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Private International Law Aspects of Smart Derivatives Contracts Utilizing Distributed Ledger Technology

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INTRODUCTION

This paper considers the private international law, or conflict-of-law, aspects of derivatives contracts governed by the laws of Singapore and England and Wales involving distributed ledger technology (DLT), commonly known as blockchain technology.

DLT systems are often borderless, allowing multiple users or participants to modify records in a shared database that may be based in several jurisdictions without necessarily needing to use a central validation system that imposes its own standards and processes.

This type of system may leave participants vulnerable to multiple – and potentially inconsistent – assertions of governing law. There may also be conflict-of-law issues regarding the situs (ie, where property is treated as being located for legal purposes) of any assets that are native to a DLT platform. Private international law rules relating to property typically dictate that questions over rights and entitlements to property are governed by the law of the place in which the property or claim to property is situated. However, this may be ineffective in a DLT environment as traditional geographic boundaries may be more difficult to establish in the context of financial transactions (and assets relating to those transactions) conducted on a DLT platform.

These issues are relevant to derivatives market participants because:

- The cross-border nature of derivatives transactions requires certainty in the application of law to avoid conflict-of-law issues from arising.
- The introduction of new parties (ie, a platform provider) to the trading relationship creates additional legal rights and obligations, some of which may be governed by laws that are different from those by which the trading documentation is governed.
- Understanding the precise situs of assets delivered or exchanged is important when determining the enforceability of netting or collateral arrangements.

This paper will identify specific private international law issues with respect to contract law that may arise when trading derivatives in a DLT environment and, where appropriate, will propose recommendations on how these issues might be clarified or resolved[1].

To assist with practical discussion of the relevant issues, this paper will discuss two different examples of derivatives transactions, both of which use ISDA documentation and are implemented on Corda, an open-source blockchain and smart contract platform developed by R3.

These examples are:

- A single uncollateralized interest rate swap transaction implemented on Corda (see Uncollateralized DLT Transaction section).
- A single collateralized interest rate swap transaction implemented on Corda (see Collateralized DLT Transaction section).

[1] Disputes between the parties to a derivatives transaction may raise issues beyond contract law, such as issues concerning breaches of fiduciary duty, restitution and tort law (for example, deceit and misrepresentation). Discussion of these issues is beyond the scope of this paper

Corda is a private, permissioned ledger (ie, one that only authorized parties may view and use). In order to fully explore the relevant topics, there will also be discussion of the types of issues that might arise when entering into derivatives transactions using DLT platforms that have different characteristics from Corda – for example, permissionless ledgers[2].

[2] A distributed ledger that is public can be viewed by members of the public, while a permissionless ledger is one that members of the public can make and verify changes to. Distributed Ledger Technology and Governing Law: Issues of Legal Uncertainty (London: Financial Markets Law Committee, 2018) at 8, [3.3(a)], http://fmlc.org/wp-content/uploads/2018/05/dlt_paper.pdf (FMLC paper)

UNCOLLATERALIZED DLT TRANSACTION

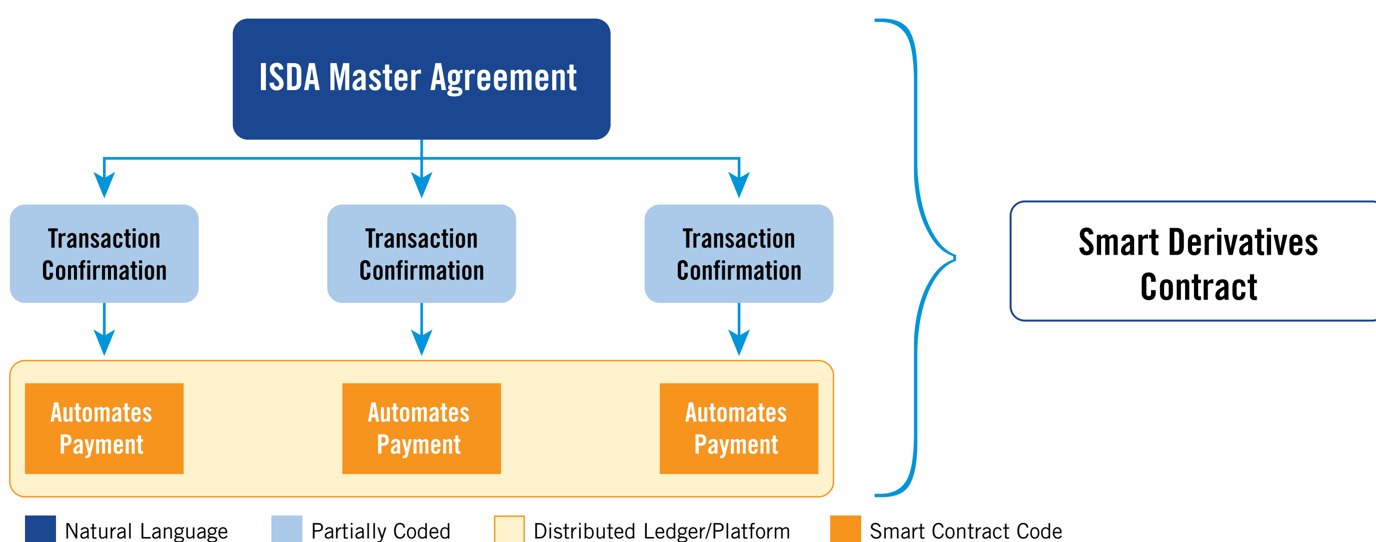
Smart Derivatives Contracts

ISDA has published a series of legal guidelines for smart derivatives contracts[3], which are intended to explain the core principles of ISDA documentation and raise awareness of important legal terms that should be maintained when a technology solution is applied to derivatives trading.

These guidelines establish the concept of a 'smart derivatives contract'. This is a derivatives contract where some terms are capable of being automatically performed, either by expressing those provisions using some formal representation that enables their automation, or by referring to the operation of smart contract code that is external to the contract[4].

While the guidelines are agnostic about the types of technology that could be used to implement smart derivatives contracts, they provide an illustration of a potential smart derivatives contract construct utilizing a DLT platform, where payments under a series of transactions are automated.

Figure 1



In Figure 1, the parties enter into an ISDA Master Agreement as normal. Commercial terms relating to the transaction continue to be contained in a transaction confirmation. This example does not contemplate that any of the transactions will be collateralized.

While those provisions that are automated (ie, those relating to payment obligations) could be represented in code, such that the smart contract code actually forms part of the legal contract, this is not necessarily required to implement the transactions on a DLT platform.

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[3] ISDA *Legal Guidelines for Smart Derivatives Contracts: Introduction* (January 2019), https://www.isda.org/a/MhgME/Legal-Guidelines-for-SmartDerivatives-Contracts-Introduction.pdf, and ISDA *Legal Guidelines for Smart Derivatives Contracts: The ISDA Master Agreement* (February 2019), https://www.isda.org/a/23iME/Legal-Guidelines-for-Smart-Derivatives-Contracts-ISDA-Master-Agreement.pdf

[4] For further discussion on these smart derivatives contracts and which provisions might be well suited to automation, see ISDA and Linklaters LLP, Smart Contracts and Distributed Ledger – A Legal Perspective (August 2017), www.isda.org/a/6EKDE/smart-contractsanddistributed-ledger-a-legal-perspective.pdf; ISDA and King & Wood Mallesons LLP, Smart Derivatives Contracts: From Concept to Construction (October 2018), https://www.isda.org/a/cHvEE/Smart-Derivatives-Contracts-From-Concept-to-Construction-Oct-2018.pdf; and Christopher D Clack and Ciáran McGonagle, Smart Derivatives Contracts: The ISDA Master Agreement and the Automation of Payments and Deliveries, arXiv preprint arXiv: 1904.01461. Submitted to Artificial Intelligence and Law. Available at https://arxiv.org/pdf/1904.01461.pdf (accessed October 22, 2019)

The Uncollateralized DLT Transaction

Corda is a blockchain platform for recording and processing financial agreements. It is a private permissioned ledger – only authorized parties may view and use it. The system supports smart contracts, which R3 has defined as[5]:

[…] an agreement whose execution is both *automatable* by computer code working with human input and control, and whose rights and obligations, as expressed in legal prose, are legally *enforceable*. The smart contract links business logic and business data to associated legal prose in order to ensure that the financial agreements on the platform are rooted firmly in law and can be enforced […].

In this example, the parties to the uncollateralized DLT transaction have negotiated the terms of their relationship under the ISDA Master Agreement and have documented the economic terms relating to the interest rate swap under a transaction confirmation.

The parties would also be required to enter into an agreement with a platform provider as the operator[6] of the business network that deploys applications that utilize Corda (each application is a 'CorDapp'). This agreement requires the parties to accept a business network rule book[7], and is governed by the laws of the jurisdiction that the parties agree upon.

When implementing the uncollateralized DLT transaction on Corda, the parties would become 'nodes' on the Corda distributed ledger or blockchain, and would use a derivatives CorDapp to execute the transaction.

A CorDapp has a smart legal contract template library, with each smart contract consisting of the following elements:

- A *state object*: This is a digital representation of a real-world fact on the distributed ledger. For example, the ISDA Master Agreement and transaction confirmation entered into between the parties would be a state object.
- A Corda contract: This is an element setting out various rules that govern state objects – for example, 'the trade date must be after today's date', 'the fixed rate amount must be above [*a specified percentage*]', and 'the floating rate amount spread must be [*a specified figure*]'.
- A portable document format (PDF) file with parameters: This is a file containing parameters (for example, the parties' names, dates and amounts of money) that need to be filled in by the parties. The PDF is inextricably linked to the Corda contract for purposes that are explained below.

[5] Richard Gendal Brown, James Carlyle, Ian Grigg and Mike Hearn, 'Corda' in Corda: An Introduction (New York, NY: R3, 2016), https://docs.corda.net/_static/corda-introductory-whitepaper.pdf, at 7, [4] (original emphasis)

[6] Although there is most likely only one platform provider contracting with the parties, it is possible for there to be multiple entities operating the CorDapp

[7] A business network rule book is an agreement between the parties governing use of the CorDapps, analogous to agreements that users currently enter into to use electronic trading platforms and financial transaction platforms such as SWIFT

To structure, set up and execute the uncollateralized DLT transaction, the following steps are taken:

1) Party A obtains a smart legal contract appropriate to the transaction from the smart legal contract template library on the distributed ledger, and fills in the parameters of the PDF with the information relating to the transactions.

2) The CorDapp 'scrapes' or obtains the transaction information from the PDF and inputs this into the state object.

3) Party A runs a verify function of the Corda contract to ensure the state object does not break any of the Corda contract's predetermined rules.

4) Once the state object has been determined not to break any of the Corda contract's rules, Party A sends the transaction to Party B.

5) Party B reviews the details of the smart legal contract. When Party B has confirmed that the PDF and state object accurately reflect the transaction, Party B runs a verify function of the Corda contract to ensure the state object does not break any of the Corda contract's rules.

6) Once the state object has been determined not to break any of the Corda contract's rules, Party B digitally signs the transaction and sends it back to Party A.

7) Party A digitally signs the transaction and sends it to the notary, which is a server on the distributed ledger operated by one or more entities that execute what is known as the 'notary function'[8]. The notary checks the cryptographic hash of the state object against its record of hashes[9]. When it confirms that the state object is unique, it digitally signs the transaction and sends it back to both parties.

8) The parties record a copy of the transaction in their respective vaults on the distributed ledger.

After the uncollateralized DLT transaction has been executed in accordance with the above steps, subsequent lifecycle events in respect of the transaction, such as a periodic payment, would be managed as follows:

1) On an agreed-upon date, an oracle[10] feeds interest rate data into the smart legal contract that is in Party A and B's vaults.

2) Party A then initiates a new transaction, repeating steps (3) to (8) above. This leads to the smart legal contract being recorded in Party A and Party B's vaults with an updated record of the transaction – that is, the net amount payable by Party A to Party B or vice versa. The actual payment takes place off the distributed ledger.

[8] The 'notary function' can be performed by a collection of servers known as a 'notary cluster'

[9] A cryptographic hash is an electronic signature uniquely identifying a state object that is created by running the contents of the state object through a complex mathematical formula

[10] A service provided by a third party that feeds real-world information into a distributed ledger, which can then be used to initiate the execution of smart contracts

In this scenario, it is not envisaged that any intermediaries, such as brokers, clearing houses and custodians of securities, would be represented on Corda. Where involved in a transaction, they would continue to operate off-ledger. However, it is possible that an intermediary such as a central counterparty could also operate as a node on the distributed ledger. This could be as a party to a derivatives transaction, or as an 'observer node' that is able to receive information relating to a transaction in order to clear but is otherwise unable to participate in the transaction.

While the objective of a DLT platform is often to eliminate the need for some or all of these intermediaries, it is unlikely that the removal of all intermediaries would be feasible or desirable in the context of the uncollateralized DLT transaction (or, indeed, any other derivatives transaction that is conducted either wholly or in part on a DLT platform). Beyond the transacting parties, there are still likely to be numerous other parties that will be nodes in the ledger, including the operator(s) of (parts of) the platform and parties carrying out the functions of facilitating communication and record maintenance[11]. For a collateralized transaction, the other parties would also include custodians, which are required to hold and segregate collateral for the purpose of complying with regulations on the exchange of initial margin for non-cleared derivatives transactions[12].

The issues arising from such use of a DLT platform are outside of the scope of this paper.

[11] See Thomas Keijser & Charles W Mooney, Jr, *Intermediated Securities Holding Systems Revisited: A View through the Prism of Transparency* (Institute for Law and Economics Research Paper No. 19-13), https://ssrn.com/abstract=3376873, at 17-18 (forthcoming in Louise Gullifer & Jennifer Payne (eds), Intermediation and Beyond (Oxford: Hart Publishing, 2019))

[12] Further discussion of these regulatory requirements can be found in the ISDA *Legal Guidelines for Smart Derivatives Contracts: Collateral*, https://www.isda.org/a/VTkTE/Legal-Guidelines-for-Smart-Derivatives-Contracts-Collateral.pdf

Private International Law Rules Relating to Contracts

From numerous cases arising out of derivatives transactions that have come before the courts in Singapore and England and Wales[13], it is clear that such cases often involve parties that are based in different jurisdictions. This paper therefore begins with a general explanation of the applicable rules of private international law that would apply to determine the governing law of the contract between the parties, the forum for deciding disputes and the applicable rules of evidence. How these rules would apply in the context of the uncollateralized DLT transaction will then be considered.

How a Court Determines the Governing Law of a Contract

England and Wales

The position in England and Wales[14] is currently governed by the Rome I Regulation[15]. In general, the parties to a contract are free to choose the law that will govern their contract[16]. In this regard, 'the law' means the law of a country and not some non-national system of law, such as the *lex mercatoria*, 'general principles of law' or public international law[17].

Nonetheless, for present purposes, the following factors will limit the parties' freedom of choice[18]:

- If all the elements relevant to the situation at the time of the choice are located in a country other than the country of the law that was chosen, then the choice of law cannot prejudice the application of mandatory laws of that other country[19].

- If all the elements relevant to the situation at the time of the choice are located in one or more member states to the Rome I Regulation, then the choice of a law other than that of a member state cannot prejudice the application of mandatory European Community (now European Union) law [20].

- Any overriding mandatory provisions of the law of the forum must be given effect[21]. Overriding mandatory provisions are those "the respect for which is regarded as crucial by a country for safeguarding its public interests, such as its political, social or economic organisation, to such an extent that they are applicable to any situation falling within their scope, irrespective of the law otherwise applicable to the contract" under the Rome I Regulation[22].

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[13] See, for example, *Lomas (joint administrators of Lehman Brothers International (Europe)) v JFB Firth Rixson Inc* [2012] EWCA Civ 419, CA (England & Wales); *Tan Poh Leng Stanley v UBS AG* [2016] 2 SLR 906, HC (Singapore); *State of the Netherlands v Deutsche Bank AG* [2018] EWHC 1935 (Comm), HC (England & Wales); and *Macquarie Bank Ltd v Graceland Industry Pte Ltd* [2018] 4 SLR 87, HC (S'pore Int'l Comm Ct)

[14] At the time of writing, the UK's departure from the European Union (Brexit) was expected, although the precise date and length of any transition arrangements were uncertain. This paper addresses the position under the laws of England and Wales at the date hereof. For further information on the potential implications of Brexit on ISDA documentation, see *Brexit FAQs – Version 7*, ISDA website (July 17, 2019), https://www.isda.org/2019/07/17/brexit-faq-copy

[15] Regulation on the Law Applicable to Contractual Obligations (Reg (EC) No 593/2008 (Rome I Regulation))

[16] *Id*, Art 3(1)

[17] Lord Collins of Mapesbury (gen ed), 'Contracts. General Rules', in *Dicey, Morris and Collins on the Conflict of Laws* (15th ed) (London: Sweet & Maxwell, 2012) (*Dicey, Morris and Collins*), vol 2 at [32-049]

[18] *Id* at [32-046]

[19] Rome I Regulation, above, n 15, Art 3(3)

[20] *Id*, Art 3(4)

[21] *Id*, Art 9(2)

[22] *Id*, Art 9(1)

- Effect may be given to overriding mandatory provisions of the law of the country where contractual obligations have to be or have been performed, if those provisions render the performance of the contract unlawful. In deciding whether to do so, the court should have regard to their nature and purpose and the consequences of their application or non-application[23].

The parties' choice of law may be implied rather than expressed, since Article 3(1) of the Rome I Regulation states that the parties' choice can be one that is "clearly demonstrated by the terms of the contract or the circumstances of the case". Unlike the common law position, it appears that the conduct of the parties subsequent to the formation of the contract can be taken into account to determine the parties' intentions at the time of the contract[24].

Examples of situations where a choice of law can be implied include the following[25]:

- Where the contract is in a standard form known to be governed by a particular law, even though the law is not expressly mentioned.

- Where there was a previous course of dealing between the parties under contracts that had an express choice of law, or where the parties have made an express choice of law in related transactions.

- Where the parties' choice of a forum for the resolution of any disputes relating to the contract clearly shows they intend for the contract to be governed by the law of that forum.

- Where the contract refers to particular provisions of a system of law.

Where the parties to a contract have not made any express or implied choice of law, the law governing the contract is determined according to the following rules:

1) A contract for the sale of goods or the provision of services is governed by the law of the country where the seller or service provider has its habitual residence[26].

2) A contract concluded "within a multilateral system which brings together or facilitates the bringing together of multiple third-party buying and selling interests in financial instruments, as defined by Article 4(1), point (17) of Directive 2004/39/EC[27], in accordance with non-discretionary rules and governed by a single law, shall be governed by that law"[28]. In general, "the public law governing the trading conducted under the systems of the regulated market shall be that of the home Member State of the regulated market"[29].

[23] *Id*, Art 9(3)

[24] *Dicey, Morris and Collins*, above, n 17 at [32-057]

[25] *Id* at [32-060]–[32-065]

[26] Rome I Regulation, above, n 15, Arts 4(1)(a) and (b)

[27] Directive on Markets in Financial Instruments (2004/39/EC). As this directive has been repealed by the Directive on Markets in Financial Instruments (2014/65/EU), reference should now be made to Art 4(1), point (15), and Annex I, section C, of the latter directive: see 2014/65/EU, Art 94 ("References to terms defined in, or Articles of, Directive 2004/39/EC [...] shall be construed as references to the equivalent term defined in, or Article of, this Directive")

[28] Rome I Regulation, above, n 15, Art 4(1)(h)

[29] 2014/65/EU, above, n 27, Art 44(4): see *Dicey, Morris and Collins*, above, n 17 at [33-394]

3) Where a contract is not covered by what is stated in paragraphs (1) and (2), or where the elements of the contract would be covered by more than one of the above possibilities, the contract is governed by the law of the country where the party required to effect the characteristic performance of the contract has its habitual residence[30].

   The concept of 'characteristic performance' is meant to "isolate the obligation incumbent on one of the parties which is peculiar to the type of contract in issue, or which marks the nature of the contract". Payment is not regarded as the characteristic performance; rather, it is the act that is carried out for the payment that is characteristic[31].

4) Where it is clear from all the circumstances of the case that the contract is manifestly more closely connected with a country other than that indicated by what is stated in paragraphs (1) to (3), the law of that other country applies[32].

5) Where the applicable law cannot be determined from what is stated in paragraphs (1) to (3), the contract is governed by the law of the country with which it is most closely connected[33].

   It is likely that this rule will be used if the place where the contract is performed is different from the habitual residence or place of business of the party identified according to the rules mentioned in paragraphs (1) and (2), or the party required to effect the characteristic performance of the contract as stated in paragraph (3). A court may also take into account connected contract(s) between the parties when deciding if a particular contract is most closely connected to the law of a country[34].

Singapore

Singapore conflict-of-law rules are similar to the English common law rules before the 1980 Rome Convention on the Law Applicable to Contractual Obligations[35] became applicable to England and Wales. When determining the governing law of a contract, a Singapore court will go through the following stages[36]:

1) First, the court will examine the contract itself to determine whether it states expressly what the governing law should be.

2) In the absence of an express provision, the court will see whether the intention of the parties regarding the governing law can be inferred from the circumstances.

3) If this cannot be done, then the court determines to which system of law the contract is most closely connected. That system will be taken, objectively, as the governing or proper law of the contract.

[30] *Id*, Art 4(2)

[31] *Dicey, Morris and Collins*, above, n 17 at [32-077]

[32] Rome I Regulation, above, n 15, Art 4(3)

[33] *Id*, Art 4(4)

[34] *Dicey, Morris and Collins*, above, n 17 at [32-080]

[35] 80/934/EEC; OJ C 27, 26 January 1998, at 34–53

[36] See *Pacific Recreation Pte Ltd v S Y Technology Inc* [2008] 2 SLR(R) 491 at [36], CA (Singapore), citing *Overseas Union Insurance Ltd v Turegum Insurance Co* [2001] 2 SLR(R) 285 at [82], HC (Singapore), which in turn cited *Las Vegas Hilton Corp v Khoo Teng Hock Sunny* [1996] 2 SLR(R) 589, HC (Singapore)

At the second stage, the court will consider various factors, including the following[37]:

1) Whether the contracting parties have agreed that the courts of a particular country shall have jurisdiction in matters arising out of the contract.

2) Whether the parties have agreed that arbitration will take place in a particular country.

3) The language or terminology used in the contract.

4) The form of documents involved in the transaction.

5) Whether there is a connection with a preceding transaction.

6) The currency of the contract or the currency of payment.

7) The places of residence or business of the parties.

8) The commercial purpose of the transaction.

In some cases – for example, where there is a multiplicity of factors, each pointing to a different governing law – the court may bypass the second stage and move directly to the third stage. In *Pacific Recreation Pte Ltd v S Y Technology Inc*[38], the Court of Appeal said:

> "To bypass the second stage is not as significant a step as it seems in that the same factors as those considered at the second stage would often have to be addressed when one seeks, at the third stage, to determine the law which has the closest and most real connection with the contract. […] The difference between the second stage and the third stage lies not in the factors to be taken into consideration, but in the weight which is to be accorded to these factors. It is worth emphasising that the aim of the third stage is not to divine any "intent" of the parties, but to consider, on balance, which law has the most connection with the contract in question and the circumstances surrounding the inception of that contract. It is a pragmatic exercise acknowledging that parties do not always have a governing law in mind when they enter into contracts. Equal weight ought to be placed on all factors, even those which would not, under the second stage, have been strongly inferential of any intention as to the governing law."

At the third stage, after ascribing the proper weighting to the relevant factors, the court will:

> "seek to find what just and reasonable persons ought to have intended if they had thought about the matter at the time when they made the contract. If they had thought that they were likely to have a dispute, I hope it may be said that just and reasonable persons would like the dispute determined in the most convenient way and in accordance with business efficacy"[39].

[37] *Pacific Recreation, id* at [37], citing *Las Vegas Hilton, id* at [39]

[38] *Pacific Recreation, id* at [47]–[48]

[39] *The Assunzione* [1954] P 150 at 179, cited in *Las Vegas Hilton*, above, n 36 at [42] and in *Pacific Recreation, id* at [49]

Effect of Domestic Public Policy

In both England and Wales and Singapore, there are few restrictions on the freedom of parties to choose the law governing their contract. For example, a law that has no objective connection to the parties or the contract may be chosen and, as a corollary, there is no reason why parties cannot choose a law to prevent the application of rules from a system of law that would otherwise have applied[40].

However, a court will not apply any rule of foreign law if its application is manifestly incompatible with the public policy of the law of the forum[41]. In Singapore, the Court of Appeal has held that if an express choice of law was made solely for the purpose of avoiding a law that would otherwise apply to the contract, then this may be regarded as a choice that was not made *bona fide*[42]. It has been suggested that the contract should be governed by its objective proper law in this case[43].

Conversely, a court may be prepared to hold a contract to be enforceable even though it is not enforceable under its governing law, if the governing law is regarded by the court to be "so discriminatory or oppressive as to offend against public policy, or otherwise represents a serious infringement of human rights"[44].

[40] *Vita Food Products Inc v Unus Shipping Co Ltd* [1939] AC 277, HL (UK)

[41] *Dicey, Morris and Collins*, above, n 17 at [32-182]; *Halsbury's Laws of Singapore*, (Singapore: LexisNexis, 2016), vol 6(2) at [75.349]. In the UK context, see the Rome I Regulation, above, n 15, Art 21. Note that under the Rome I Regulation, Art 9(3), an English court has a discretion to give effect to overriding mandatory provisions of the law of the country where contractual obligations have to be or have been performed, if those provisions render the performance of the contract *unlawful*, such as laws that require authorizations or consents from government regulators to be obtained for certain transactions. In contrast, in the face of an express choice of law by contracting parties, a Singapore court will only give effect to foreign legal provisions that render the contract *illegal* in the place of performance

[42] *Peh Teck Quee v Bayerische Landesbank Girozentrale* [1999] 3 SLR(R) 842 at [17], CA (Singapore)

[43] *Halsbury's Laws of Singapore*, above, n 41 at [75.345]

[44] *Dicey, Morris and Collins*, above, n 17 at [32-189], citing, *inter alia, Oppenheimer v Cattermole* [1976] AC 249, HL (UK); *The Playa Larga* [1983] 2 Lloyd's Rep 171 at 190, CA (England & Wales); and *Williams Humbert Ltd v WH Trade Marks (Jersey) Ltd* [1986] AC 368 at 428, HL (UK)

How a Court Determines the Appropriate Jurisdiction for a Dispute Regarding Contractual Obligations

England and Wales

When the parties to a dispute have contractually agreed that the English courts have jurisdiction over the matter, the English court will generally give effect to the agreement. Alternatively, the parties may have contractually agreed that a foreign court has jurisdiction over disputes. In this scenario, an English court will stay any claims brought in England in breach of this agreement or will refuse permission for process to be served out of the jurisdiction for the purpose of any English proceedings, unless the claimant can prove there are strong reasons for the English proceedings to continue[45].

Assuming competing jurisdictions to which the 1968 Brussels Convention[46], the 1988 Lugano Convention[47] or Regulation (EU) No 1215/2012 apply[48] are not considered, an English court will only order a stay of proceedings due to England being an inappropriate forum (forum non conveniens) and the defendant demonstrates that there is a foreign court that is clearly or distinctly more appropriate than England for the trial of the action, and it is not unjust that the claimant be deprived of the right to trial in England[49]. In other words, the English court must be the 'natural forum' for the resolution of the dispute.

In general, the court will engage in the following analysis:

- The defendant bears the legal burden of proof to persuade the court to grant a stay of the proceedings. However, there is an evidential burden of proof on any party seeking to establish the existence of matters that will help to persuade the court to exercise its discretion in that party's favor.

- If the defendant satisfies the court that there is another forum that is clearly more appropriate for the trial of the action, then the evidential burden shifts to the claimant to persuade the court that there are special circumstances why justice requires the trial to take place in England.

It is not enough for the defendant to show that England is not the natural or appropriate forum; the defendant must be able to show that another forum is clearly more appropriate. To determine if there is such an alternative forum, the court will consider various factors indicating the action has the most real and substantial connection with the other forum, including the parties' places of business, the law governing their transaction, and the location of witnesses.

[45] *Donohue v Armco Inc* [2002] 1 Lloyd's Rep 425, HL (UK)

[46] 1968 Brussels Convention on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters, OJ L 299 (December 31, 1972) at 32–42

[47] 1988 Lugano Convention on Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters (88/592/EEC), OJ L 319 (November 25, 1988) at 9–48

[48] Regulation (EU) No 1215/2012 of the European Parliament and of the Council of December 12, 2012 on Jurisdiction and the Recognition and Enforcement of Judgments in Civil and Commercial Matters, OJ L 351 (December 20, 2012) at 1–32

[49] *Spiliada Maritime Corp v Cansulex Ltd (The Spiliada)* [1987] AC 460 at 475–478, HL (UK)

The common law position described above has been supplemented by the 2005 Hague Convention on Choice of Court Agreements[50]. This convention came into force in the European Union on October 1, 2015, and was implemented in the UK by the Civil Jurisdiction and Judgments (Hague Convention on Choice of Court Agreements 2005) Regulations 2015[51], which amended the Civil Jurisdiction and Judgments Act 1982[52]. Under the latter act, a judgment that is required to be recognized and enforced under the Hague Convention may be registered, for the purposes of England and Wales, in the High Court[53], and will have "the same force and effect [...] as if the judgment had been originally given by the registering court"[54].

The Hague Convention essentially states that where the parties to a contract have concluded a choice of court agreement designating that contractual disputes should be decided exclusively in a court of a contracting state[55], that court shall have jurisdiction to decide a dispute that arises in relation to the contract, and shall not decline to exercise jurisdiction on the ground that the dispute should be decided in another court[56]. The court judgment designated in an exclusive choice of court agreement must then be recognized and enforced in other contracting states[57]. The application of the Hague Convention to England therefore has the effect of upholding the choice of court made by contracting parties, where the choice is a court in a contracting state.

Singapore

The position in Singapore regarding the appropriate jurisdiction for a contractual dispute is essentially the same as the English common law position.

Where contracting parties have entered into an exclusive choice of court agreement, the court will prima facie enforce and give effect to this agreement[58], unless there are exceptional circumstances for the court to hold otherwise. This underlines the regard given by the court for the central principle of party autonomy[59].

An action in a Singapore court will only be stayed on the ground of forum non conveniens if the defendant can show there is some other clearly more appropriate and available forum for the trial[60]. The court also engages in a two-stage analysis[61]:

[50] Hague Convention of June 30, 2005 on Choice of Court Agreements (Hague Convention), in force

[51] SI 2015 No 1644 (UK)

[52] 1982 c 27 (UK)

[53] *Id*, ss 4B(1) and (2)(a)

[54] *Id*, s 4B(6)

[55] Hague Convention, above, n 50, Art 3

[56] *Id*, Art 5

[57] *Id*, Art 8

[58] *Golden Shore Transportation Pte Ltd v Uco Bank* [2004] 1 SLR(R) 6 at [33], CA (Singapore)

[59] *Vinmar Overseas (Singapore) Pte Ltd v PTT International Trading Pte Ltd* [2018] 2 SLR 1271 at [112]–[134], CA (Singapore)

[60] *Brinkerhoff Maritime Drilling Corp v PT Airfast Services Indonesia* [1992] 2 SLR(R) 345 at [35]–[39], CA (Singapore); *Rickshaw Investments Ltd v Nicolai Baron von Uexkull* [2007] 1 SLR(R) 377 at [12]–[14], CA (Singapore), and *Shanghai Turbo Enterprises Ltd v Liu Ming* [2019] 1 SLR 779 at [88] and [94]–[96], CA (Singapore), citing *The Spiliada*, above, n 49

[61] *Halsbury's Laws of Singapore*, above, n 41 at [75.083]

- The legal burden lies on the defendant to prove there is a forum that is available and clearly more appropriate than Singapore.

- If the defendant is able to do so, then it is for the claimant to demonstrate the existence of circumstances indicating that justice requires the Singapore court to decline to stay the proceedings. Unlike the English position, the claimant bears a legal rather than an evidential burden at this stage[62].

Like the English courts, the Singapore courts have emphasized that it is not sufficient for the defendant to show another forum is as appropriate as Singapore for the dispute to be determined; it must show the foreign forum is clearly more appropriate[63].

In 2015, the Singapore International Commercial Court (SICC) was established as a new division of the High Court[64]. The SICC has jurisdiction to hear any action that, among other requirements, is "international and commercial in nature"[65], even if the law applicable to the dispute is not Singapore law. Attendant advantages to having an action heard by the SICC include the fact that it may be presided over by international judges[66], questions of foreign law may be determined on the basis of submissions instead of proof[67], and parties may be represented by foreign lawyers or law experts[68]. The Singapore courts have ruled that the possibility of the SICC hearing an action is one factor among others that a court should consider when determining the first stage of the analysis set out above. This factor is not sufficient by itself, however, to displace a more appropriate foreign forum[69].

The courts' willingness to uphold choice of court agreements is given more heft by the fact that Singapore is also a contracting state to the 2005 Hague Convention, which came into force with respect to the country on October 1, 2016. The convention was incorporated into domestic law by the Choice of Court Agreements Act[70].

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[62] See, for example, *CIMB Bank Bhd v Dresdner Kleinwort Ltd* [2008] 4 SLR(R) 543 at [26], CA (Singapore).

[63] *CIMB Bank, ibid; John Reginald Scott Kirkham v Trane US Inc* [2009] 4 SLR(R) 438 at [33], CA (Singapore)

[64] Supreme Court of Judicature (Amendment) Act 2014 (No 42 of 2014), in force on January 1, 2015, amending the Supreme Court of Judicature Act (Cap 322, 2007 Rev Ed) (SCJA)

[65] SCJA, id, s 18D(1)(a). The other requirements are that the action must be one the High Court may hear and try in its original civil jurisdiction, and the action satisfies other conditions that the rules of court (Cap 322, R 5, 2014 Rev Ed) (ROC) may prescribe (see n 71): s 18D(1)(b) and (c). In addition, the SICC has jurisdiction to hear proceedings relating to international commercial arbitration that the High Court may hear, and that satisfy any conditions prescribed by the rules of court: s 18D(2). Definitions of when claims are "international in nature" and "commercial in nature" are set out in the ROC, O 110, rr 1(2)–(3B)

[66] Constitution of the Republic of Singapore (1985 Rev Ed, 1999 Rep), Art 95(4)(c)

[67] SCJA, *id*, s 18L

[68] *Id*, s 18M

[69] *Rappo, Tania v Accent Delight International Ltd* [2017] 2 SLR 265 at [121]–[124], CA (Singapore); *MAN Diesel & Turbo SE v IM Skaugen SE* [2019] SGCA 80 at [139]–[146], CA (Singapore)

[70] Cap 39A, 2017 Rev Ed

Parties intending to designate Singapore courts for dispute resolution may agree in writing either to have their disputes determined by the High Court or specifically the SICC. If the SICC is designated, the court may decline to assume jurisdiction if it takes the view that it is not appropriate to hear the action[71], but not solely on the ground that the dispute is connected to a jurisdiction other than Singapore[72]. A case may be transferred from the SICC to the High Court, and vice versa[73].

[71] ROC, above, n 65, O 110, r 8(1). In addition, in order for the SICC to have jurisdiction over an action, the claims must either relate to international commercial arbitration, or: (1) the claims must be of an international and commercial nature; (2) each plaintiff and defendant named in the originating process when it was first filed must submit to the court's jurisdiction under a written jurisdiction agreement; and (3) the parties must not be seeking any relief in the form of or connected with a prerogative order: ROC, O 110, r 7(1)

[72] Id, O 110, r 8(2)

[73] Id, O 110, r 12

Admissibility of Evidence in Electronic Form

Once the governing law of a contract has been determined together with the courts that will have jurisdiction to hear a dispute in respect of the contract, the ability of one of the parties to enforce the terms of the contract, such as a derivatives transaction that is documented on a DLT platform, will depend on: 1) whether a contract in such electronic form is enforceable under the laws of the governing law of the contract; and 2) whether a contract in such electronic form will be admissible in evidence in the relevant courts.

These issues are briefly considered in respect of England and Wales and Singapore.

England and Wales

Other than in respect of certain limited types of document (which should generally not be relevant for a derivatives transaction entered into under an ISDA Master Agreement)[74], there is no requirement for a contract to be in writing or in any other form, and even oral contacts are enforceable provided the basic constituents under English law for a contract to be formed are present[75]. As a result, provided a derivatives transaction documented in electronic form (such as on a DLT platform) has these basic constituents, it will in principle be enforceable under English law.

The admissibility of electronic documents in court proceedings in England and Wales is governed by the Electronic Communications Act 2000 (the ECA 2000)[76]. The ECA 2000 allows for an electronic document[77] to be admissible as evidence in relation to any question over the authenticity of an electronic transaction[78]. As a result, a derivatives transaction that is documented on a DLT platform should in principle be admissible as evidence in the courts of England and Wales, so long as the transaction and its terms are capable of being reproduced in a format that the court can read.

Singapore

Singapore law has largely the same effect as English law on this issue. In the general case, contracts are not required to be in writing, and the Electronic Transactions Act[79] means information is not denied legal effect, validity or enforceability solely on the ground that it is in the form of an electronic record[80]. Specifically in relation to the formation and validity of contracts, the act provides[81]:

- In the context of the formation of contracts, an offer and the acceptance of an offer may be expressed by means of electronic communications.

[74] Among other things, a guarantee (pursuant to s 4 of the Statute of Frauds Act 1677 (29 Cha II, c 3; UK) or a statutory assignment (pursuant to s 136 of the Law of Property Act 1925 (15 & 16 Geo V, c 20; UK)) must be in writing and signed by or on behalf of the guarantor or assignor (as applicable). A financial collateral arrangement under the Financial Collateral Arrangements (No 2) Regulations 2003 (SI 2003 No 3226; UK) must also be evidenced in writing, which will be relevant in respect of any credit support document that is intended to constitute a financial collateral arrangement. The term *writing* is defined in the Interpretation Act 1978 (c 30; UK) as including "typing, printing, lithography, photography and other modes of representing or reproducing words in a visible form"

[75] These basic constituents are offer and acceptance, consideration, certainty of terms and an intention to create legal relations

[76] 2000 c 7 (UK). The ECA 2000 also contains provisions relating to the admissibility in evidence of electronic signatures

[77] The term *electronic document* is defined as "anything stored in electronic form, including text or sound, and visual or audiovisual recording": s 7C(2)

[78] ECA 2000, s 7C. The term *electronic transaction* itself is not defined

[79] Cap 88, 2011 Rev Ed (Singapore)

[80] *Id*, s 6. An *electronic record* is "a record generated, communicated, received or stored by electronic means in an information system or for transmission from one information system to another": s 2(1)

[81] *Id*, s 11

- Where an electronic communication is used in the formation of a contract, that contract shall not be denied validity or enforceability solely on the ground that an electronic communication was used for that purpose.

A number of rules stated in the Evidence Act[82] aid the admission of electronic records[83] – for instance, as evidence of transactions on a DLT platform. An electronic record that has been manifestly or consistently acted on, relied upon or used as the information recorded or stored on a computer system (which is regarded as a document) is primary evidence of that document. If the electronic record has not been manifestly or consistently acted on, relied upon or used as a record of the information in the document, it may nonetheless be a copy of the document and treated as secondary evidence of it[84].

The act also creates various rebuttable presumptions concerning electronic records. For example, when a device or process ordinarily produces or accurately communicates an electronic record, the court will presume the device or process produced or accurately communicated the electronic record[85], unless there is evidence sufficient to raise doubt about the presumption.

[82] Cap 97, 1997 Rev Ed (Singapore)

[83] An *electronic record* is defined as "a record generated, communicated, received or stored by electronic, magnetic, optical or other means in an information system or transmitted from one information system to another": *id*, s 3(1)

[84] *Id*, s 64, explanation 3, illustrations (a) and (b)

[85] *Id*, s 116A(1). The presumption was successfully relied on in *Telemedia Pacific Group Ltd v Credit Agricole (Suisse) SA (Yeh Mao-Yuan, third party)* [2015] 1 SLR 338 at [249]–[262], HC (Singapore)

Disputes Involving the Parties to the Uncollateralized DLT Transaction

The ISDA Master Agreement provides an explicit choice of governing law by the contracting parties, and the implementation and execution of the uncollateralized DLT transaction on Corda is premised on the existence of this agreement. In addition, the Corda platform is premised on the legal identity of the parties being tied to the nodes transacting on a trading platform. Based on the explanation of the applicable private international law rules, there is no reason to think that a court in Singapore or England and Wales would not give effect to the parties' express choice of law under the ISDA Master Agreement if any disagreement arose between them over a transaction.

In England and Wales, there is nothing to suggest that the parties' express choice of English law would be disapplied by an English court, whether due to the operation of EU law, overriding provisions of English law or UK public policy. Similarly, there does not appear to be any reason why the court in Singapore would find the choice of governing law in the ISDA Master Agreement as a deliberate attempt to circumvent some mandatory rule of Singapore law or manifestly incompatible with the public policy of Singapore. At the time of writing, no such issue has been raised in various cases involving the ISDA Master Agreement in either country[86].

A derivatives transaction may be implemented on a CorDapp that has little connection to the country of the law that has been selected by the parties to the transaction as the governing law. For instance, the parties may have expressly settled on English law pursuant to the ISDA Master Agreement, but the parties and the CorDapp may have no connection to the UK – for example, the computer systems on which the CorDapp runs may not be physically located in the UK. One might then query whether this is a ground on which the parties' choice of law might be disapplied by the court.

This should not be the case. Under English law, for a court to disregard the express choice of law, it would have to find that *all* the elements relevant to the situation are located in a country other than the choice-of-law country, pursuant to Article 3(3) of the Rome I Regulation[87]. In *Dexia Crediop SpA v Comune di Prato*[88], the Court of Appeal of England and Wales rejected an argument based on the equivalent of this rule in the 1980 Rome Convention[89] that the choice of English law in the ISDA Master Agreement by the parties, which were both Italian, was inapplicable because all the elements relevant to the transaction were located in Italy. The court ruled that the phrase *elements relevant to the situation* includes elements that indicate an international situation, and not just elements that are local to another country[90]. Since the parties had opted to contract on the basis of the ISDA Master Agreement, which is not intended to be associated exclusively with any country, and the transaction involved back-to-back contracts with banks outside Italy, there was an international dimension to the situation. It could therefore not be said that the choice of English law to govern the contract should be disregarded because all elements relevant to the situation were located in Italy[91].

[86] See, for example, the cases mentioned in n 13

[87] Above, n 15: see para (1) on page 5

[88] [2017] EWCA Civ 428 at [119]–[137], CA (England & Wales)

[89] 1980 Rome Convention, above, n 35, Art 3(3), which is *in pari materia* with Art 3(3) of the Rome I Convention, above, n 15

[90] *Dexia*, above, n 88 at [125]–[128] citing, among other things, *Banco Santander Totta SA v Cia Carris de Ferro de Lisboa SA* [2017] 1 WLR 1323 at [46] and [53]–[54], CA (England & Wales)

[91] *Dexia, id* at [134]–[135]

The scenario under consideration shares similarities with the situation in *Dexia* – the transaction involves the ISDA Master Agreement and, like the back-to-back contracts in the *Dexia* situation, the use of a Corda distributed ledger based in another country brings an international dimension to the matter. Following the court's reasoning in *Dexia*, there is therefore no reason for the parties' express choice of law to be disregarded[92].

In both Singapore and England and Wales, it seems unlikely that the use of a Corda distributed ledger based in another country would result in a finding by a court that the express choice of law was not *bona fide*, in that it had been made solely to avoid some law that would otherwise apply to the transaction.

There could be a greater degree of uncertainty over the governing law of a transaction taking place on a permissionless distributed ledger, especially when the transaction is not backed by an off-ledger agreement and the parties are domiciled in different jurisdictions. Depending on how the system is set up, there may even be doubts about the real-world identities of the participants[93]. Given these issues, it would seem unlikely that this type of DLT model would be suitable for the trading of derivatives transactions on a cross-border basis without greater certainty among all participants over which governing law should apply.

[92] In addition, if the parties are not from the same country (unlike the parties in *Dexia*, which were both Italian), then this will be an additional reason for Article 3(3) of the Rome I Regulation not to apply

[93] Questions relating to, for example, the enforceability of a smart contract entered into between anonymous or pseudo-anonymous parties are being addressed as part of a legal statement to be published by the UK Jurisdiction Taskforce of the LawTech Delivery Panel established by the UK government, the UK judiciary and the Law Society of England and Wales, https://www.lawsociety.org.uk/news/stories/cryptoassets-dlt-and-smart-contracts-ukjt-consultation/

Disputes Involving Parties to the Uncollateralized DLT Transaction and the Platform Provider

Another category of disputes might arise from the functioning of the platform used for the derivatives transaction. Corda, like other DLT platforms, sits at the 'bottom of the stack'. This means application builders utilize Corda to build their CorDapps, with such CorDapps commonly referred to as sitting at the 'top of the stack'. It is important to note that parties using CorDapps interface with platform providers operating CorDapps at the 'top of the stack.'

It is conceivable that, due to software programming bugs or hardware issues, corrupted or otherwise incorrect data might be fed into smart contracts, or smart contracts might not function as envisaged. This would then give rise to a potential dispute between one or both of the parties to a derivatives transaction that have suffered loss when using the CorDapp.

In respect of the CorDapp, for parties to participate in a Corda-enabled derivatives transaction, the parties would have entered into written agreements with the platform provider containing express choices of governing law. There would generally be two types of agreements governing use of the CorDapp: 1) a platform-level licensing agreement between each party and the platform provider operating the trading platform; and (2) a rule book that sets forth rules that would govern transactions. As with the relationship between the parties to the derivatives transaction inter se, there seems no reason under current private international law rules why a court in Singapore or England and Wales would reject this express choice of law in the absence of any countervailing mandatory legal rule or public policy reason.

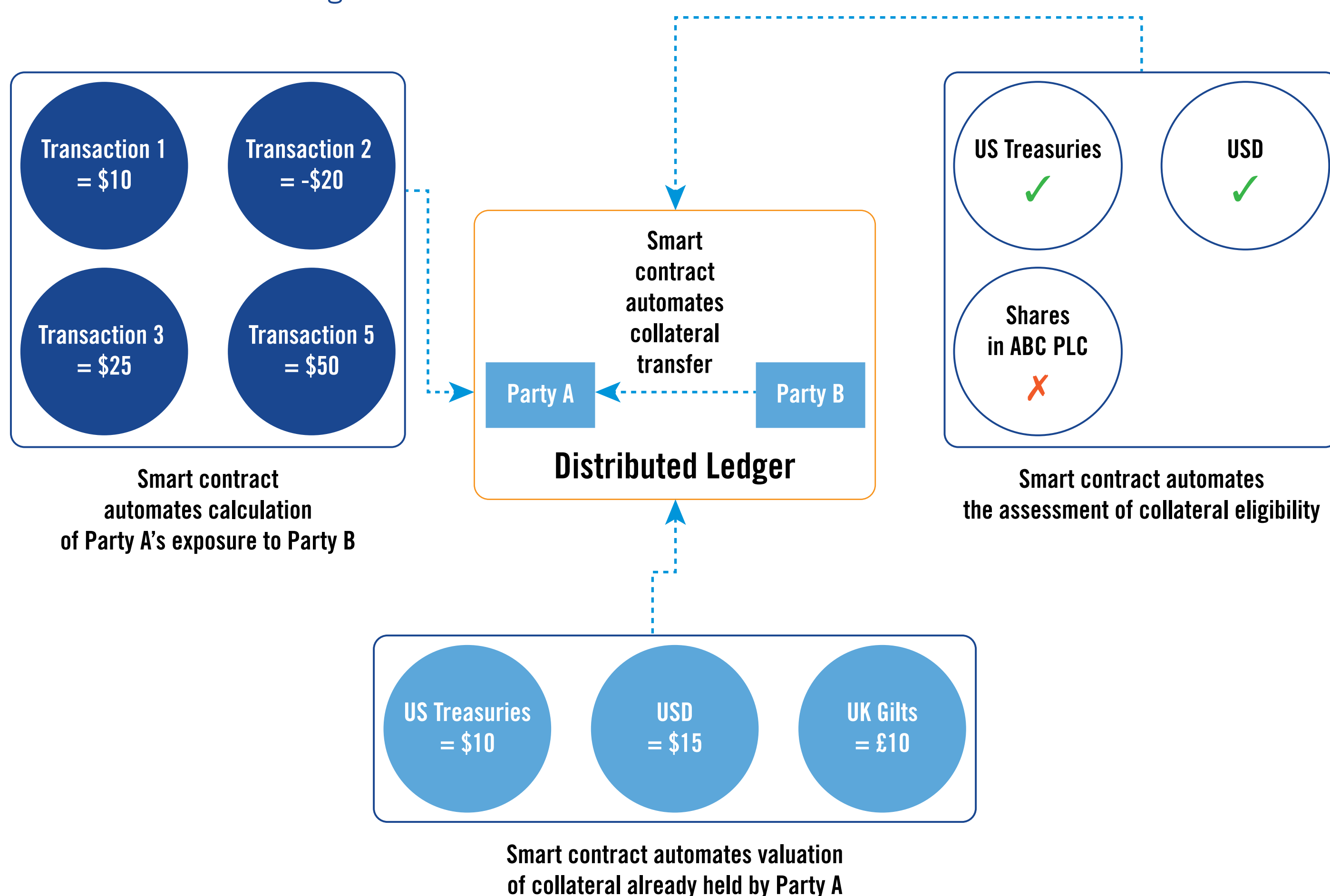
COLLATERALIZED DLT TRANSACTION

Smart Derivatives Contracts – Collateral

In September 2019, ISDA published the *Legal Guidelines for Smart Derivatives Contracts: Collateral*[94]. These guidelines provide an overview of current legal standards that exist within the collateral management process, and aim to assist technology developers, collateral operations, risk management and other key stakeholders in developing technology solutions that are consistent with applicable legal and regulatory standards that govern and regulate collateral relationships and processes.

Again, these guidelines are agnostic about the types of technology and solutions that may ultimately be used. However, they do provide an illustration of a potential smart derivatives contract construct using DLT that is designed to automate certain aspects of the collateral management process:

Figure 2



[94] ISDA *Legal Guidelines for Smart Derivatives Contracts: Collateral*, https://www.isda.org/a/VTkTE/Legal-Guidelines-for-Smart-Derivatives-ContractsCollateral.pdf

In considering the use of DLT in this context, it is useful to recall the distinction made in the ISDA *Legal Guidelines for Smart Derivatives Contracts: Introduction*[95] between different types of potential DLT implementation that could support smart derivatives contracts. In the context of collateral management, a system designed as a 'light chain' would not house any collateral, whereas a system designed as a 'heavy chain' would be able to support the key operational mechanisms of the ISDA collateral documentation. Figure 2 illustrates how, under a heavy chain implementation, the platform could house tokenized collateral assets that are native to a DLT platform and could support the transfer of such assets between the parties.

The guidelines note the importance of understanding the precise nature and location of these digitized asset, as well as any security or ownership rights attached to them. The paper also observes that achieving legal certainty in this area will be vital in assessing the efficacy of any system that supports the key operational mechanisms of the collateral management process.

This paper will explore the relevant private international law issues relating to the situs of digital assets by reference to a collateralized DLT transaction.

[95] Above, n 3

The Collateralized DLT Transaction

Implementation of the collateralised DLT transaction on Corda would be achieved in much the same way as the uncollateralized DLT transaction[96].

In this example, the parties to the collateralized DLT transaction will have again negotiated the terms of their relationship under the ISDA Master Agreement and documented the economic terms relating to the interest rate swap under a transaction confirmation. The parties would also have entered into a form of Credit Support Annex (CSA) published by ISDA[97].

In addition, the parties would enter into a platform agreement with the platform provider as the operator of the CorDapp.

As with the uncollateralized DLT transaction, the parties would become 'nodes' on Corda and would use a CorDapp to execute the transaction and any collateral obligation arising from it.

In this example, the CSA would be a state object in addition to the ISDA Master Agreement and transaction confirmation. A separate Corda contract would be required, setting out the various rules governing the CSA state object. For example:

> "Eligible collateral must be [*a specified asset*]."

The structure, set-up and execution of the collateralized DLT transaction would happen in much the same way as for the uncollateralized DLT transaction, except it is likely that collateral settlement would take place on a much more frequent basis.

It is also possible that the collateral assets could be documented as tokens[98] – whether as the representation of a real-world collateral asset that is held and transferred off-ledger, or some form of digital asset that could possess value in and of itself and could therefore be used as collateral without any corresponding real-world asset[99]. Tokens possessing intrinsic value could be used to settle transactions without the need for any off-ledger fund transfers. This paper will explore potential issues arising under each of these scenarios.

[96] See Uncollateralized DLT Transaction section above

[97] Discussion of the different types of ISDA collateral documentation can be found in the ISDA *Legal Guidelines for Smart Derivatives Contracts: Collateral* paper, https://www.isda.org/a/VTkTE/Legal-Guidelines-for-Smart-Derivatives-Contracts-Collateral.pdf

[98] A 'token' is a type of state object that is classified as a digital asset and has an owner

[99] The Singapore International Commercial Court has taken the view that "[c]ryptocurrencies are not legal tender in the sense of being a regulated currency issued by a government but do have the fundamental characteristic of intangible property as being an identifiable thing of value": *B2C2 Ltd v Quoine Pte Ltd* [2019] SGHC(I) 3 at [142]. Compare also *Armstrong DLW GmbH v Winnington Networks Ltd* [2013] Ch 156 at 176–177, [58]–[60], in which the High Court of England and Wales accepted that a wholly electronic EU allowance (EUA) used for trading in carbon emissions under the European Union Emissions Trading Scheme was a form of intangible property, although it found it unnecessary to also consider whether it was a chose in action. However, the point cannot yet be regarded as entirely free from doubt: see, for example, Jean Bacon [et al], 'Blockchain Demystified: A Technical and Legal Introduction to Distributed and Centralised Ledgers' (2018) 25(1) Richmond J of L & Tech, no 1, https://jolt.richmond.edu/files/2018/11/Michelsetal-Final-1.pdf

Private International Law Rules Relating to Property Interests in Securities

England and Wales

Pursuant to the Financial Markets and Insolvency (Settlement Finality) Regulations 1999[100], where a register, account or centralized deposit system within which securities are recorded is located in a European Economic Area (EEA) state, the rights of the holders of these securities will be governed by the law of the EEA state where the register, account or centralized deposit system is located[101].

Similarly, under the Financial Collateral Arrangements (No 2) Regulations 2003[102], various aspects of book entry securities collateral, such as their legal nature and proprietary effects, are governed by the law of the country in which the relevant account is maintained[103]. Essentially, these are implementations of the so-called PRIMA principle: the court will regard the 'place of the relevant intermediary account' as the *lex situs* of the securities – that is, the place where the property or a claim to the property is situated[104].

There may be situations where the above laws and regulations do not apply. Under common law, the courts will look to the *lex incorporationis* (the law of the place where the company was incorporated)[105], as the usual reason for identifying the *situs* of company shares is to identify the law that determines how they may be dealt with or confiscated. If the *lex incorporationis* allows the shares to be dealt with at a place other than the place of incorporation (for example, because the register is in that place, or the shares are bearer shares, meaning they can be dealt wherever the certificate happens to be), then that place will be treated as the *situs* of the shares[106].

Adrian Briggs notes: *"Where shares are held in international deposit and clearing systems, and are therefore to be regarded as 'immobilized' (if there is a certificate but which is locked in a vault operated by or on behalf of the entity which operates the system) or as 'dematerialized' (where there is no share certificate at all), it would be possible, but it probably makes little sense, to say that the shares are situated in any particular place, for the investor does not have a contractual relationship with the company (in the case of shares) or other issuer (in the case of other securities)."* [107]

In such cases, the investor's contract will probably state that it has a direct right against the entity (or intermediary) with which it has an account. Any credit or value in the account will therefore be regarded as situated where the intermediary is situated, once again applying the PRIMA principle[108].

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[100] SI 1999/2979, implementing Directive 98/26/EC

[101] *Id*, reg 23

[102] SI 2003/3226, implementing Directive 2002/47/EC

[103] *Id*, reg 19. See *Dicey, Morris and Collins*, above, n 17 at [24-072]

[104] See the FLMC paper, above, n 2 at [4.1] and [4.4]–[4.5]

[105] Compare *Macmillan Inc v Bishopsgate Investments plc* (No 3) [1987] 1 WLR 387, CA (England & Wales); *Akers v Samba Financial Group* [2014] EWHC 540 (Ch)

[106] *Macmillan, ibid; Dicey, Morris and Collins*, "Law of Property", above, n 17 at [24-066]; and Briggs, "Property" in *Private International Law in English Courts* (Oxford: Oxford University Press, 2014) at [9.23]

[107] *Id* at [9.24]

[108] *Id* at [9.25]

Singapore

It has been suggested that the Singapore rules for determining the law applicable to property interests in securities are the same as English common law rules. In other words, the *lex situs* is generally the law where the company is incorporated[109]. Where registration of the securities is necessary to effect transfer of the securities, the *lex situs* is the law of the place where the share register is kept[110]. Therefore, this would be the law applicable to issues such as whether a party has a legal or equitable right to certain shares, and competing priorities to shares[111].

Other Possible Approaches

Unsurprisingly, the use of the *lex situs* in connection with assets on a DLT is complicated by the fact that a ledger can be 'located' in several jurisdictions, and may not have any central authority or validation point[112]. In a 2018 paper, the Financial Markets Law Committee (FMLC) in the UK canvassed a number of other possible applicable laws, including the following:

- The law of the platform or elective situs – namely, "the system of law chosen by the network participants for the DLT system"[113].
- The law of the place where the relevant administrator or operating authority is located (PROPA), or the place of primary residence of the encryption master keyholder (PREMA) for DLT systems that use a private master key to permit the transfer of digital assets[114].
- The law of the place "where the system participant who is transferring the assets is resident, has its centre of main interests or is domiciled"[115].

The FMLC ultimately took the view that a law of the platform or elective *situs* "should be the starting point for any analysis of a conflicts of law approach to virtual tokens"[116], with the possibility of using the PROPA or the law of the place where the system participant is located as a back-up if an elective *situs* "cannot readily or sensibly be implemented"[117].

This paper does not canvass other possible approaches to determining the applicable law for resolving property disputes that have been broached by the FMLC and other commentators. These may merit further study.

[109] Unless the shares are bearer or order shares transferable by delivery, in which case the shares are treated as situated wherever the relevant document is located at the relevant time: *Halsbury's Laws of Singapore*, above, n 41 at [75.307], citing *Macmillan*, above, n 105. The Singapore Court of Appeal has taken the view that where title to property is in issue, the applicable law is either the *lex situs* or the proper law of the debt. As of the date of writing the court had not yet decided between these two possibilities: see *The Republic of the Philippines v Maler Foundation* [2014] 1 SLR 1389 at [84]–[85] and [92]–[95], CA (Singapore)

[110] *Halsbury's Laws of Singapore, ibid,* citing *Macmillan, ibid*

[111] *Halsbury's Laws of Singapore, id* at [75.324]

[112] FMLC paper, above, n 2 at [4.6]

[113] *Id* at [6.4]–[6.8]

[114] *Id* at [6.16]–[6.19]

[115] *Id* at [6.21]–[6.24]

[116] *Id* at [7.3]

[117] *Id* at [7.5]

Application of Private International Law Rules to the Collateralized DLT Transaction

Where Tokens Merely Record Real-world Assets

Under the most straightforward implementation of the collateralized DLT transaction, the real-world collateral assets (such as cash or securities) are not replaced with on-ledger tokens or digital assets that possess intrinsic value. Rather, the tokens merely record the various forms of collateral provided and exchanged.

If a dispute arose over the entitlement of a party to securities used as collateral, this would therefore be decided by the situs of the securities. Depending on the particular situation, this could be the le*x incorporationis* (including the law of some place other than the *lex incorporationis* if the latter allows the securities to be dealt with there) or, where the securities are held in a centralized deposit system, the law of the country where the register, account or centralized deposit system is situated.

Where Tokens Possess Intrinsic Value

A more complex implementation of the collateralized DLT transaction could involve the replacement of the real-world collateral assets with a form of token or digital asset that possesses intrinsic value (such as a cryptocurrency).

In this scenario, determining the situs of the token is more difficult as, depending on the nature of the token, there may be no *lex incorporationis*. The token is also not held in a centralized deposit system, nor in an account with an intermediary.

One solution would be for the situs of the token to be the 'law of the platform' or 'law of the system' that the parties have agreed will govern all on-ledger transactions on the relevant DLT system[118].

Alternatively, if national authorities and regulators are concerned that allowing parties an unfettered choice of a governing law of the platform is undesirable[119], then they might consider whether they should apply pressure for the choice of law to be restricted to the laws of countries where the parties (such as the issuer of assets, the system administrator and market participants) are subject to sufficient legal and regulatory oversight[120]. However, this may also reduce flexibility and could prove challenging to implement.

If this approach was adopted, then, conceptually, a situation where the value of the collateral is represented by tokens on the distributed ledger would not be very different to that based on real-world assets such as cash and securities. Despite the novelty of such tokens, the principal issue would be whether a court order requiring one party to compensate another could be obtained and whether it would be enforced. So long as the judgment debtor compensates the judgment creditor in accordance with the court order, the judgment creditor is unlikely to be concerned about whether the compensation takes the form of tokens on a distributed ledger, or cash or other traditional asset.

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118 Philipp Paech, *The International Law of Digital Asset Settlement – Functional Analysis and Draft Legal Principles* (May 2019 working paper) at 10

119 For example, as the FMLC has suggested, where the parties may choose "a system of law which is subject to significant undue external or private influence". FMLC paper, above, n 2 at [7.4]

120 *Id* at [7.5]; Paech, above, n 118 at 10 ("It is paramount that one single law applies throughout each network. […] The only legally safe method is to rely on a chosen law. Those that set up the DLT network make the initial choice, which is subsequently adhered to by any participant joining. However, supervisors should have an interest in, and regulation should set requirements for, that choice. Given the importance in terms of enforceability of acquisition and disposition, especially in insolvency, there should be restrictions as to which law can be chosen.")

If an order is obtained, then a question could arise over the enforceability of a foreign judgment by the court having jurisdiction over the judgment debtor if it is located in another jurisdiction. In determining the answer to this question, there seems to be little conceptual difference between a scenario where the parties have used tokens, cash or securities when exchanging collateral assets.

There may also be means of addressing this issue on the platform itself. For example, each transaction on Corda is validated by a notary to ensure uniqueness in order to address the 'double-spend' concern. Given the flexibility that R3 provides on contractual arrangements on Corda business networks, it could be possible to create an agreement between the participants that empowers the notary to implement a court order obtained from a court of the contractually agreed jurisdiction on Corda, potentially avoiding the need for the relevant judgment to be enforced against the judgment debtor in its home courts. Accordingly, in the event a court order (of a court with jurisdiction) states that a participant is not the proper party to hold tokens, the notary (as a result of the platform agreement) could be empowered to deny the transferability of such tokens. This, in turn, ensures that such tokens are no longer fungible. Further, the issuer of the tokens, through a contractual arrangement, could then issue replacement tokens to the proper party that should be the owner of these tokens.

Assuming the agreement the parties have entered into contains express choices regarding the law of the platform and the court before which disputes are to be litigated, a judgment creditor faced with an uncooperative judgment debtor would simply serve the court order on the notary to invalidate the tokens of the debtor and require the issuer to issue new tokens to satisfy the order. A distributed ledger structured in this way would reduce the difficulties that may arise when a judgment creditor tries to enforce a foreign judgment before a court.

It could also provide an alternative to issues posed by permissionless platforms where the identities of the parties and their physical locations are not easily ascertainable, which clearly creates difficulties for traditional court-based enforcement of judgments.

CONCLUSION AND RECOMMENDATIONS

This paper has considered a number of private international law, or conflict-of-law, aspects of derivatives contracts governed by the laws of Singapore and England and Wales and involving DLT.

Considering the most straightforward implementations of both an uncollateralized and collateralized DLT transaction, it is not thought likely that either implementation would result in an English or Singaporean court disapplying an express choice of law, whether in the ISDA Master Agreement or any agreement between the parties and a platform provider.

Where the parties use tokens on the DLT platform as a medium of value, or to effect payments or exchanges of collateral, this would raise additional conflict-of-law issues arising from the challenges in identifying the *situs* of the token.

In addition, where an entirely disintermediated form of securities holding systems or trading platforms is established through the development of a public and permissionless DLT system, such that it is not possible to identify individual platform participants, it may not be possible to establish precisely where participants or assets are located.

It would therefore provide greater clarity for all parties to agree that their transactions should be subject to a common 'law of the platform', 'law of the system', or elective *situs* – that is, a uniform choice of law that the parties agree will govern all on-ledger transactions. Such common law of the platform could then be used as the situs of any tokens that are native to that DLT system.

Where national authorities and regulators are concerned that allowing parties an unfettered choice of a governing law of the platform is undesirable, the choice of law could be restricted to the laws of countries where parties such as the issuer of assets, the system administrator and market participants are subject to sufficient legal and regulatory oversight.

Were this approach to be adopted, the primary concern of the parties would then be whether a court order requiring one party to compensate another could be obtained and whether it would be enforced. As considered earlier in this paper, the functionality of DLT platforms such as Corda could assist with the practical enforcement of judgments.

Establishing this system will require national governments, judiciaries, regulators and international standards-setting bodies to work on adapting or developing global legal standards aimed at ensuring the safe, transparent and consistent regulation of DLT-based financial transactions, and to ensure that parties are unable to elect for their relationships to be governed by the laws of countries with inadequate policy, legal or regulatory oversight.

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