

**Report of the Permanent Editorial Board  
for the  
Uniform Commercial Code**

**Report on the “Tokenization” of Securities Transfers  
Under the Uniform Commercial Code**

**Draft for Public Comment**

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**Comments on this draft must be submitted by no later than  
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**Comments may be submitted by email to [UCCIcomments@ali.org](mailto:UCCIcomments@ali.org)**

**This draft has been approved for publication by the PEB  
subject to revisions based on comments received.  
The PEB reserves the right to withdraw this proposed Report.**

## PREFACE TO PEB COMMENTARY

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The underlying purposes and policies of the *PEB Commentary* are those specified in Section 1-103(a). A *PEB Commentary* should come within one or more of the following specific purposes, which should be made apparent at the beginning of the Commentary: (1) to resolve an ambiguity in the UCC by restating more clearly what the PEB considers to be the legal rule; (2) to state a preferred resolution of an issue on which judicial opinion or scholarly writing diverges; (3) to elaborate on the application of the UCC where the statute and/or the Official Comment leaves doubt as to the inclusion or exclusion of, or application to, particular circumstances or transactions; (4) consistent with Section 1-103(a)(2), to apply the principles of the UCC to new or changed circumstances; (5) to clarify or elaborate upon the operation of the UCC as it relates to other statutes (such as the Bankruptcy Code and federal and state consumer protection statutes) and general principles of law and equity pursuant to Section 1-103(b); or (6) to otherwise improve the operation of the UCC.

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## Preface

### *Synopsis*

This report explains how the *transfer*<sup>1</sup> of registered ownership of uncertificated securities can be “tokenized” by the straightforward application of the existing commercial law rules under the Uniform Commercial Code (the “UCC”).<sup>2</sup> Under this approach, transferring control of a digital token would constitute the legal instruction to the issuer of an uncertificated security to transfer registered ownership of the associated uncertificated security to the recipient of the token. The report also explains how a transfer of control of a digital token can establish a control agreement among the issuer, the registered owner, and the transferee of control. In this way, an issuer can establish a system that enables efficient, near-instantaneous transfers of registration and establishment of a control agreement using digital asset infrastructure, such as blockchain technology and smart contracts, by application of existing UCC rules without awaiting further regulatory or statutory developments. This approach in many respects provides the functional equivalent of the tokenization of the security itself.

### *Basic statutory framework*

The commercial law that provides the baseline commercial law rules governing securities<sup>3</sup> is UCC Article 8. Securities may be either certificated, if represented by a (tangible, usually paper) security certificate, or uncertificated, if not represented by a certificate. Registered ownership of a certificated security is evidenced by a physical certificate issued in the registered owner’s name and is also reflected on the books and records of the issuer. By contrast, registered ownership of an uncertificated security is reflected only on the books and records of the issuer. The system for registered ownership of securities under UCC Article 8 is often referred to as the “direct-holding” system.<sup>4</sup>

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<sup>1</sup> This report does not propose the “tokenization” of the securities themselves. See Tokenization: Relevant Background and Context, below.

<sup>2</sup> The UCC, when referred to in this report, is to the Official Text of the UCC. Unless otherwise indicated, all references to a UCC section or comment are to that section or comment as stated in the UCC as modified or amended by the 2022 Amendments (defined in Overview of this report, below). All emphasis in quotations is added.

<sup>3</sup> The term “security” is defined in UCC § 8-102(a)(15). If an interest in an entity is not a “security” under UCC Article 8, the approach described in this report is not applicable. That an interest is a security under other law does not determine whether the interest is a security under UCC Article 8 and *vice versa*. See UCC § 8-102(d) & Cmt. 18.

<sup>4</sup> See, e.g., UCC Article 8, Prefatory Note, I.D. (“Both the traditional paper-based system, and the uncertificated system contemplated by the 1978 amendments, can be described as “direct” securities holding system ...”)

Interests in securities also may be held in the “indirect-holding” system. The indirect holding system involves a securities intermediary<sup>5</sup> (“Intermediary”), such as a stockbroker or a bank, which maintains “securities accounts”<sup>6</sup> for its customers (known as “entitlement holders”<sup>7</sup>). Intermediary credits interests in securities to the securities accounts of its entitlement holders. Intermediary, in turn, holds these securities credited to its entitlement holders’ securities accounts either directly, as the registered owner in the direct-holding system, or indirectly, in a securities account Intermediary has with another (“upstream”) Intermediary. The rights of the entitlement holders with respect to the securities held by Intermediary are referred to as “security entitlements.”<sup>8</sup>

This report focuses on the use of digital tokens to transfer registered ownership and create control agreements relating to uncertificated securities in the direct-holding system. This approach does not involve tokenizing the securities themselves; rather, it concerns the mechanism by which registered ownership is transferred.<sup>9</sup> The discussion below considers in more detail the application of the UCC Article 8 statutory framework for the process of transferring registered ownership.

#### *Overview of this report*

This report:

- Explains key terms and concepts involved in the tokenization of the transfer of securities and issuer control agreements under the UCC.
- Describes two case studies – one dealing with a sale of a “security”<sup>10</sup> (Case Study 1) and the other dealing with a security interest in a “security” (Case Study 2).
- Analyzes the commercial law rules under the UCC (primarily UCC Articles 8 and 9) applicable to each case study.
- Explains the mechanism by which a token constitutes an instruction to the issuer of a security to transfer registered ownership of the security or establishes a control agreement with respect to the security. What is material

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<sup>5</sup> UCC § 8-102(a)(11) (defining “securities intermediary”).

<sup>6</sup> UCC § 8-501(a) (defining “securities account”).

<sup>7</sup> UCC § 8-102(a)(11) (defining “entitlement holder”).

<sup>8</sup> UCC § 8-102(a)(17) (defining “security entitlement”).

<sup>9</sup> See Tokenization: Relevant Background and Context, below.

<sup>10</sup> UCC § 8-102(a)(15) (defining “security”).

to the analysis is transfer of control<sup>11</sup> of the token, not whether any property rights in the token are transferred.<sup>12</sup>

- Discusses for each case study how the analysis changes when the relevant securities are held through the indirect holding system of UCC Article 8.
- Explains that in the context of this report the rights of purchasers of securities under UCC Articles 8 and 9 are not affected by whether the amendments to the UCC promulgated in 2022 (the “2022 Amendments”) are in effect under the laws of the applicable jurisdiction. Where relevant, the discussion identifies the very limited situations in which the applicability of the 2022 Amendments should be considered.

## Key Terms and Concepts

### *Tokens*

This report uses the term “token” to refer to an electronic record<sup>13</sup> that is transferable and subject to “control” as defined in UCC section 12-105.<sup>14</sup> In the context of the 2022 Amendments not being in effect, the term “control” means that the factual conditions that would constitute “control” of an electronic record under UCC Article 12 have been achieved.<sup>15</sup> Importantly, a token is not itself a security under UCC Article 8,<sup>16</sup>

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<sup>11</sup> See text accompanying note 19 on the meaning of “control” of a token.

<sup>12</sup> See Case Study 1 –Sale, Case study details, Establishing the ABC Tokens, below (explaining that the transfer of control of the ABC Token, and not the transfer of a property interest in the ABC Token to a purchaser, would constitute an “instruction”)

<sup>13</sup> See UCC §§ 1-201(b)(16A) (defining “electronic”) and 1-201(b) (defining “record”).

<sup>14</sup> Under UCC Article 12, the token would be a “controllable electronic record” (“CER”). See *id.*; UCC § 12-102(a)(1) (defining “controllable electronic record”). For purposes of a transfer of control of a token (as generally used in this report), however, references to control do not include control pursuant to UCC § 12-105(e) (control through another person). This is implicit in references to transfers of control of a token from and to Sally’s and Bill’s electronic “wallets” in Case Study 1, below. It is assumed that transfers of control of a token that would constitute an instruction or establish a control agreement would be communicated to an issuer at the time that a transfer of control is made. The term “token” is used to refer to a CER and does not refer to a security. See UCC § 8-102, Cmt. 18.

<sup>15</sup> More generally, in circumstances in which the 2022 Amendments do not (or may not) apply, the issuer should incorporate the *factual* conditions for the concepts of “control” and “controllable electronic record” under UCC Article 12 into the applicable terms of its tokenization structure and the operation of its platform. See *In re Vital Pharmaceutical*, 652 B.R. 392, 408-411 (S.D. Fla. 2023) (looking to the UCC § 12-105 requirements for control to a social media account even though the 2022 Amendments were not then in effect). However, when UCC Article 12 does not apply, only the powers included in the concept of control (including the power to transfer control), and no other functional aspects of UCC Article 12, would be incorporated into the issuer’s tokenization structure.

<sup>16</sup> UCC § 8-102, Cmt. 18. This report does not evaluate any of the benefits or drawbacks of tokenization of the transfer of securities. Nor does the report address (beyond very limited acknowledgments) other issues

but in the present context the token functions as a mechanism that constitutes an instruction or establishes a control agreement relating to associated securities.<sup>17</sup>

### *Platform*

This report uses the term “platform” to refer to the system in which the token is maintained, whether using distributed ledger (including blockchain) technology or otherwise.<sup>18</sup> This report assumes that the platform is designed so that the holder of the token on the platform has control of the token, consistent with the definition of “control” in UCC section 12-105.

### *Controllable electronic record (the token)*

UCC section 12-102 defines “controllable electronic record” (a “CER”):

“(1) ‘controllable electronic record’ means a record stored in an electronic medium that can be subjected to control under section 12-105. ...”

### *Control of a CER (the token)*

A person has “control” of a CER under UCC Article 12 if the person:<sup>19</sup>

- can avail itself of substantially all of the benefits of the CER,
- has the exclusive power to prevent others from availing themselves of substantially all of the benefits of the CER,
- has the exclusive power to transfer control of the CER to another person, and
- has the ability to identify the person as having the exclusive powers.

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outside of the scope of the UCC, such as those relating to privacy or securities laws, other regulatory issues (including “Know Your Customer” and anti-money laundering laws and regulations), so-called “whitelisting” those permitted to hold securities or tokens of an issuer, permissioned versus permissionless systems for recording tokens, or platform technology generally including analytical attribution and security. The report takes a strictly functional approach to the use of a token in connection with the transfer of registered ownership of an uncertificated security and an issuer’s entering into a control agreement. Beyond these functional aspects, it does not propose or endorse any particular structure for an issuer’s books and records for registered ownership or any particular technology. The report recognizes that there may be other feasible approaches, consistent with the underlying statutory framework and policies of UCC Article 8, for structuring the use of a token in connection with the transfer of registered ownership of an uncertificated security or creation of an effective control agreement.

<sup>17</sup> See Case Study 1 – Sale, Case study details, Establishing and using the ABC Tokens, below.

<sup>18</sup> See *id.*

<sup>19</sup> The concept of “control” of investment property (and in particular of an uncertificated security) under UCC Article 8 as opposed to “control” of a token under UCC Article 12, is also used in this report and is explained as the term is used.

### *Control of an uncertificated security*

“Control” of a security under UCC section 8-106 is a fundamental concept under UCC Article 8 and must not be mistaken for “control” of a CER under UCC Article 12. Both concepts and both definitions of “control” are crucial for the application and understanding of the tokenization structure addressed in this report. This situation presents a challenge for ensuring clarity of exposition in this report and for the understanding of the report by its readers. Both a CER and an uncertificated security are intangibles and intangibles cannot be physically possessed. Although no doubt an oversimplification, it might be helpful to conceptualize the function of “control” as roughly equivalent to the role of “possession” of tangible personal property under the UCC.<sup>20</sup> However, conceptualization may be helpful but is no substitute for the careful reading and application of statutory text.

UCC section 8-106(c) provides:

- A purchaser has control of an uncertificated security under UCC Article 8 if:
  - the uncertificated security is delivered to the purchaser<sup>[21]</sup>; or
  - the issuer has agreed that it will comply with instructions originated by the purchaser without further consent by the registered owner.

### *Instructions*

The concept of an “instruction” under UCC Article 8 is central to this report. Under the applicable law and an issuer’s organic documents, an issuer may issue uncertificated securities.<sup>22</sup> An issuer is required to transfer registration of an uncertificated security if the issuer is “presented”<sup>23</sup> with an “instruction” and certain conditions are met.<sup>24</sup> As defined in UCC Article 8:

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<sup>20</sup> See, e.g., UCC § 12-105, Comment 9 (“Control is intended to be a proxy for and a functional equivalent of the transfer of physical possession of goods.”)

<sup>21</sup> A “delivery” to a purchaser of an uncertificated security occurs when “the issuer registers the purchaser as the registered owner” or another person is the registered owner and holds for the purchaser. UCC § 8-301(b).

<sup>22</sup> See UCC § 8-102(a)(18) (defining “uncertificated security” as “a security that is not represented by a certificate” (i.e., a tangible *paper* certificate).

<sup>23</sup> The word “presented” is not defined in UCC Article 8. An instruction is a “notice” communicated to an issuer to make a transfer of registered ownership. UCC § 8-102(a)(12). UCC § 8-403(b) refers to a demand not to register a transfer being “received” before “presentment” of the demand to the issuer. Inherent in this provision is that presentment occurs when the instruction has been “received” by the agreed mechanism of communication. See text at notes 25-27.

<sup>24</sup> UCC § 8-401(a).

“Instruction” means a *notification communicated* to the issuer of an uncertificated security which directs that the transfer of the security be registered or that the security be redeemed.<sup>25</sup>

Because, as stated in the definition, an instruction is a form of notification, the notification must be “communicated” to the issuer to be effective. Generally, a person has a “notice” of a fact when the person “from all the facts and circumstances known to the person at the time in question, has reason to know that it exists.”<sup>26</sup> A notification, in turn, is “communicated” to an issuer when the person sending the notification:

“Transmit[s] information by any *mechanism* agreed upon by the persons transmitting and receiving the information.”<sup>27</sup>

A method of notification may be the subject of an agreement, which can be implicit.<sup>28</sup>

#### *Transfer agent*

An issuer of securities may maintain its own books and records of the registered holders of its securities or it may do so through a transfer agent. A reference in this report to an issuer maintaining, changing, or taking other action with respect to the books and records should be understood to include the action of a transfer agent, if applicable.<sup>29</sup>

### **Caveats and Disclaimers: Functional Approach**

This report employs a strictly functional approach to explaining how tokens may be used as instructions and to establish control agreements for purposes of UCC Article 8. In particular, it does not describe (i) how an issuer should structure its securities and related tokens and platforms in this context or (ii) the technologies and methods that might be employed to facilitate these uses of tokens. This report is not a “how to” set of instructions for tokenizing the transfer of registered ownership of uncertificated securities and establishment of control agreements. Instead, its principal purpose is to explain the compatibility of the UCC Article 8 regime with these uses of tokens. Stated otherwise, the report seeks to dispel concerns that UCC Article 8 is an obstacle to tokenization but does not provide an instruction manual for overcoming other obstacles and challenges. The report leaves the evolution of the details of tokenization in this

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<sup>25</sup> UCC § 8-102(a)(12).

<sup>26</sup> UCC § 1-202(a), (d).

<sup>27</sup> UCC § 8-102(a)(6)(ii).

<sup>28</sup> See UCC § 8-102, Cmt. 6 (“Thus, use of an information transmission method might be found to be authorized by agreement, even though the parties have not explicitly so specified in a formal agreement.”).

<sup>29</sup> See UCC §§ 8-201(c) and 8-407. For debt securities an indenture trustee may be charged with maintaining the issuer’s books and records of registered ownership, but for convenience this report refers only to transfer agents.

context to issuers, experts on the application of relevant technologies, and market practices.

This report does embrace as a heuristic the applicability of public key cryptography and platforms based on blockchain technology, albeit at a very high level of generality consistent with the report's functional approach. That perspective reflects the currently prevailing approach to tokenization. The report's central thesis—that tokenization is consistent with the relevant UCC Article 8 rules—is grounded on the concept of control and the use of controllable electronic records and not on any specific technology.

### **Tokenization: Relevant Background and Context**

Market interest in using tokens to facilitate transfers of securities has grown substantially. To date, however, much of the market activity has involved intermediaries, such as brokers and other custodians, using tokens intended to represent interests in securities they hold for entitlement holders or others, rather than issuers using tokens to transfer registered ownership on their own books and records.<sup>30</sup> A small number of issuers have begun to experiment with direct tokenization of registered ownership,<sup>31</sup> and regulatory attention to these developments has intensified.<sup>32</sup>

This report addresses the use of tokens for transfers of registered ownership of an uncertificated security or contractually to bind an issuer to a control agreement in a direct-holding environment (i.e., on the issuer's books) where an investor, or a securities intermediary that holds securities for its entitlement holders, acquires registered ownership of an uncertificated security. The report's focus is accordingly narrow. Given the focus on tokenizing transfers of registered ownership and the creation of control agreements, the report does not explore in detail what might be referred to as the tokenization of securities themselves. That said, there is no legal, formal, or widely accepted understanding of what it means to “tokenize a security.” Perhaps the best understanding would be an arrangement in which the transfer of control of a token necessarily also transfers to the transferee, as a purchaser, a proprietary interest in the

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<sup>30</sup> See Robinhood EU, Stock Tokens, <https://robinhood.com/eu/en/> (offering derivative contracts that track U.S. equities); Backed Finance, xStocks, <https://backed.fi> (SPV-backed tokens representing interests in underlying equities); see also The Depository Tr. Co., SEC Staff No-Action Letter (Dec. 11, 2025).

<sup>31</sup> See, e.g., Registration Statement on Form 1-A of Exodus Movement, Inc. (qualified by the SEC in 2024). A number of money market funds have also begun to use tokens to transfer fund interests. See, e.g., J.P. Morgan Asset Management, “Tokenization: Transforming Money Market Funds for the Digital Era” (Dec. 16, 2025), available at <https://am.jpmorgan.com/us/en/asset-management/liq/insights/liquidityinsights/updates/tokenization-transforming-money-market-funds-for-the-digital-era/>.

<sup>32</sup> See Sec. & Exch. Comm'n, Div. of Corp. Fin., Div. of Inv. Mgmt., & Div. of Trading & Mkts., Statement on Tokenized Securities (Jan. 28, 2026) (discussing issuer-sponsored tokenized securities).

associated securities. However, given some apparent misconceptions about tokenization of securities that have circulated, some brief comments here may be useful.

It is typical in the securities markets for there to be an *ex ante* “trade” (buy-sell agreement) followed by a “settlement” (payment by the buyer to the seller and delivery of the securities by the seller to the buyer, which transfers to the buyer a proprietary interest in the securities).<sup>33</sup> In a direct-holding settlement context, as discussed here, a delivery<sup>34</sup> by the seller would normally be achieved by the transfer of registered ownership to the buyer, who would then acquire ownership (proprietary rights) in the securities pursuant to the terms of the trade and thereby become a purchaser.<sup>35</sup> In that situation, one might fairly characterize the securities being transferred as “tokenized,” inasmuch as delivery resulting from transfer of control of the token completed the transaction that conferred ownership on the transferee. But absent the trade, transfer of registered ownership through transfer of control of the token would not necessarily result in the transfer of a proprietary interest to the transferee. It follows that the registered owner’s control of the token would not constitute a tokenization of the associated securities (assuming the understanding of the “trade” concept mentioned above) at all times and in all circumstances—as in the absence of the trade between buyer and seller. For this report, no useful purpose is served by examining whether a token does or does not “tokenize” a security (or any other real-world asset). The analysis of any particular token associated with a real-world asset is necessarily *sui generis* and must be based on the law applicable to the asset and the contractual and other mechanisms connecting transfer of control of the token with that asset. For these reasons, this report focuses on the use of a token to give an instruction or create a control agreement, the particular effects of which depend on the applicable circumstances.

An issuer pursuing the approach to the use of tokens outlined here also would need to consider a broader range of issues, including other matters under UCC Article 8 as well as securities regulation laws, anti-money laundering compliance, the state corporate or business entity laws of the issuer, and the issuer’s constitutive documents. Among the UCC Article 8 issues an issuer must address are its duty to register transfers, conditions to that duty, and potential liability for breach of its duty to register or for wrongful registration.<sup>36</sup> Approaches to these matters vary among issuers, and at this time the related norms and standards in this context are only beginning to emerge. This report does not attempt to address these broader issues. It focuses only on the use of tokens as a mechanism to communicate instructions to an issuer to transfer registered ownership,

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<sup>33</sup> See UCC Article 8, Prefatory Note, III.B. (“To use securities parlance, Article 8 deals not with the trade, but with settlement of the trade.”).

<sup>34</sup> See UCC § 8-302(b) (delivery of an uncertificated security to a purchaser).

<sup>35</sup> See UCC § 1-201(b)(29) (defining “purchase”), (30) (defining “purchaser”).

<sup>36</sup> See generally UCC §§ 8-401 to 8-404.

or to bind an issuer to a control agreement, such as for the perfection and establishment of priority of a security interest.

Because under UCC Article 8 the transfer of registered ownership of a certificated security typically involves the presentation of the security certificate representing the security (where tokenization would not be feasible), this report focuses solely on the tokenization of the transfer of registered ownership of uncertificated securities, not certificated securities.<sup>37</sup>

## Case Study 1 - Sale of ABC Shares

### *Case study details*

*The ABC Shares:* ABC Corporation (“ABC”) is a corporation organized under the law of a state of the United States. ABC issues shares (the “ABC Shares”) of stock to its investors. ABC maintains books and records reflecting the identities of the registered owners of ABC Shares. The ABC Shares, not being evidenced by paper certificates, are “uncertificated securities” under UCC Article 8.<sup>38</sup>

*The ABC Tokens:* ABC creates, or causes to be created, tokens (“ABC Tokens”). Each token is associated with one or more particular ABC Shares.<sup>39</sup> Each ABC Share is associated with only one ABC Token. Upon registration by the issuer of the ABC Shares in the name of a person,<sup>40</sup> that person becomes the registered owner of the ABC shares associated with an ABC Token and will have control of that ABC Token. The ABC Tokens are recorded on the platform maintained by ABC.<sup>41</sup> An ABC Token itself is not a

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<sup>37</sup> See UCC § 8-102, Cmt. 18. Tokenization of a certificated security would not be feasible under UCC Article 8. An issuer’s duty to register transfer of a certificated security is invoked by presentation to the issuer of the certificated security (i.e. the security certificate). UCC § 8-401(a). This is in contrast to presentation of an instruction—a communication—with respect to transfer of registered ownership of an uncertificated security

<sup>38</sup> UCC §§ 8-102(a)(15) (defining “security”) and 8-102(a)(18) (defining “uncertificated security”). The ABC Shares are “securities” under UCC Article 8, because they are issued by a corporation. UCC § 8-103(a). If the ABC Shares were issued by a business trust or an investment company, they would also be securities under UCC Article 8. UCC §§ 8-103(a) and (b). If the ABC Shares were instead interests in a partnership (general or limited) or limited liability company, they would generally be securities under UCC Article 8 only if ABC’s partnership or LLC operating agreement provided for the interests to be securities under UCC Article 8. UCC § 8-103(c).

<sup>39</sup> Given its functional approach and for economy of exposition, this report refers generally to ABC Tokens “associated with” ABC Shares but does not address the details of that association. For example, a registered owner of ABC Shares might, from time to time, require the issuer to create and provide the registered owner with control of multiple ABC Tokens covering the ABC Shares, each ABC Token being associated with the number of ABC Shares specified by the registered owner. Also, an ABC Token might be associated with a current “balance” of the fluctuating number of shares with which the token is associated.

<sup>40</sup> UCC § 1-201(b)(27) (defining “person”).

<sup>41</sup> The platform for ABC Tokens is discussed further below.

“security.”<sup>42</sup> The transfer of control of an ABC Token may function either as presentation of an “instruction” with respect to the ABC Shares associated with the ABC Token (in that context, as an “Instruction Token”) or may establish a control agreement among ABC, the registered owner, and the transferee of control of the ABC Token (in that context, as a “Control Agreement Token.”<sup>43</sup>

*The platform for ABC Tokens:* The ABC Tokens are maintained on a “platform,” which is a system designed so that a person can have control of an ABC Token, consistent with the definition of “control” in UCC section 12-105. For simplicity, this case study assumes that the platform is maintained by ABC or its transfer agent as an integral component of ABC’s books and records for registered ownership of the ABC Shares, as is typical in situations that do not involve tokenization. But if permissible under ABC’s organic documents and other (non-UCC) law, the platform could be maintained on behalf of ABC by another service provider or even maintained, for example, on a public blockchain. Other matters relating to the platform are discussed elsewhere in this report.<sup>44</sup>

*Use of ABC Tokens as instructions:* The use of the ABC Token (as an Instruction Token) on the platform to give an instruction to ABC to transfer the registered ownership of ABC Shares associated with the ABC Token would be the exclusive mechanism (as established by the issuer) to give an instruction to ABC (as the issuer) to change the registered ownership of the associated ABC Shares. Under this approach there is no other way to instruct the issuer to record a transfer of registered ownership of the associated ABC Shares. As a consequence, in the context of a sale of the associated ABC Shares, the transfer of control of the ABC Token on the platform on which the ABC Token is recorded constitutes an instruction to ABC to transfer registration of the ABC Shares associated with the ABC Token to the transferee on the books and records of ABC maintained by ABC to record the registered owners of the ABC Shares.<sup>45</sup>

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<sup>42</sup> See UCC § 8-102, Cmt. 18.

<sup>43</sup> Consistent with this report’s functional approach, it does not and need not address whether ABC’s system should involve two different types of ABC Tokens, one type of ABC Token with differing designations based on the intended purpose of a transfer of control, or another approach.

<sup>44</sup> See, e.g., Case Study 1 – Case study details, Sale, Mitigating Bill’s Priority Risk, below (possibility that the platform “is” ABC’s books and records); note 72 (issuer’s maintenance of certain records outside of the platform and platform based on distributed ledger (including blockchain) technology under Delaware law).

<sup>45</sup> See UCC § 8-102, Cmt. 18, Example 1. It is useful here to reiterate that it is assumed that transfers of control of a token that would constitute an instruction or establish a control agreement would be communicated to an issuer at the time that a transfer of control is made. See note 14. References in this report to a “transfer” of a security mean a transfer of an interest in a security pursuant to UCC Article 8 or otherwise or a transfer of the registration of ownership on the books and records of an issuer, as the context requires. Of course, a property interest in a security may be transferred by other means, such by a

Once the instruction is presented to ABC, ABC becomes obligated to register the transfer of the ABC Shares to the transferee.<sup>46</sup> Correspondingly, upon presentment of the instruction, ABC is no longer obligated to treat the transferor as the registered owner.<sup>47</sup>

The terms of the ABC Token imposed by ABC limit the use of the ABC Token (as an Instruction Token) by the person in control of the ABC Token to giving ABC an instruction to register a transfer of the ABC Shares. Used as the mechanism for communicating the instruction, the ABC Token has no stored or independent value and serves no other purpose. The power to give an instruction by transferring control of an ABC Token derives from control of the ABC Token and not from any property interest in the ABC Token itself.<sup>48</sup> Consistent with the limited purpose of an ABC Token (as an Instruction Token) as the mechanism used to communicate an instruction to ABC and because the ABC Tokens are essential components of maintaining ABC's books and records as to changes in registered ownership, the presentation of an instruction resulting from the transfer of control of the ABC Token does not thereby transfer any property interest in the ABC Token. Consequently, the transferee of control is not a purchaser of the ABC Token. Any property interest in the ABC Token itself has no bearing on the transfer of registered ownership of the relevant ABC Shares or on rights in the ABC shares.<sup>49</sup> The transfer of the registered ownership of the ABC Shares is caused by the transfer of *control* of the ABC Token, resulting in an instruction to the issuer.

*Use of ABC Tokens for establishing a control agreement:* In addition to transferring *control of an ABC Token* (as an Instruction Token) for presentation of an instruction for a transfer of registered ownership, a registered owner could transfer control of the ABC

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purchaser under the common law, by the creation of a security interest (as discussed below), or by operation of law pursuant to legal process or rules of descent and distribution. *See* UCC § 8-302, Cmt. 2.

<sup>46</sup> UCC § 8-401(a). The conclusion that the obligation is incurred by the issuer assumes that the conditions specified in UCC § 8-401(a) have been satisfied, including the eligibility of the transferee of control of the ABC Token to become a holder of the securities, compliance with any restrictions on transfer, and compliance with legal and regulatory requirements. *See also* note 16. An instruction, including under this tokenization structure the transfer of control of the ABC Token, is the functional equivalent of the presentation of a security certificate, indorsed by the transferor on the certificate or with an accompanying stock power signed by the transferor, in the context of a transfer of registered ownership of a certificated security. *See* UCC § 8-401(a).

<sup>47</sup> UCC § 8-207.

<sup>48</sup> This is the general rule in UCC Article 12 that a person can have control of a CER without having a property interest in the CER. *See* UCC § 12-104, Cmt. 5 (“Under Section 12-105, a person may have control of a controllable electronic record even if the person has no property interest in the controllable electronic record.”).

<sup>49</sup> We do not address in this report whether an ABC Token is subject to a property interest and, if so, who owns the ABC Token. The owner of any property interest in the ABC Tokens might be ABC, ABC's transfer agent, a provider of services or software relating to ABC's books and records relating to registered ownership, or another person. As stated in the text, ownership of the ABC Token does not have a role in ABC's tokenization structure for transfer of registered ownership of the ABC Shares.

Token (as a Control Agreement Token) to establish (with the issuer’s consent already provided for) a control agreement with respect to a purchaser’s *control of the ABC Shares* associated with the ABC Token.<sup>50</sup> A purchaser may acquire control of an uncertificated security if the issuer agrees “that it will comply with instructions originated by the purchaser without further consent by the registered owner.”<sup>51</sup>

In conformity with ABC’s organic documents and consistent with applicable other law, a registered owner’s transfer of control of an ABC Token (as a Control Agreement Token) would constitute ABC’s agreement with the transferee of control of the ABC Token and the registered owner that ABC will comply with instructions concerning the ABC Shares originated by that transferee of control without further consent of the registered owner.<sup>52</sup> The purchaser thereafter could present an instruction for the transfer of registered ownership of the ABC Shares by transferring control of the ABC Token (as an Instruction Token) to a transferee of control, thereby instructing ABC to transfer registered ownership to the transferee.<sup>53</sup>

Example: Using the ABC Token to transfer registered ownership of ABC Shares to a buyer

Bill wants to acquire ABC Shares. Sally and Bill agree that Sally will sell her ABC Shares to Bill. Pursuant their agreement (sometimes referred to as a “trade”), Sally transfers to Bill control of the ABC Token (as an Instruction Token) associated with the

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<sup>50</sup> On the important distinction between “control” of an uncertificated security, such as the ABC shares, under UCC Article 8 and “control” of a CER, as “control” is defined under UCC Article 12, see Key Terms and Concepts, Control of a CER (token) and Control of an uncertificated security, above.

<sup>51</sup> UCC § 8-106(c)(2). The control agreement does not have to be signed. The registered owner may retain the right and power to give instructions, the purchaser with control may have the exclusive power and right to give instructions, or the agreement of the parties may provide other variations.

<sup>52</sup> A typical use of an issuer control agreement is for providing control of an uncertificated security to a secured party for perfection of a security interest in the uncertificated security and for obtaining priority of security interests perfected by control. See UCC §§ 8-106(c)(2) (control of uncertificated security); 9-106(a) (control of uncertificated security); 9-314(a) (perfection by control); 9-328(1), (2) (priority of security interest perfected by control). A control agreement also may be used for the benefit of other purchasers, such as a buyer that may be a prospective registered owner. See Case Study 1, Sale, Case study details, Mitigating Bill’s priority risk, below.

<sup>53</sup> ABC’s agreement with the registered owner could extend to compliance with instructions given by successive onward transferees of control of the ABC Token (as a Control Agreement Token) so long as there had been no change in registered ownership. The person in control of an ABC Token has the power to give an instruction to ABC by transferring control of the ABC token. But only when control of an ABC Token is transferred (as a Control Agreement Token) would it operate as such and not as an instruction (i.e., not to initiate a transfer of registered ownership). However, to reiterate and as consistent with this report’s functional approach, this report does not address the specifics of how the issuer’s system might differentiate these two uses.

ABC Shares.<sup>54</sup> Sally transfers control of the ABC Token by causing control of the ABC Token to be transferred from control by Sally's electronic wallet associated with the platform maintained by or on behalf of ABC to control by Bill's electronic wallet associated with the platform.<sup>55</sup> The transfer of control of the ABC Token to Bill's electronic wallet constitutes an instruction from Sally to ABC for ABC to re-register into Bill's name the ABC Shares associated with the ABC Token. That instruction is accomplished by the transfer of control of the ABC Token.

One may ask why the ABC Token is distinguished from the ABC Shares associated with the ABC Token. The answer is that the ABC Token is only an electronic record and in Sally's hands its function (as an Instruction Token) under UCC Article 8 is limited to Sally's right and power to give an instruction to ABC to transfer registered ownership of the ABC Shares associated with the ABC Token. Sally's right derives from her status as the registered owner and her power derives from her control of the ABC Token (as an Instruction Token). ABC has a corresponding duty to register the transfer. No other power or right is evidenced by or linked to the ABC Token (as an Instruction Token) itself.<sup>56</sup>

Sally's exclusive right and power to instruct ABC to transfer registered ownership of the ABC Shares derives from UCC Article 8, which recognizes registered owners as appropriate persons entitled to originate such instructions.<sup>57</sup> Control of the ABC Token

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<sup>54</sup> For simplicity, considering the limited scope of this report, this case study assumes a private sale of the ABC Shares. In reality, a sale (trade) might take place on a trading platform between parties that are not aware of the other party's identity and may be subject to a formal system for settlement of the trade (*i.e.*, payment for and transfer – colloquially, a “delivery” – of the ABC Shares to the buyer).

<sup>55</sup> For convenience and simplification, additional references to transfers of control are to transfers of control of the ABC Token from Sally's electronic wallet to Bill's electronic wallet. This report does this even though, as a technical matter, for example, a digital electronic wallet does not contain tokens as such. Rather, a digital electronic wallet contains software to generate and manage use of cryptographic key pairs. The keys enable the movement of the tokens from an address Sally's electronic wallet controls to an address Bill's electronic wallet controls. Moreover, a transfer of control also could result from a transfer of control to a blockchain address that is not an electronic “wallet.”

<sup>56</sup> If other powers or rights purport to be evidenced by or linked to an electronic record such as the ABC Token, whether a transfer of control of or an interest in the electronic record also transfers those other powers or rights is determined under the law governing those powers or rights. The law governing the electronic record – here, UCC Article 12, if applicable, or other applicable law – determines questions of control over that record but does not itself determine whether associated rights to the security transfer along with control. The distinction between data on an electronic record and rights purported to be evidenced by or otherwise linked to the electronic record is further explained in the Prefatory Note to UCC Article 12. UCC Article 12, Prefatory Note, 4.a. It is quite plausible that the same result would apply even if UCC Article 12 were not applicable.

<sup>57</sup> UCC §§ 8-107(a)(2) (defining “appropriate person” as the registered owner of an uncertificated security with respect to an instruction); 8-401(a)(2) (duty of issuer to register transfer if instruction made by appropriate person).

is the mechanism through which Sally exercises that right, but UCC Article 8 – not control of the token as such – is the source of the right.

When the UCC applies to a transaction, the transfer of one object of itself transfers another object only if the UCC expressly provides for that result (displacing any common law). For example, whether a transfer of an electronic document of title also transfers a right to the goods evidenced by the electronic document of title is determined by UCC Article 7. Without the provisions of UCC Article 7, the transfer of the data on the electronic document of title would not have any effect on the right to the goods themselves. Here, the law relating to transfer of the ABC Shares, in addition to the applicable laws relating to ABC’s internal affairs, is UCC Article 8. UCC Article 8 does not have a provision for a security to be evidenced by a token with the same effect as a security evidenced by a certificate.<sup>58</sup> A transfer of Sally’s property interest in the ABC Shares to Bill as a purchaser of the ABC Shares themselves must occur under UCC Article 8 or other applicable law, not solely by the transfer of control of the ABC Token.<sup>59</sup> A transfer of control of the ABC Token serves only as the mechanism through which Sally may exercise her UCC Article 8 right to instruct ABC to transfer the registered ownership of the associated ABC Shares to Bill.

This distinction between the ABC Token (as an Instruction Token), being only data embodying a power to give an instruction to transfer registered ownership of the ABC Shares, and the ABC Shares themselves causes us to examine what relevant powers or rights (or both) that Bill has separately in relation to the ABC Token and in the ABC Shares.

#### *Take free rule*

The ABC Shares are uncertificated securities under UCC Article 8. The take-free rule<sup>60</sup> under UCC section 8-303 applies if Bill is a “protected purchaser” under that section.<sup>61</sup> Under that rule a protected purchaser acquires an interest in a security free of

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<sup>58</sup> See note 37 and accompanying text.

<sup>59</sup> Part 3 of UCC Article 8 addresses the transfer of directly-held securities. See also, e.g., Delaware General Corporation Law § 201 (referring to UCC Article 8 for the law governing transfer of shares in a Delaware corporation).

<sup>60</sup> This report uses the phrase “take-free” rule to refer to a rule by which the transferee of an asset acquires the asset free of designated adverse property claims to the asset. There is a limited “take free” rule in the American Law Institute, Restatement of Restitution and Unjust Enrichment (2010), § 66, which applies only to taking free of equitable interests. Where the UCC applies to a transaction, the UCC’s provision of or absence of a “take-free” rule should “displace” any common law rule that might otherwise apply. UCC § 1-103(b).

<sup>61</sup> UCC § 8-303(a) (defining “protected purchaser”). If the equity interests were not securities under UCC Article 8, e.g., they were interests in a partnership or limited liability company whose partnership or operating agreement did not provide for the interests to be securities under UCC Article 8, the sale of the

any adverse claims. For Bill to be a protected purchaser of the ABC Shares under UCC section 8-303(a), Bill must obtain “control” of the ABC Shares for value and without notice of any adverse claim to the ABC Shares.<sup>62</sup> “Control” of the ABC Shares (which are uncertificated securities) under UCC Article 8 must be distinguished from “control” of the ABC Token (which is a CER, as defined in UCC Article 12.<sup>63</sup> An adverse claim is “a claim that a claimant has a property interest in a financial asset [e.g., the ABC Shares] and it is a violation of the rights of the claimant for another person to hold, transfer or deal with the financial asset.”<sup>64</sup>

One method for Bill to obtain “control” of the ABC Shares is for the ABC Shares to be delivered to Bill.<sup>65</sup> Delivery occurs when Bill becomes registered owner of the ABC Shares on the books and records of ABC.<sup>66</sup> This is a typical goal of a buyer of securities who wishes to hold securities directly. If Bill is a protected purchaser of the ABC Shares, his rights to the ABC Shares would be free of adverse claims that might have existed at the time that Bill becomes a protected purchaser.<sup>67</sup>

#### *Mitigating Bill’s priority risk*

As explained above, Bill cannot be a protected purchaser of the ABC Shares under UCC Article 8 unless Bill has obtained control of the ABC Shares.<sup>68</sup> Bill may obtain control by delivery of the ABC Shares to Bill or pursuant to a control agreement.

*Delivery of the ABC Shares:* As uncertificated securities, the ABC Shares are delivered to Bill when they have been registered by the issuer in Bill’s name as owner.<sup>69</sup> Bill will receive delivery and thereby have control of the ABC Shares by the method of

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equity interests would be outside of the scope of the UCC, and generally no take-free rules would be applicable under the common law. UCC § 8-103.

<sup>62</sup> UCC § 8-303(a) (requirements for “control”), (b) (protected purchaser takes free of adverse claims).

<sup>63</sup> See Key Terms and Concepts, Control of a CER (token) and Control of an uncertificated security, above. The following discussion addresses in more detail control of the ABC Shares.

<sup>64</sup> UCC § 8-102(a)(1) (defining “adverse claim.” UCC § 8-105 provides when a transferee has “notice” of an adverse claim.

<sup>65</sup> UCC §§ 8-106(c)(1) (“control” of uncertificated security by delivery). Another method for a purchaser to obtain control on an uncertificated security under UCC Article 8 is through a control agreement pursuant to UCC § 8-106(c)(2). See Key Terms and Concepts, Control of an uncertificated security, above.

<sup>66</sup> UCC § 8-301(b)(1) (“delivery” of an uncertificated security occurs by the issuer’s registration of the purchaser as registered owner).

<sup>67</sup> UCC § 8-303(b).

<sup>68</sup> This discussion assumes that at the time Bill obtains control of the ABC Shares Bill also will have become a purchaser (here, the owner) of the shares. This report does not address arrangements between Sally and Bill for their agreement as to the terms of the sale or Bill’s payment (or other transfer of value) to Sally. See note 54.

<sup>69</sup> See UCC § 8-301(b)(1).

becoming the registered owner only when the instruction to make the transfer of registration to Bill has been presented to ABC by the transfer of control of the ABC Token to Bill on the platform and *then* ABC indicates on ABC's books and records that Bill is the registered owner of the ABC Shares.<sup>70</sup> Bill will not be eligible to be a protected purchaser until these events occur (or Bill obtains control by another method).

The possible temporal "gap" between the time control of the ABC Token (as an Instruction Token) is transferred to Bill's electronic wallet and the time Bill becomes the registered owner of the ABC Shares on ABC's books and records poses some risk to Bill. For example, during that gap period Bill could receive notice of an adverse claim to the ABC Shares, an adverse claimant might make a demand on the issuer not to transfer registration of ownership, or the issuer might be served with legal process preventing the transfer of registration of ownership.<sup>71</sup> Those events could prevent, or at least delay, the time when Bill would become a protected purchaser. The gap period risk can be greatly reduced or eliminated if, for example, ABC's platform "is" the books and records of ABC and thus the transfer of control of the ABC Token to Bill's electronic wallet immediately or concurrently accomplishes the registration of the ABC Shares in Bill's name as the registered owner (*i.e.*, the transfer to Bill of control of the ABC Token (as an Instruction Token) *ipso facto* constitutes a transfer of the registered ownership to Bill and therefore "delivery" to Bill).<sup>72</sup> Bill would thereby be eligible to qualify as a protected purchaser if the other conditions were met, thus mitigating the gap period risk.<sup>73</sup> Moreover, an issuer's adoption of this approach would mean that the ABC Token would (purely as a functional matter, not in a legal sense) "represent" the ABC shares because transfer of

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<sup>70</sup> UCC § 8-401.

<sup>71</sup> See UCC §§ 8-401; 8-403; 8-404.

<sup>72</sup> If authorized by ABC's organic documents and applicable law outside of the scope of the UCC, and as contemplated in the text accompanying this note, the platform itself might constitute the books and records of ABC. Delaware already has such a provision in place, authorizing a Delaware corporation to use a platform based on distributed ledger (including blockchain) technology as the corporation's stock ledger. See Delaware General Corporation Law § 224 ("Any records administered by or on behalf of the corporation in the regular course of its business, including its stock ledger..., may be kept on, or by means of, or be in the form of, any information storage device, method, or 1 or more electronic networks or databases (including 1 or more distributed electronic networks or databases) ..."). Delaware has similar rules for LLCs, limited partnerships, and general partnerships. See Delaware Title 6, §§ 18-305(d), 17-305(c), and 15-403(c). Even so, issuers currently adopting tokenization systems for their registration records normally maintain personal identification information on their security holders in records associated with but outside of such a platform. This report does not address state or federal rules relating to privacy or securities regulation, including the regulation of transfer agents.

<sup>73</sup> Even this arrangement may impose at least some delay between the time that Sally "sends" the ABC Token to Bill's electronic wallet and the time Bill becomes the registered owner, depending on the technology involved and any applicable checks for compliance with restrictions on transfers or for Bill's eligibility under applicable "whitelisting" arrangements. Whether a gap period could be absolutely eliminated (or reduced to a *de minimis* period) would depend on the applicable technology and is beyond the scope of this report.

control of the ABC Token would, as a practical matter, transfer registered ownership of the ABC shares to the transferee of control of the ABC Token.<sup>74</sup>

*Control of the ABC Shares pursuant to a control agreement:* Bill also could eliminate the gap period risk by obtaining control of the ABC Shares through the use of a control agreement instead of by delivery of the ABC Shares. This approach would require the issuer (ABC) to agree “that it will comply with instructions originated by the purchaser [Bill] without further consent by the registered owner [Sally].”<sup>75</sup> Such a control agreement could be achieved by Sally transferring control of the ABC Token (as a Control Agreement Token) from Sally’s electronic wallet to Bill’s electronic wallet on the platform.<sup>76</sup> The goal of the control agreement approach would be that, at the time of transfer of control of the ABC Shares pursuant to such a Control Agreement Token, Bill would become eligible to be a protected purchaser of the ABC Shares if Bill meets the other requirements for protected purchaser status.<sup>77</sup> The gap period risk would thereby be eliminated as to the ABC Shares. Having obtained control under the control agreement by means of the transfer of the ABC Token (as a Control Agreement Token) to Bill, Bill could then exercise his power to instruct ABC to transfer registered ownership

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<sup>74</sup> Under this arrangement the transfer of control of the ABC Token effectively transfers the registered ownership of the ABC Shares from Sally to Bill on the issuer’s books (i.e., the platform). For a certificated security, UCC Article 8 draws a distinction between the security (registered ownership of which is reflected by the issuer’s books and records) and a security certificate that represents the security. No such distinction is drawn for an uncertificated security. *See* UCC § 8-102, Cmt. 18. But ABC’s books for recording registered ownership (i.e. the data managed by the relevant software on the platform) are distinct from the ABC Tokens, which are electronic records extrinsic to those books and which function as communication mechanisms constituting (in this context) instructions. The simplified examples of how the ABC Tokens are used in this case study provide a functional and useful illustration. Issuers, transfer agents, clearing corporations, and others may well develop other approaches for implementing tokenization of transfers of registered ownership in compliance with UCC Article 8.

<sup>75</sup> UCC § 8-106(c)(2).

<sup>76</sup> *See* notes 50-52 and accompanying text (discussing establishment and use of Control Agreement Tokens).

<sup>77</sup> In this case, the transfer of control of the Control Agreement Token would not operate of itself as an instruction to change registered ownership of the ABC Shares to Bill. Although Bill would not receive a delivery of the shares under this approach, Bill would still be a purchaser of the ABC Shares and would have control of the ABC Shares. UCC § 1-201(a)(29) (defining “purchase”), (30) (defining “purchaser”); 8-106(c)(2) (control of uncertificated security). UCC § 8-104(a)(1) recites the means of acquiring “a security or an interest therein” by a purchaser “under this Article [8],” which is by a delivery to the purchaser. However, a delivery is not the exclusive means by which a purchaser may acquire an interest in a security. *See* note 45; *see also* 7 Hawklund UCC Series § 8-104:2 (Nov. 2024 Update):

[UCC § 8-104(a)] . . . states that delivery of a security under section 8-301 and acquisition of a security entitlement under section 8-501 are the two mechanisms by which a person acquires a security or interest therein “under this Article.” Subsection 8-104(a) does not state that the only way that a person can obtain a property interest in a security is by pursuing these two mechanisms. . . . Although the Article 8 mechanisms are undoubtedly the most common and perhaps most significant means by which property interests can be acquired in securities, these mechanisms are not exclusive.

of the ABC Shares to himself, resulting in ABC (the issuer) registering Bill as the owner of the ABC Shares on the books and records of ABC.<sup>78</sup>

*Rights of protected purchaser not dependent on 2022 Amendments*

The rights of a protected purchaser under UCC Article 8 do not depend on whether the 2022 Amendments are in effect. If those amendments are in effect, the ABC Token would be a “controllable electronic record” under UCC Article 12.<sup>79</sup> As a controllable electronic record, the ABC Token is not a “security” under UCC Article 8.<sup>80</sup> The ABC Shares themselves would still be uncertificated securities under UCC Article 8.<sup>81</sup> UCC Article 8 governs the rights of a transferee of the ABC Shares. The analysis of those rights is the same for the ABC Shares under UCC Article 8, whether or not the 2022 Amendments are in effect.<sup>82</sup>

UCC Article 12 governs certain powers and potential rights of a consensual transferee of an interest in (*i.e.*, a purchaser of) a controllable electronic record, such as the ABC Token. However, Bill’s rights (or the absence thereof) in the *ABC Token* have no bearing on Bill’s rights as a protected purchaser of the *ABC Shares*.<sup>83</sup> There are at least three reasons supporting this conclusion:

- First, under ABC’s system for registered ownership of the ABC Shares, the transfer of control of the ABC Token to Bill and Bill’s acquisition of registered ownership of the relevant ABC Shares confers no interest (and Bill does not

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<sup>78</sup> This strictly functional description does not address the technical aspects of how the ABC Token would be structured to result in Bill becoming the registered owner. Of course, Bill also could transfer the ABC Token to another person that could become the registered owner. This report also does not address the considerations that an issuer might consider in deciding whether to accommodate either of the methods of eliminating the gap period discussed here or whether the use of a Control Agreement Token would be compatible with the goals of tokenization of instructions and existing and emerging systems for trading and settlement for uncertificated securities associated with tokens.

<sup>79</sup> UCC § 12-102(a)(1) (defining “controllable electronic record”). The ABC Token is a record that is in electronic form and is subject to “control,” because the holder of the ABC Token on the platform: (i) can avail the holder of substantially all of the benefits of the ABC Token (*i.e.*, the power to originate instructions to ABC to transfer the ABC Shares on the books and records of ABC), (ii) has the exclusive power to prevent others from availing themselves of substantially all of the benefits of the ABC Token, (iii) has the exclusive power to transfer control of the ABC Token to another person, and (iv) has the ability to identify the holder as having the exclusive powers. *See* UCC § 12-105 (requirements for “control” of a controllable electronic record).

<sup>80</sup> UCC § 8-102, Cmt. 18 (“a controllable electronic record is not itself a “security”); *see also* UCC § 12-102(a)(1) (“the term [controllable electronic record] does not include ... investment property”).

<sup>81</sup> Because the ABC Shares are investment property, they cannot be controllable electronic records. UCC § 12-102(a)(1) (second sentence); *see also* UCC § 9-102(a)(49) (defining “investment property”).

<sup>82</sup> *See* UCC § 8-102, Cmt. 18, Examples 1 and 2.

<sup>83</sup> UCC § 12-104(a).

otherwise have any interest) in the ABC Token, which is a part of ABC's registration system.

- Second, even if Bill had an interest in the ABC Token and were a purchaser of the ABC Token,<sup>84</sup> whether Bill's purchaser status relating to the ABC Token would affect Bill's rights in the ABC Shares themselves is a matter governed by other, non-UCC Article 12 law, even if the 2022 Amendments apply.<sup>85</sup> In this case the "other law" is UCC Article 8, under which (as explained above) Bill is a protected purchaser of the ABC Shares who took free of any adverse claims to the ABC Shares. Moreover, this analysis is consistent with the treatment under UCC Articles 9 and 12 for controllable electronic records evidencing controllable accounts or controllable payment intangibles, as to which it is the transfer of *control* of the controllable electronic record (not a transfer of an *interest in* the controllable electronic record) that confers control of those rights to payment.<sup>86</sup> A qualifying purchaser of and a secured party with a perfected security interest in those rights to payment need not have any interest, much less a priority interest, in the related controllable electronic record.<sup>87</sup>
- Third, if the 2022 Amendments (including UCC Article 12) are not in effect, to the extent that the "other law" consists of the applicable principles of common law and equity, those principles would not impair Bill's rights as a protected purchaser under UCC Article 8.<sup>88</sup>

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<sup>84</sup> For example, for some purposes and in some contexts a right to use (such as Bill's right to use the ABC Token) may be considered a property interest.

<sup>85</sup> UCC Article 12, Prefatory Note 4.a. (UCC Article 12 leaves to other law whether acquisition of rights in a controllable electronic record gives rights in other property or whether such right would benefit from a take-free rule). See also note 56 and accompanying text.

<sup>86</sup> UCC §§ 9-107A(b); 9-314(a); 12-104(a), (c) & (f).

<sup>87</sup> See UCC §§ 9-202, Cmt. 2; 12-102, Cmt. 3 ("[A] purchaser of a controllable account or a controllable payment intangible may be a qualifying purchaser even if the purchaser does not also purchase the controllable electronic record that evidences the account or payment intangible."); 12-104, Cmt. 6:

[C]ontrol of the controllable account or payment intangible is achieved only by obtaining control of the controllable electronic record that evidences the account or payment intangible. . . . [A] purchaser may obtain a property interest in the controllable account or controllable payment intangible even if it does not acquire any interest in the controllable electronic record that evidences the account or payment intangible. . . . [M]erely obtaining control of a controllable electronic record does not result in the acquisition of an interest in the record.

<sup>88</sup> See UCC § 1-103(b) ("Unless displaced by the particular provisions of [the Uniform Commercial Code], the principles of law and equity supplement its provisions.").

### *Interplay with UCC Article 8's indirect holding system*

This part of the report considers the situation if Bill wants to hold the ABC Shares through a bank, broker, or other “securities intermediary”<sup>89</sup> (as previously defined, “Intermediary”) rather than holding the ABC Shares directly as registered owner. In doing so, this report assumes that the substantive law rules of UCC Article 8 apply after giving effect to the choice-of-law rules in UCC Article 8 and, if applicable, the Hague Securities Convention.<sup>90</sup>

Bill arranges for the ABC Shares to be registered in Intermediary’s name for credit to Bill’s “securities account”<sup>91</sup> at Intermediary. To do so, Bill transfers control of the ABC Token (as an Instruction Token) to Intermediary’s electronic wallet associated with the ABC platform, which constitutes an instruction to ABC to register the ABC Shares in Intermediary’s name on ABC’s books and records. Intermediary becomes the registered owner of the ABC Shares through the same process as took place when Bill bought the ABC Shares directly from Sally. The ABC Shares are “financial assets” under UCC Article 8.<sup>92</sup> When Intermediary credits the ABC Shares to Bill’s securities account, Bill will have a “security entitlement” with respect to the ABC Shares.<sup>93</sup> Intermediary will be able to comply with any later “entitlement orders”<sup>94</sup> from Bill to sell the ABC Shares or other directions from Bill.<sup>95</sup>

## **Case Study 2 - Security Interest in the ABC Shares to Secure an Obligation**

### *Case study details*

Case Study 2 has the same facts as Case Study 1, except that, instead of seeking to own the ABC Shares, Bill is extending credit to Sally. Bill wants to obtain a security interest in the ABC Shares associated with the ABC Token to secure Sally’s obligation to repay the credit being extended. Bill and Sally enter into a security agreement under

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<sup>89</sup> See UCC § 8-102(a)(14) (defining “securities intermediary”).

<sup>90</sup> The Convention of 5 July 2006 on the Law Applicable to Certain Rights in Respect of Securities held with an Intermediary, available at <https://www.hcch.net/en/instruments/conventions/full-text/?cid=72..>

<sup>91</sup> See UCC § 8-501(a) (defining “securities account”).

<sup>92</sup> See UCC § 8-102(a)(9) (defining “financial asset”). A “security” is always a financial asset under clause (i) of that definition.

<sup>93</sup> See UCC §§ 8-102(a)(17) (defining “security entitlement”) and 8-501(b)(1) (providing for a security entitlement to arise when a security or other financial asset is credited to a securities account).

<sup>94</sup> An entitlement order is a direction from the entitlement holder to the securities intermediary to transferor redeem a financial asset. UCC § 8-102(a)(8) (defining “entitlement order”).

<sup>95</sup> A securities intermediary has a duty to comply with any such entitlement orders or directions. UCC §§ 8-506; 8-507; 8-508.

which Sally grants to Bill a security interest in the ABC Shares to secure Sally's credit obligations to Bill.

In connection with the execution of the security agreement, as described below Sally transfers control of the ABC Token from Sally's electronic wallet to Bill's electronic wallet associated with the platform. To provide Bill with control of the ABC shares, and accordingly the benefits of perfection and priority of his security interest through control, as discussed below, Sally would transfer control of a the ABC Token (as a Control Agreement Token) from Sally's electronic wallet to Bill's electronic wallet associated with the platform, resulting in ABC's agreement with Sally and Bill that ABC will comply with instructions concerning the ABC Shares originated by Bill without further consent of Sally.<sup>96</sup> As a consequence of Bill obtaining control of the ABC Shares, if Bill otherwise qualifies, Bill can become a protected purchaser of the ABC Shares.<sup>97</sup> Because of Bill's control of the ABC Shares, Bill has the ability to give a subsequent instruction to ABC to re-register the ABC Shares associated with the ABC Token into Bill's name or into the name of any other person as registered owner.<sup>98</sup> As provided in ABC's organic documents, only the person in control of the ABC Token –here, Bill–can give an instruction to transfer registered ownership of the ABC Shares associated with the ABC Token. As is common, Bill agrees with Sally in the security agreement that Bill will not use the ABC Token to give any subsequent instruction to ABC to transfer registration of the ABC Shares unless Sally is in default under Sally's secured credit arrangements.

*Attachment of the security interest*

We assume that Bill's security interest in the ABC Shares has attached, *i.e.*, that (a) value has been given by Bill's extension of credit to Sally (or otherwise), (b) Sally has rights in or the power to transfer rights in the ABC Shares, (c) the security agreement

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<sup>96</sup> See notes 50-52 and accompanying text (discussing establishment and use of Control Agreement Tokens). This is the approach discussed in Case Study 1 for the use of a control agreement as a means of eliminating the gap period where Bill was a buyer of the ABC Shares from Sally. See Case Study 1 - Sale, Case study details, Mitigating Bill's priority risk, above.

<sup>97</sup> As explained in connection with Case Study 1, Sally could have transferred to Bill the ABC Token that would provide an instruction to ABC, resulting in Bill becoming the registered owner of the ABC Shares. That would constitute a delivery of the ABC Shares to Bill and also result in Bill having control of the ABC Shares. However, that approach would introduce complications relating to, for example, shareholder voting by Sally and Sally's receipt of distributions on account of the ABC Shares. For these (and other) reasons it is not typical for a secured party to become a registered owner of securities that are collateral.

<sup>98</sup> Bill could do so by transferring control of the ABC Token (as an Instruction Token) to the electronic wallet of a transferee that would become the registered owner. If Bill wished to become the registered owner of the ABC Shares himself, ABC's system should provide another mechanism for a person in control of the ABC Shares pursuant to a control agreement to become the registered owner. For example, Bill might be required to transfer control of the ABC Token to ABC, which would result in the transfer of control of a new ABC Token to Bill's electronic wallet.

reasonably describes the ABC Shares, and (d) the security agreement has been signed by Sally.<sup>99</sup>

*Perfection of security interest*

Bill's security interest in the ABC Shares is perfected by control, because Sally's transfer of the ABC Token as a Control Agreement Token creates a control agreement with ABC, resulting in Bill having control of the ABC Shares.<sup>100</sup> Alternatively, Bill could have perfected the security interest in the ABC Shares by the filing of a financing statement against Sally or by receiving delivery of the ABC Shares.<sup>101</sup>

*Priority of security interest*

Because Bill's security interest in the ABC Shares has been perfected by control, the security interest is senior to any competing security interest not perfected by control, such as the filing of a financing statement, even if Bill obtained control later in time.<sup>102</sup> Bill may also qualify as protected purchaser of the ABC Shares, who would take free of any existing security interest to the extent of Bill's security interest, under the analysis provided in Case Study 1.<sup>103</sup>

*Security interest in the ABC Token to secure an obligation*

Assume that Sally had rights in or the power to transfer rights in the ABC Token<sup>104</sup> and that Sally had granted to her lender a security interest in the ABC Token (not the ABC Shares), for example, by granting a security interest in Sally's general intangibles. If Bill did not acquire the ABC Token free of conflicting claims<sup>105</sup> (or even Bill had no interest at all in the ABC Token, as would be likely), Bill's right to the ABC Shares would not be impaired. Moreover, even if the lender had superior rights to the ABC Token, the lender would have no basis to obtain control of the ABC Token, because it has no rights in the ABC Shares or any rights to the ABC Shares would have been cut off.

Bill may believe that there is some benefit from obtaining a security interest in the ABC Token that serves a crucial functional role in providing perfection and priority of

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<sup>99</sup> See generally UCC § 9-203.

<sup>100</sup> The ABC Shares are "investment property" as defined in UCC § 9-102(a)(49). A security interest in investment property constituting uncertificated securities may be perfected by control. UCC §§ 8-106(c)(2), 9-106(a) and 9-314(a).

<sup>101</sup> A security interest in investment property may be perfected by the filing of a financing statement. UCC § 9-312(a).

<sup>102</sup> UCC § 9-328(1), (2).

<sup>103</sup> UCC §§ 8-303(1); 9-331.

<sup>104</sup> UCC § 9-203(b)(2).

<sup>105</sup> This would be the case, for example, if UCC Article 12 were not in effect so that Bill could not be a qualifying purchaser of the ABC Token.

Bill's security interest in the ABC Shares and also in the delivery of the ABC Shares to Bill, which made it possible for Bill to become a protected purchaser of the ABC Shares. However, as explained in Case Study 1, Bill's rights (or the absence thereof) in the *ABC Token* have no bearing on Bill's rights in the *ABC Shares* and this is regardless of whether the 2022 Amendments are in effect.<sup>106</sup>

### **Unauthorized transfer of the ABC Token**

Assume that Fraudster hacked into Sally's electronic wallet associated with the platform, transferred control of the ABC Token to Bill's electronic wallet, with Bill not having notice of the fraud or any other adverse claim. Bill transferred funds (e.g., transferred control of stablecoins) to Sally's electronic wallet in payment against the transfer of control of the ABC Token to Bill's electronic wallet and Fraudster then transferred control of the funds from Sally's electronic wallet to an electronic wallet controlled by Fraudster or unknown persons. Alternatively, assume that Fraudster hacked into Sally's electronic wallet and transferred control of the ABC Token to Fraudster's electronic wallet. This assumes further that Fraudster were a permitted (i.e., "whitelisted") registered owner on ABC's platform.<sup>107</sup> Fraudster then transferred control of the ABC token to Bill's electronic wallet. If Fraudster were not a permitted registered owner, Fraudster's attempt to transfer the ABC Token to Fraudster's electronic wallet would have failed.

If Sally discovered the fraud before ABC transferred registered ownership of the ABC Shares to Bill, Sally could demand that ABC not register transfer of the ABC Shares to Bill and put Bill on notice of her adverse claim.<sup>108</sup> But if Bill first became the registered owner and qualified as a protected purchaser, Bill would have taken free of Sally's adverse claim to the ABC Shares. Because under the terms of the ABC Shares and ABC's organic documents transfer of control of the ABC Token is an effective instruction, ABC would not be liable to Sally based on a wrongful registration.<sup>109</sup>

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<sup>106</sup> See Case Study 1 - Sale, Case study details, Rights of protected purchaser not dependent on 2022 Amendments, above. Perhaps there is "no harm" in Bill obtaining a security interest in the ABC Token (if Sally has the right or power to transfer rights in the ABC Token) when the 2022 Amendments are in effect. But when 2022 Amendments do not apply, it may be awkward and problematic to explain to a court that as a matter of law Bill's obtaining a subordinate security interest in the ABC Token was a meaningless act in relation to Bill's rights in the ABC Shares.

<sup>107</sup> Although this assumption might seem highly unlikely, due to Fraudster's fraud and a failure of ABC's "know your customer" and other precautions, Fraudster's actual identity might have been unknown to ABC. The risk for issuers of fraudulent instructions is not new. But the manifestation of these risks may differ as a result of the use of tokens as contemplated by this report.

<sup>108</sup> UCC § 8-403.

<sup>109</sup> See UCC § 8-404(a).

This is only one example of potential risks that could arise out of the tokenization of instructions and issuer control agreements in connection with the direct holding of uncertificated securities. Persons dealing with these securities and the associated tokens must take account of these and other risks. These risks are not explored in any detail in this report and in general are beyond its scope. However, this report recognizes that the necessary safeguards appropriate to mitigate such risks would be an extremely important aspect of an issuer's tokenization structure.

## **Conclusion**

The existing commercial law rules of the UCC provide for the issuance and transfer of registration of securities that are not evidenced by a tangible security certificate. The legal framework in UCC Article 8 for these uncertificated securities supports the use of digital tokens to transfer registered ownership if the tokenization is permitted and is otherwise effective under other law. In many respects the tokenization of the transfer of the securities can provide the functional equivalent of the tokenization of the securities themselves. These commercial law rules of the UCC should be considered, together with other laws, rules, regulations and procedures, as parties seek to tokenize the transfer of securities.