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Code Is Not Law: The Legal Background for Trade Finance Using Blockchain

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Code Is Not Law:
The Legal Background for Trade Finance Using Blockchain

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Abstract

Legal recognition of electronic documentation will be a key enabler of blockchain-based trade finance applications. Currently, there is no U.S. regulation or law that adequately recognizes electronic versions of negotiable instruments as such. This paper sets forth the legal obstacles facing the use of electronic negotiable instruments in a decentralized system. To do so, we analyze two specific sets of uniform rules to determine gaps in the current framework. The paper then proposes potential amendments that would enable the use of electronic negotiable instruments on blockchain in trade finance and also looks at the feasibility of creating a rulebook as an interim solution for such use.

1 Introduction

Blockchain technology could, in an appropriate legal environment, facilitate the use of electronic documentation in a manner that provides the users with confidence in the documentation's validity and finality and in the transactors' rights in the documentation. In order to have confidence in blockchain transactions, users must be able to rely on the legal underpinnings of such electronic documentation.

Legal recognition of electronic documentation will be a key enabler of blockchain-based trade finance solutions. But laws and regulations differ by jurisdiction. Revisions to the laws and regulations related to electronic negotiable instruments have been particularly uneven and slow to progress. This paper sets forth the changes that would need to be enacted if U.S. law were to cover transactions using electronic negotiable instruments registered via blockchain so that electronic negotiable instruments would have the same legal effect as traditional paper negotiable instruments.

Currently, there is no U.S. regulation or law that recognizes electronic versions of negotiable instruments as such.[1] This omission has inhibited the speed and scale of innovation in trade finance. Although it has become technologically possible to execute transactions using negotiable instruments registered via blockchain technology, existing U.S. law recognizes negotiable instruments only if they are on paper and signed.

The legal obstacles to the execution of transactions in electronic negotiable instruments registered via blockchain fall into three categories. These include laws that specifically require negotiable

*BAFT Distributed Ledger Payment Commitment ("DLPC") Working Group members include: Alpha Bank, APKS, BIX Security Corp, BNP Paribas, BNY Mellon, CGI, Citibank, GTBInsights, ING, KBC, Queen Mary University of London, R3, Skuchain, Standard Chartered Bank, Surecomp, US Bank, and Wells Fargo. The authors thank in particular three experienced legal professionals who practice with the UCC for their very useful comments and suggestions.

[1] Although, the Uniform Electronic Transactions Act (UETA) does recognize electronic promissory notes. See Section 4 of this paper.

instruments to be signed writings (i.e. Article 3 of the Uniform Commercial Code (UCC)), laws that cover (incompletely) electronic promissory notes but not bills of exchange or drafts (i.e. the Uniform Electronic Transactions Act (UETA)[2]), and an absence of case law interpreting existing statues to cover electronic negotiable instruments. In this paper, we focus primarily on laws which require negotiable instruments to be signed writings.

Trade finance includes a variety of documents depending on the nature of the underlying transaction. Each of the documents can itself be digitized or have parts that are digital and parts that are on traditional paper. Our analysis covers the simplest case: that of promissory notes and bills of exchange or, to use the terminology of UCC Article 3, drafts (throughout this paper the term "bills of exchange" will be used in place of "drafts" as both refer to the same instrument). This enables us to craft a clear framework that could be adapted to apply to other trade finance documents.

Our objective is to suggest how blockchain could be used for trade finance in the current U.S. legal environment. The roadblock presented in this paper stems from the need to digitize negotiable instruments. However, UCC Article 3 expressly defines a negotiable instrument to be a "written" undertaking that is signed. This definition presents a problem for the execution of transactions in electronic negotiable instruments registered via blockchain.

We explore three potential solutions for the law to cover negotiable instrument transactions using blockchain. These solutions include: (1) revising UCC Article 3, (2) extending and amending the UETA[3], and (3) creating a rulebook for all users of electronic negotiable instruments on a permissioned blockchain.

The ideal, long-term solution is to amend UCC Article 3. Given that such amendment could take years to be prepared and enacted, we propose the interim solution of creating a rulebook to fill in the gaps in existing law by means of a set of rules to which the parties agree in order to have a basis on which to execute transactions using electronic negotiable instruments registered via blockchain.

This paper has six sections. Section 2 details the current legal framework in the United States surrounding the use of negotiable instruments in trade finance, with a specific focus on UCC Article 3 and its limitations. Section 3 sets forth a proposed revision of UCC Article 3 that would enable Article 3 to cover the execution of transactions using electronic negotiable instruments registered via blockchain. Section 4 explores whether an alternative set of uniform rules, UETA, might fill some of the gaps left in UCC Article 3. Section 5 then introduces the notion of a rulebook as an interim solution and examines the feasibility of such a rulebook. Section 6 describes how UCC Article 5 does cover electronic versions of letters of credit, providing a potential model for amending other sections of the UCC. Section 7 is the conclusion to this paper.

2 Electronic instruments in trade finance

Electronic documentation has become increasingly common in domestic trade over the past two decades. While blockchain can facilitate the digitization of documents due to the assurances of validity and finality of documents and transactors' rights in documents associated with blockchain technology, the law has not caught up to cover electronic negotiable instruments.

Revisions to laws or rules that govern international trade are in progress already today. The International Chamber of Commerce (ICC) Banking Commission has tasked a committee on Digital Standards to review the rules set forth in the Uniform Rules for Bank Payment Obligations (ICC Publication No. 750E, 2013 edition), and in the Supplement to the Uniform Customs and Practice for Documentary Credits for Electronic Presentation (eUCP). BAFT (Bankers Association for Finance and Trade) has a working group creating business operating rules for payment commitments on blockchain. The United Nations Commission on International Trade Law revised the Model Law on Electronic Transferable Records in July 2017 and continues to revise related rules.

[2]The Federal ESIGN statute - the Federal Electronic Signatures in Global and National Commerce Act (ESIGN), 15 U.S.C. §7001 et seg. – also covers (incompletely) electronic promissory notes but not bills of exchange or drafts; and under ESIGN, such promissory notes must be secured by real estate.

[3]To cover bills of exchange (drafts) and the other shortfalls.

This section explains our focus on the electronic negotiable instruments and sets forth the challenges of the current law in the U.S.

2.1 Electronic negotiable instruments today

The first step in determining whether a transaction can be legally enforced is to determine the characteristics of the instruments and other documents in the transactions. Negotiable documents play a critical function in trade finance. This function can take a variety of forms (Table 1), each of which is governed by different laws. For example, while a payment commitment is included in both negotiable instruments and letters of credit ("LCs"), negotiable instruments are covered by UCC Articles 3 and (to some extent) 4, whereas LCs are covered by UCC Article 5. While bills of exchange and documents of title both constitute "orders," bills of exchange are "orders" to pay money and are governed by UCC Article 3, whereas documents of title are "orders" to deliver goods and are covered by UCC Article 7.

Table 1: Types of trade finance documents (not exhaustive)

Product	Legal Framework
Negotiable Promissory Notes	Negotiable Instruments under UCC Article 3
Bills of Exchange	Negotiable Instruments under UCC Article 3
Documentary Time Bills of Exchange becoming Trade Acceptances	Negotiable Instruments under UCC Article 3
Documentary Time Bills of Exchange becoming Bankers' Acceptances	Negotiable Instruments under UCC Article 3
Avalized Bills of Exchange	Negotiable Instruments under UCC Article 3
Documentary Time Bills of Exchange presented under Letters of Credit	Negotiable Instruments under UCC Article 3
Clean Letters of Credit (including deferred payment undertakings)	UCC Article 5 and UCP 600 or ISP98
Commercial Documentary Letters of Credit	UCC Article 5 and UCP 600
Bank Payment Obligations	UCC Articles 4 and 4A; Swift, Fedwire, and CHIPs; ICC Uniform Rules for Bank Payment Obligations; UCC Article 5 (insofar as such obligations arise under letters of credit)

NOTE: Future references to promissory notes within this paper are limited to negotiable promissory notes (except as specifically stated).

This paper focuses specifically on promissory notes and bills of exchange as these are the simplest documents used in trade finance and are both covered by UCC Article 3.

UCC Article 3 was, like predecessor codifications of the law merchant relating to negotiable instruments, written when negotiable instruments were exclusively paper instruments, and so UCC Article 3 covers only paper promissory notes and bills of exchange. UCC Article 3 was last revised in 2002[4] , and in 2018 is in the process of again being revised but only to cover electronic residential mortgage notes. We envision that this paper can contribute to a broader revision of UCC Article 3.

2.2 UCC Article 3

Although the current UCC Article 3 has largely fulfilled its aim of facilitating trade finance (and other aims), it does have an unfortunate limitation. That is, its language defines covered instruments as "written" and does not recognize the same instruments if they are in digital form.

[4]We note however that while the 1990 amendments are widely adopted, only 12 states have adopted the 2002 amendments. The differences between the 1990 and 2002 revisions are not material for the purposes of this paper. We also note that New York has not enacted the 2002 revisions and continues to operate using the 1962 original text. Observations regarding amendments to the UCC would have to be adjusted appropriately if applied to the New York UCC.

Specifically, UCC Article 3 applies only to:

- a promissory note containing a "promise" that is "a *written* undertaking to pay money signed by the person undertaking to pay" (UCC § 3-103(a)(12), emphasis added), and
- a bill of exchange containing an "order" that is "a *written* instruction to pay money signed by the person giving the instruction" (UCC § 3-103(a)(8), emphasis added).

The comments to UCC Article 3 make this point clear: "Thus, the term 'negotiable instrument' [within UCC Article 3] is limited to a signed *writing* that orders or promises payment of money" (UCC § 3-104 comment 1, emphasis added).

While UCC Article 3 specifically mentions only promissory notes and bills of exchange, there are variants of these instruments that are covered by these definitions. Below we describe five instruments used in trade finance, each of which have different obligors and functions, and all of which are covered by UCC Article 3.

2.2.1 Promissory notes

A producer of goods that wants to sell those goods to a buyer may accept as payment the delivery of a promissory note made by the buyer to promise payment to the order of the producer of a fixed amount at a definite time.

Such note would, in the United States and if the note satisfies the definition of "negotiable instrument" in Article 3 of the UCC of the state whose law governs the note, be governed by Article 3 of such UCC. The obligations of the buyer as the issuer of the note would be set forth in § 3-412 of such UCC (as well as the text of the note). If the producer indorses the note and sells it to, typically, a financier, the obligations of the producer as indorser of the note would be set forth in § 3-415 of such UCC.[5]

2.2.2 Bill of Exchange – Trade Acceptance

Alternatively, the producer of goods might draw a time bill of exchange on the buyer to order the buyer to pay to the order of the producer a fixed amount at a definite time.

When the buyer accepts such time bill of exchange and delivers such accepted bill of exchange (in the trade called a "trade acceptance") to the producer, the buyer becomes obligated to pay the trade acceptance to the producer (and ordinarily the producer will make the goods available to the buyer). That trade acceptance would be governed by Article 3 of the UCC of the state whose law governs the bill of exchange. The obligations of the buyer as acceptor of the trade acceptance would be set forth in § 3-413 of such UCC. If the producer indorses and transfers such trade acceptance to, typically, a financier, the obligations of the producer as indorser of the trade acceptance would be set forth in § 3-415 of such UCC, and the obligations of the producer as drawer of the related bill of exchange would be set forth in § 3-414 of such UCC.

2.2.3 Time Bill of Exchange – Banker's Acceptance

Or the producer might require the buyer to engage its bank to accept and deliver to the producer a time bill of exchange drawn on such bank, instead of the buyer, in the amount required by the producer (in the trade called a "banker's acceptance"). Such a banker's acceptance would in the United States and if it satisfies the definition of "negotiable instrument" in Article 3 of the UCC of the state whose law governs the banker's acceptance, be governed by Article 3 of such UCC. The obligations of the bank as acceptor would be set forth in UCC § 3-413. The buyer in turn would agree separately to reimburse the bank upon payment by the bank at maturity of such banker's acceptance.

[5]In addition, Article 9 of the UCC contains rules relating to the effectiveness of transfers of notes as against the seller and third parties.

2.2.4 Documentary Draft

If the producer of the goods is concerned about whether the buyer will pay for the goods, or accept the producer's time bill of exchange, the producer may attach a document of title covering the goods to the bill of exchange and have its banker send the bill of exchange (now called a "documentary draft") for presentment via banking channels to the buyer's bank.

Under UCC § 4-503, the buyer's bank is obliged to release the document of title covering the goods only if the buyer honors the bill of exchange by payment (for a sight or demand bill of exchange) or by acceptance (for a time bill of exchange, such acceptance creating a trade acceptance). The buyer's bank is required, if the bill of exchange is honored, to remit the proceeds of honor (cash or acceptance) to the producer of the goods through bank channels.

2.2.5 Avalized Bill of Exchange

If the producer of goods does not know, or does not trust, the credit rating of the buyer, the producer might require the buyer to engage the buyer's bank to add its credit to the promise to pay. In that case, the buyer would request its bank to "avalize" or guarantee the trade acceptance to the order of the producer, thus adding the bank's credit to the promise to pay (in the trade called an "avalized bill of exchange"). The obligation of the bank as guarantor would be set forth in UCC § 3-419(e).[6] Such a trade acceptance would, in the United States and if it satisfies the definition of "negotiable instrument" in Article 3 of the UCC of the state whose law governs the trade acceptance, be governed by Article 3 of such UCC. The buyer in turn would be obliged to reimburse the bank in the event of the bank's being called upon to pay at the maturity of such avalized bill of exchange.

Since the current UCC Article 3 applies only to paper promissory notes and paper bills of exchange, there is a significant problem in the United States as to what law would apply to a promissory note or bill of exchange that is in electronic form and registered via blockchain. In the next three sections, we consider the feasibility of three solutions to this problem.

3 Solution 1: Revising UCC Article 3

The most straightforward solution to the problem of what law applies to the registration of electronic negotiable instruments via blockchain in trade finance in a U.S. law environment is to amend UCC Article 3 to apply to such electronic instruments.

Such amendment would have to do at least the following or contain analogous provisions to achieve the same results:

(a) Amend the definitions of "order" in UCC § 3-103(a)(8) and "promise" in UCC § 3-103(a)(12) to cover a record that is not in writing but "that is stored in an electronic or other medium and is retrievable in perceivable form" and that would be a negotiable instrument if it were in writing. See UCC § 3-103(a)(14) [definition of "record"].

(b) Define the term "delivery" (for example, as used in UCC § 3-105(a) setting forth the meaning of "issue") to include the registering by the instrument issuer, drawer, or acceptor of the transferee or the transferee's agent on a blockchain as the registered owner of the uncertificated negotiable instrument, and amend the rest of the UCC Article 3 to incorporate such term into the Article 3 provisions.

(c) Define the term "possession" (for example, as used in UCC § 3-201(a) setting forth the meaning of "negotiation") to include being registered using blockchain as the holder of an uncertificated negotiable instrument, and amend the rest of UCC Article 3 to incorporate such term into the Article 3 provisions.

[6] Under the UCC currently in the effect in the State of New York, such obligation would be set forth in New York UCC § 3-416.

(d) Amend the term "indorsement" in UCC § 3-204(a) to include registration on a blockchain as an indorser.

(e) Amend the meaning of "signing" and "signature" in UCC § 3-401, and the meaning of "writing" in UCC § 1-201(a)(43), to include registering on blockchain by an issuer, drawer, or acceptor or its agent of an uncertificated negotiable instrument.

(f) Add to UCC Article 3 a choice-of-law provision equivalent to the choice-of-law provision for certificated and uncertificated securities in UCC § 8-110(a).

(g) Amend UCC Article 3 to eliminate, for electronic negotiable instruments on the blockchain, the concept of bearer instruments.

Though an amendment of UCC Article 3 would be the ideal solution, such amendment would take time.[7] The process for amending the UCC requires language to be prepared and proposed by the American Law Institute and the National Conference of Commissioners on Uniform State Laws (Uniform Law Commission), and then to be enacted by each state, or at least the key commercial states, in the United States.[8]

4 Solution 2: Application of the Uniform Electronic Transactions Act

As electronic commerce (ecommerce) gained traction, the National Conference of Commissioners on Uniform State Laws proposed the UETA in 1999 to facilitate this new form of commercial exchange. Its aim was to harmonize state laws that govern electronic commerce. Unlike UCC Article 3, which applies only to paper promissory notes and paper bills of exchange, the UETA attempts to provide some form of statutory framework, but for electronic promissory notes only.

The relevant language in UETA is in a stand-alone section, Section 16. It provides, in its subsection (a), that an electronic promissory note is a "transferable record" under Section 16 if the issuer of the note has expressly agreed that the note is such a "transferable record" and the note would have been a negotiable promissory note under UCC Article 3 had it been in writing rather than in an electronic record. Section 16 goes on to provide, in its subsection (d), that a person "having control" of a transferable record (note) is the "holder", as defined in § 1-201(a)(21) of the UCC, of such transferable record (note), and "has the same rights and defenses as a holder of an equivalent record or writing under the Uniform Commercial Code including, if the applicable statutory requirements under Section 3-302(a)... are satisfied, the rights and defenses of a holder in due course... ."

Section 16 is a good beginning, but it has many shortfalls as written. These include issues related to enforceability against intermediate transferors (i.e., indorser liability and transferor warranty liability under a paper note) or the effect of taking a transferable record (note) on the underlying obligation. For example, if A transfers a transferable record (note) to B by means of granting B control, B may obtain holder in due course rights against the obligor/issuer, but B's recourse against A would not be clear.[9] See UETA, Section 16, comment 4. Thus, Section 16 seems incomplete for trade finance with electronic promissory notes.

[7] To illustrate the time-consuming nature of amendment, we only need to look at the example of UCC Article 5. It took eight years to amend the original UCC Article 5. The study of UCC Article 5 began in 1987, but it was not until late 1995 that the Revised UCC Article 5 was published. See *Internationalization of Revised UCC Article 5– Letters of Credit*, Northwestern Journal of International Law & Business vol. 16, 1996, pg. 217-220. In part, the lengthy process of UCC Article 5 revision was due to a wholesale revision of the article. That revision was also a sign of the times – drafts were exchanged by mail not email. However functional elements of the process remain the same - international acceptance of the revisions and coordination with various International Chamber of Commerce projects require much discussion and a series of drafts before overall agreement is reached. In addition, drafting committees meet only at specified intervals which further delays implementation. For these reasons, any amendment to UCC Article 3, even one more targeted to parts of the Article, will take time to be enacted.

[8] Any amendments to UCC Article 3 would also likely need to include amendments to other Articles of the UCC including UCC Article 9. UCC Article 9 apples to security interests in promissory notes (including non-negotiable promissory notes) securing obligations as well to sales of promissory notes. The definition of "promissory note" in UCC Article 9 likewise requires that the note be in writing.

[9] Section 201 of ESIGN is similar to Section 16 of UETA, but a transferable record (note) under ESIGN must be secured by real estate. See footnote 3.

Section 16 also does not mention, and so does not cover, electronic bills of exchange. It might be possible to solve the problems of using electronic notes and electronic bills of exchange in trade finance by amending and extending Section 16 of UETA (a) to cover "bills of exchange" as well as "notes" and (b) to cover the other issues under UCC Article 3 that are not currently addressed by Section 16.

However, it is probably better to amend Article 3 itself and solve those problems directly, rather than indirectly through amending and extending the UETA. Also, it would probably take as much time to amend and extend UETA in the various states as it would to amend UCC Article 3 to cover electronic notes and bills of exchange. Even the UETA Summary issued by the Uniform Law Commission concludes that Section 16 is a stopgap. Such Summary provides: "Section 16 is essentially a supplement to the Uniform Commercial Code, until its relevant articles can be fully amended or revised to accommodate electronic instruments."

5 Solution 3: Create a rulebook

There is an interim solution. An agreement among the parties to a blockchain-based trade transaction could set forth rules applicable to electronic promissory notes or bills of exchange registered via a blockchain, such agreement being called a "rulebook." This "rulebook" solution would:

- require the electronic promissory notes and bills of exchange to be registered via a permissioned blockchain. That is, a blockchain where the participants must be admitted by the existing members to use the blockchain, and the general public would not have access, and
- require that each transacting party admitted to such permissioned blockchain would agree as a condition of use of the blockchain that the terms of any negotiable-instrument transaction executed on the blockchain will be governed by the rulebook.

5.1 Rulebook components

A rulebook can be thought of as consisting of three components. These include: (1) a detailed statement of agreed rules describing the rights and obligations of parties to a negotiable-instrument transaction on blockchain; (2) an incorporation of a body of residual rules that support the enforceability of the rulebook and that govern the resolution of issues not resolved by the rulebook; and (3) a choice of forum.

5.1.1 Agreed Rules

The agreed rules for negotiable instruments would be derived from Article 3 of the UCC. Article 3 provides a set of rules defining the rights and obligations of parties to negotiable instruments that is detailed and as close to self-contained as, to the knowledge of the authors, one finds in a common-law environment. Article 3 is stable: it has (unlike many other articles of the UCC) not been amended since 2002. And, serendipitously, it is derived from the international law merchant, and consequently its principles are generally similar to those of the laws of other civil-law and common-law jurisdictions.

The principal difficulty presented by the task of transposing the applicable provisions of Article 3 into a rulebook is to adjust the Article 3 provisions so that they would work in a blockchain environment. A more detailed discussion of the mechanics of preparing agreed rules is set out under Section 5.2 below.

5.1.2 Residual Rules

The obvious way of incorporating a set of residual rules to support the enforceability of the rulebook and to resolve interstitial issues not resolved by the rulebook is to incorporate a governing law. The law of New York is perhaps the most natural fit, as, of the bodies of United States state commercial laws, the law of New York is the most extensive and the one most often specified in multi-state and U.S. cross-border commercial and financial transactions.[10] New York General Obligations Law § 5-1401 validates the choice of New York law in any contract, contingent or otherwise, relating to any obligation arising out of a transaction covering in the aggregate not less than $250,000, and so the law of New York by its terms would give effect to the incorporation of New York law for any transaction above the $250,000 threshold in a dispute before a New York court.

The obvious alternative body of law in the context of cross-border trade transactions would be that of England. While the compatibility of Article 3 of the UCC with English law is outside the scope of this paper, the authors speculate that the fit would be rather good, as the ancestry of Article 3 is largely the Bills of Exchange Act (1882). English common law, and indeed the EU regime, allows virtually complete party autonomy in choice of law (embodied by the principle of party autonomy of the Rome I Regulation of 2008). Theoretically, as an alternative to incorporating the entire body of law of a named jurisdiction as a source of interstitial rules, there might be an alternative solution, but it is not obvious to the authors what that solution might be.

5.1.3 Choice of Forum

The incorporation in the rulebook of a choice-of-forum rule will be important, as the traditional choice-of-forum rules are not adapted to transactions registered on a blockchain. It would be important that the choice-of-forum rule specify a forum that in each case would have a jurisdictional basis for adjudicating any dispute arising from a negotiable-instruments transaction on a blockchain and that, through its choice-of-law rules, would apply the substantive law of a jurisdiction that would give legal effect to the rules of the rulebook.

An arbitral forum, together with a stipulation of arbitration rules, might work for this purpose, particularly as arbitral awards are enforceable in many jurisdictions by treaty or statute. However, many financial institutions are wary of arbitration due to the propensity of arbitration to split the difference of claims.

Alternatively, a choice of the courts of New York or the High Court in London might be practicable. New York General Obligations Law § 5-1402 provides a right to litigate in New York courts with respect to a contract, agreement or undertaking relating to obligations arising from a transaction covering $1 million or more, even if such contract, agreement or undertaking lacks a "reasonable relation" to New York, if there is a contractual submission to the jurisdiction of New York courts. Contractual claims may be litigated in England against non-EU defendants if the contract (i) was made in England or Wales, or (ii) is governed by English law, or (iii) contains an agreement conferring jurisdiction on the English court or (iv) was breached within England or Wales.

5.2 Sections of Article 3 that can be carried over into a rulebook

There are a number of provisions of UCC Article 3 that could be imported into the rulebook with no or minimal changes. There are others that would become redundant with the implementation of blockchain technology – such as warranties that signatures are authorized, although it might be salutary to include a rule that a transferee is deemed to warrant that all transfers by it are authorized, lawful and effective. There are also elements that can only definitely be addressed by statute. The remainder of this section goes through the provisions of Article 3 and how they could be incorporated.

Article 3 of the UCC specifies the contract implicit in the signature of a person on a negotiable instrument in various capacities; namely: maker of a promissory note, acceptor of a bill of exchange, drawer of a bill of exchange, indorser without recourse, indorser with recourse, accommodation party, and guarantor (UCC §§ 3-412 through 3-415[11]). These terms could be transposed into a rulebook with minimal changes, including specification of the analogue under a blockchain of a "signature."

[10] But note that New York has not enacted the 1990 or 2002 revisions. Observations below regarding amendments to the UCC would have to be adjusted appropriately if applied to the New York UCC to Article 3 of the UCC.
[11] Under the New York UCC, §§ 3-413 through 3-416.

The warranties of a transferor and a presenter (UCC § 3-416 and § 3-417, respectively[12]) would be largely irrelevant in a blockchain environment. These warranties relate to the transferor's or presenter's having good title, its having no knowledge that the signature of the drawer or maker is unauthorized, the genuineness of all signatures on the instrument, the instrument's not having been altered, that no defense of any signatory is good against the transferor/presenter, and the transferor's lack of knowledge of any insolvency proceeding against the maker/acceptor/drawer. Only the last two of these items would need to be replicated in the rulebook, as the blockchain technology should take care of the rest of the items.[13]

Similarly, the provisions of UCC §§ 3-302 through 3-306[14] relating to the rights of holders and holders in due course and of persons whose rights in an instrument derive from a holder in due course (the "shelter principle") could for the most part be transposed into blockchain technology. The essential right of a holder in due course under UCC Article 3 (i.e., a holder who purchases an instrument for value in good faith without notice of the instrument's being overdue, or its having been dishonored, or its being subject to a defense or claim, UCC § 3-302) is to take free of adverse claims to, and most defenses of parties to, the instrument. As the chain of title to instruments in blockchain form should be visible on the blockchain, the traditional issues arising from theft of bearer instruments or instruments indorsed in blank should not arise. However, the ability to take free of defenses would remain important. The rulebook should include a rule precluding transfers other than on blockchain, in order to mitigate the possibility of purported transferees' assertion of rights arising from non-blockchain transfers.

We note here that difficult issues would arise if a court or other governmental authority were to interrupt the chain of title shown on the blockchain by a garnishment or attachment of an electronic instrument registered via a blockchain. One of the essential elements of the law relating to a conventional paper negotiable instrument is the law relating to a holder in due course, described in the preceding paragraph, who acquires the negotiable instrument free of most defenses (UCC § 3-305(b)) and free of any claim to the instrument (UCC § 3-306). Therefore, an attempt by a pre-transfer claimant to a paper negotiable instrument in the hands of a holder in due course, or a person sheltered by the rights of such a holder, to attach or garnish such instrument is legally barred. However, until the legislature speaks on the subject, the same result may not apply to an attempt to attach or garnish an electronic negotiable instrument registered via a blockchain, even if the owner could determine from the blockchain a clear chain of title and satisfied the criteria of a holder in due course. It is a question for discussion whether the rulebook should attempt to replicate the concepts of holder in due course and the shelter principle in the hope that legislatures and courts will respect it.[15] This issue can only be definitively addressed by statute.

Another notion of Article 3 of the UCC that could probably be simplified for the rulebook is the distinction between order and bearer instruments. Under Article 3, instruments can be drawn or made to the order of a specified person or to bearer. Similarly, an indorsement may be to the order of a named payee or in blank. In a blockchain environment, there seems to be no utility to the concept of a bearer instrument. All transfers will be to an identified purchaser; and accordingly, it seems appropriate to treat all instruments on a blockchain as order instruments.

The rules of Part 5 of UCC Article 3, relating to presentment, honor and dishonor, and the rules on discharge of signatories in Part 6 of Article 3, would have to be substantially adjusted to reflect the blockchain technology, but their principles could be carried over into a rulebook successfully.

For the most part, the remaining provisions of Article 3 are interpretive in nature, and could be carried over into a rulebook with minimal alteration. The rules in UCC §§ 3-101 through -122 are definitional and could be easily transposed into a rulebook.

Replication of the commercial pattern contemplated in UCC § 4-503 in a blockchain environment and discussed in Section 2.2.4, would be difficult, as there is no trusted third party analogous to the buyer's bank that can be relied upon either to procure the buyer's honor of the documentary draft or to return the document of title to the goods upon dishonor of the documentary draft. This

[12] Under the New York UCC, § 3-417.

[13] This statement makes the assumption that blockchain technology works as widely advertised. The authors acknowledge, for the record, that human ingenuity is likely to be equal to the challenge of defeating that assumption.

[14] Under the New York UCC, §§ 3-301 through 3-306.

[15] For example, how would a court deal with the rights of a party who attaches an instrument on a blockchain but who has not agreed to the rulebook relating to such instrument?

difficulty might be addressed with a smart contract that worked in such a way that the buyer's honor or dishonor automatically produced the result, visible on the blockchain, that the producer of goods either received the proceeds of honor or retained control of the goods. The UCC does have the concept of an electronic document of title (UCC § 1-201(a)(16) and UCC Article 7), so the absence of paper documents of title in a blockchain environment is not a problem in transactions governed by the UCC. We note, however, that in international trade, market practice is still dependent on paper negotiable bills of lading and other paper documents of title.[16] Consequently, it may make sense, in designing a permissioned blockchain, to accommodate documents of title and so for the rulebook to accommodate documents of title.

6 Letters of Credit

The ease of using electronic versions of LCs under UCC Article 5 provides an interesting contrast to the problems of negotiable instruments under UCC Article 3. While most of the negotiable instruments covered in Table 1 are covered by the very limited UCC Article 3, LCs are instead covered by the very open UCC Article 5. Unfortunately, while UCC Article 5 deals with rights and duties in connection with an LC, it does not address rights and duties in connection with an electronic bill of exchange even if the bill of exchange, as indicated below, qualifies as a "document" under UCC Article 5 required to be presented for the beneficiary to draw under the LC.

An LC is an undertaking that is generally issued by a bank to a beneficiary at the request, or for the account, of an applicant, in this case the buyer, and supports the agreement of the buyer to pay the producer, the beneficiary of the LC, for the goods. Thus, the producer might require the buyer to request its bank to issue an LC in favor of the producer in the amount of the purchase price of the goods. The buyer in turn would agree to reimburse the bank upon the payment by the bank to the producer under the LC.

The LC could provide that the producer would be paid either upon presentation of a sight bill of exchange drawn on the bank, alone or together with a signed drawing certificate requesting a payment for a stated purpose (such LC called a "clean letter of credit") or upon presentation of such a bill of exchange together with commercial documents supporting the goods such as a document of title, invoice, insurance policy, and inspection certificate, all covering the goods (such LC called a "commercial documentary letter of credit").

If any such LC (clean or commercial documentary) were on blockchain, such LC would be covered by the UCC, namely UCC Article 5, which applies to "letters of credit and to certain rights and obligations arising out of transactions involving letters of credit," UCC § 5-103(a).

UCC § 5-104 sets forth the formal requirements for an LC and provides that an LC "may be issued in any form that is a *record* and is *authenticated* (i) by a signature, or (ii) *in accordance with the agreement of the parties or the standard practice* [of financial institutions that regularly issue letters of credit]" (emphasis added). A "record" includes information "that is stored in an *electronic or other medium* and is retrievable in perceivable form," and so would include a blockchain (UCC § 5-102(a)(14), emphasis added). Indeed, according to Official Comment 3 of UCC § 5-104: "By declining to specify any particular medium in which the letter of credit must be established or communicated, Section 5-104 leaves room for future developments." One of those developments is blockchain.

Whether the process of honoring or dishonoring of a bill of exchange drawn under commercial documents or LC could be automated through the use of smart contracts is an interesting topic but one that is beyond the scope of the present paper.

The revision of UCC Article 5 to allow for electronic Letters of Credit was part of a more general review and update of the UCC in the 1980s. UCC Article 5 underwent a wholesale revision during that process, while other Articles had minor revisions.

Since then, many Articles have been revised from time to time as required. Blockchain may present the impetus for another revision of the UCC.

[16] *See* Thinking Outside the Box: The global logistics business is going to be transformed by digitization, The Economist, Apr. 26, 2018.

7 Conclusion

As blockchain gains traction in trade finance, it will encounter the same challenges as prior digitization efforts, which mainly center around the uncertainty of the legal principles that will be applied to disputes relating to legality of electronic instruments. To mitigate this, it is imperative for market participants to collaborate, not just with one another, but also with U.S. legislators, regulators, and industry bodies, to determine the appropriate legal framework.

This paper analyzes the current U.S. legal framework around trade finance to highlight the legal gaps that exist in the use of electronic instruments. Through this exercise, we understand that the current laws meet the requirements of traditional trade finance, but are not suitable for the new era of digital trade finance. Change is required to update the legal framework, and to give institutions the confidence to build on new technologies.

Although an amendment to UCC Article 3 and related UCC Articles would be the ideal solution, we recognize that such an amendment would take a significant period of time to be prepared and enacted. In the interim, we propose the creation of a rulebook for permissioned blockchain networks. Such a rulebook would require any party admitted to the permissioned network to agree on a set of rules that governs any negotiable instrument and any document of title held in connection with any trade transaction on blockchain. This rulebook will give market players some certainty over the use of electronic negotiable instruments and documents of title registered via blockchain and speed up the application of the blockchain technology to trade finance.

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