

BEYOND INTERMEDIATION: A NEW (FINTECH) MODEL FOR SECURITIES HOLDING INFRASTRUCTURES

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I. INTRODUCTION

Most publicly traded securities, and in particular those traded in the financial markets of most advanced economies, are held by investors¹ through securities accounts maintained by intermediaries such as stockbrokers, banks, and central securities depositories (CSDs)²—

1. This article generally refers to an “investor” as the legal or beneficial owner of securities or other financial assets.

2. See generally INTERNATIONAL INSTITUTE FOR THE UNIFICATION OF PRIVATE LAW (UNIDROIT), UNIDROIT LEGISLATIVE GUIDE ON INTERMEDIATED SECURITIES xxii (2017) [hereinafter LEGISLATIVE GUIDE], <https://www.unidroit.org/instruments/capital-markets/legislative-guide> [<https://perma.cc/E9ZJ-BZEY>] (describing a Central Securities Depository, or CSD) (“[A]n entity that provides the initial recording of securities in a book-entry system or

intermediated securities. For many investors, this is the only practical means of holding and dealing with securities. The infrastructures currently in use in these markets make intermediated holding through intermediaries essential and foreclose the option of direct holding on the books of securities issuers.

These intermediated holding infrastructures impose a variety of risks and costs. But they persist as the only practical means for these investors to hold securities primarily because this is the way the systems currently work.³ The primary beneficiaries of these systems—the intermediaries themselves—have resisted fundamental changes in the holding systems. I argue here that the mere existence of these holding systems, and the benefits enjoyed by their principal architects, do not reflect an appropriate public policy justification for maintaining and accepting the investor and systemic risks and costs (including costs of reducing and managing these risks) that they impose.

This article presents a comprehensive analysis and assessment of legal attributes and implications of intermediated securities holding infrastructures. Unlike earlier studies discussed below, this more holistic study identifies and considers the significant legal and regulatory aspects of intermediated holding systems. Moreover, it sharply distinguishes the risks and costs imposed by intermediated holding systems from those attendant to the trading of securities and the settlement of trades. It explains that an optional disintermediated holding system is compatible with the maintenance of legacy trading and settlement structures, perhaps as a minimally disruptive interim measure.⁴ This approach recognizes and confronts the political economy and path dependency impediments to a more disruptive and comprehensive disintermediation of financial market infrastructures.

These securities holding infrastructures are complex and arcane. This likely accounts, at least in part, for their persistence and resistance to

that provides and maintains the securities accounts at the top tier of the intermediated holding chain. The entity may provide additional services such as clearing, settlement and processing corporate actions. It plays an important role in helping to ensure the integrity of securities issues.”); *UNIDROIT Convention on Substantive Rules for Intermediated Securities*, UNIDROIT (Oct. 9, 2009) [hereinafter GSC], <http://www.unidroit.org/instruments/capital-markets/geneva-convention> [<https://perma.cc/WV6Z-7BZG>] (reflecting an important and emerging international consensus, or common understanding, as to many aspects of intermediated securities).

3. See text at notes 59–62.

4. Reference to “disintermediation” here generally refers to the adoption of direct, transparent holding systems. For a discussion of “direct” versus “indirect” and “transparent” versus “nontransparent” holding systems. See *infra* Part II.

regulatory reforms. One benefit to which this study aspires is to make the invisible visible. While it does not undertake an empirical cost-benefit analysis, the study does provide a useful framework for that analysis.

This article proposes a holding structure that would reduce intermediary risk and, along the way, would ameliorate several other problematic attributes of current intermediated securities holding infrastructures. I refer to this approach as the “new platform” system (NPS). The NPS would connect the holdings of participating investors directly to the issuers of securities—disintermediated or “direct” holding. This approach would reduce or eliminate intermediary risk imposed by these holding infrastructures in relevant domestic markets, and also would facilitate the shortening of custody chains across international borders. Disintermediation of holding structures is fully compatible with retaining the many essential roles of intermediaries and intermediation in contexts such as trading on exchanges or other trading platforms, and the clearing and settlement of securities transactions.⁵ The discussion here focuses primarily on examples drawn from the relevant prevailing financial infrastructures, legal rules, and market practices in the United States. United States law, regulation, and market infrastructure exemplifies a relatively “pure” version of a nontransparent intermediated holding system.⁶ But the NPS and the discussion of intermediated holding have global relevance.

Implementing the disintermediation of securities holding under the NPS would require modifications of current holding infrastructures, but fundamental changes may be on the horizon in any event.⁷ The global financial markets—such as the markets for securities, derivatives, and the broad penumbra of financial products around each—are not only complex, but also are constantly and rapidly evolving. Much of this market complexity is a necessary result of the wide variety of market participants, financial products, legal and regulatory regimes that persist, the corresponding financial market infrastructures that have emerged globally to serve these markets, and the reality that the financial markets are global and interconnected across national borders.

Financial technology, or FinTech,⁸ is at the forefront of this rapid

5. See *infra* pp. 41–46 (discussing operation of the NPS following trading and settlement processes).

6. See *infra* notes 44–45 and accompanying text (discussing “omnibus” account holding systems).

7. See note 302 and accompanying text (adding that the emergence of Fintech may facilitate basic changes in securities holding infrastructures).

8. See Julia Kagan, *Financial Technology – Fintech*, INVESTOPEDIA (June 25, 2019), ht

evolution. As George Walker has summarized this phenomenon:

FinTech has emerged as a powerful new market force as a result of the coming together of a number of disconnected trends. Significant advances have occurred in the areas of computer and digital technology, the Internet, mobile telecommunications as well as economics and finance, which have transformed traditional areas of study and created important potential new business structures and operations.⁹

This article focuses on FinTech in the specific context of intermediated securities. It aspires to harness the momentum of FinTech to address and overcome a host of persistent risks, costs, and inefficiencies that arise from the central attribute of intermediated holding systems—intermediation itself.

Much of the current FinTech discussion and experimentation focuses on “blockchain” technology, which is a subset of distributed ledger technology, or DLT.¹⁰ This technology has been most commonly associated with Bitcoin, a digital currency (or “cryptocurrency”) platform.¹¹ While Bitcoin may be the most visible and publicized blockchain system in operation to date, DLT proponents have been eager to move the conversation beyond digital currencies and towards the utility and adaptation of DLT in other areas of FinTech. Indeed, many of the most important financial market participants have already commenced investments and experimentation in DLT and expressed strong interest in DLT as an important component of FinTech’s future.¹² The concept of

<https://www.investopedia.com/terms/f/fintech.asp#ixzz4aZxr0YMG> [https://perma.cc/7KC4-Y2M3] (describing the expansion of the term Fintech to include any technological innovation in the financial sector, including innovations in financial literacy and education, retail banking, investment and even crypto-currencies, like Bitcoin).

9. George Walker, *Financial Technology Law—A New Beginning and a New Future*, 50 INT’L LAW. 137 (2017).

10. See generally Luke Fortney, *Blockchain Explained*, INVESTOPEDIA (Feb. 10, 2019), <https://www.investopedia.com/terms/b/blockchain.asp> [https://perma.cc/R6G6-CFH2] (providing an overview of the technical mechanics underlying blockchain technology).

11. See Scott Likens, *Making Sense of Bitcoin, Cryptocurrency and Blockchain*, PRICEWATERHOUSECOOPERS (Mar. 24, 2019), <https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html> [https://perma.cc/J6A8-5L92] (defining each of the relevant technologies and their interconnection with each other).

12. See generally Prableen Bajpai, *How Stock Exchanges Are Experimenting with Blockchain Technology*, NASDAQ (June 12, 2017), <https://www.nasdaq.com/article/how-stock-exchanges-are-experimenting-with-blockchain-technology-cm801802> [https://perma.cc/AL9R-R2P7] (discussing the ways in which stock exchanges around the world are experimenting with blockchain); see also Australian Sec. & Invs. Comm’n, *ASX Media Release – ASX Selects Distributed Ledger Technology to Replace CHESSE*, ASX (Dec. 7,

facilitating securities trades with DLT has also been well received in corporate law, in principle, if not in practice; the state of Delaware now allows corporations to maintain corporate records, including shareholder lists, and transfers of stock on a distributed ledger database.¹³ To date the many claims and predictions that DLT will produce radical and profound changes in the financial markets reflect more hype and hope than actual happenings.¹⁴

In the FinTech space, the DLT-related initiatives and discussions by and among important financial market institutions have emphasized the potential efficiency gains—in effect, allowing existing institutions to do what they do now better. For example, a thoughtful and balanced white paper by the Depository Trust & Clearing Corporation (DTCC) identified DLT’s potential for enforcing industry standards, enhancing operational efficiencies, reducing time and risk in completing transactions, providing beneficial transparency, and improvement in security for processes and data.¹⁵ Of course, improvements in all of these areas would benefit all

2017), <https://www.asx.com.au/documents/investor-relations/ASX-selects-distributed-ledger-technology-to-replace-CHESS.pdf> [<https://perma.cc/VQ34-GQMA>] (announcing that the Australian Securities Exchange is in the process of replacing its post-trade clearing and settlement system with a blockchain-based system).

13. DEL. CODE ANN. tit. 8, § 224 (2017).

14. See, e.g., DTCC, EMBRACING DISRUPTION: TAPPING THE POTENTIAL OF DISTRIBUTED LEDGERS TO IMPROVE THE POST-TRADE LANDSCAPE 2 (2016) [hereinafter, *DTCC Report*] (“DTCC believes that distributed ledger technologies have the potential to address certain limitations of the current post-trade process by modernizing, streamlining and simplifying the siloed design of the financial industry infrastructure with a shared fabric of common information.”); Alex Tapscott & Don Tapscott, *How Blockchain Is Changing Finance*, HARV. BUS. REV. (Mar. 1, 2017), <https://hbr.org/2017/03/how-blockchain-is-changing-finance> [<https://perma.cc/JKP8-F7GZ>] (“The unstoppable force of blockchain technology is barreling down on the infrastructure of modern finance. As with prior paradigm shifts, blockchain will create winners and losers.”); *How Blockchain Will Impact the Financial Sector*, SWIFT INST. (Nov. 15, 2018), <https://swiftinstitute.org/download/how-blockchain-will-impact-the-financial-sector/> [<https://perma.cc/Q2WV-C3PU>] (referencing a Wharton Professor’s prediction) (“[Blockchain’s] power of eliminating intermediaries is the ability to lower transaction costs and take back control from powerful financial intermediaries”); *The Trust Machine*, ECONOMIST (Oct. 31, 2015), <https://www.economist.com/leaders/2015/10/31/the-trust-machine> [<https://perma.cc/2EH7-K8KF>] (arguing that Blockchain, “[t]he technology behind bitcoin[,] could transform how the economy works”); Don Tapscott, *How Blockchains Could Change the World*, MCKINSEY & COMPANY (May 2016), <https://www.mckinsey.com/industries/high-tech/our-insights/how-blockchains-could-change-the-world> [<https://perma.cc/AK35-F5XT>] (interview statement of Don Tapscott, CEO Tapscott Group) (“[T]he financial-services industry is up for serious disruption—or transformation, depending on how it approaches [Blockchain technology].”).

15. See *DTCC Report*, *supra* note 14, at 9–16; INT’L ORG. SEC. COMMISSIONS, RESEARCH REPORT ON FINANCIAL TECHNOLOGIES (FINTECH) 52–58 (2017), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD554.pdf> [<https://perma.cc/4TT6-BC27>] [hereinafter,

market participants, directly or indirectly, including all types of investors, although the major benefits would translate into greater profits (where applicable) and continued entrenchment of institutional participants such as stockbrokers, banks, exchanges and other trading platforms, securities transfer agents, and CSDs.

The potential benefits just articulated are commendable, but this article takes a different approach to potential FinTech advances concerning securities holding infrastructures. It emphasizes discrete risks and costs that are imposed on investors in securities under current intermediated holding systems—in particular, “intermediary” risk (including the failure or default by an investor’s intermediary) and the related “custody-chain” risk (risks imposed by holdings of securities through a chain of intermediaries).¹⁶ It is notable that the various explorations of DLT by major institutions, while emphasizing potential efficiency gains, do not appear to have focused on the potential for the reduction or elimination of intermediary risk.¹⁷ In contrast, this article articulates concrete modifications of the intermediated holding infrastructures that would reduce or eliminate these risks. It acknowledges that DLT might provide improvements over current, “legacy” technologies for such a modified holding infrastructure. However, the reforms proposed here do not necessarily depend on the application of DLT or any other particular technology. Instead, they contemplate more generally that various risks and costs imposed by intermediated holding would be eliminated or reduced by eliminating or reducing intermediation in the holding of securities.

The technical details of how FinTech might provide practical and cost-effective means to facilitate this disintermediation remain to be seen. This article provides a clear statement of concrete goals, targets, and results at which FinTech is invited to take aim—if FinTech is willing and up to the task.¹⁸ Indeed, a central organizing principle of the article instructs those with experience in the operation of financial markets and the relevant legal

IOSCO Fintech Report] (detailing a myriad of benefits attributed to DLT).

16. See *infra* Part III.B.

17. See *DTCC Report*, *supra* note 14; *IOSCO Fintech Report*, *supra* note 15 (demonstrating that neither report addresses the potential benefit of reducing or eliminating intermediary risk).

18. Even if FinTech could provide a feasible structure for disintermediated holding, it might well turn out that the “market”—*i.e.*, the various stakeholders, including investors, intermediaries, other market participants, and regulators—would conclude that such reforms are not warranted. But it would be a pity (although not entirely surprising) were the reforms to be rejected largely based on the influence of entrenched interests and the implicit immutability of existing systems, as opposed to such an objective cost-benefit analysis.

frameworks and an understanding of prevailing problems and risks to issue a “request for proposal” (an “RFP”)¹⁹ to the FinTech community. It is then for FinTech to design and offer solutions or concede that technology is inadequate—at least on a cost-effective basis. It follows that the NPS is a functional proposal—an RFP to eliminate intermediary risk and address other prevailing problems through disintermediation—not a technical one. I describe the NPS here in concrete terms primarily as a means for clarifying its functional goals and focusing the evaluation of infrastructure reforms.

Following this Introduction, Part II of the article outlines current patterns of intermediated securities holding infrastructures. It explains why post-settlement intermediated holding of securities exists and persists, as well as opens a window on reasons why such intermediated holding need not persist. Part III then identifies and summarizes the various risks and costs posed by intermediated holding systems in the securities markets—these include those that intermediated holding systems currently impose on investors, issuers, and other market participants. Although the various risks are relatively well managed in most intermediated holding systems, this management imposes substantial costs that ultimately are borne by investors. Part III concludes by outlining a framework for future work and a cost-benefit analysis of securities holding infrastructure reforms.

Part IV summarizes and assesses some other recent proposals for disintermediation or increased transparency of securities market infrastructures, each of which pays homage in some form to the emergence of DLT as a potential reform agent. Each of these proposals is useful in illuminating some of the prevailing problems, and exploring possible solutions—in particular the potential benefits of DLT in this context. But Part IV concludes that, in general, these efforts are wanting for three key reasons: they (i) fail to acknowledge or adequately address several risks and costs imposed by current intermediated infrastructures, (ii) are too narrowly focused (in particular on shares and corporate governance), and (iii) do not explain how important features of existing financial markets could (or could not) be accommodated by their proposals.

19. See Will Kenton, *Request for Proposal (RFP)*, INVESTOPEDIA (Sep. 12, 2019), <https://www.investopedia.com/terms/r/request-for-proposal.asp> [<https://perma.cc/VL5L-VXVC>] (illustrating that the RFP is an apt metaphor in that skillfully creating a request for proposal may dictate the success or failure of the resulting solution. If specified requirements are too vague, the bidder may not design and implement a complete solution for the problem. If the requirements are too detailed and restrictive, the bidders’ creativity and innovation may be limited).

Part V is the heart of the article. It articulates a functional, result-oriented FinTech approach to securities holding under the NPS that would provide, at least for a subset of willing investors, a disintermediated holding system that would reduce or eliminate intermediary risk, including custody-chain risk, and reduce a variety of other costs and related problematic aspects of intermediated holding systems. The NPS would directly connect investor holdings with issuers (a form of “direct” holding as opposed to “indirect,” intermediated holding). The NPS would meet the needs that have been met in the past by intermediated holding systems, but without the intermediation between investors and issuers which such systems currently impose. Part V explains how the NPS might be implemented with a minimum disruption of current practices of securities trading, clearance and settlement, and holding.

Viewed from a political economy perspective, the NPS is not proposed as an “optimal solution” to the reduction of risk and enhanced efficiency in the financial markets. It is better seen as in interim or second-best step. This incremental approach would enhance the likelihood that the NPS actually could be accepted and implemented in the global financial markets. Given the influence of entrenched interests in maintaining intermediated holding systems, disintermediation likely would require regulatory intervention. That intervention might be encouraged and opposition blunted by reducing the disruption to current market structures and practices. By preserving current structures for trading and settlement, the NPS may offer the best prospect for reform in the near term. Part V further explains that disintermediation of securities holding along the lines of the NPS could eventually eliminate the need for intermediated holding systems as now known. Intermediaries would continue to play important roles in the securities markets after implementation of the NPS. But for participating investors the NPS could eliminate intermediation (and the need for intermediation) in the post-settlement holding of securities.

Having described and assessed the NPS proposal in Part V, Part VI then considers whether DLT might be employed in the operation of the NPS. It explains how the NPS architecture could provide a “primordial soup” of sorts for the implementation of DLT through disintermediation and the connection of important market participants in ways that extend beyond the NPS holding structure. The NPS could thereby provide a gateway for an even broader replacement of legacy securities market infrastructures.

Part VII explores the prospects for the actual adoption and implementation of the NPS. It examines its potential for both preservation and disruption of current practices, the challenges presented by persistent

path dependence and likely responses of entrenched financial market institutions and other market participants, and the potential role and involvement of financial market regulators. In particular, Part VII considers how governments and regulators might be instrumental in the implementation of the NPS in the major global financial markets. It also addresses important technical and practical aspects of implementation, including necessary modifications of law and agreements. Part VIII concludes the article and summarizes its contributions.

II. PREVAILING INTERMEDIATED HOLDING INFRASTRUCTURES: WHY INTERMEDIATED HOLDING?

Intermediation plays a crucial role in the securities markets. Others have thoughtfully explored this ground.²⁰ For example, Tom Lin has explained the difficulties and improbability of substantial disintermediation.²¹ He argues persuasively that “[t]he core functions of financial intermediation will remain steadfastly unchanged because of the interconnected nature of finance and its human users.”²² Mary Jo White, then-Chair of the SEC, pointed to concerns about conflicts of interest and investors’ costs. She expressed concern about “[w]hether intermediation has appropriately harnessed competition and technology in the service of investors”²³ and asked: “Are the benefits being realized by investors?”²⁴ This article aims to answer Chair White’s question in the discrete—but enormously significant—context of intermediated holding of securities.

Figure 1 illustrates a typical, although simplified, intermediated holding structure involving tiers of intermediaries, with each intermediary having its own set of account holders.²⁵

20. See, e.g., Alessio M. Paces, *Financial Intermediation in the Securities Markets: Law and Economics of Conduct of Business Regulation*, 20 INT’L REV. L. & ECON. 479 (2000); Tom C.W. Lin, *Infinite Financial Intermediation*, 50 WAKE FOREST L. REV. 643 (2015).

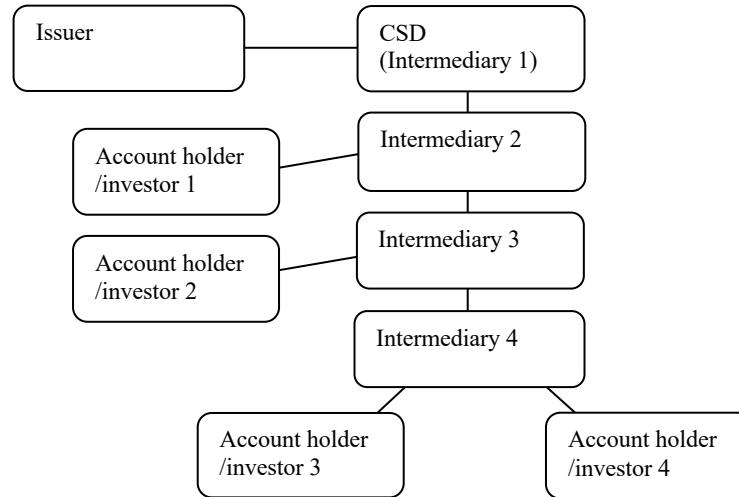
21. Lin, *supra* note 20, *passim*.

22. Lin, *supra* note 20, at 658.

23. See Mary Jo White, *Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors*, SEC (June 20, 2014), <https://www.sec.gov/news/speech/2014-spch062014mjw> [<https://perma.cc/P3EX-CV53>] (speaking about the current state of the securities market at the Economic Club of New York).

24. *Id.*

25. See GSC, *supra* note 2, at arts. 1(a) (defining “securities”); 1(b) (defining “intermediated securities”); 1(c) (defining “securities account”); 1(e) (defining “account holder”); 1(d) (defining “intermediary”); 1(g) (defining “relevant intermediary”) (noting that this article primarily uses the terminology used in the GSC in discussing intermediated securities holding).

Figure 1²⁶

The UNIDROIT Legislative Guide on Intermediated Securities (Legislative Guide),²⁷ an important supplement to the Geneva Securities Convention (GSC),²⁸ describes various legal structures adopted by States for intermediated holding of securities. It identifies “direct” holding systems as those “in which intermediaries only serve as bookkeepers for investors and have no interest in investors’ securities” and “indirect” systems as those “in which intermediaries have an interest in investors’ securities.”²⁹ A more useful explication of the direct-indirect dichotomy is a functional taxonomy based on which a “direct” holder, under the applicable law and contractual arrangements, is the legal owner of a security entitled to exercise directly against the issuer the rights of a security holder (e.g., as a shareholder or holder of a debt security) and an “indirect” holder (whether or not it is considered the legal owner) would not be so entitled.

Notwithstanding this general, high-level direct-indirect dichotomy, the Legislative Guide also offers a more refined taxonomy of private-law rules

26. See LEGISLATIVE GUIDE, *supra* note 2, at 12 (drawing on Diagram 29-1 with some simplification and modification); ROY GOODE, HERBERT KRONKE & EWAN MCKENDRICK, *TRANSNATIONAL COMMERCIAL LAW: TEXTS, CASES AND MATERIALS* 427 (2d ed. 2015) (drawing on Figure 15.1 with some simplification and modification).

27. LEGISLATIVE GUIDE, *supra* note 2.

28. GSC, *supra* note 2.

29. LEGISLATIVE GUIDE, *supra* note 2, at 16.

governing the legal relationships and characteristics of these direct and indirect holding models. Under the “individual ownership model” the ultimate account holder/investor (i.e., at the lowest tier in Figure 1) has full ownership of securities credited to its account.³⁰ The “co-ownership” model confers co-ownership of fractional interests in securities held in a pool of securities held by the CSD and credited to the ultimate account holders/investors of an intermediary.³¹ Under the “trust” model, the participants (account holders) of the CSD are the legal owners of securities that the participants credit to the accounts of their investor/account holder.³² The participant intermediaries hold the securities in trust for their investor/account holders, who are the trust beneficiaries and holders of equitable interests. The “security entitlement” model provides that each account holder at every tier in the chain below the CSD obtains a security entitlement in the securities credited to its account.³³ Under this model, an account holder acting in the capacity as intermediary passes on the rights attached to the securities to its account holders, and account holders access securities only through their own respective intermediaries.³⁴ For example, in the United States under Article 8 (Investment Securities) of the Uniform Commercial Code,³⁵ by the credit of a “security”³⁶ or another “financial asset”³⁷ by a “securities intermediary”³⁸ to a “securities account,”³⁹ an “entitlement holder”⁴⁰ acquires a “security entitlement.”⁴¹

Although the systems and the legal relationships vary greatly around the world, almost all have in common the power of an intermediary to transfer securities to some form of good faith purchaser, even without an account holder’s authorization, and the resulting possibility of a shortfall

30. LEGISLATIVE GUIDE, *supra* note 2, at 17 (identifying the law of France as an example of this model).

31. LEGISLATIVE GUIDE, *supra* note 2, at 18 (identifying the laws of Austria and Germany as examples of this model).

32. LEGISLATIVE GUIDE, *supra* note 2, at 19 (identifying the laws of Australia, England and Wales, and Ireland as examples of this model).

33. LEGISLATIVE GUIDE, *supra* note 2, at 20 (identifying the laws of Canada and the United States as examples of this model).

34. LEGISLATIVE GUIDE, *supra* note 2, at 21–22 (describing a “contractual model,” under which account holders acquire only contractual, as opposed to proprietary, rights to securities).

35. U.C.C. § 8 (AM. LAW INST. & UNIF. LAW COMM’N 2018) [hereinafter, U.C.C.].

36. U.C.C. § 8-102(a)(15) (defining “security”).

37. U.C.C. § 8-102(a)(9) (defining “financial asset”).

38. U.C.C. § 8-102(a)(14) (defining “securities intermediary”).

39. U.C.C. § 8-501(a) (defining “securities account”).

40. U.C.C. § 8-102(a)(7) (defining “entitlement holder”).

41. U.C.C. § 8-102(a)(17) (defining “security entitlement”).

upon the failure of the intermediary—each an element of intermediary risk discussed in Part III.

The Legislative Guide also identifies another dichotomy with respect to intermediated holding systems—transparent and nontransparent systems.⁴² A transparent system is one in which the “ultimate” beneficial owner is known and identified at the CSD level and at each other tier in the intermediated chain.⁴³ But on closer examination these transparent versus nontransparent characterizations reflect not so much a dichotomy as a spectrum of relative transparency in the relationships among investors, intermediaries, and CSDs.

Delphine Nougayrède’s thoughtful analysis provides clear descriptions and a useful taxonomy of CSD holding structures.⁴⁴ At the nontransparent end of the spectrum are the so-called “omnibus” CSD accounts in which a CSD participant holds securities for its own account and for its account holders, including its participants’ lower-tier intermediaries and ultimate investors, on a commingled basis. This is the dominant approach in the United States, Canada, and in the major markets in Europe.⁴⁵ For example, in an omnibus structure in the context of Figure

42. *Id.* at 22–25.

43. See Thomas Keijser & Charles W. Mooney, Jr., *Intermediated Securities Holding Systems Revisited: A View Through the Prism of Transparency*, in INTERMEDIATION AND BEYOND 309, 331–35 (Louise Gullifer & Jennifer Payne eds., 2019) (examining the various contexts in which transparency is relevant and arguing that the adoption of transparent information technology systems could provide substantial benefits, even without a change in law, and that such systems also could provide a catalyst and roadmap for law reforms affecting securities holding systems).

44. See Delphine Nougayrède, *Towards a Global Financial Register? The Case for End Investor Transparency in Central Securities Depositories*, 4 J. FIN. REG. 276, 284–91 (2018) (discussing Nougayrède’s description of CSD holding practices, which in turn relies on recent reports of the European Central Securities Depositories Association (ECSDA); ECSDA, ACCOUNT SEGREGATION PRACTICES AT EUROPEAN CSDs (2015), https://ecsd.eu/wp-content/uploads/2015_10_13_ECSDA_Segregation_Report.pdf [<https://perma.cc/84NT-UQNP>] [hereinafter, ECSDA Segregation Report]; ECSDA, THE REGISTRATION OF SECURITIES HOLDERS (2016), https://ecsd.eu/wp-content/uploads/2016_07_19_ECSDA_Registration_Report.pdf [<https://perma.cc/Z6QC-2XKJ>] [hereinafter, ECSDA Registration Report]).

45. In Europe, even omnibus systems segregate a CSD participant’s own account securities from client securities. The ECSDA Segregation Report classifies 14 markets as omnibus markets, including France, Germany, Switzerland, Italy, the Netherlands, Austria and Belgium. Although it classifies the United Kingdom as a hybrid system by virtue of the availability of a form of direct holding through a “personal membership” in the CSD (CREST), holdings in the UK are nonetheless mostly on an omnibus basis. See EUROCLEAR UK & IR., PERSONAL MEMBERSHIP (2018), www.euroclear.com/dam/Brochures/Personal-membership-EUI.pdf [<https://perma.cc/PP5Z-3ESD>] (discussing CREST personal memberships); ECSDA Segregation Report, *supra* note 44, at 14–15; In this respect, the

1, above, Intermediary 3 would know and have a direct relationship with its account holders, including Investor 2 and Intermediary 4, but it would not know or have any direct relationship with Intermediary 4's account holders, including Investors 3 and 4.

Other systems involve varying levels of segregation of investor securities. At the opposite end of the spectrum from omnibus accounts, systems embracing “end investor segregation” involve separate securities accounts with the CSD for each individual end investor, and the identity of the investor is associated with each account.⁴⁶ Even with end investor segregation, however, the CSD does not have a direct relationship with the end investor, and a CSD participant manages the securities account.⁴⁷ This dichotomy between omnibus and end investor segregation structures is both more descriptive and offers a more apt nomenclature than the transparent-nontransparent appellations. “Transparent” in this context is particularly misleading—the fact that an end investor's interest is recorded at the CSD level does not necessarily mean that the investor's identity is disclosed to any particular person, much less made available to the public generally.⁴⁸

All of these models of intermediated holding systems and their variations have evolved to meet the needs of financial markets and market participants. In particular, the intermediated structures are designed to accommodate the post-trade clearing and settlement of securities transactions. Clearing and settlement refer to the processes by which securities transactions (for example, buying and selling securities on an exchange) are concluded by a transfer (usually called a “delivery”) of securities and a corresponding payment (the delivery and payment constituting “settlement”).⁴⁹ Clearing and settlement may be effected through a “central counterparty” (or “CCP”), “[a]n entity which operates as

United States also might be classified as a “hybrid” system by virtue of the “Direct Registration System” (DRS) operated by the Depository Trust Company (the principal CSD in the United States. See *infra* Part VII (discussing the DRS and its deficiencies).

46. Nougayrède, *supra* note 44, at 288.

47. ECSDA Segregation report, *supra* note 44, at 8. This necessarily also means that the *issuer* has no direct relationship with the end investor unless the CSD acts as the issuer's registrar. Even if the CSD acts as the registrar, the end investor generally is not empowered to give instructions to the issuer, such as instructions to transfer securities to another person.

48. See *infra* Part V.B.1 (discussing adaptation of the NPS to the NOBO/OBO system in the United States).

49. For an overview of the clearing and settlement processes, see DAVID LOADER, CLEARING, SETTLEMENT AND CUSTODY 1–16 (2d ed. 2013) (explaining a general definition of “clearing” as being “[t]he preparation through matching, recording and processing instructions of a transaction for settlement.”). *Id.* at 2. (explaining that “settlement” may be defined as “[t]he exchange of cash or assets in return for other assets or cash and transference of the ownership of those assets and cash”).

the buyer for every seller and as the seller for every buyer so that the parties only bear the credit risk of the CCP.”⁵⁰

Given the volume and velocity of modern securities markets, settlement could not be achieved through traditional transfer mechanisms such as the delivery of paper certificates or changes in registration on issuers’ legacy registries. But these clearing and settlement structures have achieved more than the replacement of traditional means of transfer (delivery). Crucially, they also accommodate the payment side as well as the delivery side of settlement through mechanisms for delivery versus payment (DVP).⁵¹ The background of the development of the national system for securities clearing and settlement in the United States is both instructive and illustrative.⁵²

During the 20th Century and until 1975 each exchange in the United States maintained a separate clearinghouse for its securities transactions.⁵³ The eventual centralization of securities transactions processing was inspired largely by settlement-related problems. The late 1960s witnessed a paperwork crisis in the United States. Settlement of trades then required the physical delivery of paper certificates, and transactions also involved numerous other paperwork requirements. “The back offices of brokers and dealers were so overworked that exchanges began closing hours earlier than the traditional time. . . .”⁵⁴ Fails to deliver and fails to receive securities caused enormous losses, trading volumes decreased, and many broker-dealers were forced to close, enter bankruptcy, or merge.⁵⁵

From this crisis a number of reforms emerged during the late 1960s and early 1970s, including the Securities Investor Protection Act of 1970⁵⁶

50. LEGISLATIVE GUIDE, *supra* note 2, at xxii.

51. See Alexandra Twin, *Delivery Versus Payment*, INVESTOPEDIA (June 25, 2019), <http://www.investopedia.com/terms/d/dvp.asp> [<https://perma.cc/LQ4L-NN96>] (“Delivery versus payment (DVP) is a securities industry settlement method that . . . stipulates that the cash payment must be made prior to or at the same time as the delivery of the security.”).

52. Unless otherwise noted, the following discussing of securities clearing and settlement is based on WILLIAM DENTZER, *THE DEPOSITORY TRUST COMPANY: DTC’S FORMATIVE YEARS AND CREATION OF THE DEPOSITORY TRUST & CLEARING CORPORATION* (2008); Neal L. Wolkoff & Jason B. Werner, *The History of Regulation of Clearing in the Securities and Futures Markets, and Its Impact on Competition*, 30 REV. BANKING & FIN. L. 313 (2010); LOADER, *supra* note 49.

53. See LEGISLATIVE GUIDE, *supra* note 2, at xxii (explaining that a clearinghouse (now often referred to as a “central counterparty” or “CCP”) functions to guarantee performance of both sides of trades).

54. Wolkoff & Werner, *supra* note 52, at 317.

55. Wolkoff & Werner, *supra* note 52, at 317–18.

56. Wolkoff & Werner, *supra* note 52, at 319.

and increased centralization of clearing and settlement processes.⁵⁷ Most significant for the present discussion was the development of securities depositories, a development that eventually resulted in the creation of the Depository Trust Company (DTC) as the dominant CSD in the United States—a situation that persists today.⁵⁸ By immobilizing securities certificates held in a depository such as DTC, transfers of interests in securities could be achieved by book entries to the accounts of its (broker-dealer and bank) participants (such as Intermediary 2 in Figure 1) and, in turn, book entries by those participants to their account holders (such as Intermediary 3 and Investor/Account Holder 1 in Figure 1).

For present purposes, it is important to identify precisely the work that intermediation is performing—it *facilitates the delivery side of securities settlement, which also facilitates DVP mechanisms*. These observations are pertinent not only for the United States markets but for the global intermediated holding systems more generally.⁵⁹ As Nougayrède has observed, the “complexities [of national laws dealing with intermediated securities] never seriously constrained the development of the markets. One of the reasons is that these differences in national frameworks were operationally ‘bridged’ by the CSDs.”⁶⁰ Because intermediated securities are “in the system,” the intermediated infrastructure provides continual assurance (pre- and post-trade) that the intermediated securities will be available and free of obstacles to delivery (transfer) at the appropriate time in the applicable post-trade settlement system.⁶¹ This explains why many investors continue to “hold” through an intermediary after acquisition (i.e., post settlement). By holding in the intermediated system, the investor

57. Wolkoff & Werner, *supra* note 52, at 319–24.

58. In 1999, DTC and National Securities Clearing Corporation (the principal clearing organization and CCP in the United States market) became subsidiaries of a newly formed holding company, The Depository Trust & Clearing Corporation (DTCC). See Paolo Saguato, *The Ownership of Clearinghouses: When Skin in the Game Is Not Enough, the Remutualization of Clearinghouses*, 34 YALE J. ON REG. 601 (2017) (discussing a critical assessment of DTC); DENTZER, *supra* note 52, at 72.

59. See Nougayrède, *supra* note 44, at 281–84 (discussing background of development of CSDs and their roles in global securities markets).

60. Nougayrède, *supra* note 44, at 284.

61. A challenge for the NPS (and any direct holding model) would be to preserve the flexibility of existing intermediated systems that accommodate transactional patterns of financing, collateralization, and securities lending. See Joanna Benjamin & Louise Gullifer, *Stewardship and Collateral: The Advantages and Disadvantages of the No Look Through System*, in INTERMEDIATION AND BEYOND 215, 217–22, 233–36 (Louise Gullifer & Jennifer Payne eds., 2019) (explaining that intermediated holding systems promote, *inter alia*, effective risk management by securities finance market participants and proposing a bifurcated system for traditional investors on one hand and securities financiers on the other).

maintains the liquidity of its investments and avoids the technical and logistical obstacles (including delay and expense) to the removal of securities from the system, connection of the investor with the issuer (such as by the issuance and delivery of a registered certificate and/or registration of the investor's interest on the issuer's books), and re-insertion of securities into the intermediated system (reversing the issuer-related transactions) for any subsequent disposition or other transaction.⁶²

This explanation and rationalization for intermediated holding begs the question of why such obstacles to the withdrawals and insertions of securities from and to the systems exist. The answer is straightforward and clear: It is in the interest of the intermediaries and CSDs to keep the securities in the intermediated holding system, and they have no incentive to make ingress and egress user friendly. This issue is considered further in Part VII in the context of implementation of the NPS.

Aside from its role in facilitating the processes of trading and settlement described above, post-settlement intermediated holding may provide (or, at least, support) additional services that intermediaries provide to account holders. Consider two important services that broker-dealers in the United States provide—extending credit to entitlement holders secured by securities credited to securities accounts (so-called “margin lending”) and securities lending.

Broker-dealers routinely make loans to their customers (entitlement holders) secured by securities held in margin accounts. Margin lending not only offers an important benefit for customers but also is a profitable line of business for broker-dealers.⁶³ The Customer Protection Rule⁶⁴ of the United States Securities and Exchange Commission (SEC) facilitates these transactions by permitting broker-dealers to create security interests in customer securities and to lend customer securities.⁶⁵ The broker-dealers

62. For example, if an investor in the United States wishes to have a paper certificate issued and registered in its name, a nontrivial delay would occur before a certificate is issued and received by the investor. In order to sell the securities, the investor would have to endorse the certificate and have its signature guaranteed so that the securities can be put back into the intermediated system. This process takes time and imposes expenses on the investor. See *Holding Your Securities Get the Facts*, SEC (Mar. 4, 2003), <https://www.sec.gov/reportspubs/investor-publications/investorpubsholdsechtm.html> [<https://perma.cc/9FG9-B7LW>]; *FAQS: How Issuers Work with DTC*, DTCC, <http://www.dtcc.com/settlement-and-asset-services/issuer-services/how-issuers-work-with-dtc> [<https://perma.cc/RRL6-KGML>].

63. Paul Meyer, *Securities-Based Lending*, SEC. LITIG. & CONSULTING GROUP, <https://www.slcg.com/pdf/workingpapers/securities-based-lending.pdf> [<https://perma.cc/BBN9-E4F7>] (last visited Nov. 16, 2019) (“Substantial profit margins in the lending business make SBLs [securities-based loans] a lucrative product for broker-dealers.”).

64. 17 C.F.R. § 240.15c3-3 (2019).

65. See *infra* Part V.B.7 (discussing the Customer Protection Rule and NPS

may fund loans to customers with their own borrowings secured, in turn, by these customer securities. More frequently broker-dealers obtain funding by lending customer securities, with the securities borrowers' obligations to return like securities being secured by cash collateral.⁶⁶

The intermediated holding system in the United States also facilitates the treatment of fails to deliver securities in the settlement system. Under the "continuous net settlement" system, fails to deliver securities at settlement are routinely carried over and netted for settlement on the following day.⁶⁷ However, customer accounts normally would be credited for securities even though they have not yet been received.⁶⁸

While much of this flexibility for margin lending, securities lending, and fails could be preserved under the NPS,⁶⁹ some other proposals for direct holding fail even to recognize or address these considerations.⁷⁰ A challenge for the NPS and any direct-holding system will be to

accommodations).

66. "In a securities lending transaction the lender transfers outright ownership of securities to the borrower and the borrower agrees to redeliver like securities to the lender at an agreed time in the future." Charles W. Mooney, Jr., *The Truth About Shortfall of Intermediated Securities: Perspectives Under the Geneva Securities Convention, United States Law, and the Future European Legislation*, in INTERMEDIATED SECURITIES: THE IMPACT OF THE GENEVA SECURITIES CONVENTION AND THE FUTURE EUROPEAN LEGISLATION 160, 170 n.43 (Pierre-Henri Conac, Ulrich Segna & Luc Thévenoz eds., 2013). Borrowers of securities typically do so in order to deliver the securities under a short sale. *Id.* at 174. The seller in a short sale "hopes to acquire the same securities at a lower price in the future in order to return them to the [securities] lender." *Id.* at 174 n.64.

67. Alistair Milne, *Central Securities Depositories and Securities Clearing and Settlement: Business Practice and Public Policy Concerns*, in ANALYZING THE ECONOMICS OF FINANCIAL MARKET INFRASTRUCTURES 344 (Martin Diehl et al. eds., 2016); *see also Equity, Corporate and Muni Debt Transaction Processing*, DTCC, <http://www.dtcc.com/settlement-and-asset-services/settlement/equity-corporate-debt> [<https://perma.cc/7DJW-BABF>] (describing the DTC's settlement service).

68. *See Division of Market Regulation: Responses to Frequently Asked Questions Concerning Regulation SHO, Answer to Question 7.1*, SEC, <https://www.sec.gov/divisions/marketreg/mrfaqregsho1204.htm> [<https://perma.cc/7WC8-KH24>] (last visited Jan. 26, 2020) (emphasis added): "There is significant confusion relating to the fact that the aggregate number of positions reflected in customer accounts at broker-dealers may in fact be greater than the number of securities issued and outstanding. *This is due in part to the fact that securities intermediaries, such as broker-dealers and banks, credit customer accounts prior to delivery of the securities.* For most securities trading in the U.S. market, delivery subsequently occurs as expected. However, fails to deliver can occur for a variety of legitimate reasons, and flexibility is necessary in order to ensure an orderly market and to facilitate liquidity."

69. *See infra* Part V.B.7 (discussing NPS accommodation of margin lending, securities lending, and fails to deliver/receive). This would especially be so if and while the option of holding through the legacy intermediated holding system remained available.

70. *See infra* Part IV (discussing various proposals for disintermediation).

accommodate sufficient flexibility for preservation of valuable transactional patterns and to meet political opposition based on perceived threats to established market practices.

III. RISKS AND COSTS IMPOSED BY INTERMEDIATION

Intermediaries play vital roles in securities markets. For example, brokers accommodate trading on exchanges and other trading platforms. Brokers and other intermediaries are essential actors in modern systems for clearing and settlement of securities trades. Bank custodians provide many services to institutional investors, including reliable recordkeeping. These are essential and beneficial functions. But this Part identifies and describes a variety of risks and costs imposed by intermediation in the securities markets. It puts in context a principal focus of this article—the risks and costs imposed by post-settlement holding through intermediaries and the attendant methods and costs of addressing these risks. It sets the stage for consideration and assessment of the development of the NPS proposal—a market infrastructure that would, post-settlement, eliminate or reduce these post-settlement risks and costs by allowing investors to connect directly with issuers instead of holding through accounts with intermediaries.

A. Settlement-Related Risks

This article focuses primarily on post-settlement intermediated holding and related risks and costs—in particular, post-settlement intermediary risk discussed next in subpart B. However, post-settlement holding persists largely in order to facilitate settlement and thereby to ensure liquidity.⁷¹ For this reason, it is useful to consider systems for settlement and settlement-related risks before turning attention to post-settlement holding intermediary risk.

An important 1988 report by the Group of Thirty⁷² (G30 Report) profoundly influenced modern systems for clearance and settlement in the

71. *See supra* Part II.

72. GROUP OF THIRTY (G30), CLEARANCE AND SETTLEMENT SYSTEMS IN THE WORLD'S SECURITIES MARKETS (1988), https://group30.org/images/uploads/publications/G30_ClearanceSettlement1988.pdf [<https://perma.cc/EA6L-GVJV>] [hereinafter G30 Report]. Significant later studies include reports by the International Securities Services Association (ISSA) and follow-up work by the G30. *See* ISSA, RECOMMENDATIONS 2000 (2000); GROUP OF THIRTY (30), GLOBAL CLEARING AND SETTLEMENT: FINAL MONITORING REPORT (2006), https://group30.org/images/uploads/publications/G30_GlobalClearingSettlementFinalMonitoringReport.pdf [<https://perma.cc/EHC8-TQVL>]. For general background, see LOADER, *supra* note 49, at 5–11.

world's securities markets.⁷³ The G30 Report proposed “standards for clearance and settlement which should be set and maintained by national corporate securities markets to maximize efficiency and reduce risk and cost.”⁷⁴ Modern settlement systems are structured to manage these risks.

“Principal risk” in the settlement of securities transactions is the risk that payment might be made but the delivery of a security would not be forthcoming or, conversely, that delivery might be made but payment would not occur.⁷⁵ Principal risk is managed primarily by DVP systems that essentially provide for simultaneous payment and delivery.⁷⁶ But DVP does not solve the problem of trade failures (or “fails”) in which DVP does not occur because of the failure of a counterparty either to pay or deliver. If a delivery does not occur (such as because of a counterparty’s insolvency) then costs and losses may arise from having to replace a failed trade with a new trade—“replacement risk.”⁷⁷ In many cases delivery may be delayed, even if it eventually occurs, but meanwhile buyers and sellers that are expecting deliveries and payment are exposed to “liquidity risk.”⁷⁸ These replacement and liquidity risks generally are addressed in clearance and settlement systems through the interposition of a CCP,⁷⁹ which serves to ensure that settlement will occur regardless of a default by a participant in the system.⁸⁰ The role of the CCP and multilateral netting of trades among system participants results in a great reduction in the number of trades that must be settled.⁸¹ Liquidity risk and replacement risk are also addressed by institutional frameworks for borrowing and lending securities and “repurchase” (or “repo”) transactions.⁸²

Additional safeguards backstop the performance of payment and delivery obligations in settlement systems.⁸³ Settlement risks also have

73. See DENTZER, *supra* note 52, at 55–57 (discussing influence of G30 Report on DTC’s system); LOADER, *supra* note 49, at 5–7 (discussing influence of G30 Report on clearing and settlement systems).

74. G30 Report, *supra* note 72, at 1.

75. Milne, *supra* note 67, at 340–42.

76. *Id.*; see *supra* Part II (discussing DVP).

77. Milne, *supra* note 67, at 342–44. For example, a buyer is exposed to replacement cost risk if the market price of securities that are not delivered is higher than the contract price.

78. *Id.* at 342. For example, a seller that does not receive payment may need to borrow funds or sell assets to meet its own payment obligations. *Id.* at 342–44.

79. See LEGISLATIVE GUIDE, *supra* note 2, at xxii (explaining that clearinghouses, or CCPs, function to guarantee performance of both sides of trades).

80. Milne, *supra* note 67, at 342–44.

81. Milne, *supra* note 67, at 343.

82. Milne, *supra* note 67, at 344–46.

83. See, e.g., DEPOSITORY TR. CO., DISCLOSURE FRAMEWORK FOR COVERED CLEARING

been reduced substantially by shortening the periods between the time that a trade is made (trade date) and the time of settlement (settlement date).⁸⁴ Rules that ensure the finality of settlement payments and deliveries of securities further reduce risk.⁸⁵ Finally, these settlement-related risks also potentially harbor “systemic risk,”⁸⁶ which is ameliorated by the reduction of settlement risks generally.

The risks inherent in the settlement of securities transactions have been managed well by settlement systems in major markets. Indeed, one of the harshest critics of the United States infrastructure for securities trading, settlement, and holding has observed that the current system “enjoys universal respect,” “is fast, secure, and profitable,” and “cheap.”⁸⁷ But the risks imposed on an investor by an intermediary’s default or failure do not vanish at settlement. Subpart B next addresses the post-settlement intermediary risks that persist when an investor continues to hold securities through an account with an intermediary.

AGENCIES AND FINANCIAL MARKET INFRASTRUCTURES 11 (2018), www.dtcc.com/~media/Files/Downloads/legal/.../DTC_Disclosure_Framework.pdf [<https://perma.cc/XA2F-8QVM>] [hereinafter DTC Framework] (explaining that “DTC may pledge or liquidate collateral of the defaulting Participant in order to complete settlement. Liquidity resources, including the Participants Fund and a committed line of credit with a consortium of lenders, are available to complete settlement if there is a Participant default.”).

84. At the time of the 1988 G30 Report the norm for settlement in the United States and in many other markets was the fifth business day following the trade date (T+5), and the report’s Recommendation 7 called for settlement to occur by T+3 no later than 1992. G30 Report, *supra* note 72, at 14. The standard settlement date in the United States markets moved to T+2 in 2017. *Amendment to Securities Transaction Settlement Cycle - A Small Entity Compliance Guide*, SEC, <https://www.sec.gov/tm/t2-sbrefa> [<https://perma.cc/C4BY-2X5Y>].

85. DTC Framework, *supra* note 83, at 19–20 (discussing settlement finality).

86. BANK FOR INT’L SETTLEMENTS, RECOMMENDATIONS FOR SECURITIES SETTLEMENT SYSTEMS 39 (2001) (“If the failure of one participant renders other participants unable to meet their obligations, the settlement system might be a source of instability for financial markets more generally (systemic risk).”); Milne, *supra* note 67, at 349 (noting that extreme complexity of modern clearing and settlement systems “is itself a potential source of systemic problems”).

87. David C. Donald & Mahdi H. Miraz, Restoring Direct Holdings and Unified Pricing to Securities Markets with Distributed Ledger Technology 3, 37 (Mar. 14, 2019) [hereinafter Donald & Miraz, *Restoring Direct Holdings*] (unpublished manuscript) (on file with author). David C. Donald & Mahdi H. Miraz, *Multilateral Transparency for Securities Markets Through DLT* (Chinese Univ. of H.K. Faculty of Law, Research Paper No. 2019-05, 2019), <https://ssrn.com/abstract=3352293> [<https://perma.cc/Z3SB-UM84>]; *see also* David C. Donald, *Heart of Darkness: The Problem at the Core of the US Proxy System and Its Solution*, 6 VA. L. & BUS. REV. 41 *passim* (2011).

B. Post-Settlement (Holding) Intermediary Risk

1. Default or Failure of Relevant Intermediary

The post-settlement intermediated holding phenomenon results from demands for convenience and liquidity afforded by leaving securities “in the system” and the prevailing costs, delay, and inconvenience of withdrawals and reinsertions of securities into and out of intermediated holding systems.⁸⁸ But holding through an intermediary imposes another set of risks on an account holder consisting of the possibility of loss or damage caused by the default or insolvency of an account holder’s intermediary. As I have explained elsewhere: “Intermediary risk is a function of the structure of a particular holding system, including the holding infrastructure and its relevant technology, the relevant private law of property and contract, legal and contractual duties that underpin the holding structure, the regulatory framework, and the relevant insolvency laws.”⁸⁹

First, consider these risks in terms of the rights to which an account holder is entitled and the related obligations of its relevant intermediary.⁹⁰ GSC Article 9 provides for the rights conferred on an account holder⁹¹ and Article 10 sets forth the corresponding obligations that a relevant intermediary owes to its account holders.⁹² Although the GSC’s functional approach leaves niceties of legal doctrine to the non-Convention law,⁹³ and the actual rights and obligations under a given State’s laws may differ, these GSC provisions provide a useful framework for the present analysis.

Under GSC Article 9, an account holder is entitled to the rights attached to securities, such as distributions of dividends and voting rights, the right to dispose of or transfer interests in securities, the right to hold securities other than through a securities account (if otherwise permitted),

88. See *supra* Part II.

89. Charles W. Mooney, Jr., *Global Standards for Securities Holding Infrastructures: A Soft Law/Fintech Model for Reform*, 40 MICH. J. INT’L L. 531, 532 (2019).

90. See GSC, *supra* note 2, art. 1(g) (defining “relevant intermediary” as “in relation to a securities account, the intermediary that maintains that securities account for the account holder.”).

91. GSC, *supra* note 2, art. 9.

92. GSC, *supra* note 2, art. 10.

93. See LEGISLATIVE GUIDE, *supra* note 2, at 35 (discussing GSC’s functional approach that leaves significant legal and regulatory issues to the law outside of the GSC). The GSC defines “non-Convention law” as “the law in force in [a] . . . Contracting State . . . , other than the provisions of” the GSC. GSC, *supra* note 2, art. 1(m).

and other rights under the non-Convention law.⁹⁴ Article 10 provides that the relevant intermediary must take steps to allow its account holders to enjoy these Article 9 rights and also must comply with other obligations imposed by the GSC.⁹⁵ These obligations of the relevant intermediary include maintaining sufficient amounts of securities to reflect its credits to securities accounts,⁹⁶ allocating securities to its account holders so as to be unavailable to the intermediary's creditors,⁹⁷ acting on instructions of its account holders,⁹⁸ not making unauthorized dispositions of securities,⁹⁹ and passing on information to its account holders.¹⁰⁰

Inasmuch as securities intermediaries such as stockbrokers and banks normally are regulated institutions, as a practical matter, the wrongful failure of a viable and solvent intermediary to meet its obligations to account holders generally is not a problem.¹⁰¹ But when an intermediary becomes financially distressed, which typically involves the commencement of an insolvency proceeding, the rights of account holders may be jeopardized. This generally entails two sets of risks. One risk is that the securities necessary to satisfy account holder rights and claims will not be available (i.e., a shortfall). The other risk is that the account holders will not have prompt and effective access to the securities.

Regulatory regimes, private law, and insolvency law address the rights of and protections for account holders in this setting. For example, intermediaries sometimes are required to "segregate" or set aside account holder securities as a mechanism to enhance the prospect that sufficient securities will be on hand to satisfy account holder claims.¹⁰² Moreover, both private law rules and insolvency distributional rules address the protection and priority of account holder claims to securities as against the claims of an intermediary's unsecured creditors. In general, securities

94. GSC, *supra* note 2, art. 9(1).

95. GSC, *supra* note 2, art. 10(1), (2).

96. GSC, *supra* note 2, arts. 10(2)(a), 24.

97. GSC, *supra* note 2, arts. 10(2)(b), 25.

98. GSC, *supra* note 2, art. 10(2)(c).

99. GSC, *supra* note 2, arts. 10(2)(d), 15.

100. GSC, *supra* note 2, art. 10(2)(e).

101. See Charles W. Mooney, Jr., *Beyond Negotiability: A New Model for Transfer and Pledge of Interests in Securities Controlled by Intermediaries*, 12 CARDOZO L. REV. 305, 363–64 (1990) ("Because the actual enforcement of property interests against financial institution intermediaries outside of insolvency proceedings is unlikely, it is the entitlement in those proceedings that is material.").

102. *Id.* at art. 25; LEGISLATIVE GUIDE, *supra* note 2, at 81–84 (discussing and diagramming methods of segregating accounts and highlighting, *inter alia*, the importance of account segregation and other such mechanisms to ensure account integrity and the avoidance of shortfalls).

allocated by an intermediary to its account holders are not available for satisfaction of the intermediary's general creditors.¹⁰³ In many systems, certain classes of account holders are protected by funds or insurance schemes, generally up to a specified maximum amount.¹⁰⁴ While such protective schemes may provide ample protection for smaller, "retail" investors, they generally do not afford protection to the larger, active "institutional" investors. However, these schemes nonetheless provide clear evidence that the intermediary risks considered here are real and significant.

Intermediary risk in securities holding also lies at the core of the private-law regime for intermediated securities in the United States, as reflected in UCC Article 8 and the regulations governing United States government securities. As I explained in an article proposing a new approach for UCC Article 8, "[i]t appears that the single, most powerful, control that a market participant can employ to reduce intermediary risk is to exercise precaution by selecting an intermediary that will not fail."¹⁰⁵

The significance of intermediary risk in securities holding systems is reflected as well by other features of intermediated securities holding infrastructures and the relevant regulatory environment. Consider two relatively recent reports issued by the International Organization of Securities Commissions ("IOSCO") on the protection of client assets ("Client Asset Reports").¹⁰⁶ The 2014 IOSCO Report adopted several

103. LEGISLATIVE GUIDE, *supra* note 2, at 82.

104. For example, the Securities Investor Protection Act (SIPA) protects eligible non-institutional account holders of insolvent registered broker-dealers against losses up to \$500,000. 15 U.S.C. § 78fff-3(a) (2018).

105. Mooney, *supra* note 101, at 388; see Francis J. Facciolo, *Father Knows Best: Revised Article 8 and the Individual Investor*, 27 FLA. ST. U. L. REV. 615, 635 (2000) ("Professor Charles W. Mooney, Jr., the legal academic whose ideas form the intellectual underpinnings of Revised [Uniform Commercial Code] Article 8 . . .") (footnote omitted); *id.* at 664 ("Professor Mooney proposed the model of 'upper-tier priority,' which became the intellectual foundation of Revised Article 8 . . .") (footnote omitted). The federal regulations for book-entry government securities as finally adopted embraced the substance of revised Article 8. Charles W. Mooney, Jr., *The Roles of Individuals in UCC Reform: Is the Uniform Law Process a Potted Plant? The Case of Revised UCC Article 8*, 27 OKLA. CITY U. L. REV. 553, 572–73 (2002) [hereinafter Mooney, *Individuals*]. See also Steven L. Schwarcz & Joanna Benjamin, *Intermediary Risk in the Indirect Holding System for Securities*, 12 DUKE J. COMP. & INT'L L. 309 (2002).

106. INT'L ORG. OF SEC. COMM'NS ("IOSCO"), RECOMMENDATIONS REGARDING THE PROTECTION OF CLIENT ASSETS (2014), https://www.iosco.org/library/pubdocs/pdf/IOSCO_PD436.pdf [<https://perma.cc/N5BL-Z2V5>] [hereinafter 2014 IOSCO Report]; IOSCO, THEMATIC REVIEW OF THE ADOPTION OF THE PRINCIPLES SET FORTH IN IOSCO'S REPORT: RECOMMENDATIONS REGARDING THE PROTECTION OF CLIENT ASSETS (2017), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD577.pdf> [<https://perma.cc/K3ZN-3GVH>] [hereinafter

principles relating to the responsibilities of an intermediary to its clients (account holders) and to appropriate protections for assets held in securities accounts.¹⁰⁷ The principles embrace standards concerning matters such as record keeping, account statements, safeguarding clients' rights and minimizing risks of loss and misuse of assets, understanding and dealing with assets in foreign jurisdictions, clear disclosures of protections regimes and risks involved, arrangements relating to client waivers of protections, regulatory oversight of intermediary compliance, and regulatory oversight of domestic rules concerning foreign assets.¹⁰⁸ The principles reflect the vital roles played by intermediaries and related regulatory regimes. They establish conduct and results that intermediaries, regulators, and custodial arrangements "should" observe and achieve.¹⁰⁹ Even so, shortfalls of account holder securities in intermediary insolvencies may be expected.¹¹⁰

The insolvency proceeding of an account holder's relevant intermediary provides the "acid test" of its intermediated securities holdings. The laws of many jurisdictions have specialized rules relating to insolvency proceedings of securities intermediaries.¹¹¹ Although this is a complex and arcane area, it is important to note that an intermediary's insolvency proceeding may expose an account holder to substantial risk, cost and delay. Moreover, this may be the case even if the account holder's rights are clear and undisputed under the applicable private, noninsolvency law and even if those rights are generally respected in the insolvency proceeding. For example, account holders experienced substantial delays in recovering their securities holdings in the administration of Lehman Brothers International (Europe) (LBIE) under English law.¹¹² The relevant English insolvency law and procedures simply were not up to the task.¹¹³

This LBIE experience underscores an important distinction between an investor holding through a transparent intermediated system and an

2017 IOSCO Report]. References to the "client" in this context refer to an investor/account holder holding through an intermediated holding system. For a discussion of the Client Asset Reports, see Mooney, *supra* note 89, at 537–39.

107. 2014 IOSCO Report, *supra* note 106, at 3–9.

108. 2014 IOSCO Report, *supra* note 106, at 3–9.

109. 2014 IOSCO Report, *supra* note 106, at 3–9.

110. See Mooney, *supra* note 66.

111. See, e.g., *supra* note 104 and accompanying text (discussing protective schemes for certain investors in case of intermediary insolvency proceedings); see generally LEGISLATIVE GUIDE, *supra* note 2, at 96–103 (discussing insolvency law relevant to intermediated securities).

112. Charles W. Mooney, Jr. & Guy Morton, *Harmonizing Insolvency Law for Intermediated Securities: The Way Forward*, in TRANSNATIONAL SECURITIES LAW 217–24 (Thomas Keijser ed., 2013).

113. *Id.* at 219–21 (describing problems encountered in returning client assets).

investor holding directly on an issuer's register. Even if the investor's interest held in a transparent system is clear, undisputed, and generally effective in its intermediary's insolvency proceeding, the investor may be exposed to serious costs and delays in recovering its securities if the insolvency regime is not sufficiently nimble. But an investor holding directly with the issuer would normally be in a position to transfer and enjoy the benefits of the securities unhindered by any intermediary's insolvency proceeding.

That the losses incurred by account holders in actual insolvency proceedings of intermediaries may not be significant does not diminish the centrality and significance of intermediary risk in assessing intermediated holding systems. Even if the various prophylactic measures¹¹⁴ and protection schemes¹¹⁵ addressing IM risk have generally been effective, those measures impose costs that disintermediation could reduce or eliminate. And these costs may exceed the benefits of maintaining the current systems. That actual losses and damages as a result of actual intermediary defaults and insolvencies may have been managed well is not necessarily a sufficient justification for the costs of the maintaining the status quo.¹¹⁶

2. Custody-Chain Risk: Failure, Default, or Nonliability of Intermediary in Holding Chain

The foregoing discussion in subpart III.B.1. addressed intermediary risk in the context of the default or failure of an account holder's relevant intermediary. When an account holder holds securities through a chain of intermediaries, however, these risks are exacerbated. In this context, the account holder's intermediary (custodian) is said to hold through one or more "sub-custodians" holding between the account holder and the issuer of the securities. As noted in ISSA's recent study of custody-chain risks:

A sub-custodian provides custody services with respect to securities traded in a particular market or jurisdiction, on behalf

114. *See supra* Part III.B.1 (discussing IOSCO Reports and principles for protection of client assets).

115. *See supra* text at note 104 (outlining protective schemes for certain investors in case of intermediary insolvency proceedings).

116. So long as legacy intermediated holding systems would be maintained as an investor alternative to the NPS, at least some of these costs would remain. But, to the extent that legacy intermediated holdings were materially reduced, the costs also might be reduced proportionately. For example, if most retail investors opted for holding through the NPS, the costs of maintaining investor protection schemes could be reduced or eventually eliminated.

of a global custodian who may not have an operation in that jurisdiction. A sub-custodian may also be referred to as an ‘agent bank’, and its relationship with the global custodian will be governed by a ‘sub-custody agreement’. In some instances, the sub-custodian will be part of the same parent group of the global custodian.¹¹⁷

Eva Micheler has clearly and thoroughly described and analyzed these custody-chain risks.¹¹⁸ Micheler’s argument, powerfully advanced, is straightforward:

Custody chains do more than transform direct into indirect rights. They modify rights. Custody chains reduce investor rights to the least favourable custody term operating in the chain. . . . [C]ompared to a directly held asset an indirectly held asset can be significantly reduced in value. Custody chains make it next to impossible for investors to claim against issuers They can cause securities to become affected by security interests of sub-custodians . . . and securities financing transactions Equitable interests are compromised by shortfalls caused by negligence or fraud. . . . Custody chains also significantly reduce the accountability of custodians. . . .¹¹⁹

She demonstrates that an investor’s rights are not only affected by a contract with his immediate intermediary, but by all of the other contracts among the various sub-custodians in the holding chain.¹²⁰ In effect, an investor’s rights “revert to the lowest denominator. Any term in a custody chain that qualifies or limits the rights of a sub-custodian also reduces the rights of the investor.”¹²¹ These custody chains occur not only domestically but, significantly, across international borders.¹²²

Custody chains, then, impose risks of the failure or default not only of an account holder’s relevant intermediary but also that of other intermediaries in the holding chain with which the account holder has no direct relationship. Because of the absence of such a direct relationship, the account holder normally will have no claim whatsoever against those

117. ISSA, INHERENT RISKS WITHIN THE GLOBAL CUSTODY CHAIN 14 (2017), https://www.issanet.org/e/pdf/ISSA_Report_Inherent_Risk_February-2017.pdf [<https://perma.cc/5KY6-GQRH>].

118. Eva Micheler, *Custody Chains and Asset Values: Why Crypto-Securities Are Worth Considering*, 74 CAMBRIDGE L.J. 505 (2015).

119. *Id.* at 5.

120. *Id.* at 7.

121. *Id.*

122. *Id.* at 2.

other intermediaries.¹²³ Custody chains also aggravate the already substantial obstacles to an account holder's exercise of rights against an issuer,¹²⁴ considered next.

C. *Exercise of Investor Rights (Voting, Corporate Actions, Claims Against Issuers, Etc.)*

Problems created by intermediated holding systems for the exercise and enjoyment of investor rights vis-à-vis issuers are well known and have garnered the lion's share of relevant commentary.¹²⁵ This is unsurprising inasmuch as investments in securities are in the wheelhouse of scholars of corporate and securities regulation law. Moreover, the foundational circumstance that account holders holding through intermediaries *do not* hold on the books of issuers makes this set of problems quite visible. The extensive treatment elsewhere justifies the relatively brief treatment here, notwithstanding the enormous significance of these issues. As with investor rights in an intermediary's insolvency proceeding,¹²⁶ differences between an investor holding directly on the books of an issuer's register and holding in an intermediated system—even if the system is transparent and efficient—are significant.

The seminal study of corporate voting in the United States by Marcel Kahan and Edward Rock is exemplary. They examined “pathologies of complexity,”¹²⁷ “of ownership,”¹²⁸ and “of misalignment between voting

123. *Id.* at 8.

124. *Id.* at 14–19.

125. *See, e.g.*, Nougayrède, *supra* note 44, at 298–99; Donald, *supra* note 87; Marcel Kahan & Edward Rock, *The Hanging Chads of Corporate Voting*, 96 GEORGETOWN L.J. 1227 (2008); Jill E. Fisch, *Standing Voting Instructions: Empowering the Excluded Retail Investor*, 102 MINN. L. REV. 11 (2017); George S. Geis, *Traceable Shares and Corporate Law*, 113 NW. U. L. REV. 227 (2018); Eva Micheler, *Transfer of Intermediated Securities and Legal Certainty*, in TRANSNATIONAL SECURITIES LAW, *supra* note 112, at 119–23; Paul Davies, *Investment Chains and Corporate Governance*, in INTERMEDIATION AND BEYOND 187–214 (Louise Gullifer & Jennifer Payne eds., 2019). *See also infra* Part IV (discussing recent proposals for disintermediation and problems associated with intermediated holding).

126. *See supra* notes 112–113 and accompanying text (discussing the risks that account holders bear in an intermediary's insolvency proceeding).

127. Kahan & Rock, *supra* note 125, at 1249–55. Earlier studies focused on voting and other problems in the United Kingdom. *See generally* OXERA, CORPORATE ACTION PROCESSING: WHAT ARE THE RISKS? (2004), <https://www.oxera.com/publications/corporate-action-processing-what-are-the-risks/> [<https://perma.cc/N9MF-WVNM>]; PAUL MYNERS, REVIEW OF THE IMPEDIMENTS TO VOTING UK SHARES (2004). Analogous problems exist outside of corporate shareholder voting as well. *See, e.g.*, Jennifer Payne, *Intermediation and Bondholder Schemes of Arrangement*, in INTERMEDIATION AND BEYOND 173–86 (Louise Gullifer & Jennifer Payne eds., 2019) (discussing voting of bondholders under English law

rights and economic interest.”¹²⁹ Their assessment offered severe criticism: “[t]he existing system of shareholder voting is crude, imprecise, and fragile.”¹³⁰ They concluded that “marginal ameliorations are clearly possible” but that resolving the serious problems with voting would “require[] a realignment of our system of securities ownership, a change that is expensive and uncertain, both practically and politically.”¹³¹

Aside from voting, suffice it to note that problems created by intermediated holding systems extend to “corporate actions”¹³² more generally.¹³³ In particular, intermediated holding has presented obstacles for investors seeking to assert claims against issuers.¹³⁴

D. Costs of Nontransparency

The intermediary risks and investor rights addressed in subparts III.B. and C. primarily involve adverse consequences for investors and impairments of investors’ legal entitlements resulting from intermediated holding systems. As noted, these problems would be reduced or eliminated by direct holding. This subpart identifies a different set of problems that arise from the nontransparency of deeply intermediated holding systems. These costs of nontransparency arise in a several contexts. The problems might well be adequately addressed by adopting transparent intermediated holding systems, even without the implementation of direct holding. However, a direct holding regime such as the NPS might prove to be the most effective and efficient means of providing needed transparency (while

schemes of arrangement).

128. Kahan & Rock, *supra* note 125, at 1255–63.

129. Kahan & Rock, *supra* note 125, at 1263–67.

130. Kahan & Rock, *supra* note 125, at 1279.

131. Kahan & Rock, *supra* note 125, at 1281.

132. As Donald explained, “corporate actions . . . is a term used by the settlement industry to designate all actions requiring communication between issuers and shareholders, such as rights issues, tender offers, conversions, mergers, early redemptions and dividend payments.” Donald, *supra* note 87, at 73–74.

133. *See id. passim*.

134. *See, e.g.*, Geis, *supra* note 125, at 238–48, 270–72 (discussing shareholder suits under state and federal law in the United States); *see also* Louise Gullifer, *Two Consequences of the Intermediated Holding of Debt Securities: Examining Discharge of Debt and Set-off*, in INTERMEDIATION AND BEYOND 155–74 (Louise Gullifer & Jennifer Payne eds., 2019) (discussing discharge and set-off involving intermediated debt securities under English law); *see also* Micheler, *supra* note 125, at 119–23 (discussing enforcement of intermediated debt securities under English law); Richard Salter, *Enforcing Debt Securities*, in INTERMEDIATION AND BEYOND 129–54 (Louise Gullifer & Jennifer Payne eds., 2019) (discussing enforcement of intermediated debt securities under English law).

providing other benefits as well).¹³⁵

1. Anti-Money Laundering, Sanctions Compliance, Terrorist Financing, Taxation

Nontransparency frustrates the needs of various regulators to obtain information about investor holdings in order to protect and promote a variety of public interests that are unrelated to investor rights. For example, Nougayrède has called attention to concerns about anti-money laundering (AML), sanctions compliance, and terrorist financing. She notes:

A push for beneficial ownership transparency in all forms of legal entities is taking place around the world in the field of . . . AML. Economic sanctions are increasingly used as non-violent alternatives to traditional military action in foreign relations, especially by the US and EU: to be effective, these tools require transparency in custodial chains and regulators have begun to cut through these. . . .¹³⁶

The need for increased transparency also has prompted various reform efforts in connection with taxation and tax evasion.¹³⁷ All of these areas would benefit from increased transparency in intermediated holding systems (or the adoption of direct-holding regimes such as the NPS).

135. For investors that do not opt in to direct registration under the NPS, the centralized data collection mechanism required for the NPS necessarily would produce data that would provide transparency in the intermediated holding system. Even if that data were not utilized for direct registration under the NPS, it would be available and accessible for other permitted purposes. However, increased transparency and the loss of anonymity also pose risks in the form of threats to privacy, confidentiality, and data protection. Panisi, Buckley, and Arner have wisely advised to “strike a balance” between the privacy concerns and the benefits of enhanced transparency. Federico Panisi, Ross P. Buckley & Douglas Arner (PB&A), *Blockchain and Public Companies: A Revolution in Share Ownership Transparency, Proxy-voting and Corporate Governance?*, 2 STAN. J. BLOCKCHAIN L. & POL’Y 1, 15 (2019).

136. Nougayrède, *supra* note 44, at 278–79; *see also id.* at 301–05 (discussing Clearstream Banking S.A. (Luxembourg) and United States settlement relating to Central Bank of Iran assets blocked under United States sanctions legislation and debates within the securities industry on related transparency issues); Keijser & Mooney, *supra* note 43, at 326–30 (discussing problems of intermediated holding systems in the contexts of AML, terrorist financing and other criminal activity, and foreign investments in strategic enterprises).

137. Nougayrède, *supra* note 44, at 306–08.

2. Upper-Tier Attachment Prohibitions

Somewhat analogous to AML concerns, nontransparent intermediated holding systems may afford an investor the means of hiding or shielding its securities from the reach of creditors. For example, UCC section 8-112 provides that a debtor's interest in a security entitlement may be reached by a creditor only through legal process on the debtor-entitlement holder's relevant intermediary.¹³⁸ The GSC contains a similar prohibition on "upper-tier attachment."¹³⁹ The Legislative Guide identifies the basis for these restrictions:

[U]pper-tier intermediaries usually do not know and are unable to specify what part of the securities or intermediated securities are the relevant securities that should be subject to the attachment. Even if upper-tier intermediaries can identify the relevant securities or intermediated securities, permitting upper-tier attachment could produce enormous costs for the relevant upper-tier intermediary in identifying the relevant securities or intermediated securities and could prevent efficient operations of the intermediated securities holding system.¹⁴⁰

A transparent or direct holding system would eliminate the need for such a prohibition.¹⁴¹

E. Private-Law Rules

The private-law rules governing intermediated holding systems vary enormously.¹⁴² Indeed, the Legislative Guide was inspired by the reality that only limited harmonization could be realized in the text of the GSC.¹⁴³ The reality also is that the GSC is not yet in force after more than a decade and in general harmonization efforts have not been successful. So long as

138. U.C.C. § 8-112(c) (AM. LAW. INST. & UNIF. LAW COMM'N 1992).

139. GSC, *supra* note 2, art. 22(1) (prohibiting upper-tier attachment).

140. LEGISLATIVE GUIDE, *supra* note 2, at 78.

141. The GSC creates an exception to the prohibition if a contracting state has made a qualifying declaration to the effect that it has procedures that eliminate the information problems addressed by the prohibition—primarily intended for States with transparent holding systems. GSC, *supra* note 2, art. 22(3); *see* LEGISLATIVE GUIDE, *supra* note 2, at 79–80; *see also* Keijser & Mooney, *supra* note 43, at 317–19. UCC section 8-112 makes no such exception.

142. *See supra* Part III.E (discussing a variety and taxonomy of private-law rules).

143. LEGISLATIVE GUIDE, *supra* note 2, at 1 (noting that the GSC "leaves various issues to be defined and determined by other rules of law in force in a Contracting State" and "complements the [GSC] by addressing these issues").

intermediated holding systems exist, of course, these private-law regimes will be necessary—lack of harmonization notwithstanding. But widespread adoption of direct-holding systems such as the NPS would reduce the role and significance of these rules and the inefficiencies and uncertainties spawned by their proliferation and nonuniformity.

F. Concluding Observations: A Framework for Cost-Benefit Analysis and Future Work

This Part has shown that intermediated holding systems, and in particular the deeply intermediated, omnibus account systems in the United States and major European markets, create a host of risks and costs and are problematic in a variety of circumstances. It has identified the principal risks and costs and explained that direct holding and increased transparency could eliminate or reduce these problems.

But identifying the risks and costs that could be ameliorated through direct holding and transparency reflects only part of the story. It also is necessary to consider whether, how, and to what extent various *positive* externalities provided by intermediated infrastructures would be affected by adopting the elements of the NPS. These benefits include in particular the flexibility that intermediation confers on intermediaries to use their account holders' securities. For example, this flexibility accommodates margin lending and securities lending, which are profitable activities for broker-dealers in the United States but also provide benefits to account holders.¹⁴⁴ Part IV next considers some recent proposals for direct holding and increased transparency that generally fail to acknowledge, much less consider and evaluate, these benefits of intermediation and how they might be impaired by adoption of those proposals. Part V then outlines the operation of the NPS and explains how the NPS might be structured to preserve much of the flexibility of the prevailing intermediated holding infrastructure.¹⁴⁵

The approach taken here provides a necessary framework for assessing the merits of adopting a direct-holding and transparent infrastructure. This article makes a plausible (perhaps *prima facie*) case that the NPS could reduce significant risks and costs of intermediated holding while preserving many of the benefits of the current system. But much remains to be addressed in future work. Empirical assessments based on a cost-benefit analysis that would support significant regulatory or

144. See *supra* Part II, at pp. 17–19.

145. See *infra* Part V.B.7, at pp. 50–56.

legislative intervention require further qualitative and quantitative analysis of the factors identified here.¹⁴⁶

Consider first the market participants most directly affected by the existing intermediated infrastructure in the United States—broker-dealer and bank intermediary participants in DTC, investors, and issuers. For these stakeholders, the current system is the only game in town for post-settlement holding, but questions abound.¹⁴⁷ For example, although the system benefits the intermediaries,¹⁴⁸ are intermediary profits supported by the current system achieved at the expense of investors and issuers? Would a modified post-settlement holding system, such as the NPS, lower the aggregate institutional economic transaction costs? These costs include those related to reducing intermediary risk, including methods for the protection of account holder assets.¹⁴⁹ Further work should address these questions, among others.

The analysis also must take account of the various direct and indirect costs of the intermediated holding infrastructure that lie beyond the direct and indirect costs that are imposed on securities market participants.¹⁵⁰ For example, the current system may inhibit AML regulation and efforts to control other forms of corruption and terrorist financing. When compared to a more transparent system such as the NPS, intermediated holding not only may increase the costs of monitoring and reporting but it may be less effective.

This article offers a framework for future work that would pursue a cost-benefit analysis of the United States securities holding infrastructure and an assessment of a move toward direct holding and transparency, such as the NPS. However, the application of such an analysis is beyond the

146. I refer to “cost-benefit analysis” in the broadest sense of examining costs and benefits and social welfare implications of changes in law and regulation. I take no position here on methodological issues. Compare Jeffrey N. Gordon, *The Empty Call for Benefit-Cost Analysis in Financial Regulation*, 43 J. LEGAL STUD. S351, S353 (2014) (questioning the utility of cost-benefit analysis in setting financial regulation and arguing that costs and benefits of rules cannot be meaningfully quantified) with Eric A. Posner & E. Glen Weyl, *Benefit-Cost Paradigms in Financial Regulation*, 43 J. LEGAL STUD. S1 (2014) (arguing that cost-benefit analysis is appropriate for financial regulation).

147. See *supra* Part II, at pp. 15–19.

148. See *infra* Part VII, at pp. 63–66.

149. See *supra* Part III.B.1, at p. 22.

150. See *supra* subparts III.D and III.E. Moreover, further investigation and analysis might demonstrate that the current intermediated and nontransparent infrastructure imposes material costs in other contexts as well, such as the impairment of financial stability and national security. Taking account of these costs that are manifested outside of the securities holding infrastructure *per se* would be within the SEC’s mandate. See *infra* note 288; see generally Part VII (discussing the prospects for SEC intervention).

scope of this article.

IV. RECENT PROPOSALS FOR DISINTERMEDIATION: FLAWS AND LACUNAE

Several scholars recently have argued that disintermediation in the securities markets (including the adoption of various forms of “transparent” or “direct”—or both—holding systems) could yield a variety of benefits. Following are brief summaries and critiques of four recent articles. My assessments identify some significant lacunae in these proposals and note several other concerns. But these articles are welcome contributions to the literature and each offers some useful insights.

George Geis argues that the current mechanics of stock transfer (and, implicitly, holding) in the United States have great importance for corporate law.¹⁵¹ He predicts that in the “coming years” DLT is “likely” to cause a “fundamental transformation” in the processes for settlement of transactions in corporate shares, although he also notes that such a change is “contingent” and “not inevitable.”¹⁵² Geis imagines that a DLT-based clearing and settlement process would produce what he calls “traceable shares”: “There would be a detailed and traceable record of title for every single share of stock.” He notes that maintenance of such records would sharply contrast with the existing intermediated holding system in the United States, based on an investor’s “security entitlement” with respect to fungible bulks of securities held by intermediaries in omnibus accounts.¹⁵³ While he offers little detail as to the structure of the DLT system that he envisages, apparently the system would embrace trading platforms as well as clearing and settlement. Presumably these records of traceable shares would constitute (or be a definitive component of) an issuer’s shareholder register (although the article does not make that explicit).

Geis explains various problematic aspects of the current intermediated holding structure for corporate and securities regulation law, including shareholder claims and shareholder voting.¹⁵⁴ He then argues that his idea of “traceable shares” would solve or ameliorate these problems.¹⁵⁵ While

151. Geis, *supra* note 125, at 228.

152. Geis, *supra* note 125, at 230–31. Geis offers little to support his optimism, however.

153. *See supra* text at notes 33–41.

154. Geis, *supra* note 125, at 238–54.

155. Geis, *supra* note 125, at 266–76. In particular, Geis argues that “[t]raceable shares will also offer clarity in situations where legal rights are linked to an earlier disposition of specific shares and shareholders must prove this link to exercise their rights.” *Id.* at 270. He examines shareholder suits under Section 11 of the Securities Act of 1933 and appraisal

Geis' analysis of specific issues is useful, these problematic aspects of intermediated holding systems for corporate governance and corporate actions and the palliative aspects of increased transparency are well known.

Delphine Nougayrède makes a strong case for transparent CSDs—end investor segregation¹⁵⁶—although she stops short of advocating a direct-holding structure.¹⁵⁷ Even aside from her cogent normative arguments, her careful and lucid study is impressive for its thorough but nuanced canvassing of global CSDs, including their roles, historical development, and various structures.¹⁵⁸

Nougayrède draws support for her normative case from several sources. She notes the transparent systems that have been adopted in emerging markets, including China and Brazil.¹⁵⁹ She also relies on the corporate governance problems for investors and issuers alike, such as voting and shareholder communications, which are imposed or exacerbated by the deep intermediation that exists in particular in the United States and the United Kingdom.¹⁶⁰ For example, she notes the *Eckerle* case,¹⁶¹ which denied shareholder status to claimants that held indirectly through tiers of intermediaries, as a “textbook example of the legal risks resulting from multiple intermediation in a cross-border context.”¹⁶² Nougayrède also argues that a more transparent holding system could provide substantial benefits in the contexts of AML and anti-terrorist/sanctions compliance regulation as well as for the enforcement of withholding taxes in connection with distributions on financial assets.¹⁶³ She draws further support for increased transparency from the potential of DLT and from what she perceives as an “evolutionary path” toward transparency (albeit in the contexts of AML and taxation, as opposed to capital markets regulation).¹⁶⁴

Nougayrède provides a valuable and thoughtful synopsis of the

valuation claims as examples. *Id.* at 270–72. He posits that a plaintiff in a Section 11 case could check the “chain of title” to determine which shares would support a claim. *Id.* at 270.

156. *See supra* Part II (providing a discussion of transparent systems).

157. Nougayrède, *supra* note 44, at 295–308.

158. Nougayrède, *supra* note 44, at 280–91.

159. Nougayrède, *supra* note 44, at 296–98.

160. Nougayrède, *supra* note 44, at 298–301.

161. *Eckerle & Others v. Wickeder Westfalenstahl GmbH & Another* [2013] EWHC (Ch) 68 [2013] 3 WLR [1316] (Eng.).

162. Nougayrède, *supra* note 44, at 299.

163. Nougayrède, *supra* note 44, at 301–05.

164. Nougayrède, *supra* note 44, at 305–08.

political economy of relevant reform.¹⁶⁵ She recognizes the dual challenges for a transition to more transparent systems—path dependence and the opposition of financial intermediaries, including CSDs.¹⁶⁶ She surmises, I believe correctly, that such reforms would require a greater role for policy makers and experts outside the securities industry sector.¹⁶⁷ She acknowledges the important normative question of mandatory identification of investors to issuers versus an investor’s right to remain anonymous and the further issue of whether an investor’s interest should be publicly available.¹⁶⁸ But Nougayrède aspires to end investor identification at the CSD level as a “functional tool,” not as a move that would necessarily make investor information public.¹⁶⁹ She does not consider a move toward transparency to be a disruptive one that should trouble securities regulators. But she argues that currently prevailing deep intermediation imposes hidden costs on both issuers and investors that regulators should consider.¹⁷⁰ Finally, she notes the value of interdisciplinary research in fields that normally are addressed in “siloes,” such as securities regulation, corporate law, taxation, and AML.¹⁷¹

David Donald and Mahdi Miraz (D&M) advocate a DLT-based system that would embrace both trading and settlement and that essentially would replace entirely existing legacy frameworks.¹⁷² Inasmuch as they acknowledge that existing systems for securities settlement are in general satisfactory, they call for a cost-benefit analysis of their proposed move to a comprehensive DLT-based framework.¹⁷³ D&M recognize that the beneficiaries of current intermediated holding systems are unlikely to undertake or support the major market reorganization that they propose. Consequently, they address their proposal primarily to regulators responsible for broader market interests, and in particular those of investors and issuers.¹⁷⁴

165. Nougayrède, *supra* note 44, at 308–11. These issues are addressed in *infra* Part VII.

166. Nougayrède, *supra* note 44, at 308–09.

167. Nougayrède, *supra* note 44, at 309.

168. Nougayrède, *supra* note 44, at 309; *see infra* Part V.B.1 (discussing how direct registration under the NPS proposed here could nonetheless accommodate the NOBO/OBO system in the United States for permitting a shareholder to object to its identification to an issuer).

169. Nougayrède, *supra* note 44, at 310.

170. Nougayrède, *supra* note 44, at 310–11.

171. Nougayrède, *supra* note 44, at 313.

172. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87.

173. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 1–2.

174. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 23–28, 38.

Like Geis, D&M make the case for a DLT-based settlement and direct-holding system based on corporate governance problems (mainly voting and other corporate actions) associated with existing intermediated holding in the United States. As to voting problems, they rely primarily on Donald's earlier study.¹⁷⁵ But some arguments supporting disintermediation in the newer paper do not impress. For example, they assert that their system would "return full power over the creation of securities to their issuers"¹⁷⁶ and that the current intermediated system gives financial intermediaries the "power to create securities through book-entry"¹⁷⁷ and creates "the risk of overissued 'shadow' securities created by depositories."¹⁷⁸ D&M apparently confound shortfalls in securities maintained by intermediaries for account holders¹⁷⁹ with the problem of overissued securities that they imagine. The intermediated system clearly presents problems in the context of voting, but in no way does it impair the rights (and obligations) of issuers to recognize only holders of securities that appear on their registers.¹⁸⁰ D&M's whipping boy is the private-law framework for security entitlements embodied in UCC Article 8, which they misconstrue and incorrectly describe as having "invented" a "property right for this essentially contractual relationship" between an intermediary and an account holder.¹⁸¹ But their critique of Article 8 is misplaced. Article 8 provides a coherent legal regime for the securities holding infrastructure that has prevailed in the United States for decades. It acknowledges and adapts the law to the deeply intermediated holding infrastructure as it exists. Indeed, if there is a "villain" in the D&M story it would be the pervasive shortfalls tolerated by regulation in the United States markets.

Unlike Geis, D&M offer a detailed and thoughtful description of how DLT could be employed in restructured systems for trading and settlement.¹⁸² They contemplate a private/permissioned ledger featuring an intraday "lightening" system for instantaneous recording of trades with

175. Donald, *supra* note 87.

176. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 12.

177. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 11.

178. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 12.

179. See *supra* Part III.B.1 (discussing shortfalls and intermediary risk).

180. See, e.g., DEL. CODE ANN. tit. 8, § 212 (West 2006) (describing who gets to vote).

181. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 7. I need not elaborate further on D&M's misunderstanding of the Article 8 framework, its statutory predecessors, and its relationship to the intermediated holding system problems that they lament. On the historical background and development of Article 8, see Mooney, *Individuals*, *supra* note 105 (history and evolution of Article 8).

182. Donald & Miraz, *Multilateral Transparency for Securities*, *supra* note 87, at 28–37.

results reflected in a day-end DLT ledger.¹⁸³ Curiously, given their otherwise comprehensive description of their proposed infrastructure, D&M (like Geis) fail to mention how an investor, in the direct holding system they posit, would access an issuer's register and directly control securities (i.e., effect transfers) without the involvement of an intermediary.

Frederico Panisi, Ross Buckley, and Douglas Arner (PB&A) also focus primarily on the disconnection between beneficial shareholders and issuers under intermediated holding systems.¹⁸⁴ Their principal claim is that “blockchain could enable the tracking of share ownership through the complete settlement cycle, enhancing the ‘shareholder democracy’ of listed companies.”¹⁸⁵ After surveying historical developments resulting in the prevailing, omnibus account-based intermediated holding systems,¹⁸⁶ they identify several various recent developments from which they conclude that a blockchain-based restructuring of securities holding systems may be plausible.¹⁸⁷

PB&A argue that a blockchain-based architecture could provide “ownership transparency” and streamline “proxy-voting” through real-time identification of “beneficial shareholders.”¹⁸⁸ This echoes in general the similar position advocated by Geis.¹⁸⁹ Unlike Geis, however, PB&A stop short of proposing a direct-holding system and are satisfied to advocate a transparent approach while retaining current intermediation—thus their many references (including in the article's title) to “proxy-voting.”¹⁹⁰ In their view, blockchain could enhance the accuracy and efficiency of voting mechanisms even within an intermediated system—“the use of blockchain platforms leads to systems in which voting rights can be exercised directly and simply by their owners.”¹⁹¹ Similarly, they argue that blockchain-based enhanced transparency also could allow regulators to identify and

183. Donald & Miraz, *Multilateral Transparency for Securities*, *supra* note 87, at 13–23. It is not clear from their description why netting of intraday trades under legacy technology would not produce the same results as the system they propose.

184. Panisi, Buckley & Arner, *supra* note 135. PB&A make many references to “securities,” but their normative analysis is limited to shares of companies (corporations) and they do not address explicitly how, if at all, they contemplate that a blockchain-based system would deal with debt securities.

185. Panisi, Buckley & Arner, *supra* note 135, at 2.

186. Panisi, Buckley & Arner, *supra* note 135, at 3–6.

187. Panisi, Buckley & Arner, *supra* note 135, at 9–12.

188. Panisi, Buckley & Arner, *supra* note 135, at 11–12.

189. See *supra* text accompanying notes 154–155. PB&A cite Geis once with a “[s]ee also” signal. Panisi, Buckley & Arner, *supra* note 135, at 28 n.77.

190. Panisi, Buckley & Arner, *supra* note 135, *passim*.

191. Panisi, Buckley & Arner, *supra* note 135, at 12. They point specifically to one model for such a voting mechanism but note that “[o]ther models are available as well.”

monitor systemic risks imposed by complicated rehypothecation chains.¹⁹² Finally, PB&A offer a candid and thoughtful cautionary note as to the downsides of ownership transparency, especially the data privacy risks; they advocate a balancing of privacy concerns with the benefits of transparency.¹⁹³

All of these authors recognize that current intermediated systems impose costs on investors and issuers while the status quo generally favors intermediaries and CSDs. But none of these articles seriously engages with the claims, analyses, and proposals made in any earlier article discussed here. The following comments aspire to engage with all four.

Remarkably these observers failed to explore, much less emphasize, the principal negative externalities imposed by intermediated holding systems—post-settlement intermediary risk and its attendant costs—and the potential for disintermediation to reduce or eliminate those risks and costs. These risks and the myriad prophylactic methods (with their attendant costs) for their reduction and control have been the cornerstone of the regulatory approaches to intermediated securities holding systems.¹⁹⁴ To be sure, I make no claim that there is anything *wrong* with a study and analysis of particular problems. But it is stunning that articles ostensibly addressed to lawmakers and regulators seem oblivious to these core risks and related costs imposed by intermediated holding systems.

That said, it also is clear that the adoption of a direct-holding system as generally proposed by Geis and D&M would have the laudable effect of reducing intermediary risk. But neither of these articles examined how the proposed structures would accommodate an investor's direct exercise of rights and powers vis-à-vis an issuer without the involvement of an intermediary.¹⁹⁵ Such a feature would be essential for the systems they propose to provide the functional benefits of direct holding. How to accommodate such investor control is a challenging but enormously important issue in the context of a permissioned DLT-based securities settlement and holding system as well as for digital assets more generally. This issue is addressed below in connection with the operation of the NPS.¹⁹⁶

The reforms advocated by Nougayrède and PB&A, while advocating

192. Panisi, Buckley & Arner, *supra* note 135, at 12.

193. Panisi, Buckley & Arner, *supra* note 135, at 14–16.

194. *See supra* Part III.B.1.

195. *See supra* Part III.B.1 (discussing the inability to exercise rights directly as an element of intermediary risk).

196. *See infra* Part VI (discussing potential application of DLT under the NPS and role of investor control).

useful transparency, fall short of a direct holding structure that would provide investors with direct control over securities. Moreover, none of these articles adequately deals with debt securities. Geis and PB&A focus exclusively on shares of stock and fail to include even a passing reference to debt. Nougayrède does recognize the important role and stature of debt securities in the financial markets.¹⁹⁷ But “[i]n order to keep things simple,” she focuses instead on “‘national’ CSDs that handle the registration of equities (i.e. stocks and shares in corporations).”¹⁹⁸ D&M also mention debt securities, apparently contemplating that their DLT system would embrace debt as well as equities.¹⁹⁹ But they are silent as to how their system could incorporate outstanding issues of debt securities (i) evidenced by global certificates, or (ii) required to be held by or through CSDs. In contrast, Part VII considers how such debt securities could be dealt with in the implementation of the NPS.

Perhaps most significant, none of these articles confronts the potential disruption and impairment of flexibility and business practices inherent in deeply intermediated systems that the respective proposed reforms would impose. These are particularly significant omissions for the direct-holding systems contemplated by Geis and D&M.²⁰⁰ These practices include use by intermediaries of investor securities, including as collateral and for rehypothecation and securities lending, the treatment of fails to deliver securities in the settlement process, and the treatment of shortfalls more generally.²⁰¹ Parts V and VII consider how these practices would be affected by and dealt with under the NPS. As noted there, the costs of eliminating this flexibility could outweigh the benefits of implementing a direct-holding system.²⁰² While D&M laudably suggest a possible role for a cost-benefit analysis,²⁰³ these omissions substantially weaken the Geis and D&M stand-alone proposals for a direct-holding system.

Each of these proposals offers support for beneficial changes to prevailing legacy intermediated holding systems and, in the case of Geis

197. Nougayrède, *supra* note 44, at 282 n.21.

198. Nougayrède, *supra* note 44, at 282.

199. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 28, 30.

200. The transparent systems advocated by Nougayrède and PB&A would not be as disruptive, however. PB&A also explain that enhanced transparency could provide a useful means for regulators to monitor risks imposed by, for example, “the abuse of ‘rehypothecation’ [that] can lead to liquidity illusions as well as complicated ownership knots that endanger systemic financial stability.” Panisi, Buckley & Arner, *supra* note 135, at 12.

201. *See infra* Parts V.B.7, VII (discussing these issues).

202. *See infra* text accompanying note 258.

203. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 4.

and D&M, potentially improved systems for trading. But implementation of each proposal also would impose varying degrees of disruption along with corresponding resistance from interests that would be adversely affected—in particular from intermediaries and CSDs.²⁰⁴ This opposition may have enormous influence with regulators and other lawmakers. Even assuming the most disruptive proposals (Geis and D&M) were optimal, they will prove to be of little practical benefit if never adopted. Parts V, VI, and VII build the case that the less ambitious but more palatable NPS proposal may offer better prospects for meaningful reform. It would preserve intermediated holding as an option, perhaps as an incremental step, and accommodate flexibility for rehypothecation, securities lending, and fails to deliver.

The Geis, D&M, and PB&A studies seem to be inspired primarily by a desire to advocate the potential virtues of DLT. Curiously, however, none of them seriously engages in an analysis of whether, why, or how a DLT-based system would be better suited than legacy technology for the modified infrastructures that they advocate. (Many readers may note that these authors' omissions are not unique in this genre of the literature.) It is important, here, to distinguish the legacy *infrastructures* from the legacy *technology*. These scholars of legal regimes affecting financial markets are certainly qualified to weigh in on needed reforms to financial infrastructures. But in the absence of a thorough and compelling cost-benefit analysis of these (potentially) competing technologies, an RFP to Fintech as to how reformed infrastructures could best be implemented would offer a better approach than unsupported advocacy of DLT.

Finally, these authors advocate DLT-based solutions for addressing the particular problem areas that interest them. For Geis and PB&A those areas are in general corporate actions, primarily shareholder voting. D&M demonstrate great interest in trading and settlement systems, but they also emphasize the negative impact of existing intermediated holding systems on issuers and on the property interests of investors. Nougayrède, on the other hand, engages in a more holistic assessment of the various negative effects of deeply intermediated holding systems across the spectrum of legal and regulatory domains. She addresses DLT as a possible approach to addressing the problems that she identifies and as an incentive that might increase the prospects for reforms. My perspective aligns more closely with Nougayrède's approach. Appeals for reforms made to lawmakers and regulators would be more likely to be successful if they identify problems and solutions for the broad swath of issues affected by legacy intermediated

204. See generally *infra* Part VII (discussing industry resistance).

infrastructures.

V. THE NEW PLATFORM SYSTEM: A FINTECH PATH TO
DISINTERMEDIATED HOLDING

A. *General Approach, Assumptions, and Qualifications*

The core concept of the NPS is not new. It would connect a participating investor directly with an issuer on the issuer's register at the end of each settlement cycle—direct registration instead of intermediation. What is new, however, may be the realistic prospect for meaningful (if not complete) disintermediation of securities holding without a major disruption of significant features of the current market infrastructures. What also is new is a central feature of the NPS that would give a direct-holding investor the exclusive power at any time to transfer securities and exclusive control over securities that it holds in the NPS.

If the NPS would facilitate the movement of financial assets in and out of the system and, *a fortiori*, the transfer of securities within the NPS, it could be adapted as the primary system for trading and settlement, as well as holding, and as a wholesale replacement for legacy intermediated systems. That notion underlies the potential of the NPS as a “primordial soup,” explained in Part VI. But trading platforms and systems for clearance and settlement of securities transactions involve much more than an efficient system for free transferability among its participants. For example, settlement systems (at least as we know them) must be connected with both trading platforms and DVP systems. And they must ensure timely settlements of payments and deliveries notwithstanding a payment or delivery default by one or more system participants.²⁰⁵

This Part describes the NPS and explains how it would modify securities holding systems. The goal is not to propose and defend an *optimal* structure but to explore the simplest and least disruptive modifications of the financial market infrastructure necessary to achieve meaningful reduction of risks and costs through direct holding.

This NPS might be an interim step or it (or a variation) might be sufficient for the long term. It would not replace all of the trading, clearing, and settlement processes in a given market but would leave much

205. See *supra* Part III.A (discussing risks in securities settlement systems and the mechanisms to manage these risks).

of the current processes intact.²⁰⁶ This nondisruptive approach could blunt opposition to implementing the NPS and encourage cooperation by affected market participants—e.g., securities issuers, transfer agents, brokerage firms, paying and clearing banks, exchanges and other trading systems, and CSDs. The NPS also could facilitate implementation in the securities markets of a DLT-based system earlier than otherwise might be feasible. As discussed in Part VII, however, potential opposition should not be underestimated.

In the cross-border context, the proposal contemplates that all of the major securities markets would establish functionally similar versions of the NPS that would connect the relevant market participants. Foreign custodians or foreign investors would have direct access to any foreign NPS, thereby shortening or even eliminating cross-border custody chains.

This description and analysis of the NPS adopts a “functional” approach that emphasizes the results, relationships, and effects that the NPS seeks to achieve. It places much less emphasis on the details of the necessary technology. It proceeds on the basis that any holding system, including the NPS, must deal with market participants’ needs that are currently addressed by existing intermediated holding systems. The proposal is best seen as an RFP to the Fintech community to create a system that meets the functional goals and results required of the NPS. On the other hand, in order to identify and explain those goals and results, it is necessary here to flesh out some details of the NPS.

The applicable local law (e.g., New York law, supplemented by the relevant United States federal regulatory regime for securities markets) would govern the rights of investors participating in the NPS except to the extent the laws governing the underlying securities and the issuer’s obligations apply (such as the corporate law governing shares or the law governing debt securities). One or more “operators” would maintain the NPS based on software designed to achieve its goals.²⁰⁷ The NPS and its

206. Although the NPS (at least initially) would leave settlement systems in place, I do not suggest that these systems could not be improved. *See, e.g.,* Milne, *supra* note 67, at 349–50 (noting complexity in settlement systems and potential systemic risk). But clearing and settlement are short-term processes and most of the problems discussed in Part III arise from longer-term post-settlement holding.

207. The NPS proposal is agnostic as to the identity and number of operators. One might imagine existing CSDs as the logical entities to serve as operators. Or, a decentralized model could be employed that involved multiple, licensed and regulated operators, each of which would serve as agents for a subset of issuers. But that configuration would require sharing of the information in all of the systems, functioning in effect as a single system. For a suggestion of a similar approach for secured transactions registries, see Charles W. Mooney, Jr., *Fintech and Secured Transactions Systems of the*

operators would be regulated under the relevant applicable local law (e.g., United States federal law regulating securities markets). The operator(s) would not, however, assume a role analogous to that of an intermediary under current systems. For example, they would not receive and follow instructions from investors and they would not incur obligations to investors beyond the general obligation to operate the NPS properly. However, as described below, investors could access the NPS directly to transfer and receive transfers of securities.

Given that old habits die hard, some might think the NPS not suitable for all investors—at least in its initial, potentially interim, stage. For this reason, investors would be allowed to opt in to the NPS or to remain either account holders of intermediaries or direct holders of securities under the existing legacy systems, which would continue to exist.

For simplicity of explication, this discussion addresses “simple” securities transactions involving equity and debt securities traded on an exchange or alternative trading system and clearance and settlement in the DTCC system in New York. But the essential components and attributes of the NPS would be compatible with major CSDs and post-trade systems globally.

B. Structure and Operation of New Platform System

This subpart describes and explains the rights, interests, and status of an investor holding securities under the NPS. It also outlines the operational steps and resulting legal relationships involved in the NPS, including the acquisition and disposition of securities by an investor, transfers of security interests and other limited interests, broker-transactor payments and receipts, exercise of investor rights (including corporate actions and voting), and cross-border custody and holding.

1. Status of Investor Following Acquisition of Securities

Upon completion of a securities transaction (post-settlement), under the NPS, an investor would acquire and hold a discrete number of shares or amount of debt of an issue of securities.²⁰⁸ The *NPS itself* would constitute

Future, 81 L. & CONTEMP. PROBS. 1, 11–18 (2018).

208. The status of an account holder of a securities intermediary varies widely among differing legal systems and differing intermediated holding systems. *See supra* Part II (discussing prevailing intermediated holding infrastructures). But in intermediated holding systems the account holder does not actually achieve a direct holding relationship with the issuer. *Id.*

the issuer's register for purposes of their holdings.²⁰⁹ The number or amount of securities allocated to investors in the relevant securities under the NPS necessarily would reflect the exact number or amount allocated on the books of the issuer. Allocation of securities to an investor would identify the investor by name (or other identifier). However, the NPS could accommodate requirements for the protection of the identity of security holders. For example, in the United States, SEC rules prohibit broker-dealers from disclosing to an issuer the identity of a shareholder who objects to that disclosure (an objecting beneficial owner, or OBO, as opposed to a non-objecting beneficial owner, or NOBO).²¹⁰ The NPS could provide OBOs with that option.²¹¹

One might be tempted to view the role of the NPS as analogous to that of an intermediary under current intermediated holding systems. It is "intermediate" inasmuch as in some sense it lies between the investor and the issuer—it constitutes a component of the issuer's register of security holders. But, unlike an intermediary, the NPS operators would *not* be entering debits and credits to investors' accounts. Instead, as discussed below,²¹² in the NPS the authorized investors, broker-transactors, issuers, and banks would be entering transaction data directly. Functionally, the NPS is more accurately seen as a variation on a traditional transfer agent to which an issuer has outsourced responsibility to maintain its register. The differences, of course, would be that the authorized persons would enter data directly and the NPS would serve that function for many issuers and as a part of a unified system that would connect the various market

209. This might necessitate the revision of applicable corporate laws and amendments of the organic records of issuers, such as corporate charters and by-laws or contractual arrangements (e.g., indentures or trust deeds) in the case of debt securities. For a discussion of such amendments for debt securities, see *infra* Part VII.

210. ALAN L. BELLER & JANET L. FISHER, COUNCIL OF INSTITUTIONAL INV'RS, THE OBO/NOBO DISTINCTION IN BENEFICIAL OWNERSHIP: IMPLICATIONS FOR SHAREOWNER COMMUNICATIONS AND VOTING (2010), https://www.cii.org/files/publications/white_papers/02_18_10_obo_nobo_distinction_white_paper.pdf [<https://perma.cc/Y6Z8-UYXJ>].

211. In the DTCC system, securities held by OBOs would be among with those held on the issuer's registry in the name of DTC's nominee, Cede & Co. The NPS could provide a self-contained definitive record of relevant information with respect to each participating investor and its holdings. But to accommodate OBOs, the aggregate number of such securities held by OBOs might appear to an issuer as a single "omnibus" entry on the issuer's registry. In general, the NPS would allow each issuer to have access to the information with respect to security holders (subject to the rights of OBOs). The combined NPS records and records maintained in the issuer's legacy registry would provide complete records with respect to the security holders.

212. See *infra* Parts V.B.3, 4 (discussing disposition of securities by an investor and transfers of security interests and other limited interests by an investor).

participants. This would distinguish it from a transfer agent maintaining a stand-alone register for a discrete issuer.

2. Acquisition of Securities by an Investor

An investor participating in the NPS typically would acquire securities in a market transaction by retaining a broker-dealer (whose role in the NPS is referred to as a “broker-transactor”) to acquire the securities in the market—just as under the current system. In general, the NPS would not impact the trading processes or the DTCC settlement process.²¹³ The investor’s payment obligation to the broker-transactor could be handled conventionally by funding a securities account maintained with the investor’s broker-transactor.²¹⁴ Alternatively, the broker-transactor could be connected directly to the investors’ sources of funding.²¹⁵

At the end of the settlement process, after all credits to DTC participants had been made, instead of the investor’s broker-transactor crediting the investor’s securities account, the relevant number or amount of the securities would be removed from the broker-transactor’s DTC participant account and allocated to the NPS for the benefit of the investor.²¹⁶

In addition to acquiring securities from sources outside the NPS, an investor could acquire securities within the NPS pursuant to a “free transfer” initiated by another NPS securities holder. These transfers are discussed in subpart V.B.4.

213. See *supra* Parts II, III.A (discussing the settlement process and settlement-related risks).

214. Funds that a broker-transactor is entitled to receive or obligated to pay arising out of NPS transactions settling on a settlement date would be treated in the same manner as other transactions initiated by the broker-transactor. They would figure in the calculation of the single netted amount that the broker-transactor is entitled to receive or obligated to pay on that date. See *supra* Part III.A (discussing settlement).

215. Presumably a broker-transactor would only act for an investor with a securities account with the broker-transactor, even if the investor did not contemplate holding security entitlements in the account post-settlement.

216. The NPS could likewise accommodate inputs from sources other than DTCC settlement process or internal transfers. For example, a direct holder in an issuer’s legacy register might instruct the issuer to convert the holdings to the NPS, an entitlement holder might instruct its securities intermediary to so convert its holdings, or a bank participant in the DTC might transfer securities to an investor in the NPS.

3. Disposition of Securities by an Investor

The linchpin of the NPS would be an investor's exclusive and absolute control over directly held securities so as to permit dispositions (transfers) of securities by investors on the real-time, nonintermediated NPS platform. This is a defining attribute that would distinguish the NPS from holding systems that feature transparency but nonetheless embrace intermediary control over securities.²¹⁷ An RFP for this attribute would likely present the most important—and the most difficult—challenge for Fintech in the development and implementation of the NPS. The mechanism for investor control in the NPS must accommodate not only professional, institutional securities market participants but also individual holders and all types of investors in between. It must be secure, including its systems for the identification of investors (and transferees of security interests and other limited interests)²¹⁸ while also being user friendly. This challenge is addressed below in the discussion of the potential for a DLT-based NPS,²¹⁹ but it must be faced and met regardless of the technologies that the NPS might employ.

An investor's disposition of securities would in essence be the mirror image of the methods of acquisition described above. For example, an investor could instruct its broker-transactor to sell securities and release (i.e., transfer) the relevant securities to the broker-transactor. On the settlement date, the investor would receive funds in its securities account or in accordance with the investor's standing payment instructions. Or the investor could transfer securities to another eligible holder within the NPS (including the transfer of a security interest or other limited interest discussed below²²⁰).

217. See *supra* Parts III.B.1, C (discussing default or failure of a relevant intermediary and the exercise of investor rights).

218. On the role and importance of digital identities in financial infrastructures, see DOUGLAS W. ARNER, ROSS P. BUCKLEY & DIRK A. ZETZSCHE, ALL. FOR FIN. INCLUSION, FINTECH FOR FINANCIAL INCLUSION: A FRAMEWORK FOR DIGITAL FINANCIAL TRANSFORMATION 9–11 (2018), <https://www.afi-global.org/publications/2844/FinTech-for-Financial-Inclusion-A-Framework-for-Digital-Financial-Transformation> [<https://perma.cc/9NDJ-PC35>]; OECD, DIG IDENTITY MANAGEMENT: ENABLING INNOVATION AND TRUST IN THE INTERNET ECONOMY 8 (2011), <http://www.oecd.org/sti/ieconomy/49338380.pdf> [<https://perma.cc/46TG-FGTZ>].

219. See *infra* Part VI (considering the potential for adopting a DLT-based system for the operation of the NPS).

220. See *infra* Part V.B.4.

4. Transfers of Security Interests and Other Limited Interests by Investor

The NPS would provide flexible and versatile mechanisms for the transfer by an investor of security interests and other limited interests²²¹ in securities. Unlike outright transfers of securities from one investor to another investor, these limited interests would be reflected by a designation in the NPS system while the investor would remain the registered, direct holder of the securities. The designation would have the effect of “perfection” of the limited interest (i.e., general effectiveness as against third parties such as competing creditors and an investor’s insolvency representative). This system would be similar to designation systems that exist under other regimes.²²² It could accommodate senior and junior interests created by the investor in the same securities. Moreover, a unique feature of the system could permit the holder of a security interest to create, as grantor/transferor, a security interest in the securities. This would accommodate “repledge” or “rehypothecation” transactions.²²³

The NPS could provide additional flexibility as well. An investor could identify a class of securities that would be covered by a designation without any further action. For example, the designation could apply to all securities from time to time held by the investor in the NPS or all securities of a specified type (e.g., described by issuer(s), by class (equities or debt securities), or other descriptions). Such a designation also could apply to securities of the relevant class that might be acquired from time to time. The NPS regime should avoid a rigid “book-entry” system that requires separate, individual entries as securities of a particular description are acquired.²²⁴ The system also could allow for a designation to be

221. The limited interests could include fractional interests in a security or specialized interests under the applicable law, such as a usufruct.

222. See LEGISLATIVE GUIDE, *supra* note 2, arts. (1)(l), 12(3)(b), (5) (providing for Contracting State’s declaration that “under its law” an interest may be made effective by a “designated entry” on a securities account in favor of a person other than the account holder).

223. See *infra* Part V.B.7 (discussing repledge transactions by broker-dealers as debtors in the context of proposed synthetic margin accounts within the NPS). The NPS would be capable of reflecting a security interest with the investor as debtor and the broker-dealer as secured party *and* with the broker-dealer as debtor and the creditor of broker-dealer as secured party, while leaving the investor as registered holder of record of the securities. While the NPS designation system might permit an indication of the basic type of interest being designated (e.g., security interest, repledge, etc.), the actual terms of the underlying transactions would be memorialized between the parties separately and outside of the NPS.

224. See Kumiko Koens & Charles W. Mooney, Jr., *Security Interests in Book-Entry Securities in Japan: Should Japanese Law Embrace Perfection by Control Agreement and*

accompanied by provision for which party or parties would possess the right to dispose of (transfer) securities subject to a designation. For example, either an investor or the investor's designated secured party might have such a power, or it might be conferred on the secured party alone. Or, a secured party of a broker-dealer in a repurchase transaction might have the exclusive power to dispose. In the absence of specific instructions, a default rule might be established (e.g., a secured party or, if applicable, a repurchase secured party, might have exclusive power to dispose in the absence of any contrary instructions). Moreover, the NPS could accommodate self-executing contractual performance or enforcement of obligations through "smart contracts" or "transactional scripts."²²⁵

5. Exercise of Investor Rights (Voting, Corporate Actions, Claims Against Issuers, Etc.)

Because investors holding in the NPS would hold directly on the registers of issuers, the many problems imposed by intermediated holding for the exercise of investor rights could be eliminated. The risks and costs imposed by intermediated holding in this context were considered above.²²⁶ The NPS direct-holding structure would offer a straightforward path for the exercise of investor rights, such as voting, the assertion of claims against issuers, and communications between issuers and investors.

The NPS would be structured to handle all corporate actions requiring voting and deliveries of proxies. The NPS also would be structured to permit investors to receive communications and take all other actions through the system.

Although the NPS, at least as an initial measure, would not incorporate payment mechanisms, the identification of investors in the direct-holding environment also would facilitate distributions of funds to investors outside of the NPS. In the United States, however, the NOBO/OBO convention would complicate the payments process inasmuch as issuers would not have information as to the identities of the OBOs. For the receipt of dividends payments, issuers would treat NOBO investors the same as other direct holders of securities in legacy registers. For OBO

Security Interests in Securities Accounts?, 38 U. PA. J. INT'L L. 761, 794–802 (2017) (proposing revisions to Japanese law to overcome such rigidity by providing for perfection by control agreement and for security interests in securities accounts).

225. See Kevin Werbach, *THE BLOCKCHAIN AND THE NEW ARCHITECTURE OF TRUST* 160–63 (2018) (discussing smart contracts, the distinction between contractual execution and enforcement, and the continued relevance of law and litigation).

226. See *supra* Part III.C.

investors, the issuers would pay the relevant broker-transactors for those investors, as under the current system, necessarily imposing some intermediary risk.

6. “Cross-Border” Holdings and Custody Chains

The custody-chain risks (e.g., failure or nonliability of sub-custodian, inability of investor to enforce rights against issuer, etc.) were described in Part III.B.2. These risks could be eliminated in cross-border holding situations in the same way they could be eliminated under the NPS operating, for example, in the United States. The simplest scenario would be for an investor in State A to be entered as the direct holder in the State B NPS. Alternatively, an investor may wish to hold in State B through an intermediary. It plausibly might consider a global custodian to be better equipped, as a repeat player, to deal efficiently with the foreign NPS. Even so, involving only one intermediary would avoid the exacerbated custody-chain risk of holding through a chain of intermediaries across borders.

These structures need not raise significant regulatory issues or concerns in State B (though it might be necessary to clarify that under State B law a foreign custodian can hold securities through the State B NPS). Either the investor or the custodian would be holding merely as a direct holder in the State B NPS. Neither would need to be a participant in the State B CSD or participate directly in the State B systems for trading, clearance, and settlement—all of which would be handled by a State B broker-transactor.

The establishment of identical (or functionally so) versions of the NPS in all major financial markets would require substantial cooperation, coordination, and harmonization of laws, regulations, and operations. This should not be underestimated. But it would be much less challenging than global harmonization of systems for trading, clearance, and settlement or creating a cross-border “international” NPS. Moreover, existing and relevant organizations are well suited to organize the necessary processes of harmonization for implementation of the NPS.²²⁷

227. See Mooney, *supra* note 89, at 542–46 (proposing development of global standards for securities holding infrastructures to be led by IOSCO).

7. NPS Accommodation and Coexistence with Use of Investor Securities (Rehypothecation, Securities Lending, and the United States Customer Protection Rule) and Treatment of Fails to Deliver

A principal challenge for the adoption of any direct-holding system for securities, including the NPS, would be the accommodation and preservation of the flexibility afforded by the various and sundry practices generically referred to as the “use of investor securities” by securities intermediaries. As a prime example, the following discussion focuses on how the NPS could coexist with the Customer Protection Rule (CPR) applicable to broker-dealers in the United States.²²⁸ Another challenge would be to structure a direct-holding system so as to avoid unnecessary disruption of current approaches to “fails to deliver” and “fails to receive” securities in the settlement process. As explained above, customer accounts in the United States normally are credited with securities even though the relevant securities have not yet been received in settlement.²²⁹ The following discussion illustrates how this flexibility could be maintained under the NPS. As noted above, other proponents of direct-holding systems have essentially ignored these problems.²³⁰

The discussion requires a brief overview of the CPR (for ease of explanation this general summary takes considerable liberty toward simplification).²³¹ The basic operative rule provides: “A broker or dealer shall promptly obtain and shall thereafter maintain the physical possession or control of *all fully-paid securities* and *excess margin securities* carried by a broker or dealer for the account of customers.”²³² “Fully-paid securities” are those for which a customer has made full payment and are credited to a securities account in which the broker-dealer does not have a security interest (or as to which there is no secured obligation outstanding).²³³ Securities other than fully-paid securities and credited to a

228. See *supra* Part II (discussing CPR, margin lending, and securities lending).

229. See *supra* Part II (discussing fails to deliver/receive).

230. See *supra* Part IV (discussing other proposals).

231. See Mooney, *supra* note 66, at 166–82 (providing a brief overview of the Customer Protection Rule and its effects in the case of a broker-dealer insolvency proceeding). See Michael P. Jamroz, *The Customer Protection Rule*, 57 BUS. LAW. 1069 (2002) (providing a more detailed examination).

232. 17 C.F.R. § 240.15c3-3(1)(b) (2019) (emphasis added). For cash balances owed by the broker-dealer to the customer, the broker-dealer must “back up” its obligation by maintaining a special reserve account with cash or government securities according to a reserve formula. 17 C.F.R. §§ 240.15c3-3(a), (e)(1) (2019).

233. 17 C.F.R. § 240.15c3-3(a)(3) (2019).

securities account (a “margin account”) in which the broker-dealer does have a security interest are “margin securities.”²³⁴ “Excess margin securities” are margin securities with “a market value in excess of 140 percent of” the account holder’s secured obligation to the broker dealer.²³⁵ For example, if securities valued at \$200 are credited to a customer’s margin account and the secured debt owed to the broker-dealer is \$100, the value of the “excess margin securities” is \$60 (the market value in excess of 140 percent of \$100, or \$140). It follows that the broker-dealer must maintain possession and control²³⁶ of the relevant securities of a value of at least \$60. It may “use” the securities valued of up to \$140 (non-excess margin securities) by granting a security interest to a lender (a so-called “repledge” or “rehypothecation”) or by “lending” the securities.²³⁷ Although the broker-dealer must maintain possession and control of the excess margin securities valued at \$60, those securities would remain subject to the broker-dealer’s security interest.

The nub of the problem in reconciling the NPS (or any direct-holding system) with the CPR and current treatment of fails to deliver is straightforward. First, it must be possible for securities directly registered in the name an investor in the NPS nonetheless to be effectively held by a broker-dealer as collateral—perfection by designation under the NPS would meet this requirement.²³⁸ The securities also must be freely transferable by the broker-dealer, for example for purposes of repledge or securities lending. Second, securities that are not received in the settlement process would not be available for registration in the name of an acquiring investor under the NPS. Potential solutions to this problem are not so straightforward, but viable and effective approaches are available.

I do not advocate here that this flexibility should be retained, primarily because affirmatively making the empirical case that the benefits would outweigh the costs is beyond the scope of this article. Maintaining current approaches would preserve and impose on broker-dealers, investors, and

234. 17 C.F.R. § 240.15c3-3(a)(4) (2019).

235. *Id.*

236. 17 C.F.R. §§ 240.15c3-3(b), (c) (2019).

237. *See* Mooney, *supra* note 66 (explaining securities lending transactions). The broker-dealer’s “use” of securities is not without other restrictions for the protection of the customer, however. For example, the broker-dealer’s borrowings against customer securities must be entered as a credit in its reserve account. 17 C.F.R. § 240.15c3-3a (2019). In addition, under the so-called “hypothecation restriction,” the broker-dealer is not permitted to pledge its account holders’ securities to secure indebtedness in an amount “which exceeds the aggregate indebtedness of all customers in respect of securities carried for their accounts.” 17 C.F.R. §§ 240.8c-1(a)(3), 240.15c2-1(a)(3) (2019).

238. *See supra* Part V.B.4.

regulators the considerable complexity inherent in the CPR. But if such flexibility is politically necessary for the implementation of the NPS, the following analysis demonstrates the feasibility of the NPS-CPR coexistence. Moreover, aside from political expediency, the benefits to broker-dealers and customers of access to credit through margin lending may well justify the maintenance of the current structure (or at least a system with equivalent flexibility).²³⁹ With this in mind, consider two alternative approaches, the goals of which would be to maximize the extent of direct registration of investor holdings while maintaining the flexibility and benefits of the current system.

The first alternative would be to require margin accounts to be maintained by broker-dealers under a system equivalent to the current regime. Excess margin securities (in the example, valued at \$60) could be registered in the investor's name under the NPS, subject to the broker-dealer's security interest designated in the NPS, but for purposes of the CPR the excess margin securities would be treated *as if* they were credited to the margin account. The non-excess margin securities (in the example, valued at \$140) would be credited to the customer's actual margin account.²⁴⁰ Inasmuch as holding securities in the legacy intermediated system would remain as an available option after implementation of the NPS, this approach would not be problematic from an operational standpoint. But it obviously would dilute the effectiveness and benefits of the NPS by disqualifying the non-excess margin securities from the NPS direct-holding system. Moreover, it is possible that the costs of implementing and administering the NPS would not be warranted if those securities were made ineligible.

A second alternative may be more promising: All margin securities would be eligible for holding under the NPS. Instead of a "margin account" maintained by a broker-dealer under the legacy holding system, an investor could establish a "synthetic margin account" with a broker-transactor as a feature of the NPS. Under this arrangement, the investor and broker-dealer would agree to the securities held in the NPS that would be covered by the synthetic account. These could include, for example, all securities of any issue held by the investor in the NPS, securities only of specified issues and up to any specified number or amount, or a specified number or amount of a specified issue of securities. The covered securities

239. It seems clear that the CPR lowers the broker-dealers' costs of funding margin loans, but I have not investigated the extent to which these cost savings are passed on to customer borrowers.

240. This approach is reminiscent of the Benjamin-Gullifer proposal for a bifurcated holding system. See Benjamin & Gullifer, *supra* note 61, at 217–22, 233–36.

would be subject to a security interest in favor of the broker-dealer perfected by designation under the NPS. Calculation of fully paid securities, excess margin securities, and non-excess margin securities and the operation of the reserve account under the CPR would be applicable to these synthetic margin accounts as if they were conventional margin accounts.

The broker-transactor could grant a security interest in (repledge or rehypothecate) any of the covered securities in favor of a funds lender to the broker-transactor by designation perfection under the NPS while the investor remained the registered holder.²⁴¹ For securities lending, however, the securities would be removed from the investor's holdings and transferred to the securities borrower under the NPS.²⁴² In this respect the securities lending transaction would not mimic its equivalent under the conventional margin account approach, which normally would not involve debiting (removing) the securities from the investor's account.²⁴³ Unlike the repledge situation, in the case of securities lending there would be no basis for the investor in a direct-holding structure to retain any present proprietary interest in the securities loaned.

The discussion of synthetic margin accounts under the NPS thus far has embraced (albeit implicitly) the simplifying assumption that the repledges and lending of non-excess margin securities and the withholding of transfers to investors in the NPS (on account of fails to receive) would involve securities that are identified to particular investors. Of course, this is not actually how the system works. Currently broker-dealers need not allocate securities that are repledged, loaned, or fail to receive securities to any particular customer accounts. This reflects, at least in part, the convention of not debiting customers' accounts to reflect securities that are

241. Consistent with the concept of a synthetic margin account, these repledges would be subject to the CPR requirements relating to the reserve account and the hypothecation restriction. See Mooney, *supra* note 66, at 173–74.

242. A securities borrower also could require that the securities be transferred to it by crediting its securities account maintained under the legacy holding system.

243. This deviation would be ameliorated by the creation of a corresponding “securities receivable” credit by the broker-dealer in favor of the investor, secured by the reserve fund, as discussed below in this subpart. In a system that respects “title-transfer” security, unlike under the UCC, “repledge” by transfer of legal title to a funds lender could proceed as with securities lending under any applicable rules analogous to the CPR—removal of the securities from the investor's holdings and, if applicable, a corresponding “securities receivable” credit reflecting the broker-dealer's right (as debtor) of redemption or return of the securities upon payment of the secured obligation. Mooney, *supra* note 66, at 173–74. Perfection of security interests in the United States by outright transfer to the creditor should be treated in an identical fashion to securities lending, which might require conforming adjustments to the CPR in this context.

loaned, and crediting customer accounts for securities that have not yet been received. It also reflects the treatment of securities held in fungible bulk by broker-dealers in omnibus accounts.

In order to replicate the current regime through the convention of synthetic margin accounts within the NPS, it would be necessary to adopt some method of allocating repledges, securities lending, and fails to receive to specific synthetic margin account investors of a broker-transactor. One approach would be for a repledge of securities or loans of an issue to be allocated proportionally among all of the broker-dealer's synthetic margin account investors holding that issue.²⁴⁴ Fails to receive might be allocated in similar fashion by proportional deduction from holders of securities not received. But a more coherent approach for fails might be to withhold credits in the NPS proportionally to those that would have been made to the holdings of acquiring investors had the securities been received. For purposes of this discussion it is not necessary to propose an optimal resolution of all possible approaches to these allocations. The essential point is that in the direct-holding environment of the NPS, unlike under the legacy holding system, these allocations would be necessary.

In the case of repledge, securities lending, and fails to receive, under the legacy system in the United States an entitlement holder whose securities are affected retains nonetheless some proprietary rights, although not necessarily in the securities *per se*.²⁴⁵ In the case of repledged securities, as with all securities in which the intermediary holds a security interest, the account holder has the right to a credit of the relevant securities, free and clear, upon satisfaction of its indebtedness to the intermediary (the broker-transactor margin lender). In the case of loaned securities, the entitlement holder likewise has the right to the benefit of the loaned securities once returned and, in the meantime, the benefit of the cash collateral held in the reserve account. Similarly, in the case of fails to receive, the entitlement holder is entitled to receive the securities once delivered in the settlement process. All of these rights are reflected currently by an actual credit of the relevant securities in the entitlement holder's securities account.

244. For example, assume there were 15 synthetic margin accounts for a broker-dealer as to which 20,000 A Co. shares were held by investors, with 5 investors holding 2,000 shares each and 10 investors holding 1,000 shares each. If 5,000 shares were repledged by designation or loaned to borrowers (25% of the total A Co. shares), then 500 shares would be designated for or removed from each of the 2,000 share investors and 250 shares for or from each of the 1,000 share investors.

245. The entitlement holder's rights would be those afforded by UCC Article 8 by virtue of the credit to its securities account and under Article 9 by virtue of its status as a debtor. *See supra* notes 33–41 (discussing security entitlements under UCC Article 8).

Replicating the current system through synthetic margin accounts under the NPS would require a method for formally reflecting these investor assets (i.e., the value of the analogous rights of entitlement holders just described). An investor's rights in securities subject to the broker-transactor's security interest and any repledges would be adequately memorialized by the investor's direct holdings of the securities in the NPS. However, an investor's right to the return of its proportionate allocation of loaned securities and to be credited with its portion of securities received pursuant to earlier fails are direct obligations of its synthetic margin account broker-transactor. These obligations may be properly characterized as "securities receivables" of investors. Each such broker-transactor would be obliged to maintain a record of the receivables (deliverables, from the broker-dealer's perspective) of each of its synthetic margin account investors, valued and marked-to-market daily. As under the current system, a broker-dealer necessarily will know, and its records will reflect, these obligations and values. The new wrinkle would be the maintenance of records in the NPS of each investor's securities receivables.²⁴⁶ *Mind you, this is not intermediation.* The securities receivables are not security entitlements and do not represent any present interests in the underlying securities. They are, functionally, derivative contracts with values based on underlying securities to be delivered by the dealer-transactor in the NPS in the future. These are obligations borne by an investor's synthetic margin account broker-transactor, which for this purpose may be conceptualized as the "issuer" of these receivables (deliverables) within the NPS structure.²⁴⁷

To be sure, this précis of synthetic margin accounts operating within the current environment of the CPR and settlement infrastructure reflects a complicated architecture of interrelated rights and obligations. But the beneficiaries of the current intermediated holding system in the United States, the broker-dealers who would champion the CPR, are in no position to whine about complexity. Currently, the rights of entitlement holders are

246. Given the applicable regulation and supervision of broker-dealers there would be no reason to mandate that the records in the NPS reflecting an investor's holdings of securities receivables contain an itemization of the particular securities involved or the details of the underlying transactions.

247. Treatment of these securities receivable in an insolvency proceeding of the broker-dealer obligor (likely under the Bankruptcy Code and the SIPA in the United States) should be addressed. *See supra* Part III.B.1 (discussing intermediary insolvencies). Although these investor securities receivable claims would not be customer claims, the investors should receive the benefit of the reserve fund and any backstops supporting fails to receive in the settlement process, to the end that they would be treated to that extent as secured creditors. Statutory adjustments would be needed to achieve this result.

intentionally, not accidentally or inadvertently, cloaked behind the blunt instrument of crediting securities to securities accounts and the byzantine, nearly impenetrable black box of the CPR. Whether one considers this conception of synthetic margin accounts as a practical approach for dealing with several deficiencies of the current infrastructure (as I do) or a metaphorical thought experiment, it offers an accurate and useful (and, perhaps, disturbing) unveiling of the rights of entitlement holders in connection with margin accounts.

VI. THE NEW PLATFORM AND DLT: A FINTECH PRIMORDIAL SOUP

This Part considers the potential for adopting a DLT-based system for the operation of the NPS. In particular, the discussion focuses on the essential functions and attributes of the NPS in the context of DLT rather than the details of the technology itself. Perhaps more importantly, it also explains how the NPS might provide a logistical and political path (a metaphorical “primordial soup”²⁴⁸) for the ultimate adoption of DLT in the broader processes for trading, clearing, settlement, and holding of financial assets—whether or not the NPS itself were to adopt DLT either initially or at some future point.

The *core functions* of the NPS are (i) the direct connection of participating investors and their securities holdings with the issuers of the securities, which necessarily implicates the direct connection of these issuers to, and their direct participation in, the NPS, (ii) the direct connection of investors with other investors within the NPS, which would accommodate inter-investor transfers of assets within the NPS, (iii) the direct connection of investors with their (existing or subsequently retained) broker-transactors within the NPS, so as to facilitate the acquisition and disposition of assets into and out of the NPS pursuant to market transactions and the existing settlement infrastructure, and (iv) the direct connection of the NPS (and, necessarily, its participants—the investors, issuers, and broker-transactors) with the existing systems for trading, clearing, and settlement of market transactions and with the participants in those systems.

The *essential attributes* of the NPS are (i) a seamless, automatic

248. The metaphor, of course, refers to the theory that life on Earth began billions of years ago in a warm pond or ocean from chemicals that form amino acids which, in turn, form proteins. *The Primordial Soup Theory*, PRIMORDIAL SOUP, <http://leiwenuwu.tripod.com/primordials.htm> [<https://perma.cc/UX7K-TLDH>].

interface with existing settlement systems (and their participants, including exchanges and other trading platforms), issuers' books (registers) for securities, and broker-transactors, (ii) accurate, error-free, "hack-proof," definitive records of indisputable ownership of securities within NPS and that constitute the books (registers) of issuers, (iii) exclusive investor access and control over dispositions (transfers) of securities, (iv) real-time, free transfer of securities within the NPS or for release to a broker-transactor (which constitute transfers on the issuers' books) for disposition outside the NPS, and (v) transactions and transaction records within the NPS (and consequently on the issuers' books) that would mimic precisely currently permissible transactions (e.g., transfers to another investor or security interests and repledges of securities) as permitted under the applicable law.

I take no position here on the details of the technology that would support these functions and attributes of the NPS, including whether it should adopt a DLT-based system. However, many of the characteristics for which DLT has been extolled would serve well these core functions and essential attributes. The NPS could benefit from DLT's potential for efficiency, speed, reduced transactions costs, increased accuracy, enhanced security, and improved regulatory compliance and oversight.²⁴⁹ These potential benefits have led Fintech proponents of DLT to shift the conversation away from Bitcoin and crypto-currencies and towards the practical utility of DLT for other, broader applications in the financial markets.²⁵⁰ One asserted appeal of DLT is that it need not be maintained in the traditional sense by any one central administrator, thereby eliminating counterparty and other intermediary risks.²⁵¹ However, in the context of financial markets, the implementation of DLT almost certainly would involve a "permissioned" ledger; in the case of the NPS the participants would include the system operators, CSDs, broker-transactors, and other trusted institutions as well as issuers and investors.²⁵² Unrestricted,

249. For a thoughtful and realistic assessment of the potential for DLT in the context of securities settlement and holding, see Sarah Green & Ferdisha Snagg, *Intermediated Securities and Distributed Ledger Technology*, in *INTERMEDIATION AND BEYOND* 338–58 (Louise Gullifer & Jennifer Payne eds., 2019).

250. *Id.* at 341 (discussing "'tokenization' of securities: i.e. the use of virtual tokens to constitute or represent 'traditional' securities").

251. *Id.* at 358 ("DLT offers the potential for major changes in the way that securities are both held and settled. Primary amongst these is the possibility of reducing, or even eliminating, the role of intermediaries.").

252. In contrast, an 'unpermissioned' ledger is accessible to the public and the platform is not controlled or regulated by any one owner. Bitcoin is an example of an unpermissioned ledger. See Tim Swanson, *Consensus-as-a-Service: A Brief Report on the*

unpermissioned consensus models similar to Bitcoin would not be likely to satisfy legal and regulatory concerns.²⁵³ Even so, because investors would have direct access to and participate in the NPS, considerable security concerns must be addressed.²⁵⁴

Notwithstanding these DLT-related developments, expressions of interest, and hype, the question remains as to what role (if any) DLT could or should play in the NPS. A central and distinctive attribute of DLT is the collective operation of a network by participants using cryptography for the processing and validating of transactions.²⁵⁵ The claim is that the consensus achieved through collective accounting and the application of complex algorithms ensures the legitimacy of transactions. But one might seriously question the significance of this attribute of DLT for the operation of the NPS (at least as an initial, potentially interim step as envisaged here). In particular, the crucial *input* of securities into the NPS and the simultaneous and corresponding assignments of proprietary interests in securities to investors would emanate directly from the existing legacy settlement systems, from existing legacy issuer registers, or from banks holding in legacy systems.

Nothing within the subsequent operation of the NPS could enhance the accuracy or validity of this central, organic input of financial assets—which would be what it is, NPS or no NPS. However, transactions (entries

Emergence of Permissioned, Distributed Ledger Systems, GREAT WALL NUMBERS (Apr. 6, 2015), <https://www.ofnumbers.com/2015/04/06/consensus-as-a-service-a-brief-report-on-the-emergence-of-permissioned-distributed-ledger-systems/> [<https://perma.cc/G6RK-A92M>]. Note that Geis, D&M, and PB&A also contemplate permissioned DLT platforms. Geis, *supra* note 125, at 264; Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 15; Panisi, Buckley & Arner, *supra* note 135, at 23.

253. Philipp Paech explained the crucial roles of law and regulation for DLT platforms in his important 2017 article. Philipp Paech, *The Governance of Blockchain Financial Networks*, 80 MODERN L. REV. 1073 *passim* (2017).

254. For example, the NPS necessarily would involve participation by investors screened under know-your-customer rules to the extent that access would be allowed through permissioned broker-transactors or otherwise identified as eligible for holding in the NPS. See, e.g., PWC, KNOW YOUR CUSTOMER: QUICK REFERENCE GUIDE (2016), <https://www.pwc.com/gx/en/financial-services/publications/assets/pwc-anti-money-laundering-2016.pdf> [<https://perma.cc/BZ2K-4F9Q>]. Obviously, cybersecurity is a concern, but there is no reason why a move to a DLT-based system would necessarily increase that risk. This issue is one of many for the RFP to FinTech.

255. DLT systems all feature a form of asymmetric key cryptography, which requires the use of public-private keys for the submission of data. See HARISH NATARAJAN, SOLVEJ KARLA KRAUSE & HELEN LUSKIN GRADSTEIN, WORLD BANK GRP., DISTRIBUTED LEDGER TECHNOLOGY (DLT) AND BLOCKCHAIN (2017), <http://documents.worldbank.org/curated/en/177911513714062215/pdf/122140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes.pdf> [<https://perma.cc/6BTW-LSYQ>].

of data) following and building upon these inputs might well benefit from a DLT-based system. Investors necessarily would have access to the NPS and the ability to execute transfers within the system. I leave to others the assessment of the respective roles of DLT and legacy technology in this setting. It may well be that legacy technology would be up to the task of performing the essential functions of the NPS, at least as contemplated here for its initial functions.²⁵⁶ For now, it is sufficient to issue an RFP to the Fintech community to address the goals and functions of the NPS.²⁵⁷

That said, it is necessary to address the issue of exclusive investor access and control over securities and the potential implications of DLT for that core attribute of the NPS. Were the NPS to embrace DLT as the technology for acquiring and disposing of securities—assets that have an existence exogenous to the NPS—the interests in securities held through the NPS would be a form of digital assets (or cryptoassets). Notwithstanding oft-repeated and hyped rhetorical and ideological aspirations for DLT to eliminate intermediation in financial markets, experience has shown that this claim for DLT has not been realized in the context of digital assets. For many investors the only practical means of holding digital assets is through some form of custodial relationship—intermediated holding. This is because most investors could not practically deal with the unwieldy and unfriendly public-private key architecture that has become the norm for direct (as opposed to intermediated) access and control over digital assets in the DLT environment.²⁵⁸ Implementation of

256. See *DTCC Report*, *supra* note 14, at 20 (describing how [current financial infrastructures] have endured for decades and operate seamlessly and efficiently to ensure the smooth operation of the world's financial markets. Any failure in the highly orchestrated processing of transactions that occurs seamlessly every day could literally grind the world's financial markets to a halt and disrupt economies globally. Significant change to this infrastructure must be carefully considered.). DTCC's conclusion is that a mature, supported, integrated distributed ledger technology has the potential to help improve a number of existing financial market infrastructure limitations. However, it may not be the solution to every problem because there may be alternative opportunities to lower the costs and risks of current infrastructure by standardizing industry workflows and expanding the use of cloud technologies.

257. See Mooney, *supra* note 257, at 2 (“Those experienced with secured transactions in the credit markets . . . may have much to offer by way of identifying the goals and requirements that registries must address. But once these needs are identified, it is for fintech to determine how the application of technology might address these needs. Secured transactions experts are well positioned to issue to the fintech sector metaphorical requests for proposals for technology-related structural reforms of secured transactions regimes. It is up to the fintech sector to devise and propose such reforms—or concede that it is unable to do so”).

258. For a brief overview of issues and problems relating to custody of and access to digital assets, see Henry Chong & Charles W. Mooney, Jr., *The New Intermediation: Digital*

the NPS would require that investors have accessible and user-friendly direct and exclusive control over securities held in the system. This challenge must be met whether or not the NPS adopts a DLT-based approach. But it is plausible that developments facilitating better disintermediated access to digital assets would have utility for the NPS even if it did not adopt DLT for its operations.²⁵⁹

The NPS in its initial modality as envisaged here would leave much of the legacy trading and settlement systems intact. Business, cultural, legal, technological, and other barriers to direct holding could be overcome in a non-disruptive way through implementation of the NPS. Even if the NPS were initially implemented by employing legacy technology, it could nonetheless serve as a primordial soup for a more full-blown DLT-based system covering the broad range of financial market processes—trading, clearing, settlement, and holding. This role of the NPS in “priming the pump” for the application of DLT to a more comprehensive system would derive from and build upon the NPS function of directly connecting issuers of securities, investors, broker-transactors, banks, and CSD/CCP settlement systems.

As discussed in Part VII, whether NPS is implemented should be influenced substantially by conclusions of regulators and market participants that the NPS is justified on a cost-benefit basis by its goals of addressing the significant problems of intermediary risk, custody-chain risk, and the other risks and costs of intermediated holding. But another stand-alone and important influence should be the prime-the-pump, primordial-soup rationale for the NPS just outlined.²⁶⁰ This potential transformational role of the NPS in bringing together all of the significant market participants and institutions is of central importance.

Assets (June 26, 2019) (unpublished presentation) (on file with author). *See also* Jonathan B. Berk & Jules H. van Binsbergen, New Special Study of the Securities Markets: Financial Intermediaries 3–5 (July 14, 2017), https://www.law.columbia.edu/sites/default/files/microsites/capital-markets/berk-vanbinsbergen-final_draft.pdf [<https://perma.cc/QK99-ET5L>] (illustrating that over the past few decades in the United States the share of corporate equities held by households and nonprofits has declined substantially and the holdings by institutional investors have correspondingly increased). Although this development may ameliorate the potential problems of access to digital assets in a direct-holding system such as the NPS, there remain many non-institutional holders of intermediated securities.

259. *See* Seth Rosenblatt & Jason Cipriani, *Two-factor Authentication: What You Need to Know (FAQ)*, CNET (June 15, 2015), <https://www.cnet.com/news/two-factor-authentication-on-what-you-need-to-know-faq/> (discussing the two-factor identification process in the e-voting project led by Nasdaq and Tallinn Stock Exchange).

260. *See infra* Part VII (noting that the adoption or even potential adoption of a DLT-based NPS (or other transparent or direct-holding infrastructure) could empower new stakeholders that could affect the political economy analysis of reforms).

VII. POLITICAL ECONOMY CHALLENGES OF IMPLEMENTING NEW PLATFORM SYSTEM: OPPOSITION OF ENTRENCHED INTERESTS, PATH DEPENDENCE, AND STRUCTURAL OBSTACLES

There is no doubt that intermediaries, including CSDs, strongly favor maintaining the status quo in markets that feature securities holding infrastructures embracing deep intermediation and omnibus securities accounts. This Part considers this phenomenon as well as two additional structural artifacts that discourage transparency and direct holding reforms. One such structural impediment to direct holding of debt securities in the United States and Europe is the prevailing structure of debt obligations evidenced by “global certificates” registered to a CSD or nominee of a CSD. Another obstacle is the requirement that investment companies in the United States hold securities with bank custodians. These examples of mandatory intermediation have not been addressed by earlier commentary on disintermediation. I outline below plausible means for modifying and overcoming these impediments.

Nougayrède offers an excellent and concise overview of the political economy aspects of potential reforms.²⁶¹ She describes the many bases for securities industry opposition (focusing primarily on Europe) to increased transparency (“expanded account segregation”) and the industry’s preference for omnibus accounting structures.²⁶² It is a safe assumption that this opposition would be even stronger in the case of proposals for direct holding. She then explains the many reasons why reforms that would impose transparency would be difficult, canvassing the views of a variety of observers. Recommendations for reform by experts external to the industry would confront “strong-form legal path dependence.”²⁶³ She notes Donald’s explanation that disintermediating issuer registration of shares would involve a clash between arguments based on disparate disciplines and “path-induced perceptions of ‘normal’ mechanisms.”²⁶⁴

But the core obstacle to transparency and direct-holding reforms is the influence of the powerful intermediaries and CSDs.²⁶⁵ Nougayrède

261. Nougayrède, *supra* note 44, at 308–11.

262. Nougayrède, *supra* note 44, at 291–95.

263. Nougayrède, *supra* note 44, at 308 (citing and quoting Mark Roe, *Chaos and Evolution in Law and Economics*, 109 HARV. L. REV. 641, 651–52, 659 (1996)).

264. Nougayrède, *supra* note 44, at 308–09 (citing and quoting Donald, *supra* note 87, at 99).

265. Nougayrède, *supra* note 44, at 309. See also Kathryn Judge, *Intermediary Influence*, 82 U. CHI. L. REV. 573 (2015) (explaining negative influences of intermediaries); Milne, *supra* note 67, at 352 (observing that the complexity the current infrastructure “entrenches the market power of securities brokers, at the expense of higher charges to final

concludes that reform would require a transformation of the political economy that would involve a greater role for experts outside the industry and a quantification of the costs and benefits of reform.²⁶⁶ She offers a useful menu of policy considerations that ought to figure into the analysis. These include the issue of investor identification versus anonymity, the regulatory goal of stability, and wider social interests such as money laundering, terrorist financing, sanctions compliance, and tax evasion and revenue concerns.²⁶⁷

Although Nougayrède expresses optimism for reforms, she does not identify a clear path forward.²⁶⁸ Others, including D&M, have recognized that, given the prevailing headwinds, reforms will require some form of top-down, regulatory intervention. I agree. D&M recognize that the current holding system in the United States works well for its owners, the intermediaries, but not for investors and issuers.²⁶⁹ For that reason they direct their proposal for a DLT-based direct-holding system²⁷⁰ “mainly to regulators, whose duties run to the broader market, rather than to the direct heirs of legacy arrangements and of the rents accrued from the same.”²⁷¹

Donald’s description and assessment of the pathetic saga of the DTCC Direct Registration System (DRS) is illuminating.²⁷² As Donald explains, this was originally “an issuer-driven project designed to restore transparency and shareholder communications.”²⁷³ However, as a result of

investors”).

266. Nougayrède, *supra* note 44, at 309.

267. Nougayrède, *supra* note 44, at 309–11.

268. Nougayrède, *supra* note 44, at 312.

269. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 23–25, 38; *see also* Donald, *supra* note 87, at 88–93 (discussing current holding system).

270. *See supra* Part IV (discussing the D&M proposal). Although I expressed strong criticism of the D&M proposal there, I strongly agree with Donald’s critique of the role and influence of intermediaries.

271. Donald & Miraz, *Restoring Direct Holdings*, *supra* note 87, at 38.

272. Donald, *supra* note 87, at 89–91.

273. Donald, *supra* note 87, at 89. By way of background, in 1990 the G-30 U.S. Working Group considered a proposal that contemplated a Direct Registration Clearing System (DRCS). For a description and analysis, see Charles W. Mooney, Jr., *Property, Credit, and Regulation Meet Information Technology: Clearance and Settlement in the Securities Markets*, 55 L. & CONTEMP. PROBS. 131, 142–45, 149–55 (1992). DRCS would have provided an optional direct connection between issuers and their shareholders and would have enhanced the roles of transfer agents beyond the traditional direct holding structures. *Id.* at 149–50. Issuers and their transfer agents favored the DRCS proposal but DTC and broker-dealers opposed the proposal. *Id.* DTC was concerned about the high costs of automation for including a large number of transfer agents in the system. *Id.* at 150 n.65. The broker-dealers apparently viewed it as a threat to their business models, which rely on more-or-less “captive” customers. They apparently feared that more portable

DTC control, DRS is now “a service option of DTCC, to which DTC regulates access and for which issuers now pay fees.”²⁷⁴ As Donald concludes, the DRS now “offers little more than a parking lot for untransferable shares—if a shareholder wants liquidity, he must place the shares back” into the system.²⁷⁵ The DRS example underscores the point made in Part II: The intermediaries and CSDs have little incentive to remove obstacles to portability of securities in and out of the system, and they have every incentive to keep securities in the intermediated systems that they control. On the other hand, when it would increase the efficiency and lower the costs of the specific relationship between DTC *itself* and issuers of securities, DTC has indeed invested in reforms and innovation affecting direct-holding relationships.²⁷⁶

Also reflecting the dominance of the DTCC, debt securities held in the DTCC system in the United States typically adopt DTC’s “book-entry only” (BEO) structure. Under this structure the securities are registered in the name of DTC’s nominee, Cede & Co., and a global certificate is issued for the aggregate principal amount of an issue and deposited with DTC.²⁷⁷ The key attributes of the BEO structure are that “(i) physical certificates are not available to investors and (ii) DTC, through its nominee, Cede & Co., will hold the entire balance of the offering.”²⁷⁸ Obviously, BEO securities

securities would allow customers to change their brokerage relationships more easily. *Id.* at 150 n.68. Notwithstanding this opposition, in 1994 the SEC asked the securities industry to consider the development of a direct registration system that would employ uncertificated securities. In 2006, the New York Stock Exchange amended its Listed Company Manual to *require* listed companies to make their securities eligible for DRS. NYSE, Listed Company Manual §§ 501.00 (listing mandatory eligibility of listed securities for DRS), 601.01(A)(13) (stating that listed company’s transfer agent must be eligible for DRS); *see* Paul Weiss Rifkind Wharton & Garrison LLP, *NYSE Proposes Amendments to Mandate Eligibility to Participate in a Direct Registration System* (June 20, 2006) (describing requirement for public companies to make securities eligible for DRS). NASDAQ adopted a similar rule: NASDAQ Equity Rule 5255.

274. Donald, *supra* note 87, at 89.

275. Donald, *supra* note 87, at 91.

276. *See The FAST Program*, DTCC, <http://www.dtcc.com/settlement-and-asset-services/agent-services/fast> [<https://perma.cc/N3TV-BV44>] (describing DTC’s Fast Automated Securities Transfer Program (FAST) as “a contract between DTC and transfer agents that eliminates the movement of physical securities by allowing agents to act as custodians for DTC”).

277. *Sample Offering Document Language Describing Book-Entry Only Issuance*, DTC (June 2013), www.dtcc.com/~media/Files/Downloads/legal/issue.../Sample-Language.ashx [<https://perma.cc/CXQ6-42FE>]. However, if the aggregate principal amount of an issue exceeds \$500 million, additional certificates of \$500 million or the remaining amount of the issue will be issued. *Id.*

278. DTC, OPERATIONAL ARRANGEMENTS, REQUIREMENTS FOR BOOK-ENTRY ONLY (“BEO”) SECURITIES (2019), www.dtcc.com/~media/Files/Downloads/legal/issue.../operati

would be incompatible with the direct-holding structure of the NPS. However, it is not unusual for trust indentures governing debt securities in the United States to permit an issuer and an indenture trustee to amend the indentures if the security holders would not be adversely affected.²⁷⁹ Given this flexibility, it is quite plausible that the SEC could mandate that issuers of BEO securities undertake best efforts to amend the terms of the securities so as to permit beneficial holders to elect to hold through the NPS (or another direct-holding mechanism).²⁸⁰

The use of bank custodians for holding securities by investment companies and investment advisors in the United States is another example of mandatory intermediation. Pursuant to the custody requirement of section 17(f) of the Investment Company Act of 1940,²⁸¹ “nearly all investment companies use a bank custodian” for holding securities.²⁸² This

onal-arrangements.pdf [https://perma.cc/WY9Q-C4RS].

279. See, e.g., ABA Ad Hoc Comm. for Revision of the 1983 Model Simplified Indenture, *Revised Model Simplified Indenture*, 55 BUS. LAW. 1115, 1146 (2000) (“The Company and the Trustee may amend this Indenture or the Securities without the consent of any Securityholder: . . . to make any change that *does not adversely affect the rights of any Securityholder.*”) (emphasis added); NAT’L ASS’N OF BOND LAWYERS, FORM INDENTURE § 10.01, <https://www.nabl.org/portals/0/documents/nablformalreportsmodeldocs-nablformtrusindenture.pdf> [https://perma.cc/L5R9-JNCJ] (“The Issuer and the Trustee may from time to time and at any time enter into trust indentures supplemental to this Indenture, without the consent of or notice to any Bondholder, to effect any one or more of the following: . . . make any other change herein that is *determined by the Trustee to be not materially adverse to the interests of the Bondholders* [and which does not involve a change described in Section 10.02 requiring consents of specific Bondholders.]”) (emphasis added). For similar provisions under English law bonds, see *Debt Capital Markets: Trustees—Overview*, LEXISPSL, https://www.lexisnexis.com/uk/lexispsl/bankingandfinance/document/391289/57/FJ-2NP1-F185-X1W1-00000-00/Debt_capital_markets_trustees_overview# (“A trustee usually has discretion to . . . agree to a modification (proposed by the issuer) to the provisions of the trust deed . . . without the consent or sanction of the holders of the debt securities (provided the modification . . . is not materially prejudicial to the interests of the holders of the debt securities).”).

280. Arguably permitting optional direct holding in the NPS could have adverse consequences for those beneficial holders who continue to hold indirectly. However, a carefully constructed amendment could avoid that result. For example, even if there were an explicit or implicit obligation of debt security holders to share ratably with other security holders any non-ratable recoveries from the issuer, that obligation could be imposed on NPS direct holders.

281. 15 U.S.C. § 80a-17(f) (2018).

282. THOMAS P. LEMKE ET AL., 1 REGULATION OF INVESTMENT COMPANIES § 8.02[2][a] (2014). While it is also permissible for investment companies to use broker-dealers as custodians and to “self-custody,” those alternatives currently involve burdensome requirements that make them impractical for most investment companies. See *id.* § 8.02[2][b] (broker-dealer custody), (c) (self-custody). Similar requirements exist for investment advisers under the Investment Advisers Act of 1940, 15 U.S.C. § 80b-18b

custody requirement arose out of Congressional concerns about investment company management abuses such as commingling of company and personal assets.²⁸³ While suggesting that the SEC should permit non-custodial holding²⁸⁴ through something like the NPS might seem radical, in actuality whatever services and monitoring that bank custodians currently provide could be provided under a direct-holding scenario. There is no reason why a bank custodian need be an intermediary in the chain of title for these purposes. For example, the SEC could condition an investment company's direct holding under the NPS on the retention of a bank for providing services (*other than* intermediated holding) essentially identical to what bank custodians currently offer.²⁸⁵

The foregoing suggests that implementing disintermediation²⁸⁶ most likely would require regulatory intervention. The following discussion proceeds on the plausible working assumption that the SEC would be the appropriate agency to institute and coordinate such reforms.²⁸⁷ Academic literature may offer insights concerning potential intervention on the

(2018); see *Investor Bulletin: Custody of Your Investment Assets*, SEC (Mar. 1, 2018), <https://www.sec.gov/investor/alerts/bulletincustody.htm> [https://perma.cc/T7GX-JDF7] (describing safeguards of the “custody rule”).

283. THOMAS P. LEMKE ET AL., *supra* note 282, § 8.02[1]. Given the risks that intermediated holding imposes on investors, it is ironic (to say the least) that the custody requirement has been thought to promote investor welfare.

284. The Investment Company Act permits self-custody “in accordance with such rules and regulations or orders as the Commission may from time to time prescribe for the protection of investors.” 15 U.S.C. § 80a-17(f)(1) (2018). Recently a petition to the SEC for rulemaking suggested that the SEC consider “allowing issuers or trading platforms to use blockchain technology in lieu of banks as custodians,” which “could significantly streamline securities trading and reduce transaction costs, producing savings for investors.” Templum Mkts., LLC & Templum, Inc., Letter to Brent J. Fields, Sec’y, SEC (Dec. 18, 2018), <https://www.sec.gov/rules/petitions/2018/petn4-736.pdf> [https://perma.cc/A4YW-WLWB].

285. During a meeting on February 22, 2018 that Thomas Keijser and I held with staff of a global bank custodian, the staff expressed the view that the bank provides services through the mechanism of intermediated holding of securities for its institutional investor clients (which would include investment companies) because the currently applicable intermediated holding systems make such holding the only practical alternative.

286. Reference here is to disintermediation as a very general concept, including a direct holding infrastructure (such as the NPS) or some form of transparent system as well as the amelioration of the two mandatory intermediation obstacles just discussed.

287. The SEC’s mandate would include taking into account costs and benefits outside of those directly impacting the securities holding system, such as AML, in considering a fundamental shift toward requiring or providing incentives for more direct holding and transparency. See 15 U.S.C. § 78b (2018) (indicating that the SEC’s mandate includes protection of “interstate commerce, the national credit, the Federal taxing power . . . the national banking system and Federal Reserve System”).

discrete issues addressed here. For example, in their recent article Chris Brummer and Yesha Yadav argue that the regulatory oversight of financial innovation involves a “policy trilemma.”²⁸⁸ They claim that at best regulators can achieve only two out of the three regulatory goals of providing clear rules, maintaining market integrity, and encouraging financial innovation.²⁸⁹ They advise regulators to avoid “the most extreme trade-offs” and to “moderate opportunities and risks among the three policy goals.”²⁹⁰ More specifically, they advocate “supplemental strategies” that would encourage cooperation among domestic agencies, the setting of international standards, and the “private self-governance of emerging technologies.”²⁹¹ These valuable injunctions no doubt have utility for regulators. But this relatively high level of abstraction provides less guidance to the SEC on the specifics of securities holding infrastructures.

David Wishnick’s nascent research on the financial infrastructure for securities settlement is more promising.²⁹² Wishnick surveys the development of the securities settlement and holding infrastructure in the United States.²⁹³ He analyzes the SEC’s authority over “back-office” reforms and offers concrete suggestions for SEC involvement.²⁹⁴ In particular, Wishnick suggests that “the SEC should consider making use of the power to convene an expert Market Transactions Advisory Committee” (MTAC), noting that the SEC has not used this power since the “early 1990s.”²⁹⁵ He astutely points out that the advisory committee approach could provide “a focal point for interest groups other than the DTCC membership to coordinate around, thereby changing the dynamics of the

288. Chris Brummer & Yesha Yadov, *Fintech and the Innovation Trilemma*, 107 *GEO. L.J.* 235 *passim* (2019).

289. *Id.*

290. *Id.* at 297.

291. *Id.*

292. David A. Wishnick, *Innovation and Securities Settlement Infrastructure* (June 20, 2019) (unpublished manuscript) (on file with author).

293. *Id.* at 4–14.

294. *Id.* at 25–27.

295. *Id.* at 29. He also suggests that the SEC make use of information that is to be provided in the report due in September 2020 on the costs and benefits of the 2017 implementation of T+2 settlement and (consistent with the Brummer and Yadov recommendations) that it engage in coordination with Treasury and the Fed. *Id.* The SEC’s power to invoke an advisory committee is provided in section 17A(f) of the Securities Exchange Act of 1934. 15 U.S.C. § 78q-1(f) (2018). For background on the Market Transactions Advisory Committee that began its work in 1991 (I was member), see Mooney, *Individuals*, *supra* note 105, at 564–72. As detailed there, Section 17A(f) followed a draft bill providing for an advisory committee prepared by Robert Mendelson, Egon Guttman, and me in 1988. *Id.* at 564, 566–67.

process.”²⁹⁶ This is exactly the sort of opening for influence of experts outside of the intermediary/CSD community which Nougayrède suggests may be necessary for meaningful reform.²⁹⁷ Even without the SEC’s reconstitution of the MTAC, the currently active Investor Advisory Committee (IAC) could play an important role in the process. The IAC has a fairly wide charge to evaluate potential improvements in the securities markets, and it has weighed in on securities settlement in the past (advocating for T+1 settlement).²⁹⁸

An SEC advisory committee today, however, would face somewhat greater obstacles than those confronting the MTAC of the 1990s. The earlier incarnation of the MTAC, and in general the reform efforts of the late 1980s and early 1990s culminating in revised UCC Article 8 and the federal TRADES regulations, generally accepted the deeply intermediated settlement and holding infrastructure as it then existed. It focused on rationalizing the private-law rules for accommodating that infrastructure.²⁹⁹ A current SEC advisory committee might instead question and potentially support reforms that would disrupt the current infrastructure. This potential disruption likely would prompt opposition from the intermediary (broker-dealers and banks) and DTCC sectors of the industry. But an investigation by an advisory committee with expert members and advisors external to the industry would offer legitimacy, independence, and balance to counter industry opposition, as contemplated by Nougayrède and Wishnick.³⁰⁰ Moreover, prospects for a DLT-based infrastructure (Fintech inspired or otherwise) could energize and empower new stakeholders that might

296. Wishnick, *supra* note 292, at 29.

297. Nougayrède, *supra* note 44, at 309.

298. See SEC, Investor Advisory Committee, *Recommendation of the Investor Advisory Committee: Shortening the Trade Settlement Cycle in U.S. Financial Markets* (Feb. 12, 2015), <https://www.sec.gov/spotlight/investor-advisory-committee-2012/settlement-cycle-recommendation-final.pdf> [<https://perma.cc/M2EP-GURU>] (detailing the recommendation of the Investor Advisory Committee on shortening the settlement cycle to a two-day settlement period).

299. See generally Mooney, *Individuals*, *supra* note 105, at 559–76. That is not to say, however, that the process was without controversy. See, e.g., *id.* at 571 n.89 (quoting Charles W. Mooney, Jr., *Good Faith Transferees of U.S. Treasury Securities and Other Weird Ideas: Making Federal Commercial Law*, 26 *LOY. L.A. L. REV.* 715, 723 (1993)) (“It is unfortunate that busy professionals must use valuable time to review and comment upon the 1992 Proposed Regulations when that time might be more usefully spent revising Article 8.”).

300. The legitimacy and influence of an advisory committee also would be enhanced by formal and informal participation and support from governmental bodies such as the Financial Stability Oversight Council and the Securities Investor Protection Corporation and from interest groups such as the American Association of Individual Investors, the Association of Institutional Investors, and the Council of Institutional Investors.

provide a counterbalance to the influence of legacy sectors.³⁰¹ Of course, an advisory committee would engage in its own careful analysis of potential costs and benefits of infrastructure reforms. Although the task would be challenging, addressing industry complexity should be a high priority for expert bodies in an administrative state.

Identifying and securing an appropriate forum for consideration of the prospects for infrastructure reform would be a useful, indeed essential, first step toward implementation. Given a proper forum and adequate institutional backing, perhaps a consensus among stakeholders might be forged or at least significant support might emerge for a more formal review process. The Business Law Section of the American Bar Association would be an excellent candidate for providing an informed and influential forum for consideration of infrastructure reforms. Most relevant stakeholder interests are well represented within the Section. Moreover, the Section has an enviable track record as an honest broker in law reform.³⁰²

VIII. CONCLUSION

Intermediated holding imposes substantial risks and costs. Even though these risks are fairly well managed by modern systems, this management also imposes substantial costs that are ultimately borne by investors and issuers. These deeply intermediated holding structures primarily benefit intermediaries (brokers, banks, CSDs, and other settlement-related organizations) that control the infrastructures and that are resistant to changes that would undermine these benefits.

Disintermediation likely would require regulatory intervention. Proposed reforms that would limit the disruption of current market practices might encourage such intervention and blunt opposition. Providing for an optional direct holding structure while preserving current regimes for trading and settlement would offer the best prospect for near-term reform. This approach also would create a “primordial soup” for more extensive future reforms of trading and settlement systems. The NPS proposal outlined here meets these needs. But I reiterate that the NPS is only a proxy for a disintermediated system that would meet the functional

301. Cf. Mooney, *supra* note 89, at 541, 545 (arguing that the emergence of Fintech interest in DLT make this a propitious time for considering basic changes in securities holding infrastructures).

302. For example, the Section played a significant role in the process leading to the major revision of UCC Article 8 and the federal regulations for book-entry government securities in the early 1990s. See Mooney, *Individuals, supra* note 105, at 560–74.

goals to which the NPS aspires. The *actual* attributes of a reformed infrastructure could result only from intensive deliberations among all stakeholders. No single proposal could reasonably aspire to foretell the details of the infrastructure that might emerge.

This article makes several important contributions. It outlines functionally the goals and features of the NPS direct holding system, including acquisition, disposition, financing, investor rights, cross-border issues, and market practices. This amounts to an RFP for Fintech to achieve *results* necessary for an effective, safe, and efficient holding system. Moreover, it explores political economy issues and challenges for actual implementation of disintermediation in holding systems. In particular, unlike some earlier proposals, it anticipates pushback from powerful interests supporting the status quo and offers anticipatory rebuttals. This approach forecloses industry criticism that it fails to appreciate “how the system works,” that it is “impractical,” that it would disrupt important aspects of financial markets, and that it is “utopian” or “pie in sky.” Other reform advocacy that fails to anticipate such objections is wanting, self-impeaching, and may actually undermine reform efforts. The article also highlights the important distinction, often overlooked, between merely transparent securities holding systems and direct-holding infrastructures. Moreover, it finds the other proposals for reforming financial infrastructure examined here wanting for their advocacy of DLT-based solutions without a careful comparative assessment of legacy technology.

The article also explores and identifies several problems imposed by intermediated holding that the NPS would resolve or improve by focusing on post-settlement intermediated holding. These include intermediary risk (including custody-chain risk), which the article puts front and center, the exercise of investor rights, protection for the rights of creditors seeking attachment of securities, and clunky private-law rules spawned by intermediated holding. It also explains how the NPS could preserve and deal with important market functions and practices and overcome impediments to direct holding reforms. For example, it considers the impact of reform on the use of securities (margin lending, securities lending, rehypothecation), various nontransparency costs (AML, sanctions compliance, taxation), and mandatory intermediation (CSD held debt securities and bank custodians for investment companies).

Unlike earlier efforts, this article provides a more complete menu of problems that an appropriate disintermediated holding infrastructure could resolve or ameliorate. It offers a set of anticipatory responses to likely objections to the NPS or other proposals for transparency or direct holding

that other proponents have largely ignored. And it presents a roadmap for a cost-benefit analysis that would take into account broader conceptions of social welfare than typically are invoked in discussions of financial infrastructure.³⁰³ In sum, Fintech may offer pathways to direct holding, elimination of post-settlement intermediary risk, and remedies for the various other problems spawned by deep intermediation of securities holding and nontransparency while also preserving (or even enhancing) the flexibility and efficiency offered by current legacy infrastructures. However, until now Fintech has not been asked for holistic solutions for achieving these desirable and needed results.

303. See Christopher Twemlow, *Why Are Securities Held in Intermediated Form*, in INTERMEDIATION AND BEYOND 85–107 (Louise Gullifer & Jennifer Payne eds., 2019) (offering a thorough, careful, and cogent articulation of the justifications for and benefits of intermediated holding). However, Twemlow’s defense is grounded on path-dependent assumptions about existing conditions and therefore is not responsive to the claims in support of the NPS made here. Ultimately policy makers must make empirical assumptions and determinations.