or represented by systems based on distributed registry technology where the issuer has its

At first sight, these provisions are not conflict-of-laws rules but only define the territorial scope of the act or chapter in question. On closer inspection, however, they also deal with the conflict of laws since the act or chapter will only be applicable if Liechtenstein or Spanish law applies in the first place. To ensure the latter's applicability, the provisions must also be understood as containing a conflict-of-laws.[48] The particularity of these conflicts rules is their unilateral nature: they only determine the applicability of the enacting state's law, not that of other states.[49] Nevertheless, conflict-of-laws rules can either be multilateral or unilateral.[50] Thus, the Liechtenstein and the Spanish provisions contain an implicit, unilateral conflicts rule.

G. *UNIDROIT*

In May 2023, UNIDROIT adopted the Principles on Digital Assets and Private Law.[51] The UNIDROIT Principles contain recommendations to national legislators on how to deal with private law questions raised by digital assets, particularly questions of substantive property law. They are merely soft law but may nevertheless greatly influence national laws.

Principle 5 concerns the conflict of laws.[52] It starts from the idea that the law applicable to a digital asset may be chosen either in the digital asset itself

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registered office in Spanish territory or, where the issuer designates a single entity responsible for the administration of the registration and registration of the securities in the system, where such entity has its registered office in Spanish territory."
Translation by the author.

48 On the relation between rules on spatial scope and conflict of laws, see Lord Collins of Mapesbury & Jonathan Harris, eds. *Dicey, Morris and Collins on the Conflict of Laws* (London: Sweet & Maxwell, 2023) vol 1 at [1-050].

49 On unilateral private international law rules see Stéphanie Francq, "Unilateralism" in Basedow *et al*, *Encyclopedia of Private International Law*, *supra* note 43, 1780.

50 Symeon Symeonides, "American Choice of Law at the Dawn of the 21st Century" (2001) 37 Willamette L Rev 1 at 16. It is not necessary to discuss here whether it may be possible to extrapolate a multilateral rule from the unilateral Liechtenstein provision.

51 Principles on Digital Assets and Private Law (10–12 May 2023), UNIDROIT 2023 CD (102) 6 <https://www.unidroit.org/wp-content/uploads/2023/04/C.D.-102-6-Principles-on-Digital-Assets-and-Private-Law.pdf> [UNIDROIT Principles].

52 UNIDROIT Principles, *supra* note 51, art 5 – Applicable Law:
"(1) Subject to paragraph (2), proprietary issues in respect of a digital asset are governed by:
(a) the domestic law of the State expressly specified in the digital asset, and those Principles (if any) expressly specified in the digital asset; or, failing that,
(b) the domestic law of the State expressly specified in the system on which the digital asset is recorded, and those Principles (if any) expressly specified in the system on which the digital asset is recorded; or, failing that,
(c) in relation to a digital asset of which there is an issuer, including digital assets of the same description of which there is an issuer, the domestic law of the State where the issuer has its statutory seat, provided that its statutory seat is readily ascertainable by the public; or
(d) if none of the above sub-paragraphs applies:

(Principle 5(1)(a)) or in the system in which the digital asset is recorded (Principle 5(1)(b)). The same idea of "party autonomy" is also dominating the UCC.[53] Like

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OPTION A:

(i) those aspects or provisions of the law of the forum State as specified by that State;

(ii) to the extent not addressed by sub-paragraph (d)(i), those Principles as specified by the forum State;

(iii) to the extent not addressed by sub-paragraphs (d)(i) or (d)(ii), the law applicable by virtue of the rules of private international law of the forum State.

OPTION B:

(i) those Principles as specified by the forum State;

(ii) to the extent not addressed by sub-paragraph (d)(i), the law applicable by virtue of the rules of private international law of the forum State.

(2) In the interpretation and application of paragraph (1), regard is to be had to the following:

(a) proprietary issues in respect of digital assets, and in particular their acquisition and disposition, are always a matter of law;

(b) in determining whether the applicable law is specified in a digital asset, or in a system on which the digital asset is recorded, consideration should be given to records attached to, or associated with, the digital asset, or the system, if such records are readily available for review by persons dealing with the relevant digital asset;

(c) by transferring, acquiring, or otherwise dealing with a digital asset a person consents to the law applicable under paragraph (1)(a), (b), and (c);

(d) the law applicable under paragraph (1) applies to all digital assets of the same description;

(e) if, after a digital asset is first issued or created, the applicable law changes by operation of paragraphs 1(a), (b) or (c), proprietary rights in the digital asset that have been established before that change are not affected by it;

(f) the 'issuer' referred to in paragraph 1(c) means a legal person:

(i) who put the digital asset, or digital assets of the same description, in the stream of commerce for value; and

(ii) who, in a way that is readily ascertainable by the public,

(A) identifies itself as a named person;

(B) identifies its statutory seat; and

(C) identifies itself as the person who put the digital asset, or digital assets of the same description, into the stream of commerce for value.

(3) Subject to paragraph (4), the law applicable in accordance with this Principle governs all proprietary issues in respect of digital assets with regard to any event that has occurred before the opening of that insolvency proceeding.

(4) Paragraph (3) does not affect the application of any substantive or procedural rule of law applicable by virtue of an insolvency proceeding, such as any rule relating to:

(a) the ranking of categories of claims;

(b) the avoidance of a transaction as a preference or a transfer in fraud of creditors;

(c) the enforcement of rights to an asset that is under the control or supervision of the insolvency representative.

(5) Other law applies to determine:

(a) the law applicable to the third-party effectiveness of a security right in a digital asset made effective against third parties by a method other than control;

(b) the law applicable to determine the priority between conflicting security rights made effective against third parties by a method other than control.

(6) The law applicable to the issues addressed in Principles 10 to 13, including whether an agreement is a custody agreement, is the domestic law of the State expressly specified in the agreement as the law that governs the agreement, or if the agreement expressly provides that another law is applicable to all such issues, that other law.

(7) Paragraphs (1) to (4) are subject to paragraph (6)."

[53] See Part II.A above.

the latter, the UNIDROIT Principles emphasise that the choice must be "expressly specified". While records attached to or associated with the asset or system may be used to determine whether the applicable law is specified in a digital asset, these records must be "readily available for review by persons dealing with the relevant digital asset" (Principle 5(2)(b)).

In the absence of a choice of law, the law at the statutory seat of the issuer of the digital asset shall apply insofar as this statutory seat is readily ascertainable to the public (Principle 5(1)(c)). The UNIDROIT Principles define the issuer as the person who has put the asset "in the stream of commerce for value" and has identified itself as such as well as its statutory seat (Principle 5(2)(f)). This considerably limits the importance of this connecting factor because it excludes, for instance, assets distributed for free via a so-called "airdrop", or assets the issuer of which chooses not to identify its statutory seat.

If none of these rules apply, the UNIDROIT Principles give the national legislator two options: Under Option A, it can submit digital assets to special rules of its national law, which will be supplemented by the UNIDROIT Principles. Under Option B, it can directly refer to the UNIDROIT Principles as the governing law.

Principle 5 remarkably resembles the UCC rule. However, it is different in that it does not maintain the applicability of the law of Washington DC as a fallback. Furthermore, it provides an extended waterfall in case of the absence of a choice by referring first to the law of the issuer, and second to the law of the adopting state. The second reference effectively replaces the search for the applicable foreign law by substantive rules of the law of the forum; this is called a "substantive rule of Private International Law" (*règle materielle de droit international privé*) in French doctrine.[54] This technique provides a simple solution to the conflict of laws conundrum but leads to an extreme homeward trend, thereby fragmenting the applicable law from an international viewpoint. That the Principles suggest themselves as applicable law is a novum, but understandable in light of their purpose to achieve legal harmonisation.

Less harmonising, however, is UNIDROIT's default rule, which applies when the forum law or the UNIDROIT Principles do not contain any rule. In this case, the UNIDROIT Principles refer to the conflict-of-laws rules of the forum (Principle 5(1)(d) Option A(iii) and Option B(ii)). No indication whatsoever is given how the forum should shape its conflict-of-laws rules in this respect. One might fear that this will lead to divergences between national laws. Potentially, these will be addressed by the digital token project of the Hague Conference.[55]

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[54] Dominique Bureau & Horatia Muir Watt, *Le droit international privé*, 5th ed (Paris: Presses Universitaires de France, 2021) at 672–685.

[55] See Part I above.

H. *Summary*

The results of the preceding comparative survey are summarised in the following table:

Rule-maker	Scope	Party Autonomy	Super-vision	Seat of Registrar	Issuer	Custody	Residence/ Place of Business Owner	Residence of Person in Control
US	control-lable electronic records	X						
England and Wales	cryptocur-rencies and tokens						X	
Singapore	cryptocur-rencies							X
Germany	tokenised bonds, shares and invest-ment fund partici-pations		X	X	X			
Switzer-land	electronic securities, asset-referenced tokens	(limited)						
Liechten-stein/ Spain	tokens/ electronic securities		X					
UNIDROIT	digital assets	X			X	X		

III. Of Apples and Oranges – and How to Turn Them Into a Delicious Smoothie

As can be seen from the previous table, the states have adopted rules with very different contents. Also in other respects, these rules are very heterogeneous. They have different origins – one (the UNIDROIT Principles) is international, and the rest are national. They have varying legal value – two (the UCC and the UNIDROIT Principles) are soft law, two are non-binding case law (England and Wales and Singapore), and the others are hard law. Their function in the conflict of laws diverges – two (the Liechtenstein and the Spanish rule) are unilateral, and the others are multilateral. They also differ on many other points, such as their scope, length, and terminology.

Still, they all belong to the same category. Their closest family (*genus proximum*) is "conflict-of-laws rules for digital assets". In the same way as apples and oranges belong to one family (fruits), these rules belong to the same type of legal provision (conflict of laws) and concern the same subject (digital assets). Only their juxtaposition allows their specific differences (*differentia specifica*) to be detected.

Of course, one must not fall into a trap and think that apples and oranges are the same. The rules cited above *are* different, in particular with regard to their scope and their connecting factors. But precisely these differences are primordial if one asks: "How should a conflict-of-laws rule for digital assets be properly drafted?"

Therefore, anyone interested in designing an "ideal" conflict-of-laws rule for digital assets will be interested in these rules. Rather than rejecting them or selecting only one, they can be combined. A rule of higher quality – a synthesis – can be achieved through the interplay of thesis and antithesis.[56] Metaphorically, this process can be compared to blending fruits into a smoothie (motto: "If law gives you fruits, make fruit juice."). The best rules will be selected and mixed. At the end, some spice will be added to round everything up.

IV. Drafting the "Ideal Rule"

A. *The Form of the Rule*

In deciding what an "ideal" conflicts rule for digital assets should look like, it must first be decided what form it should take. Most of the analysed rules are enshrined in a statute, while only two – the English and the Singaporean – are derived from case law. This raises the question of whether conflict-of-laws rules should preferably be established by legislators or by courts.

The case law approach has the advantage of flexibility. Courts can develop rules spontaneously and react quickly to new developments, which is particularly important for emerging technologies that are subject to continuous change. Courts are not inhibited by the extensive debates in parliamentary committees, and they are much closer to actual practice. They can "test drive" their solution and adapt it to the circumstances of the individual case.

On the other hand, rules coined by courts are often one-dimensional. The conflicts rules adopted by the English and Singaporean courts so far demonstrate this because they feature only one connecting factor. This compares unfavourably to the very elaborate rule that, *eg*, UNIDROIT has suggested. It is unlikely courts could provide a sophisticated multilevel and multifactor rule that is also foreseeable and easy to apply.

Perhaps the ideal rule is a mix between the two: a statutory provision combined with judge-made law. In the conflict of laws, this sensible division of labour between the legislative and the judicial branch is usually obtained by leaving safety valves in the statute, such as an escape clause, which reserves the application of a legal

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[56] See the dialectical thinking in Georg Wilhelm Friedrich Hegel, *Science of Logic*, trans AV Miller (Oxford: Oxford University Press, 1977) at 105.

system that is (manifestly) more closely connected.[57] Conflicts rules accompanied by such a clause have the advantage of giving clear guidance for ordinary cases while leaving the courts some discretion to diverge from it in exceptional cases. Although none of the legislative rules studied here provides such an escape clause, it should feature in the "ideal rule".

B. *Scope*

One of the biggest problems is how to appropriately fashion the scope of a conflicts rule for the crypto economy. What should it cover?

Remarkably, all the rules analysed concern *digital assets* recorded on the blockchain, not the blockchain itself. Furthermore, it can be noticed that they focus on property law and leave other questions aside, *eg*, those of contract law and tort law. These questions can typically be solved by resorting to the ordinary conflict-of-laws rules. The real problems lie in identifying the law governing title, *ie*, the applicable property law.[58] This is the focus of all analysed rules and should also be front and centre of an "ideal rule".

Which assets are covered? In this respect, the rules analysed here are very different. Some are limited to a specific type of digital assets. This is the case, for instance, for the German Act, which only applies to "electronic securities". The Swiss Act also focuses on digital assets that qualify as securities, insofar as they fall under the Hague Convention, in addition to stablecoins and other asset-referenced tokens.

The Liechtenstein Act is centred on "tokens". This notion is understood in an expansive sense and also encompasses native tokens, which do not embody any right.[59] Yet by its substantive provisions, the Liechtenstein Act seems to be limited to digital assets that have an issuer, thereby excluding fully decentralised blockchain networks such as Bitcoin.

The most expansive notion is chosen by the UCC and the UNIDROIT Principles. The UCC is concerned with "controllable electronic records", while the UNIDROIT Principles focus on "digital assets". Both notions are very similar since the UNIDROIT Principles define a digital asset as "an electronic record which is capable of being subject to control".[60] The notion of control is also defined very similarly in both texts.[61] They thus comprise every type of controllable asset recorded

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[57] See *eg*, Rome I Regulation (Regulation on the law applicable to contractual obligations), EC Council Regulation 593/2008 (17 June 2008), art 4(3) [Rome I Regulations]; Rome II Regulation (Regulation on the law applicable to non-contractual obligations), EC Council Regulation 864/2007 (11 July 2007), art 4(3). For further examples, see Symeon Symeonides, *Codifying Choice of Law Around the World* (Oxford: Oxford University Press, 2014) at 178–182.

[58] Matthias Lehmann, "Who Owns Bitcoin? Private Law Facing the Blockchain" (2019) 21(1) Minn J L Sci & Tech 93 at 101–106.

[59] Regierung des Fürstentums Liechtenstein, "Bericht und Antrag der Regierung an den Landtag des Fürstentums Liechtenstein betreffend die Schaffung eines Gesetzes über Token und VT-Dienstleister (Token- und VT-Dienstleister-Gesetz; TVTG) und die Abänderung weiterer Gesetze" (2019) 54/2019 at 141.

[60] UNIDROIT Principles, *supra* note 51, Principle 2(2).

[61] UNIDROIT Principles, *supra* note 51, Principle 6; UCC, s 12-105.

on a blockchain, whether centralised or decentralised, with or without an issuer.[62] In particular, they cover cryptocurrencies, such as Bitcoin or Ether, as well as tokens, including stablecoins.

The Singaporean case law seems to cover – so far – cryptocurrencies, whereas the English case law is broader. One of the cases decided by the High Court in London concerned for instance Tether ("USDT"); Binance Coin ("BNB"); Bitcoin Classic ("BXC"); and Fetch.ai ("FET") – thus cryptocurrencies, stablecoins and other tokens.[63] This may indicate that the jurisprudential rule is designed to cover all types of digital assets.

Behind the differences in scope lie differences in the purpose of the conflicts rules. Some legislators strive to provide a secure legal environment for corporate finance via the crypto market. This is the case for Germany and Spain. It is therefore not surprising that their conflict-of-laws rules focus on electronic securities. Swiss law is primarily designed to facilitate crypto trade finance and thus focuses on tokens representing claims or goods. Other legislators want to attract issuers using new financial technologies (so-called "FinTech") to their soil. This is the case for Liechtenstein, which explains why the subject of its rules is drafted broadly ("token") but also why they are limited to assets with an identifiable issuer – after all, it is the issuer that brings business and tax revenues into the country and not the asset. Finally, the US and UNIDROIT are trying to provide legal certainty for all types of controllable electronic records or digital assets. That is why they are not limited at all.

Which of these conceptions of the scope is "ideal"? There may be good reasons for establishing conflicts rules only for assets with an issuer but not for those without one, *eg*, where a country aims to further the issuance of traditional securities on the blockchain or promoting itself as a FinTech hub. Yet even in these countries, courts will, over time, be confronted with the issue of the law governing cryptocurrencies that have no issuer, such as Bitcoin. These assets have economic value and will be subject to litigation, as the English cases demonstrate. Therefore, it seems better to draft the scope of the conflict-of-laws rule rather widely.

But behind the different scope of the rules lurks a further legal question: do specific types of assets, *ie*, electronic securities, warrant a special conflict-of-laws rule, or should all digital assets be treated the same? This can be viewed differently. The principle of technological neutrality, which virtually all legislators subscribe to,[64] seems to imply that securities should be treated identically, no matter whether they are embodied in physical or in electronic form, including on the blockchain. Yet, the holding structure matters, as is proven by the existence of different conflicts rules for directly and indirectly held securities.[65] Blockchain securities are different from traditional securities because they cannot be held in paper form, nor are they

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62 See UCC Amendments, *supra* note 5 at 237; UNIDROIT Principles, *supra* note 51, Commentary on Principle 2 at [1] ff.

63 *Fetch.AI*, *supra* note 9 at [3].

64 See for the US: UCC Amendments, *supra* note 5 at 231; for Germany: Deutscher Bundestag, Drucksache 19/26925 at 1; for Liechtenstein: Liechtenstein, *supra* note 59 at 55; for Switzerland: *Bundesgesetz* at 245; for UNIDROIT: UNIDROIT Principles, *supra* note 51 at 3.

65 On the need for special conflicts rules for intermediated securities see Goode *et al*, *supra* note 43 at 16.

necessarily held with an intermediary. They can be held directly in electronic form, *eg*, on a hard drive or USB key, and can be disposed of via the private key directly ("peer to peer") without intermediation. This is impossible with traditional electronic securities, which must always be held with an intermediary.

Furthermore, even where blockchain securities are held with a custodian, the intermediary structure differs significantly from that of traditional securities. In the conventional securities world, there is one central securities depositary ("CSD"), who administers the entire issuance in its register, and with whom the other depositaries (*eg*, banks) have accounts. In the crypto world, there is no central depository administering the register but a decentralised ledger run by a plethora of nodes scattered all over the planet. Also, the assets are typically not held through a chain of intermediaries, *eg*, through various banks, but rather with one custodian only.

The different intermediation structures suggest that a different conflicts rule from the Hague Convention is needed for electronic securities. This rule should be the same as that for all other types of digital assets since they are recorded in the same way. For conflicts of law, the way of recording is more important than the function of the instrument. By comparison, securities embodied in a paper certificate are submitted to the same conflict-of-laws rule as all other tangible things, *ie*, the *lex rei sitae* rule. An all-embracing conflicts rule independent of the function of the asset has the further advantage of eliminating thorny characterisation problems, *eg*, the problematic question of how to delineate securities tokens from other tokens, and how to deal with hybrid tokens that combine features of different types of tokens, such as securities tokens, payment tokens or utility tokens. This does not mean, of course, that the rules for digital assets held with a custodian cannot take inspiration from and be coordinated with the rules for intermediated securities. It does not predetermine the characterisation of blockchain securities for regulatory purposes either, *eg*, whether they are to be treated as "securities" under the US Securities Act or Securities Exchange Act, as "crypto-assets" under the EU's Markets in Crypto-Assets Regulation ("MiCAR") or as falling under a similar regulatory category. We are merely dealing with private law issues.

In sum, the "ideal" conflicts rules regarding digital assets should have a broad scope. It should not be limited to certain types of digital assets but rather provide an applicable law for all of them, including those recorded on fully decentralised blockchains, such as Bitcoin. A special rule for electronic securities is unwarranted since they can be treated like other assets recorded on the blockchain.

C. *Connecting Factor*

The core problem of conflict-of-laws rules is the way they connect the digital assets to a particular legal system. This connecting factor varies between the legal rules presented in Part B.

1. *Party Autonomy*

Some of the conflicts rules allow party choice in determining the applicable legal system. The UCC and the UNIDROIT Principles, in particular, put the principle

of party autonomy at the top of their hierarchy of connecting factors. They allow a choice of law in the digital asset itself as well as in the system or associated records, provided that these are readily available to third parties.[66] Surprisingly, none contain a rule regarding the law that governs the validity of the choice of law. Since the choice of law is an agreement, it must be governed by some law. Many conflicts systems solve this conundrum by referring to the chosen law itself.[67] This solution could be used by an "ideal rule".

The principle of party autonomy can also be found in other laws, although in a more subdued version. Liechtenstein and Spain allow the issuer to submit itself to the provisions of the relevant acts.[68] They do not say, though, whether a foreign law can be chosen. Article 108a Swiss PILA also provides for a limited choice of law by referring to the Hague Convention, which allows parties to select the law of a place at which the relevant intermediary has a qualifying office.[69] Article 145a Swiss PILA, and by reference also art 106 Swiss PILA, allows an unrestricted choice of the applicable law.

Other legal systems opt for an "objective" determination of the applicable law, seemingly leaving no room for party autonomy. This is the case for English and Singaporean law, which refer only to the residence or place of business of the victim or (former) holder of the digital asset. Although this connecting factor is objective in nature, these legal systems do not necessarily have to be read as excluding party autonomy since no applicable law had been chosen in the cases decided. It remains to be seen how English and Singaporean courts would treat a case in which such a choice has been made.

The German Act does not mention party autonomy either. Yet it must be borne in mind that the Act is limited to blockchains for which a supervised registrar exists. The registrar can choose the applicable law indirectly by opting for a specific seat. This may be compared to the freedom of choice of law in company law exercised by incorporating a company in a state that follows the incorporation theory.

Overall, the comparison of blockchain laws yields party autonomy as the most widespread legislative principle. This finding may be surprising given that free choice of law is usually considered incompatible with the effects of property law, which extend to third parties who have not agreed to the chosen law and often do not even know about it.[70] Yet, the blockchain is different from the real world in that it is a closed system which – by design – has no strong connections to any particular country. Given this extraordinary situation, it seems advisable to allow those who create this particular environment or transfer assets in it to choose the applicable law. Third parties who want to acquire or seize assets in this particular environment can be expected to inform themselves about the governing law. This solution is far from ideal, but it still seems better than any other one may conceive.

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66 UCC, s 12-107(c)(1)–(4); UNIDROIT Principles, *supra* note 51, Principles 5(1)(a), 5(1)(b) and 5(2)(b).

67 See, *eg*, Rome I Regulation, arts 3(5), 10(1); PILA, art 116(2).

68 TTA, s 3(2)(b).

69 See Hague Convention, art 4(1).

70 See, *eg,* Roel Westrik & Jeroen van der Weide, "Introduction" in Roel Westrik & Jeroen van der Weide, eds. *Party Autonomy in International Property Law* (Munich: Sellier, 2011) 1 at 1–2.

Yet party autonomy has an Achilles heel: it is rarely used in the crypto space. Choosing an applicable national law would contradict the libertarian and anti-state philosophy underlying the blockchain.[71] For this reason, virtually none of the blockchains or the transfers carried out on it contain a choice of law. This is unlikely to change anytime soon. Whether the prominent mentioning of this principle in various conflict-of-laws provisions will have an educative effect on the crypto industry and its customers remains to be seen.

2. *Law of Supervision*

Some of the acts mentioned connect the private law rules to the law applicable to supervision. This is the case, in particular, for Germany and Liechtenstein. Both acts combine rules of private and supervisory law; thus, it is natural for them to use supervision as a hook to determine the governing private law. The advantage of submitting private rights and public supervision to the same law is that harmony between private and public law is created. However, such rules have their in-built limitations. The biggest drawback of these rules is that they only yield results where there is supervision. Another drawback is that they do not provide any criterion for cases of competing supervision of several states over the same operator. That may be why supervision is not included in other texts, such as the UNIDROIT Principles. Therefore, it should not feature in an "ideal rule".

3. *Law of Operator*

Where the registrar of a network is not supervised, German law declares the law of its seat to be determinative.[72] This means the statutory seat, not the "real" seat in the sense of the place of the headquarters.[73] The applicability of the law of the operator has been suggested before by the UK Financial Markets Law Committee under the title "Place of the Relevant Operating Authority ('PROPA')".[74] This connecting factor is particularly relevant for permissioned or private blockchains, including those not subject to special rules of supervision, and as such deserves to be included in the "ideal rule". However, it does not work for permissionless or public blockchains.

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[71] On the philosophy underlying DLT, see Finn Brunton, *Digital Cash* (Princeton: Princeton University Press, 2019) at 111; Lana Swartz, "What was Bitcoin, what will it be? The techno-economic imaginaries of a new money technology" (2018) 32(4) Cultural Studies 623.

[72] eWpG, § 32(2).

[73] Wilke, "Das IPR", *supra* note 29 at 507; Knöfel, *supra* note 29 at 171; Müller, *supra* note 29 at [31].

[74] Financial Markets Law Committee, "Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty" <http://fmlc.org/wp-content/uploads/2018/05/dlt_paper.pdf> (March 2018) at [6.16] ff.

4. *Law of Issuer*

A further connecting factor is the issuer of a digital asset. This criterion is particularly helpful where the same person issues a plethora of assets because all of them will be subject to the same law. The issuer's law can be found as a criterion, *eg*, in the UNIDROIT Principles, and in German, Spanish and Liechtenstein law.[75] The details are somewhat different, though: the German Act and the UNIDROIT Principles point to the law of the issuer's statutory seat, while the Liechtenstein and the Spanish Acts refer to the issuer's domicile or residence. The solution of the UNIDROIT Principles and the German Act seems preferable because the statutory seat is more stable and easier to identify than the domicile or residence.

The issuer criterion works only where an issuer exists and is known, *eg*, not for Bitcoin. The UNIDROIT Principles further demand that the issuer's statutory seat be "readily ascertainable by the public" (see Principle 5(1)(c)). This ensures that third parties can take notice of the connecting factor without the need to invest time and expenses in complex inquiries. However, the UNIDROIT Principles go further and demand that the issuer must also identify itself as a named person, identify its statutory seat and identify itself as the person who puts the digital asset, or digital assets of the same description, into the stream of commerce for value. These further requirements considerably narrow the practical importance of this connecting factor and allow the issuer to easily avoid it by not disclosing one of the three pieces of information. Therefore, they should be left out of the "ideal rule".

5. *Law of Custody*

The law governing the custody of a digital asset features only in the UNIDROIT Principles.[76] This is surprising. Most digital assets are held in custody today, which is why this criterion lends itself as a connecting factor for proprietary issues regarding the assets held in custody. Most crypto exchanges double as custodians: they not only serve as platforms for the purchase and sale of digital assets but also maintain them for their customers. That is why this connecting factor overlaps with the proposal to use the place of crypto exchanges as the governing law for all transactions occurring on them.[77] However, this is not the only connecting factor, but merely one amongst many. Moreover, it is focused merely on the transactional side and ignores the need to determine the relevant property law on static holdings. Finally, it only offers a solution for those digital assets that are traded on an exchange, but not those transferred peer-to-peer, which is the paradigm of transferring on a blockchain.

The law of custody may either be determined explicitly in the custody agreement, or it may be the law at the statutory seat of the custodian. While the choice of law in the custody agreement is not necessarily foreseeable for third parties, they will at least know that the asset is held in custody and thus have reason to inform

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75 UNIDROIT Principles, *supra* note 51, Principle 5(1)(c); TTA, s 3(2)(a).

76 UNIDROIT Principles, *supra* note 51, Principle 5(6).

77 In this sense, see Tan, *supra* note 2 at 414–420.

themselves about the chosen law. The situation is similar to that in the intermediated securities world, where the choice in the custody agreement determining the governing law must also not be readily ascertainable by third parties.[78]

Applying the law of custody has crucial advantages: it considerably alleviates the task of intermediaries, such as crypto exchanges and wallet providers, because they can manage the deposits under a single law. Since most custodians are subject to supervision and the account agreements governed by the law of their establishment, this rule also ensures a parallel between the applicable public and private law. Furthermore, it aligns the conflict-of-laws rules for digital assets with those that govern intermediated securities, where the law of the custodian plays a preeminent role.

The UNIDROIT Principles refer to the law chosen in the custody agreement to define the property law that governs the digital assets under custody.[79] All other conflicts rules are subsidiary to this one.[80] This means that even a digital asset for which the applicable law has been chosen may be subject to the law specified in the custody agreement. However, the UNIDROIT Principles do not provide for the situation in which this agreement does not contain a choice of law. In this case, one should refer to the statutory seat of the custodian. In addition to the advantages mentioned above, this connecting factor is also foreseeable for the custodian, the customer and third parties. Thus, it should play a prominent role in the "ideal rule".

6. *Place of Residence or Business of Person in Control*

How should the applicable private law be determined where none of the abovementioned criteria are met? An example case would be directly held digital assets recorded on a fully decentralised blockchain, such as bitcoins, with the corresponding private key stored on a USB key. None of the statutory rules analysed above yields any solution for this type of situation.

The English and the Singaporean courts, however, have provided a stopgap. Both follow the law at the place of the victim or person in control as the *lex rei sitae*.[81] Theoretically, it could be objected that this law is unforeseeable under the conditions of pseudonymity reigning on the blockchain. However, the English and Singaporean cases prove that this place can and will be identified once the victim starts litigation, which requires it to unveil its identity and whereabouts. True, the defendant will often not know where the victim or holder of the digital assets resides or has its business. But as the alleged tortfeasor, he hardly deserves legal protection. Whoever commits a tort in the crypto space, which – by definition – has no connection to any particular state, must face liability under any law.

Still, the place of residence or business of the victim or holder of control merely provides a very specious connecting factor. For this reason, one may regret that the English and the Singaporean courts have applied it in a case where the victim held their assets with a custodian.[82] This may be explained, though, by a peculiar-

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78 See Hague Convention, art 4(1).

79 *Ibid*.

80 UNIDROIT Principles, *supra* note 51, Principle 5(7).

81 See Parts II.B and II.C above.

82 *Fetch.AI*, *supra* note 9.

ity of the cases decided: The law applicable to the custodian in question in both instances – Binance – was especially tough to determine. Binance pretends not to have headquarters and declines to state the location of its main exchange.[83] These circumstances may explain why the courts in these cases have simply referred to the domicile of the victim or holder of control and not to the place of the custodian.

In sum, the place of residence or business of the person in control may be a valuable connecting factor if no other criterion is met. The Singaporean rule can be beneficial as a supplement to the other statutory rules.

7. *The Hierarchy of the Connecting Factors*

Several of the connecting factors mentioned may be present at the same time. By way of example, a token may be issued by a known issuer (factor 1) on a blockchain for which a law has been chosen (factor 2) and have been taken in custody under an agreement providing for a particular law (factor 3). Which factor should be preferred?

The matter is relatively easy for party autonomy. Because it corresponds to the will of the parties and gives the highest degree of certainty, the chosen law shall rank above all others. That is confirmed by US law and the UNIDROIT Principles, which give this factor particular prominence.

Equally easy to decide is the place of residence or business of the victim or holder of control. This connecting factor is not particularly strong; it only provides a rule of last resort when no other connection can be identified. In other words, it should only apply sub-subsidiarily – where no other factor is present. Therefore, it must go to the bottom of the "ideal rule".

Ranking the other factors is more complicated. Permissioned blockchains are quite peculiar since they are heavily centred around the operator. For this reason, one may deem the law of the operator's place of business to be more important than that of the issuer of a token on such a blockchain or that of a possible token custodian.

The thorniest relation is that between the issuer and the custodian. On balance, it seems that a token – *eg*, an NFT – is more closely connected to its issuer than to the custodian that happens to watch over it.

As a result, a waterfall can be established. It corresponds to the order in which the connecting factors are discussed above: (a) party autonomy; (b) law of the operator; (c) law of the issuer; (d) law of custody; and (e) place of the person in control.

8. *Law Applicable to Stablecoins*

The rules in the Swiss PILA concern a particular problem: stablecoin arrangements, more precisely, the law governing the relationship between a token and the

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[83] Tom Wilson & Hannah Lang, "Binance, world's top crypto exchange, at the center of US investigations", *Thomson Reuters* <https://www.reuters.com/technology/binance-worlds-top-crypto-exchange-center-us-investigations-2023-03-27/> (27 March 2023).

represented claims and goods. None of the other rules addresses this relationship, so including it in the "ideal rule" is helpful.

The connecting factors that arts 145a and 106 PILA use to determine the law governing the relation between token and referenced assets – the law chosen in the token or the seat of the issuer – are pretty similar. One can thus combine them into a single "Swiss rule". This rule is limited to claims and goods as linked assets. It does not cover currencies, although tokens linked to them are very common in practice (*eg*, Tether or USD Coin). Yet there is no reason why the same connecting factors – the law chosen in the token and the seat of the issuer – should not be applied to them as well.

The Swiss rule fails to address the law of the represented assets, which may be called, in line with the UNIDROIT Principles, the "linked asset".[84] As the tokenisation does not change the general legal nature, these must necessarily be governed by the classic conflict-of-laws rules for the specific type of asset. Tangible goods are governed by the law where they are situated (*lex rei sitae*), intermediated securities by the law of the intermediary, directly held shares by the law of the company (*lex societatis*), and so forth.[85]

The Swiss rule does not provide any solution in case two or more digital assets purport to represent the same underlying asset. It seems that this conflict can only be solved by a rule of priority, which means that preference shall be given to the law of the digital asset that first created the link. This law must decide which of the digital assets represents the linked asset. Any other solution, particularly the law of the digital asset created last, would open the door for all sorts of manipulations. An asset could be tokenised a second time under another law to withdraw it from the holder of the first token.

For tangible movable objects, a conflict may also arise between the law governing the token and the law governing the represented asset, for instance, where the token is sold to acquirer A and the represented asset to acquirer B. In such a situation, it is best to protect the person acting in the real world, *ie*, acquirer B, because she does not necessarily know that the asset has been tokenised. One should thus follow the *lex rei sitae,* in line with art 106(3) Swiss PILA. However, where the real-world acquirer knew or could not have ignored that an asset is tokenised, it seems justified to make an exception from this rule and prefer the acquirer of the token.

D. *Supplementary Issues*

The "ideal" conflicts rule needs to be supplemented by an escape clause, which allows courts to diverge from the connecting factor in case of a (manifestly) closer connection to another law. This is standard in conflict of laws, including in property law. It is also recommended for digital assets.[86]

Sometimes, none of the connecting factors yields a result. This is the case, *eg*, where control over a digital asset is divided among several persons, *eg*, through a

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[84] See UNIDROIT Principles, *supra* note 51, Principle 4.

[85] Lehmann & Meyle, "The Law Applicable to Stablecoins", *supra* note 34 at 393–395.

[86] See Part IV.A above.

so-called multi-signature ("multi-sig") arrangement, which requires using several private keys to initiate a transfer.[87] In situations like these, it is necessary to search for other connecting factors based on a comprehensive view of all the circumstances of the case. For instance, the multi-sig arrangement may have been made in a particular country, or the parties may have a common connection to a specific state. There is no other possibility than to use the law of this state as the law governing the digital asset. Therefore, a rule of last resort should also be included in the "ideal rule".

Finally, the rule proposed here must also be accompanied by a general exception of public policy (*ordre public*) and for overriding mandatory rules (*lois de police*). The latter could play a role, *eg*, for assets of persons on a sanction list. They could also be used in case a foreign law is too lenient about money laundering or the financing of terrorism.

V. Conclusion

Though the conflict-of-laws rules studied diverge from each other, they can be used as building blocks of an "ideal" conflict-of-laws rule for the blockchain. This could look like the following:

"Law Governing Digital Assets

(a) The legal nature, content and transfer of rights *in rem* in digital assets are to be determined by the law chosen in the asset or in the register in which it is recorded, or records associated to such register. The choice of law must be recognisable for participants of the register. The validity of the choice of law is to be determined under the chosen law.

(b) In the absence of a valid choice of law, the questions covered by para (a) are to be determined
  (i) by the law at the statutory seat of the register's operator; failing that
  (ii) by the law at the statutory seat of the digital asset's issuer; failing that
  (iii) by the law governing the custody of the digital asset; failing that
  (iv) by the law at the habitual residence or place of business of the person in control of the asset at the relevant time.

(c) Assets represented by digital assets ('linked assets') are governed by the specific conflict-of-laws rules applicable to them. The question of whether a digital asset represents a linked asset shall be determined under the law governing the digital asset that has first tokenised the linked asset. In case of conflict, an acquirer of a tangible linked asset should be prioritised against the acquirer of the token, unless the acquirer of the tangible linked asset knew or should have known that the linked asset is tokenised.

(d) Where it is clear from all the circumstances of the case that the proprietary issues in question are substantially more closely connected to another country than that indicated in paras (b) to (c), the law of that other country shall apply.

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[87] On multi-sig arrangements, see Antonopoulos, *supra* note 1 at 132–133.

(e) Where the applicable law cannot be determined on the basis of the criteria set out above, the law of the country with the closest connection should apply.

(f) The law designated in this provision shall not be applied if it is contrary to the fundamental principles of the law of the forum."

This relatively simple rule could be enacted through legislation. It could also serve as a guideline for courts when deciding cases. If it were followed, it could lead to the identical determination of the law governing digital assets all over the world.