Advancing the settlement model of the US securities markets

Received (in revised form): 5th November, 2021

John Abel
Executive Director, The Depository Trust & Clearing Corporation, USA


John Abel

John Abel *serves as the Executive Director of Clearance and Settlement Product Management at The Depository Trust & Clearing Corporation (DTCC). His primary responsibilities include identifying, evaluating and developing strategic business opportunities within DTCC's clearance and settlement product lines. John began his career at DTCC in 1987, and over the past 35 years has held a number of operational, strategic and project-related positions, including supporting industry initiatives to shorten the settlement cycle from T+5 to T+3, T+2, and now to T+1.*

ABSTRACT

In a securities settlement cycle, one of the greatest factors affecting market risk — including counterparty risk, credit risk and default risk — continues to be time. One of the areas of exposure remaining in the settlement system today is the risk of a sudden event that could affect the transfer of cash or ownership of securities from trade execution through trade settlement. The current standard cycle for settling equity trades in the US is trade date plus two business days (T+2); however, industry consensus is growing that accelerating this settlement cycle to one day or less will better serve market participants by reducing costs and mitigating risk. While shortening a settlement cycle sounds simple enough, the execution is more complex. Equity clearance and settlement is part of a large ecosystem of global financial markets, interconnected processes and linked systems. Accelerating the US cash market settlement cycle will have both upstream and downstream impacts on other parts of the market structure, such as derivatives, securities lending, financing, foreign clients and foreign exchange and collateral management. Settlement is one of the most powerful and critical processes of The Depository Trust & Clearing Corporation (DTCC), and as the backbone of the US financial services industry, DTCC clears and settles hundreds of billions of dollars in equities transactions every day. This paper suggests that the industry's primary goal must be to create efficiencies without introducing additional risk to markets. DTCC is actively working with its industry partners towards a path to accelerated settlement of T+1 and beyond by taking a careful, methodical approach to examine all issues and potential impacts for the entire US equities market.

Keywords: accelerated settlement, DTCC, market volatility, margin procyclicality

INTRODUCTION

The securities industry has recognised the impact of market volatility on margin requirements and capital utilisation. This relationship was recently exacerbated by the unprecedented increase in trading volumes and related market volatility experienced over the past 18 months, beginning with the COVID-19 pandemic in the first quarter of 2020 and followed by the meme stock events of January 2021. This considerable rise in volume and volatility has required an increased focus on risk mitigation, capital efficiency, liquidity demands and margin calls, and has also provided us with invaluable data and analyses, especially on the impact of margin procyclicality in the equities market.

The Depository Trust & Clearing Corporation (DTCC),
55 Water Street
New York, NY 10041-0099
USA
E-mail: jabel@dtcc.com

Journal of Securities Operations & Custody
Vol. 14, No. 2, pp. 111–121

1753-1802

In a settlement cycle, one of the greatest factors affecting market risk — including counterparty risk, credit risk and default risk — continues to be time. The current standard cycle for settling equity trades in the US is trade date plus two business days (T+2), meaning a trade executed on Monday is due to be settled by close of business on Wednesday, two days later. Industry consensus is growing that accelerating this settlement cycle will better serve market participants by reducing costs and mitigating risk.

Margin and other elements of risk management are the critical underpinning of the safety and stability of the global financial markets. Accelerating settlement to just one day after the trade, referred to as 'T+1', would shorten the amount of time between trade execution and trade settlement, reducing the risk that one side of a trade is unable to fulfil its obligation, and decrease the corresponding amount of capital and margin required to be deposited at the central counterparty (CCP), while preserving the efficiencies of guaranteed settlement and multilateral trade netting. A move to T+1 would also allow the proceeds of securities transactions to be available to investors faster.

While shortening a settlement cycle sounds simple enough — if everyone in the industry agrees to move their transaction activity and processing clocks ahead by one day — the execution is more complex. Accelerating a settlement cycle requires careful consideration and a balanced approach so settlement can be achieved as close to the trade as possible without introducing new, unintended market risks, such as an increase in the number of failed settlement transactions.

The current T+2 settlement cycle is a convention of market practice, which means the biggest challenge of moving to a shortened settlement timeline will be to implement changes to processes and procedures, not systems and technology. With today's interconnected markets, businesses processes and legacy rules, the necessary operational and business changes must be accepted by all industry participants and regulators. The Depository Trust & Clearing Corporation (DTCC) and our industry partners are actively working towards a path to T+1, and someday, perhaps even netted end-of-day T+0, by working collaboratively with all market participants and by taking a careful, methodical approach to examine all issues and potential impacts through a series of industry engagement and workshops. These efforts will consider risk mitigation, investor benefits and costs and operational resiliency. We believe the opportunity exists to achieve additional operational and capital efficiencies by further accelerating the settlement cycle and optimising the settlement process. DTCC stands ready to support an industry move of the standard settlement to cycle T+1, or eventually further to netted T+0.

FIFTY YEARS OF SUPPORTING THE INDUSTRY

As the backbone of the US financial industry, DTCC operates the most reliable and efficient settlement system in the world. Every business day, across multiple counterparties and markets, DTCC's clearing agency subsidiaries, National Securities Clearing Corporation (NSCC) and The Depository Trust Company (DTC), clear and settle literally hundreds of billions of dollars in equities transactions, and the Fixed Income Clearing Corporation (FICC) manages hundreds of billions of fixed income market transactions, including US Treasuries, government securities and mortgage-backed securities. As an industry-owned and governed financial market utility with almost 50 years' experience, DTCC's mission is protecting market stability and maximising value for the industry. In 2020, DTCC's subsidiaries combined cleared and settled over US$2.15 quadrillion in securities.

By any measure, the US operates the most liquid, efficient and cost-effective capital markets in the world. The critical role that DTCC plays may not be well known outside the financial services industry, but it benefits every person who participates in capital markets.

After the trade, DTCC's equities CCP subsidiary, NSCC, becomes the buyer to each seller and the seller to each buyer, and thus guarantees the ultimate settlement of every trade executed. It is the NSCC trade guarantee that allows for orderly securities marketplaces, since the counterparty risk is always versus NSCC. As a CCP, NSCC is able to multilaterally net all trading activity to one buy or sell position per member/per security. NSCC's netting process reduces the number of settlement transactions by an average of over 98 per cent. In 2020, NSCC cleared an average of US$1.7 trillion daily in broker-to-broker transactions for 50+ exchanges and trading venues — an average of over 173 million equities transactions every day.[1]

Netting through NSCC greatly reduces members' margin requirements, creating significant capital efficiencies. NSCC's trade guarantee ensures the settlement of the remaining obligations so sellers will get paid and buyers will receive their securities, even if a company goes out of business.

While NSCC provides the benefits of netting a trade, DTC provides the settlement services. The security positions and cash related to all cleared trades change hands on the books of DTC. Likewise, DTC settles other trading activity, including transactions related to institutional trade processing, money market instruments (MMIs), securities lending and financing activity. All this activity is processed with the securities moving on a trade-by-trade basis and the cash moving on an end-of-day net basis. That means all the activity processed by a member in one individual day is netted to one net cash obligation and settled with DTC at the end of the day. The DTC end-of-day cash settlement process greatly reduces members' intraday liquidity needs and creates tremendous efficiencies for members.

MARGIN CALLS AND RISK MANAGEMENT

Throughout each day, NSCC nets trades in each participant's portfolio, and calculates and assesses margin requirements that allow NSCC to provide its CCP trade guaranty. Margin calls are designed to cover possible losses to protect the industry and the CCP in the event of a participant default.

Risk management is the primary function of DTCC — and has been since the organisation's inception almost 50 years ago. Our risk management role entails effective and efficient identification, measurement, monitoring and robust control of credit, market, liquidity, systemic, operational and other risks for the DTCC enterprise, its users and the marketplace. While participant defaults do occur from time to time, the industry has never experienced a financial loss following the liquidation of a defaulting participant, and non-defaulting participants have always been made whole versus their trading activity with the defaulted participant. DTCC continuously works to develop and maintain risk management measures that adhere to rigorous international regulatory standards to maintain back-testing coverage at 99 per cent.

The benefits of a shortened standard settlement cycle include a related reduction in margin requirements, which are designed to mitigate counterparty default risk in the system. In fact, risk model simulations have shown that the volatility component of NSCC's margin requirements could potentially be reduced by up to 41 per cent by moving the standard settlement cycle to T+1, assuming current processing and without any other changes in client or market behaviour. By reducing average margin requirements, shortening the standard settlement cycle could also reduce the procyclical impacts of margin requirements, for example, where high trading volatility drives increased margin requirements. These margin reductions translate into capital efficiencies for members and free up capital for members to use elsewhere.

T+5, T+3, T+2 — AND SETTLEMENT OPTIMISATION

As clearing became more centralised and efficient over the years, settlement times have also been drastically reduced. For over a quarter-century, the markets operated on a standard T+5 settlement cycle. In response to the growing volume, DTCC led the industry initiative to shorten the equity settlement cycle from T+5 to T+3 in 1995, and to T+2 in 2017. Moving from T+3 to T+2 resulted in reducing the aver-age daily margin requirements for clearing trades through NSCC by approximately 25 per cent or approximately US$1.3 billion. The move to T+2 also required some mem-bers to adopt more efficient processes, all of which resulted in even greater benefit to the industry.

Modernisation efforts, including an interest in shortened settlement, were further discussed in the 2018 white paper 'Modernizing the U.S. Equity Markets Post-Trade Infrastructure'.[2] In early 2019, DTCC began a multi-year initiative aimed at implementing functional changes to not only modernise DTCC's core systems, but to strategically reimagine and re-architect services to elevate the client experience. DTCC partnered with the industry on this modernisation effort and ultimately created an industry working group to address significant improvements to equity clearance and settlement. The working group represented a cross-section of the industry, including both institutional and retail broker/dealers, custodians, regional banks, buy-side and service providers.

One of the projects, night cycle re-engineering, redesigned some of DTCC's long-established business processes by reimagining the DTC settlement night cycle. This not only improved intraday settlement finality but also delivered savings in the form of lower transaction costs for members. Night cycle re-engineering allows the systems to maximise transaction throughput by optimising members' available positions and controlling the order in which transactions are attempted for settlement — all within existing night cycle timeframes. Through this component, DTCC was able to improve processing efficiency, reduce operational risk, improve intraday settlement finality and build the foundation for a number of other processing efficiencies, including important work towards further accelerating the settlement cycle. In January 2020, night cycle re-engineering successfully increased night settlement rates by 15 per cent, representing an additional 75,000 transactions being settled every night during the night cycle — all with minimal development work from members.

Another project discussed in depth as part of DTCC's modernisation working group was accelerated settlement. From the onset of the discussions, it was clear that any modernised DTCC system would need to support accelerated settlement. The group also spent time reviewing the impacts of a move to both T+1 and T+0, and ultimately recommended a move to T+1.

COVID-19 PANDEMIC AND MEME STOCK EVENTS HEIGHTENS AWARENESS OF SETTLEMENT RISK

While the S&P 500 broke its prior all-time high in January and early February 2020, despite initial reports of COVID-19 outbreaks, investor sentiment quickly shifted toward the end of February and into early March amid the uncertainty of the impact and scope of the pandemic. Market-wide circuit breakers — the threshold at which trading is temporarily halted market-wide for single-day declines on the S&P 500 — were triggered four times in March 2020. The circuit breakers had only been triggered once before, in 1997.[3]

On 12th March, 2020, DTCC processed over 363 million equity transactions, a new single-day volume record — 240 per cent greater than the average typical volume of 106 million transactions per day processed by NSCC. Through the unprecedented trading volatility, DTCC continued to clear and settle massive volumes of transactions, ensuring an efficient trading market (see Figure 1).

Less than a year later, in January 2021, markets were again jolted, this time by meme stock mania, which brought the significance of DTCC's settlement model to the attention of regulators and policymakers. Hearings on the matter were conducted by the Senate Banking and House Financial Services Committee. DTCC President and CEO Mike Bodson testified alongside SEC Chairman Gary Gensler and FINRA CEO Robert Cooke at the final House Financial Services hearing and discussed DTCC's efforts toward shortening the settlement cycle.[4]

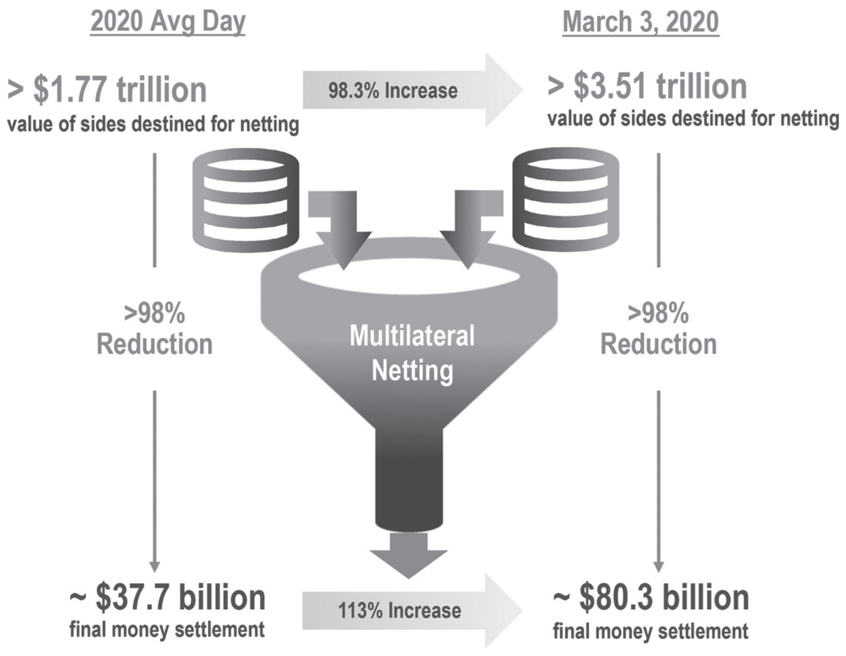


Figure 1 *As a central counterparty, NSCC nets trades and payments among participants, reducing the value of payments that need to be exchanged by an average of 98 per cent each day. This dramatically increases the efficiency of US markets by reducing capital requirements and overall risk. As an example, on 3 March 2020, one of the largest transaction value days on record, the value of shares moving through the system exceeded US$3.51tn; however, the actual dollar value requiring final money settlement was reduced over 98 per cent to just US$80.3 billion.*

DTCC proposed a roadmap to implement accelerated settlement to T+1 by 2023 with the white paper, 'Advancing Together: Leading the Industry to Accelerated Settlement', in February 2021.[5] Following publication of the paper, DTCC, SIFMA and ICI, DTCC's industry partners in the 2017 T+2 effort, collectively made a formal recommendation to accelerate the standard settlement cycle and began the effort of mobilising the industry. A T+1 Industry Steering Committee (ISC) was quickly formed to help guide and direct the overall effort and an Industry Working Group (IWG) was also formed to begin the in-depth analysis required to fully understand the impact of an industry-wide move to T+1.

EVEN FASTER THAN T+1: NETTED T+0

While the technology is currently available to support T+1 and T+0 settlement in certain situations and DTC and NSCC process millions of transactions every day (see Figure 2), it is not attainable for the entire industry. During the events of early 2021, the topic of same-day settlement was very much in focus, with many calls for instantaneous, real-time settlement to replace the current settlement cycle. While we are strong advocates for accelerating settlement, we must continue to balance speed with market safety and efficiency. Thus, while real-time settlement does provide certain benefits, it also presents substantial challenges for the industry — ones that would create new risks, requiring the pre-funding of potentially hundreds of millions of individual trades.

The industry's primary goal must be to create efficiencies without introducing any additional risk to markets. In analysing real-time settlement, the industry was quick to draw a distinction between real-time gross settlement and netted end-of-day T+0 settlement. Most in the industry have concluded that real-time gross settlement creates tremendous inefficiencies by requiring clearing agency participants to have funds available before the settlement of every transaction. By contrast, netted T+0 settlement maintains some of the most significant benefits of netting by either providing periodic netting cycles throughout the day or by providing an end-of-day netting process.

While real-time settlement seems like a simple technical solution, it is actually a very complicated structural change to the markets, and the enormous benefits of multilateral netting may be lost — or at the very least, seriously compromised. Additionally, areas such as financing, securities lending, processing schedules, institutional trade processing and non-US investors would require restructuring, and industry members would likely need to completely abandon any remaining batch process. Implementation of same-day settlement is more complex than simply removing an additional day from the settlement cycle and would require re-engineering of how securities trade and settle. Redesigning these business processes to be real-time could introduce even more risk into the processing environment.

Lastly, the true benefit of a move to T+0 is difficult to measure. Presumably, NSCC would still act as a central counterparty in a T+0 settlement environment and would continue to collect margin to protect against transaction fails or the possibility of a member default, but exactly how much NSCC margin requirement would be reduced by a move to T+0 is hard to quantify.

While many industry processes would be significantly challenged in a T+0 environment, DTCC has long-supported processing trades on T+0 or T+1 for participants that request it, and more than one million same-day transactions are introduced and processed on a near-instantaneous basis at DTC every day. Similarly, NSCC processes

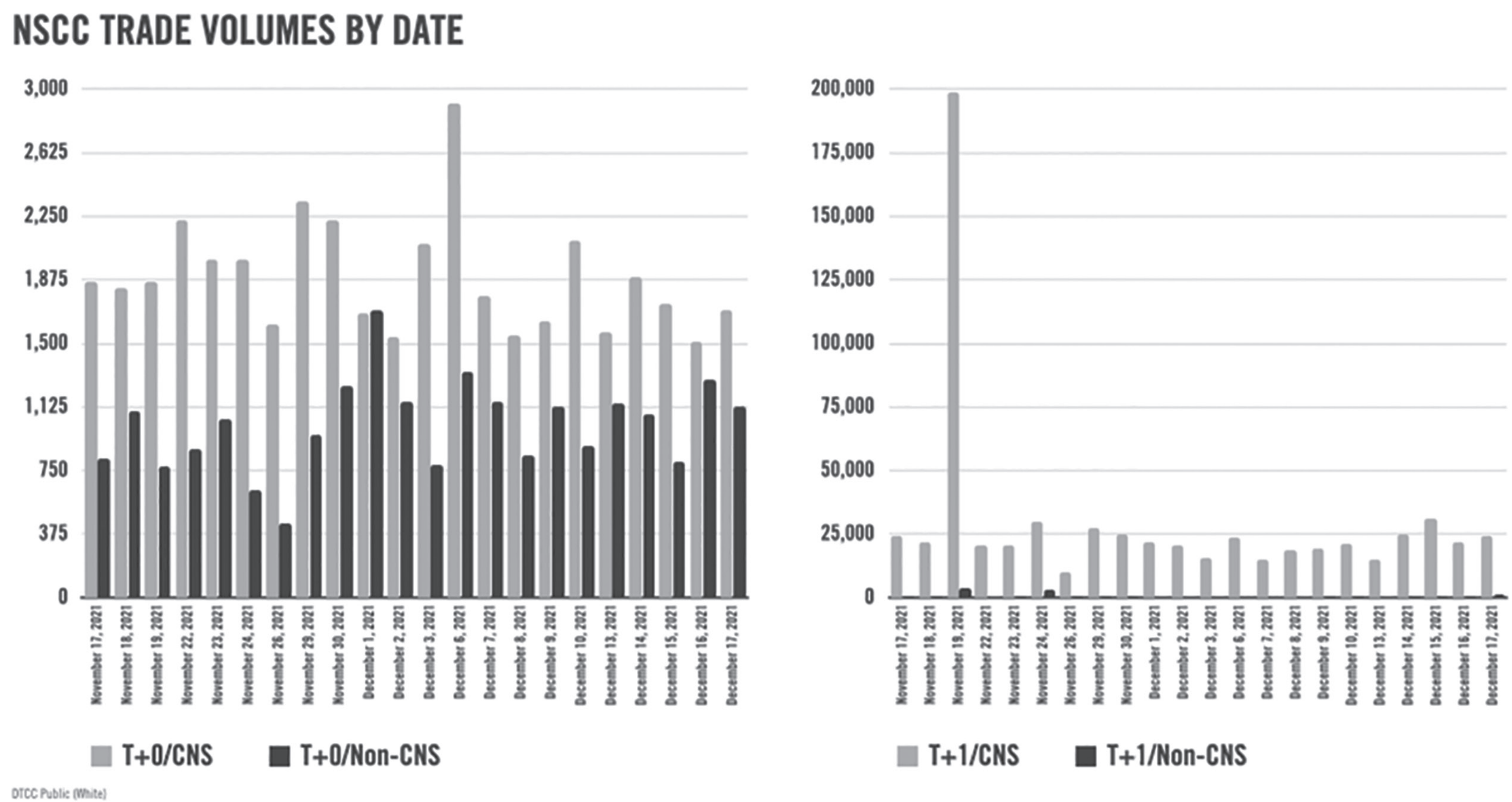
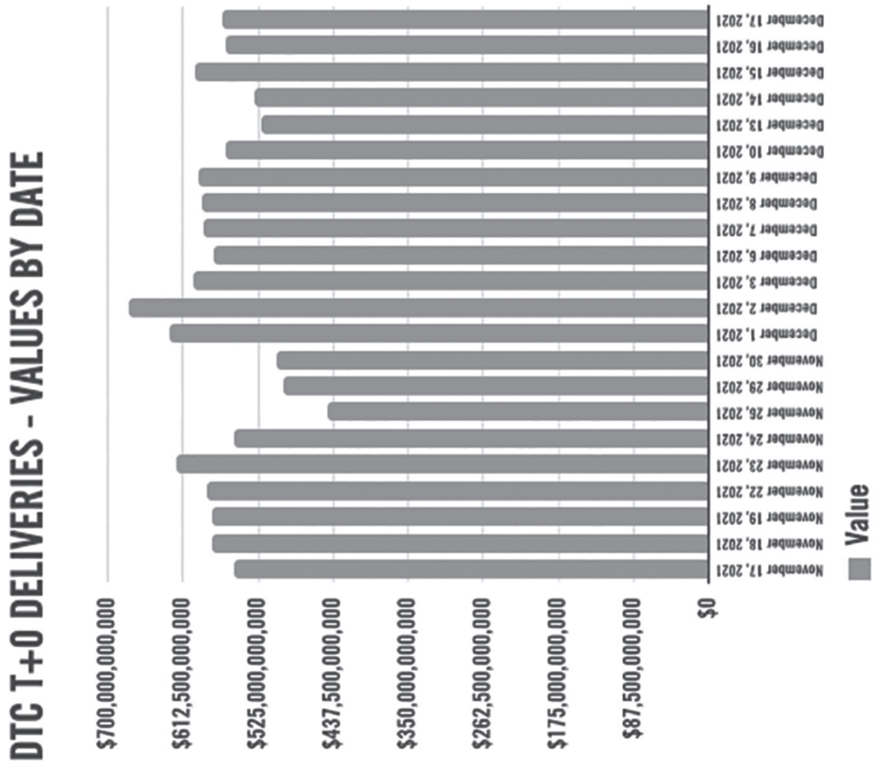


Figure 2 NSCC and DTC clear and settle T+1 and same-day (T+0) every business day across multiple counterparties and markets.



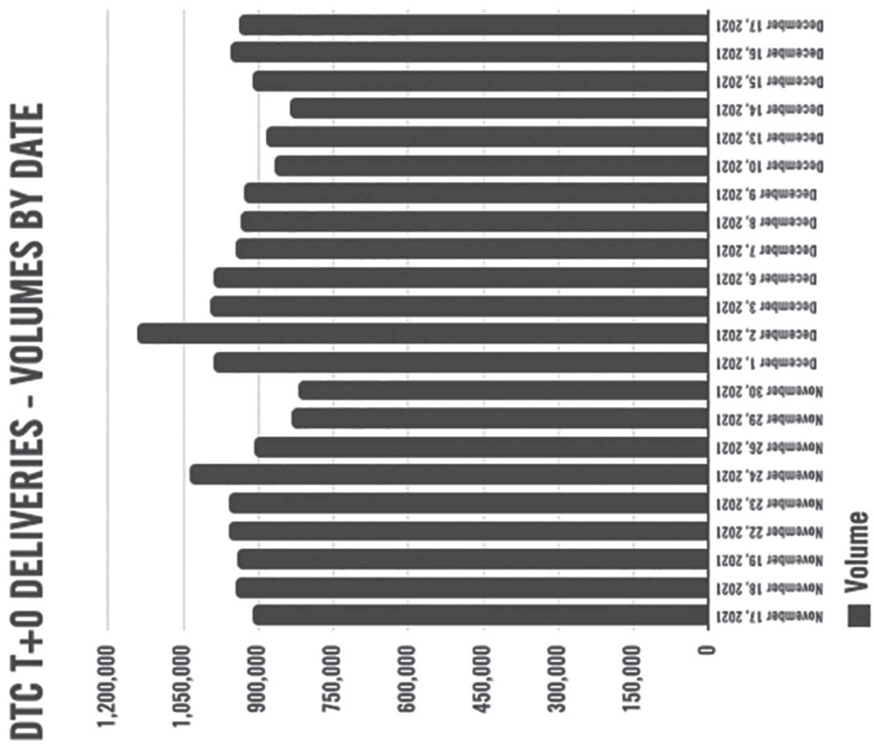


Figure 2 cont'd

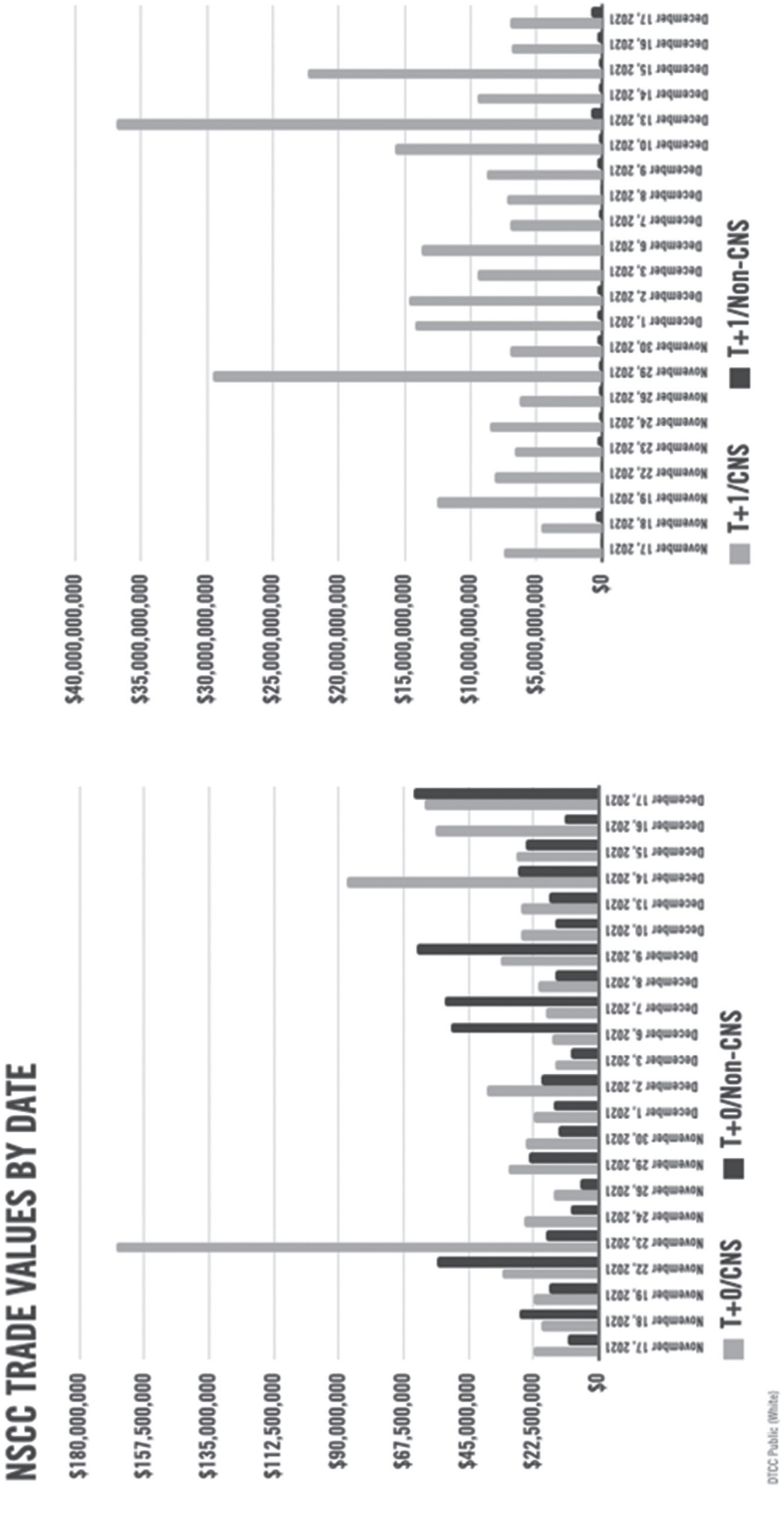


Figure 2 cont'd

limited same-day settling transactions. While volume in this activity is generally light and mostly used to support exception processing, the process does offer a model to how DTCC could potentially support a broader industry move to T+0.

ADVANCING SETTLEMENT: PROJECT ION AND T+1

Cryptocurrency, digitised assets, distributed ledger technology (DLT) and other innovations increasingly are integral parts of our discussions about the evolving financial services industry, as companies, stakeholders and policymakers assess the challenges of implementation and regulation.

Through a working proof-of-concept finalised in 2020, which we called Project Ion,[6] DTCC has sought to collectively validate the most effective model that brings the broadest industry benefits. The goal of DTCC's work with Project Ion is to explore the use of new technologies as a way to facilitate a more efficient US clearance and settlement system. DTCC's Project Ion is a DLT-based clearance and settlement platform that explores the use of APIs and tokenisation. Project Ion also serves as a platform to test many novel clearance and settlement concepts, including accelerated settlement, and provides a vehicle for DTCC members to participate in the creation of a new US clearance and settlement model.

DTCC's Project Ion has demonstrated that netted settlement in a T+1 or T+0 environment are effective use cases for DLT. In September 2021, DTCC announced that the Project Ion initiative would move into a development phase, following a successful prototype pilot with leading market participant companies.[7]

Project Ion, in its early phases, will operate as an alternative and parallel settlement solution, with optionality in adoption. The Project Ion prototype provided a forward-looking example of the transformation of clearance and settlement onto DLT. The full integration of DLT into the US clearance and settlement processes will require careful planning, including time for the industry and DTCC to build confidence that the technology satisfies requirements for scalability, resiliency, governance and security and is sufficiently robust to support the volumes and speeds required by the US cash equities markets. This will also include time for the industry and DTCC to build out the supporting governance framework to support a critical industry infrastructure on top of DLT. DTCC's delivery roadmap offers advancements in functionality and adoption by clients to be driven by the industry's readiness to advance.

CONCLUSION: BUILDING A STRONG INDUSTRY COLLABORATION

Like the move to T+2 in 2017, this industry-wide, multi-year initiative to further shorten the standard settlement cycle is being driven and actively coordinated by market participants, demonstrating the industry's ongoing commitment to continual improvements in the shared operation of our capital markets. Working with the Securities Industry and Financial Markets Association (SIFMA), the Investment Company Institute (ICI) and regulators, DTCC is continuing to engage and build consensus from the industry.

Accelerating settlement requires careful consideration, industry coordination and a balanced approach. DTCC, SIFMA and ICI have actively engaged with 200+ industry representatives, through the T+1 Industry Working Group, to understand the challenges of a shortened standard settlement cycle and what areas need further analysis.

The industry work now underway is delivering a comprehensive T+1 playbook, which outlines the various industry changes required to support a move to T+1 as well as a more concrete T+1 implementation plan, and we look forward to advancing this important work in partnership with our participants, regulators and other key stakeholders.

References

(1) DTCC, 2020, 'Annual Report', available at https://www.dtcc.com/annuals/2020/performance/equities-clearing (accessed 5th November, 2021)

(2) DTCC, January 2018, 'Modernizing the U.S. Equity Markets Post-Trade Infrastructure', available at https://www.dtcc.com/~/media/Files/downloads/Thought-leadership/modernizing-the-u-s-equity-markets-post-trade-infrastructure.pdf (accessed 5th November, 2021)

(3) DTCC, July 2021, 'Market Structure Risk Controls: An Industry Report', available at https://www.dtcc.com/-/media/Files/Downloads/DTCC-Connection/26458-NSCC-Market-Risk-Controls-Industry-Report.pdf (accessed 5th November 2021)

(4) U.S. House Financial Services Hearing, 6th May 2021, 'Game Stopped? Who Wins and Loses When Short Sellers, Social Media, and Retail Investors Collide, Part III', available at https://docs.house.gov/Committee/Calendar/ByEvent.aspx?EventID=112590 (accessed 5th November 2021)

(5) DTCC, February 2021, 'Advancing Together: Leading the Industry to Accelerated Settlement', available at https://www.dtcc.com/-/media/Files/PDFs/White%20Paper/DTCC-Accelerated-Settle-WP-2021.pdf (accessed 5th November 2021)

(6) DTCC, may 2020, 'Project Ion Case Study', available at https://www.dtcc.com/~/media/Files/Downloads/settlement-asset-services/user-documentation/Project-ION-Paper-2020.pdf (accessed 5th November 2021)

(7) DTCC, September 2021', 'Building the Settlement System of the Future', available at https://www.dtcc.com/-/media/Files/Downloads/WhitePapers/DTCCs-Project-ION-Platform-Moves-to-Development-Phase-Following-Successful-Pilot-with-Industry.pdf (accessed 5th November 2021)