DTCC

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JANUARY 2018

MODERNIZING THE U.S. EQUITY MARKETS POST-TRADE INFRASTRUCTURE

A WHITE PAPER TO THE INDUSTRY

Dear Colleague:

Today, financial service firms operate in a landscape of compounding pressures that have been building up over the past decade — from the changes in the regulatory landscape to new innovations in technology, sophisticated cyber threats and intense cost pressures.

In response, firms are demanding integrated solutions that eliminate friction in the post-trade ecosystem. Friction creates inefficiencies, and when these inefficiencies are multiplied together, they lead to significantly higher costs and added levels of risk.

As an industry-owned and governed financial market utility with 45 years of experience, The Depository Trust & Clearing Corporation (DTCC) has the breadth of capabilities and deep expertise to address the industry's most pressing challenges. Our infrastructure is an extension of our clients' — aligned in purpose and focused on protecting market stability and maximizing value for the industry.

In 2017, we were proud to partner with our industry colleagues to shorten the U.S. settlement cycle to T+2, an historic achievement that will deliver significant benefits to market participants. However, we believe there's more work to do. Today, on average over $5 billion is still held in margin to manage counterparty default risk in the system. In addition, DTCC's subsidiary, National Securities Clearing Corporation (NSCC), requires additional liquidity resources for peak settlement days, further adding costs and risks to U.S. markets.

We believe the opportunity exists to modernize the settlement system to achieve additional operational and capital efficiencies by further accelerating the settlement cycle and optimizing the settlement process.

The proposals in this white paper build on existing DTCC capabilities across our institutional trade processing, equity clearing and settlement businesses to significantly reduce capital requirements, mitigate systemic risk and lower operational costs while still preserving the resiliency of the current infrastructure.

We encourage you to read the paper, join us at upcoming events and conferences and share your own views with us as we continue to explore these proposals in more detail.

Murray Pozmanter
Managing Director and
Head of Clearing Agency Services and Global Operations

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I. INTRODUCTION

The U.S. financial industry's clearance and settlement model has evolved over the past 45 years to be among the most cost-effective and efficient in the world.

Centralized netting, clearing, and settlement of nearly every equity trade have contributed to making the U.S. markets the deepest and broadest in the world. Through netting, the National Securities Clearing Corporation (NSCC), DTCC's central counterparty subsidiary, can reduce the total number of trades that require an exchange of money by 98% each trading day.[1] In addition, at the end of each trading day, netting consolidates the amounts due from and owed to a firm across all the different securities it has traded to a single net debit or a net credit.

While the existing system is extremely efficient, DTCC believes there is opportunity to do more. DTCC is exploring several initiatives that will continue the mission of delivering the world's most resilient, secure, and efficient post-trade infrastructure for our participants.

Tremendous industry collaboration has compressed the settlement cycle from trade date-plus-three days (T+3) to trade date-plus-two days (T+2). Nevertheless, one of the last remaining exposures in the settlement system today is the risk of an unpredictable event that could affect the transfer of cash or ownership of securities from the point of execution through settlement. The potential for systemic shocks — which, because of our industry's interconnectedness, could have greater impact than ever before — means the role of risk management has never been more critical. Thus, in settlement, one of the greatest risks affecting market forces — including counterparty risk, credit risk and default risk — continues to be time.

While there are no formal plans at present for the entire industry to move forward to T+1, NSCC has long supported processing "non-regular-way" trades, including accelerated settlement (T+0 or T+1) for participants that request it, all while leveraging existing technology. As outlined in this paper, DTCC is now exploring several opportunities to allow firms more seamless access to shortened settlement processing, both pre- and post-trade. By optimizing and optionally, accelerating settlement beyond T+2, participants could significantly reduce capital requirements and operational costs while preserving the resiliency of the current infrastructure and reducing systemic risk. These initiatives under consideration will further free up liquidity, reduce risk, and improve straight-through processing (STP).

DTCC is exploring several opportunities to optimize and accelerate settlement beyond T+2, enabling participants to reduce capital requirements and operational costs while preserving the resiliency of the current infrastructure and reducing systemic risk.

[1] As a central counterparty, NSCC nets trades and payments among its participants, reducing the value of payments that need to be exchanged by an average of 98% each day. This dramatically increases the efficiency of U.S. markets by reducing the capital requirements and overall risk.

The two major proposals in this paper — **accelerated time to settlement** and **settlement optimization** — would enable participants of NSCC and The Depository Trust Company (DTC) to improve workflows, optimize capital and reduce risk, further reducing settlement processing inefficiencies through automation. Additionally, proposed complementary initiatives, such as Match-to-Instruct (M2i) and DTCC Exception Manager ultimately would enable more trades to move smoothly and quickly into the optimized settlement cycle, with participants able to review and resolve exceptions in a timelier manner — both pre-settlement and post-settlement. Collectively, these proposed initiatives represent a larger vision to connect and streamline U.S. post-trade processes between the middle and back office, realizing new efficiencies, cost savings, and the better use of liquidity.

Each of these proposed initiatives is subject to further development through discussions with key stakeholders, including participants and other DTCC clients, and with NSCC's and DTC's regulators. These proposals are also subject to any required regulatory approval.

PROPOSAL #1: ACCELERATED TIME TO SETTLEMENT

While the industry conversion to T+2 was an historic achievement, on average over $5 billion is still held in risk margin to manage counterparty default risk in the system. In addition to holding risk margin, NSCC requires additional liquidity resources for peak settlement days, further adding to the costs and risks to U.S. markets. These capital costs could be mitigated by further reducing the time between trade and settlement, and thus DTCC is considering a proposal to move settlement of eligible trades to the morning before market open on settlement day, effectively eliminating a day of settlement risk without removing a calendar day.

As a result of changes in market structure, careful consideration should be given to any discussions around transitioning to real-time settlement, as such a move could have the unintended effect of eliminating the risk reduction and efficiency benefits of multilateral netting. Accelerating settlement requires a balanced approach so that settlement can be achieved as close to the trade as possible without creating capital inefficiencies and market risk.

Moving settlement of eligible trades to the morning before market open on settlement day would effectively eliminate a day of settlement risk without removing a calendar day.

PROPOSAL #2: SETTLEMENT OPTIMIZATION

A good deal of what is processed after trade date and before settlement the next day is processed for settlement[2] on the following business day during the night cycle, which is a processing cycle currently performed by NSCC and DTC the night prior to settlement. However, DTC's current rigid processing rules can inhibit the efficient movement of transactions through the system. With money settlement not occurring until the end of the day, capital can become trapped in the very same system designed to manage securities processing and cash movements. The long-held traditional focus on end-of-day processing has overlooked the possibilities for intraday movement and settlement of money and securities.

[2] For the purpose of this paper, "settled" means a transaction that has passed all controls and is in a "made" status at DTCC's subsidiary, The Depository Trust Company (DTC).

The goal of **Settlement Optimization**, which will complement **Accelerated Settlement**, is to improve clearing and settlement processing efficiency, promote settlement finality, reduce equity clearing margin requirements, and provide participants with liquidity enhancements.

To the extent that DTCC can take a market day out of settlement with Optimization, participants should be able to realize benefits of operational efficiency such as a reduction in overall risk exposure and a reduction in capital requirements in the NSCC clearing fund.

> *Optimization encourages the intraday movement and settlement of money, while continuing to offer end-of-day processing.*

II. DTCC'S VISION

Over the past few years, DTCC has implemented a series of initiatives to strengthen the U.S. capital markets. Projects such as Settlement Matching, Money Market Instrument Optimization and the Accelerated Trade Guaranty, as well as leadership around Shortening the Settlement Cycle to T+2, all promoted intraday settlement finality and reduced risk.

The industry now has an opportunity to capitalize on the momentum from these successes to pursue industry-wide operational and capital efficiency by further accelerating the settlement cycle and optimizing the settlement process.

The traditional approach to shrinking the time gap between trade date and settlement date has been to maintain the current process but reduce calendar days. The T+2 initiative successfully shortened the settlement cycle and reduced industry risk without market disruption. However, industry-wide, coordinated efforts, while effective and low-risk, are costly and can take years to implement.

For this reason, the industry needs an approach that, while still a coordinated effort, can be implemented sooner, with less disruption than traditional calendar day reductions in the settlement cycle. Moreover, the approach needs to achieve the benefits of accelerated settlement without eradicating the substantial benefits of centralized netting and risk management.

As an industry-owned organization, the focus and mandate of DTCC is to address the common needs of financial firms. DTCC can bring the benefits of multilateral netting and accelerated settlement to the market in an orderly, low-risk manner. With a critical mass of processing volumes and a suite of services covering the entire post-trade lifecycle, DTCC is in a unique position to offer the industry a complete vision for streamlining processing and unlocking trapped capital and liquidity.

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III. CONSIDERATIONS TO MODERNIZE THE U.S. EQUITY MARKET INFRASTRUCTURE

While DTCC is analyzing the feasibility of an industry-wide move to a T+1 settlement cycle, the firm is exploring other approaches to settlement cycle reduction that would have less impact on the industry, allow firms more seamless access to optional shortened settlement processing – both pre- and post-trade – and could be implemented sooner.

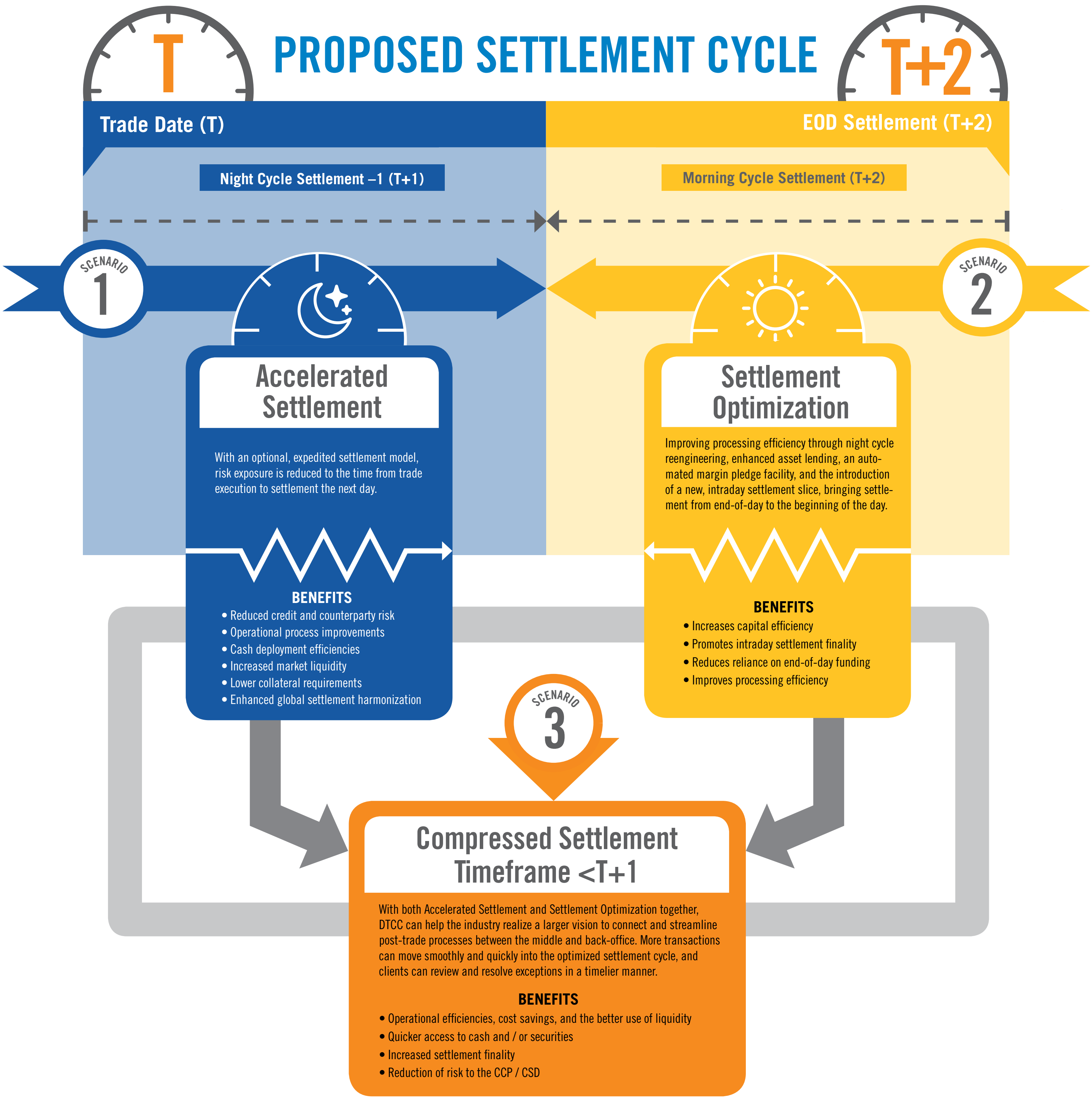
ACCELERATING TIME TO SETTLEMENT

Settlement is currently achieved in the afternoon of settlement date after market close, two full days after the trade is executed (T+2). DTCC is considering a proposal to move settlement of eligible trades from the afternoon of settlement date to the morning before market open, which means an entire market day of settlement exposure would be eliminated without removing a calendar day. The elimination of the market day for a substantial percentage of trades would significantly reduce the risk capital required by the NSCC to guarantee the trades. This would lead to large capital savings through lower clearing fund requirements posted by NSCC's participants. NSCC would have fewer settlement obligations, potentially reducing the liquidity resources required to guarantee settlement activity. The step would encourage participants to implement more straight-through-processing capabilities, which would better prepare the industry for the potential of T+1 settlement, while allowing more time for exciting innovative technologies — like distributed ledgers — to mature to mission-critical status.

Accelerating the time to settlement without moving the settlement day would achieve these benefits and maintain centralized netting sooner than an industry effort to remove a calendar day. Likewise, the eventual move to T+1, together with a morning settlement, would produce a significant reduction in U.S. market risk without the elimination of the massive benefits of centralized netting, striking the optimal balance between netting and capital efficiency.

CONSIDERING REAL-TIME SETTLEMENT

Much of the discussion around accelerated settlement in the industry focuses on alternative arrangements to settle specific trades in a timeframe less than the current industry standard (T+2). Some proposed models suggest moving to a real-time settlement process, whereby every trade settles immediately after execution. While accelerating settlement on certain trades is possible at NSCC, with current technology and infrastructure, a broad pursuit of a real-time gross settlement service on select trades could have major implications on market liquidity.


T
PROPOSED SETTLEMENT CYCLE
T+2
Trade Date (T)
EOD Settlement (T+2)
Night Cycle Settlement –1 (T+1)
Morning Cycle Settlement (T+2)
SCENARIO 1
SCENARIO 2
Accelerated Settlement
With an optional, expedited settlement model, risk exposure is reduced to the time from trade execution to settlement the next day.
BENEFITS
• Reduced credit and counterparty risk
• Operational process improvements
• Cash deployment efficiencies
• Increased market liquidity
• Lower collateral requirements
• Enhanced global settlement harmonization
Settlement Optimization
Improving processing efficiency through night cycle reengineering, enhanced asset lending, an automated margin pledge facility, and the introduction of a new, intraday settlement slice, bringing settlement from end-of-day to the beginning of the day.
BENEFITS
• Increases capital efficiency
• Promotes intraday settlement finality
• Reduces reliance on end-of-day funding
• Improves processing efficiency
SCENARIO 3
Compressed Settlement Timeframe <T+1
With both Accelerated Settlement and Settlement Optimization together, DTCC can help the industry realize a larger vision to connect and streamline post-trade processes between the middle and back-office. More transactions can move smoothly and quickly into the optimized settlement cycle, and clients can review and resolve exceptions in a timelier manner.
BENEFITS
• Operational efficiencies, cost savings, and the better use of liquidity
• Quicker access to cash and / or securities
• Increased settlement finality
• Reduction of risk to the CCP / CSD

A substantial amount of trades in the market are executed by liquidity providers that provide efficient two-sided markets. These important trading firms trade on both sides of the market and are largely risk flat at the end of the day. Real-time settlement would require these liquidity providers to have significant sums of capital and securities on hand to make trade-for-trade deliveries.

The current infrastructure relies on the efficiencies of trade netting to accommodate substantial amounts of trades. Wholesale market-making is important to the infrastructure as it provides the capital and balance sheets to back customer trading. Significantly increasing those capital requirements by requiring pre-funding of all trades without the benefit of recognizing the offsetting trades would substantially increase the costs of trade execution to the end user.

Real-time settlement could also introduce operational inefficiencies. In a typical low-volatility trading day, NSCC and DTC process over one million shares per second on average, valued at over $16 million. During peak trading hours, such as market open and close, this number spikes to over 300 million shares per second, valued at over $25 billion. Settling these amounts throughout the day in real-time would introduce substantial financial and operational risks to the equity markets.

Accelerated settlement that abandons the significant capital and operational efficiencies gained through centralized multilateral netting would be a step backward for the world's most liquid markets. Striking a balance between the capital efficiencies of netting and the risk mitigation benefits of moving settlement closer to trade date should be the goal of the industry.

ADDITIONAL IMPACTS OF ACCELERATED SETTLEMENT

Since equity market clearing and settlement is a component of a larger ecosystem of linked financial markets, accelerating the settlement cycle will have upstream and downstream impacts on other parts of the market structure, including derivatives, securities lending, cash borrowing, foreign exchange and collateral processing. While changes may need to be made to these markets, the results of these changes would be an industry leveraging more straight-through-processing (STP). STP leads to reduced market risk and increased operational efficiency, and thus the costs required to accelerate settlement would be recouped by the direct savings in capital and the indirect cost benefits of STP.

Achieving a dramatic acceleration in settlement from the afternoon of T+2 to the morning of T+1 may bring to mind new and unique technology being brought to bear on financial market infrastructure. Distributed ledger technology (DLT) holds tremendous promise and can bring efficiency to financial markets. DTCC is leveraging the capabilities of DLT in multiple efforts to exploit the value and efficiency of the technology. In the equity cash market, the promise of DLT must first overcome significant hurdles with regard to speed and scale. Today, an average of more than 50 million trades are processed daily — which can, and has, spiked on occasion to over 120 million and as many as 25,000 transactions per second during peak processing. Any technology implemented would need to meet the industry standard of handling at least two-to-three times the current market volume peak. Despite enormous progress, the throughput rates continue to be a problem for the technology to accommodate. Nevertheless, DTCC believes the throughput issue will eventually be resolved and continues to work with industry experts to support a successful implementation.

In addition, the current landscape of multiple DLT providers raises issues of fragmentation and interoperability that would need to be addressed because distributing or bifurcating clearing would eliminate the significant netting and risk management benefits experienced today.

TIMEFRAME AND COST

DTCC operates centralized technology that can accommodate an accelerated settlement scenario today, currently with the efficiency, speed and resiliency required of its Systemically Important Financial Market Utility (SIFMU) subsidiaries, NSCC and DTC. Additionally, DTCC's current capability can deliver the market efficiencies of accelerated settlement without reducing the benefits of centralization or incurring the costs of reinventing the process.

From a timing standpoint, leveraging these proven capabilities for T+0/T+1 settlement provides the shortest path to achieving the reduced capital and risk of the effort. NSCC already settles trades T+0 and T+1 on an optional basis. Extending this capability to additional trade flow could represent a simple and low-cost solution, reducing short- to mid-term structural changes by leveraging DTCC's current connections and proven technology across the industry. Longer term, DTCC will assess the viability of moving to a new technology when it has been proven to be able to meet the volume, frequency and resiliency standards necessary for processing the U.S. equities market.

From an implementation standpoint, there is an opportunity to leverage the foundation already established by the industry during its recent T+2 effort. Testing processes, project teams and playbooks are already in place. By staying aggressive, the industry can achieve the significant benefits of accelerated settlement while avoiding much of the foundational work that was needed for the move to T+2.

Moving forward, there is an opportunity to further optimize post-trade processing from trade execution through to settlement by removing the operational friction that exists today, due to the various touchpoints that exist between matching trade terms and providing settlement instructions. DTCC's Institutional Trade Processing (ITP) business is currently evaluating several initiatives to further improve STP rates while better managing exceptions — both of which will become even more critical as DTCC further reduces the time to settle a trade.

IV. NEXT STEPS

As an industry-owned and governed provider, DTCC is best-positioned to assemble all of the pieces of the post-trade processing value chain, providing complete transparency into trade flows across sell side and institutional activity.

The breadth of DTCC's services across the post-trade lifecycle make the organization uniquely suited to drive further efficiencies across U.S. clearing and settlement processes and timeframes. Each initiative described in this paper is subject to further discussion with participants and regulators and will require regulatory approval.

- **MINIMIZE TIME TO MARKET:** While some initiatives like match-to-instruct (M2i) are well underway, other aspects of the broad vision laid out in this paper are still in a conceptual state while DTCC gathers additional input from the industry. DTCC is in the process of developing a business case to understand the costs and savings associated with each of these initiatives, and will work with the industry to determine how they will be rolled out to maximize the speed-to-market and create early wins for our participants and other industry stakeholders.

- **INDUSTRY ENGAGEMENT:** DTCC places clients at the center of all activities, even as the firm explores new opportunities. DTCC will continue to identify ways to standardize and streamline processing, soliciting industry input as the firm progresses through the design of these new systems. DTCC is forming industry working groups to promote this dialogue including discussions on the:

  - Introduction of new settlement optimization algorithms
  - Creation of enhanced asset lending programs
  - Introduction of an additional, intraday settlement slice
  - Creation of an equity margin pledge facility

- **ENGAGEMENT OF REGULATORS TO REDUCE IMPLEMENTATION RISK:** DTCC is keenly aware that its most valued asset with participants and regulators is the hard-earned reputation as a trusted provider — a reputation built on its proven technology platforms and the firm's ability to mitigate risk, reduce costs, create efficiencies, provide safety, soundness and reliability, and maintain the highest standards for quality and excellence. Collaboration with regulators is especially critical to best understand how innovations could alter the industry risk profile. NSCC and DTC will work closely with regulators to further develop these initiatives, which will be subject to regulatory approval.

- **MINIMIZE DISRUPTION TO PARTICIPANTS DURING TRANSITION:** DTCC will leverage existing input and output where possible to minimize impact on participants during implementation of the proposals.

V. APPENDIX: DETAILS OF PROPOSED EQUITY MARKET INITIATIVES

DTCC is examining a series of proposed initiatives that will continue our mission of delivering the world's most resilient, secure, and efficient post-trade infrastructure for our participants. These initiatives build on existing DTCC capabilities while enhancing liquidity, reducing risk, and improving straight-through-processing (STP).

1. ACCELERATED TIME TO SETTLEMENT

SUPPORTING AN OPTIONAL, EXPEDITED SETTLEMENT MODEL (T+1, T+0) FOR PARTICIPANTS IN THE EQUITIES MARKET

For the past several years, DTCC has provided steady leadership and direction for the industry-wide T+2 project that moved the U.S. financial industry from the trade date-plus-three-days settlement cycle (T+3) to trade date-plus-two-days settlement (T+2) for equities, corporate and municipal bonds, and unit investment trust (UIT) trades. NSCC has also long-supported trade settlement on a trade-date-plus-one day (T+1) or same-day settlement (T+0) cycle within its existing offerings.

Business Problem: The time between when a trade is executed and when it is settled exposes both parties in the trade to credit, counterparty, and operational risk, and requires both parties to tie up capital to fulfill margin requirements. The move from T+3 to T+2 reduced this issue, but more work can be done to reduce it even further.

Opportunity: NSCC's current T+1 settlement capabilities, combined with increased morning settlement transactions, would achieve most of the benefits of settlement without sacrificing the market efficiencies that have developed over time.

Expected Participant Benefits: The benefits of shortened, harmonized settlement cycles are clear: reduced credit and counterparty risk, operational process improvements, cash deployment efficiencies, increased market liquidity, lower collateral requirements as well as enhanced global settlement harmonization.

- With existing T+1 settlement capabilities provided by NSCC, coupled with a morning settlement slice, the risk exposure would be reduced to the time from trade execution to settlement the next morning.
- Operational efficiencies such as netting between sell-side counterparties, and overnight allocations and trade matching between sell-side and buy-side counterparties would be retained in T+1 processing.

2. SETTLEMENT OPTIMIZATION

OPTIMIZATION OF DTCC'S CORE SETTLEMENT SERVICES

The goal of Settlement Optimization is to improve clearing and settlement processing efficiency, promote settlement finality, reduce equity clearing margin requirements, and provide participants with liquidity enhancements.

Business Problem: Because DTC cash settlement does not occur until the end of the day, market participants experience a lack of intraday settlement finality, inefficient liquidity utilization, prolonged risk exposure and elevated margin requirements.

Opportunity: DTCC proposes the creation of an alternate settlement model — Settlement Optimization — through the reengineering of four primary core settlement components: night cycle reengineering, enhanced asset lending, an intraday settlement capability, and the proposed NSCC Equity Pledge Facility, each described below.

- **Night cycle reengineering** is designed to maximize DTC transaction throughput by optimizing participants' available positions and controlling the order in which transactions are processed. This proposal is driven by an alternative processing model that would introduce enhanced algorithms into the settlement process to evaluate all open obligations, weigh them against available positions and member priorities and instructions, and determine the best way to optimize the percentage of settled transactions.
- **Enhanced asset lending** would look to reduce fails and aggregate securities borrowing needs by providing additional lending opportunities. This optional service would allow DTC to automatically identify borrow and loan opportunities and generate loan transactions as appropriate.
- **Intraday Settlement Slice:** Rather than having one single settlement at the end of the day, DTC and NSCC would move to include an additional settlement slice in the morning. A settlement slice would provide intraday cross-endorsement of each participant's DTC and NSCC settlement balances. This slice would free liquidity by allowing movement of funds out of DTC and NSCC earlier in the day. Transactions completed in the optimization process would be settled during the morning settlement slice. Intraday settlement would also allow participants to provide access to security positions earlier in the day to promote settlement finality. Once all credits are disbursed and all debits are collected, DTC would relinquish its lien on the positions associated with the settled transactions and NSCC would remove the settled CNS transactions from the pool of marginable positions thereby reducing participants' NSCC margin requirements.

This proposed change produces two major benefits for participants:

- Participants would will realize benefits in intraday mark-to-market (MTM) and value-at-risk (VaR) calculations by NSCC, because after each slice, settled trades would be removed from DTC risk management controls. As a result, market exposure would be limited to the activity that is open as of the latest slice and participant margin requirements would be reduced.

Under Basel Committee for Banking Supervision 144 – Principles for Sound Liquidity Risk Management and Supervision, Principle 8, certain participants are required to actively manage their intraday liquidity positions and risks to meet payment and settlement obligations. Currently, NSCC and DTC participants cannot take projected credits into account because money settlement of the obligation does not occur until the end of the day. With an additional morning settlement slice, participants would receive the money associated with the projected credits, and would be able to use these credits as a source of liquidity.

- In the proposed **NSCC Equity Pledge Facility**, NSCC participants would be able to pledge specific securities to NSCC to cover future CNS obligations and reduce their margin requirements. NSCC would identify potential pledging opportunities by comparing each participant's future CNS delivery obligations with their available positions and make pledge recommendations. The NSCC pledge recommendations would include the impact of the pledge on that participant's NSCC margin requirement, to allow the participant to best use its available positions. Positions pledged to NSCC would be removed from the participant's marginable portfolio, resulting in a reduction of its NSCC margin requirement. The pledged positions would cover a participant's obligation to CNS on settlement date. This facility is designed to reduce participant margin requirements and reduce overall risk for the industry and NSCC.

Expected Participant Benefits:

- Increase capital efficiency for the industry
- Promote intraday settlement
- Reduce reliance on end-of-day funding
- Improve processing efficiency
- Reduce NSCC margin requirements

3. COMPLEMENTARY INITIATIVES AND PRODUCTS

MATCH-TO-INSTRUCT (M2I)

CREATING STRAIGHT-THROUGH-PROCESSING FROM TRADE MATCHING THROUGH TO SETTLEMENT BETWEEN BROKERS AND INVESTMENT MANAGERS

The goal of Match-to-Instruct (M2i) is to extend trade matching, enrichment, and settlement notification capabilities to reduce exceptions and support the goal of "minimal touch processing." M2i would facilitate a more efficient and accelerated settlement process, and would complement the Settlement Optimization initiative because it would ultimately enable more transactions to move smoothly and quickly into the settlement cycle.

Business Problem: The industry's current post-trade processing for institutional securities transactions from trade matching to trade settlement provides multiple opportunities to further reduce costs and risk for several reasons:

- Draws on hundreds of local matching platforms.
- Uses inconsistent standing settlement instruction (SSI) data independently held on hundreds if not thousands of databases by brokers, investment managers, custodians, sub-custodians, agents, etc.
- Involves multiple transaction data handoffs, reconciliations, and re-matching with the original parties to the transaction and multiple subsequent parties to facilitate settlement.
- Requires brokers to engage in unnecessary processes relating to allocation level cancellations and corrections.

This collection of unnecessary steps and uncoordinated databases throughout the industry often leads to delays, fails, exceptions, wasted resources and economic losses. The total industry headcount employed in managing today's pre-settlement and fail management processes runs well into the thousands, and additional costs and risks resulting from the inability to settle efficiently are high.

Opportunity: DTCC proposes an automated, end-to-end solution that facilitates an efficient 'Match-to-Instruct' workflow. DTCC would allow instructions for settlement to flow directly from a central dealer/investment manager match or affirmation, eliminating the need to separately instruct and then match settlement data. M2i leverages centralized settlement information in ALERT, the industry's largest and most compliant online global database for the maintenance and communication of account and standing settlement instructions (SSI), and creates pre-matched settlement instructions from the trade match between the broker-dealer and investment manager.

Expected Client Benefits:

- Reduce the number of fails and exceptions resulting from breakdowns in the institutional trade processing chain
- Address cost-control pressure by offering automated tools and integrated platforms to reduce operational cost
- Mitigate operational risk by automating and standardizing all stages of the trade lifecycle
- Leverage new technologies to standardize institutional trade processing solutions, thus increasing processing speed, addressing functionality gaps, and allowing participants to redeploy IT resources to other areas
- Automate processes and continue processing immediately after match to support an acceleration in settlement date. Significantly increase likelihood of successful settlement under shorter settlement cycles

DTCC EXCEPTION MANAGER

MANAGING THE TIMELY REVIEW AND RESOLUTION OF SETTLEMENT EXCEPTIONS

While M2i increases the number of transactions that can be optimized in terms of settlement rates, there would still be some exceptions that fall outside of the automated processes. DTCC Exception Manager would enable DTCC clients to review and resolve exceptions in a timelier manner both pre-settlement and post-settlement.

Business Problem: Exception processing drives a considerable proportion of operations headcount for all trading counterparties. Data is consumed and processed from many disparate systems (e.g. matching platforms, trading counterparties and market infrastructures), often obscuring the root cause of settlement failures. On average, one exception can create as many as 30 related emails, which can be overwhelming, cumbersome to manage and introduces risk. An Aite Group survey commissioned by DTCC in 2015 of EMEA-region firms reported that a firm can spend upwards of $5 million a year on fail management alone, not including claim and repair costs.

The problems cited by buy-side participants include having little-to-no-view into settlement finality after settlement date, dealing with multiple brokers and custodians on a bilateral basis with disparate data sources, lack of timely and accurate information on all exceptions and difficulty in locating the correct staff to resolve exceptions. Brokers and Custodians often cite that it takes significant resources to resolve exceptions, highlighting difficulties in assessing root-cause of breaks and general latency issues caused by exceptions because of the manual and bespoke nature of responding to their participants.

Opportunity: Given DTCC's extensive community as well as its existing clearing and post-trade matching services (CTM™ and OASYS™), DTCC has developed an exception management platform, DTCC Exception Manager, to provide clients with near real-time access to exceptions in a consolidated and standardized manner, enabling them to facilitate resolution in a more efficient manner.

DTCC Exception Manager functionality would include the ability to:

- Publish exceptions in near real-time, where sources of exception data would eventually include DTC, CTM, OASYS, TradeSuite ID, custodian and broker feeds (with additional sources to be explored)
- Provide a comprehensive risk measurement dashboard
- Track trade status, prioritize attention
- Enable work assignment
- Allow parties to collaborate on resolution of issues
- Analyze exception data to identify opportunities to improve the post-trade process

Client Benefits:
DTCC Exception Manager is expected to deliver substantial benefits to the industry, spanning all DTCC clients, including:

- **For Investment Managers**, it would eliminate the need to manage multiple counterparty feeds by providing a single, consolidated, global view of "at risk" trades. Increased transparency and efficiency is expected to be provided by the configurable dashboard and communication via chat expediting exception resolution.
- **For Broker Dealers**, it would help to reduce claims, buy-ins, market losses and/or capital charges and reduce the headcount assigned to exception investigation and resolution. Mutual transparency around high risk trades would be provided by the configurable dashboard and communication via chat expediting exception resolution.
- **For Custodian Banks**, it would provide visibility into client trades and create a more proactive exception resolution process, which is expected to ultimately reduces the number of failed client trades. A configurable dashboard, workflow tools and communication via chat would facilitate timely exception resolution, client communication, and reporting.

Questions or comments about this white paper can be addressed to your DTCC Relationship Manager at DTCCClientCommunications@dtcc.com

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