

PROPOSAL TO LAUNCH A NEW COST-BENEFIT ANALYSIS ON SHORTENING THE SETTLEMENT CYCLE

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Introduction and Executive Summary

This paper presents The Depository Trust & Clearing Corporation's (DTCC) preliminary analysis of shortening the settlement cycle for U.S. equity¹ trades from the current trade date plus three business days (T +3) to T+2 or T+1 and seeks further input from the industry to serve as the basis for a more comprehensive cost-benefit analysis to explore the case for making this change.

In 1995, the U.S. equity settlement cycle was reduced from T+5 to T+3. This was achieved through automation and technological improvements and provided the industry with increased straight-through processing as well as reduced risk. Further shortening the settlement cycle would reduce a number of risks and capital requirements, and both are key areas of current industry regulatory focus.

Settling sooner would reduce:

- Institutional trade exposure
- The risks in the clearing house (reflected in the National Securities Clearing Corporation (NSCC) participants' Clearing Fund requirements), and
- The risks associated with a Member's failure to settle (reflected in NSCC's liquidity needs and the demands on NSCC participants to fund them)

In the U.S., as well as other regions across the globe, shortening the trade settlement cycle is a topic of ongoing discussion. The industry in Europe is planning to harmonize its settlement cycles on a T+2 convention across the various markets. Japan is also considering T+2 settlement.

In 2000, the Securities Industry Association (SIA), the predecessor to today's Securities Industry and Financial Markets Association (SIFMA), published a business case on shortening the settlement cycle to T+1, with the goal of reducing risk and improving industry processing efficiency. However, the SIA changed its focus in July 2002 from shortening the settlement cycle to achieving industry-wide straight-through processing. DTCC was urged to continue its efforts to modify the central infrastructure to support shorter settlement cycles, and DTCC did so – DTCC systems are now broadly configured to support settlement cycles as short as T+1.

¹ Other asset classes on a T+3 settlement cycle, such as corporate and municipal bonds and unit investment trusts, would also move to a shortened settlement cycle.

Since then, significant technology upgrades both at DTCC and in the industry broadly, including real-time processing for trade capture, same-day settlement capability, adoption of Financial Information eXchange (FIX) and other protocols, have been implemented. These improvements, in conjunction with increased industry focus on risk management and an awareness of European plans to move to T+2, have led a number of industry participants to call for reducing the U.S. equity settlement cycle.

Instituting a shorter settlement cycle would require strong support from both regulators and the industry. This paper explores the topic and requests industry participants to consider supporting a new cost-benefit analysis.

Background

In November 2001 the Committee on Payment and Settlement Systems of the Bank for International Settlements and the Technical Committee of the International Organization of Securities Commissions (CPSS-IOSCO) issued “Recommendations for Securities Settlement Systems” (RSSS) that included a recommendation that “a settlement cycle shorter than T+3 should be evaluated.” More recently, the March 2011 CPSS-IOSCO consultative report “Principles for Financial Market Infrastructures” issued 24 recommendations for comment, extensively revising and intensifying earlier CPSS-IOSCO standards. The March 2011 paper noted that many of its 2001 RSSS recommendations (including that relating to shorter settlement cycles) remain in effect as written². The broad consensus of global regulatory thinking reflected in the March 2011 draft seeks to impose a considerably heightened set of risk mitigation and management standards, including a push for shorter processing cycles and more rapid achievement of finality on transactions (both objectives consistent with a shorter settlement cycle).

In addition, the Securities and Exchange Commission (SEC) issued a concept release in 2004 which requested comment from the industry to undertake a new study on the benefits and costs of shortening the settlement cycle beyond T+3 in an effort to reduce risk and improve the efficiency of the U.S. clearance and settlement system. The release stated that “time equals risk³” and risk surrounding the process of clearance and settlement is “directly related to the length of time it takes for trades to settle.”

Going back even further, prior to the 2001 RSSS recommendations, the SIA worked with the industry and several consulting firms to build a business case to determine the necessary steps required to achieve T+1 settlement. Their findings, presented in July 2000, estimated that the one-time initial cost to the industry to move to T+1 was \$8 billion, toward a projected annual savings of \$2.7 billion. Shortly after release of this study, however, there was a decline in market conditions and the SIA Board voted to suspend work on this initiative. Results from the 2000 effort are detailed in this paper, as many may be relevant to a discussion in today’s

² Annex C

³ The Bachmann Task Force report on clearance and settlement reform in the U.S., which was requested by and submitted to the SEC in 1992, concluded that “time equals risk” related to the length of time it takes for a trade to settle. Although the Bachman Task Force focused its study on the move from T+5 to T+3, the SEC noted that the same consideration applies to reducing the settlement cycle beyond T+3.

market environment. For example, the study itemized 10 building blocks necessary to reach a T+1 settlement cycle.

In February 2011, an expert group coordinated by the European Commission reported on the need to harmonize settlement cycles in Europe. In Europe, Germany has a T+2 settlement cycle, while the United Kingdom, and most markets on continental Europe, settle on T+3. In Asian and Latin American markets, trades settle in one to three days, depending on the market, while Canada settles on T+3.

DTCC's own views now place a much heavier emphasis on the issues of risk management and mitigation. In September 2011, DTCC issued a white paper titled, "The Role of DTCC in Mitigating Systemic Risk," which recommended that the industry and DTCC conduct a cost-benefit study to assess the impact of a reduced equity settlement cycle.

Discussion Points

There are many arguments in favor of shortening the settlement cycle which should be taken into consideration when deciding whether or not an analysis should be undertaken on the cost-benefits of moving to either a T+2 or T+1 settlement cycle. Some of these key arguments are enumerated below.

1. Reducing Risks Inherent in T+3 Settlement

NSCC's Current Processing

With NSCC's average 2011 daily processed trading volume of roughly \$450 billion, participants' daily exposure is roughly \$900 billion⁴. After these trades are netted by NSCC, this gross exposure is reduced to approximately \$15 to \$20 billion per day.

On a daily basis, NSCC receives and processes roughly 50 million transactions from over 50 different exchanges and other centers of liquidity. After validating these transactions in real-time, NSCC makes records available to participants within seconds. On the evening of T+1, NSCC then nets each participant's positions down to one settling obligation per security issue, per settlement date. NSCC also interposes itself as the net buyer to each net seller and the net seller to each net buyer. The NSCC trade guarantee is currently effective at midnight at the close of T+1⁵. Securities settlement begins on the night of T+2 and finishes on the afternoon of T+3 when money settlement completes.

The inherent risk mitigants associated with shortening the settlement cycle are discussed below:

Reducing Market Risk

The longer a position remains open, the greater is the market risk associated with closing it out in a member default situation. Market risk is the potential for an investor to experience losses from fluctuations in securities prices. This also holds true for clearing corporations with open positions. Each additional day that a trade remains unsettled at NSCC, the greater is the potential for the market price to move away from contract price. This is particularly relevant in periods of high volatility. Shortening the settlement cycle greatly mitigates this risk. According

⁴ This is because there are two sides of exposure, buyer and seller, to every trade.

⁵ As discussed later in this paper, NSCC is actively pursuing accelerating its trade guarantee from midnight of T+1 to point of trade validation.

to an NSCC study⁶, mark-to-market requirements would be reduced by 48% in a T+2 environment and 60% in a T+1 environment.

Reducing Participant Exposure to NSCC

As noted above, in 2011 NSCC managed an average gross daily participant exposure of roughly \$900 billion. Given the four-day settlement window from trade date to settlement date, and NSCC's loss-mutualization model, this represents an average \$3.6 trillion⁷ in gross market exposure across NSCC participants. This exposure could be reduced by \$900 billion, or 25% for each day the settlement cycle is reduced.

Reducing CCP Liquidity Need

Recommendation 5 of CPSS-IOSCO's "Recommendations for Central Counterparties" states "A CCP⁸ should maintain sufficient financial resources to withstand, at a minimum, a default by the participant to which it has the largest exposure in extreme but plausible market conditions."⁹ NSCC defines Liquidity Risk as the risk that there would not be sufficient financial resources to cover the settlement of a defaulting Member's transactions. For liquidity planning purposes, NSCC simulates its largest Member's potential liquidity obligation on a daily basis.

While NSCC does not systemically limit the settlement obligation a firm can incur, it does maintain liquidity resources available to effect settlement. Liquidity resources include a cash Clearing Fund of \$7.0 billion (as of October 31, 2011) and a \$6.275 billion line of credit held with a consortium of institutions. A study conducted from April 2011 to September 2011 indicated that moving to a shortened settlement cycle would reduce NSCC's liquidity obligations significantly. A T+2 settlement cycle reduces the required coverage from four settlement days to three settlement days and a T+1 settlement cycle reduces required coverage to only two settlement days. Moving to T+2, NSCC's average liquidity need would decline by 20%. If the settlement cycle were shortened to T+1, NSCC's average liquidity need would decline by 52%. A shorter settlement cycle would reduce Members' contributions to NSCC's liquidity facilities.

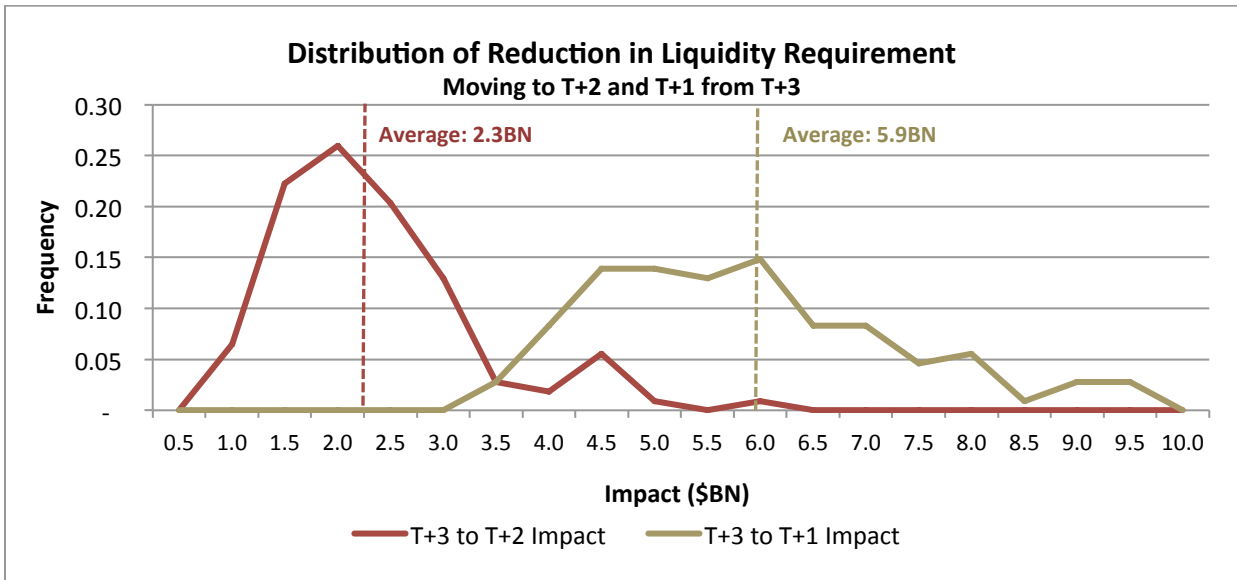
The following chart shows the distribution and average reduction of NSCC's liquidity need if the settlement cycle were shortened.

⁶ Internal study covers the period between October 19, 2010 and August 31, 2011.

⁷ This number represents \$900 billion times 4 settlement days (T, T+1, T+2, T+3), which equals \$3.6T

⁸ Central Counterparty, the term used for clearing corporations like NSCC.

⁹ In March 2011, CPSS/IOSCO published a consultative report, which proposes to refine the CPSS/IOSCO recommendations. The proposed Principle states "An FMI should maintain sufficient liquidity resources to effect same-day and, where appropriate, intraday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of [one/two] participants and [its/their] affiliates that would generate the largest aggregated liquidity need in extreme but plausible market conditions."



Reducing Systemic Risk

The lag time between trade date and settlement date creates exposure and settlement risk for all parties to the trade as unforeseen occurrences could cause transactions to fail. While a good portion of this exposure is mitigated by NSCC’s settlement guarantee, institutional trades and other transactions such as ex-clearing trades, carry gross counterparty exposures until settlement completes. Some NSCC participants also carry the exposure of their correspondents’ open positions during the settlement cycle. Each day the settlement cycle can be reduced, open exposures could be lessened by 25%, thus reducing systemic risk.

2. Faster Settlement Frees up Capital for Member Firms

A NSCC study has estimated how Clearing Fund requirements would be reduced with a shortened settlement cycle. As noted in the charts below, Clearing Fund would decline with a shortened settlement cycle. The study was conducted from October 19, 2010, through August 31, 2011¹⁰. The results follow.

¹⁰ Assumes accelerated trade guarantee is implemented

Settlement Cycle	Average Daily Clearing Fund Requirement (\$MM)
T+3	4,012 (100%)
T+2	3,421 (- 15%)
T+1	2,994 (- 25%)

Clearing Fund savings are more pronounced during periods of high volatility. By showing the same data for August 2011, a period of high volatility, the study shows a greater decrease in Clearing Fund requirements.

Settlement Cycle	Average Daily Clearing Fund for August 2011 (\$MM)
T+3	7,281 (100%)
T+2	5,517 (- 24%)
T+1	4,619 (- 37%)

3. Many Impediments Identified in 2000 T+1 Study Have Since Been Resolved

The SIA's 2000 T+1 study identified 10 building blocks as prerequisites to achieving a move to T+1. The SIA Board's decision to defer a move to T+1 was, in part, to provide the industry with an opportunity to improve industry processes and prepare for a shortened settlement cycle by achieving these building blocks before a formal mandate was instituted.

As detailed in the attached Appendix, many of these issues have been fully addressed or are far along in this process. Since 2000, some participants have made significant advances to their trade processing systems from execution through clearance and settlement and have built the required capacity to handle higher trade volumes. During that time, NSCC and DTC redesigned much of its clearance and settlement processes. The largest open issue is the cost and effort necessary for all market participants to be able to operate in a shortened settlement cycle.

4. Seller Financing of Open Trade Obligations

In today's U.S. equity markets, trades are normally not paid for until four days¹¹ after shares are purchased. During that three-day window, a buyer receives many of the benefits of owning the security without actually having paid for it. For instance, the buyer receives all gains in the security price between trade date and settlement date. Conversely, the seller carries the cost of the security without the benefits of ownership. In effect, the seller finances the buyer during the settlement cycle. In 2011, the average daily value of trades cleared by NSCC is roughly \$450 billion. As financing continues until settlement is final, normally at the end of T+3, sellers are financing buyers an aggregate of \$1.8 trillion (4 days of \$450 billion open purchases) per day on average. Reducing the settlement cycle would reduce this burden on sellers. It is important to note that the seller received this same benefit when he originally purchases the security.

5. European Efforts

The European Commission has confirmed that Europe will move to T+2 prior to the launch of the Target 2 Securities (T2S) platform in 2015, perhaps as soon as 2013. Citing a need to harmonize settlement cycles, Europe quickly dismissed the option of moving to T+1 on the basis that (a) the need to harmonize with normal spot Foreign Exchange (FX) settlements makes T+2 more desirable; (b) Central Securities Depository (CSD) settlement efficiency is sub-optimal with a T+1 settlement cycle, due to CSD night cycle processing; (c) the need to communicate and confirm cross-border trades, especially with U.S. investors who might be up to 6 hours behind central European time; and (d) back office pressures, all of which were characterized as a "challenge" for T+2, but a "major problem" for T+1. The recommendation to move to T+2 was based on the need to harmonize European settlement cycles. Although some mention was made of risk reduction, no cost-benefit analysis was prepared. Nevertheless, Europe seems committed to implementing a T+2 settlement cycle in the near term.

By moving to a T+2 settlement cycle, Europe will also align its equities settlement cycle with the FX market. This is an important consideration given that trading has become increasingly global and FX is an integral component in cross-border trades. The fact that FX settles on T+2 was cited as an important disadvantage for the U.S. T+1 proposal in 2001.

¹¹ T, T+1, T+2 and T+3

Next Steps

1. Work with SIFMA to gain industry commitment to conduct a cost-benefit analysis for a shortened settlement cycle

Industry participants should weigh the benefits of undertaking such a study, given other industry initiatives already under way.

2. Devise a participant survey for both a T+1 and T+2 option

A new survey appropriate to current market conditions and covering both T+1 and T+2 options would be constructed, with the 2000 T+1 initiatives considered as key input into this process. The industry has completed, or is near completion on, a significant number of the identified building blocks (see below). As such, a move to a shorter settlement cycle is expected to be much less challenging than the transition originally proposed in 2000.

3. Estimate cost of newly defined building blocks

Once the industry survey is complete, an industry analysis would be undertaken to determine the effort required to shorten the settlement cycle, similar to the 2000 study.

4. Present a balanced business case for this initiative for industry discussion

Cost estimates and benefits of shortening the settlement cycle would be broadly distributed to industry members to gain consensus on the desire to move to a shortened settlement cycle and in what time frame.

5. Recommendation

Prepare a white paper which recommends either the retention of a T+3 settlement cycle or a move to a shortened settlement cycle (T+1 or T+2) with a supporting summary of industry costs and benefits. Results would be socialized with industry participants and the regulators.

Appendix - 10 Building Blocks for T+1 – A Revisit of 2000

Estimated Cost and Return on Investment

During the 2000 T+1 initiative, the industry defined a business case and the building blocks necessary to achieve a T+1 settlement cycle. Consultants worked in conjunction with 56 industry participants including institutional and retail broker dealers and custodians as well as exchanges, clearing houses and depositories. It was estimated that a total initial cost of \$8 billion would be recouped by the industry in less than three years and would yield an ongoing annual cost savings of \$2.7 billion. The estimated build time was 3.5 years.

The \$8 billion cost was an estimated cost covering the completion of the 10 building blocks identified as necessary to achieve a T+1 settlement cycle. The 10 building blocks are discussed below along with the current status of each.

10 Building Blocks with Current Status

1.	Modify internal processes to ensure compliance with compressed settlement deadlines	Significant Work Remains
	<p>The first building block focused on real-time and straight-through processing to develop seamless interfaces between front office order execution services and back office processing and settlement authorization. Participants would move to real-time processing from batch processing.</p> <p>In 2001, CPSS-IOSCO recommended exchange trades be matched no later than the close of T+0 and institutional trades be matched no later than T+1. Today, U.S. exchange trades do not require matching as they are all locked in at the marketplace. As for institutional trade matching, the industry has made headway but its progress is not yet sufficient to support a move to T+1; more work is required. In 2004, the institutional confirm/affirm rate was 24% on T, 85% on T+1 and 89% by noon on T+2. This has improved with affirmation rates today averaging 45% on T, 90% on T+1 and 92% by noon on T+2¹². A T+1 settlement cycle would probably require a same day settlement affirmation.</p>	

¹² October, 2011 statistics from Omgeo

2.	Identify and comply with accelerated deadlines for the submission of trades to clearing and settlement system	In Progress (90% Complete)
<p>This building block required exchanges to submit their trades to NSCC on a real-time or near-real-time basis, allowing the clearing corporation to complete its netting and trade guarantee earlier in the trade cycle.</p> <p>This building block is nearly complete. Today, 90% of all trades are submitted to NSCC in real-time. NSCC processes trade input and reports contract information back to participants in seconds after a trade is received. Additional work is required to convert the last 10% of trade submissions to real-time.</p>		
3.	Amend NSCC's trade guarantee process to provide a guarantee on trade date	In Progress (Implementation planned for 2012)
<p>This building block involves moving the NSCC guarantee from midnight on T+1 to midnight of T, per the original SIA recommendation in 2001. The change required enhancements to NSCC's systems.</p> <p>Building block three is also near completion. NSCC has submitted a draft filing to the SEC to accelerate its trade guarantee to point of trade validation. System modifications are complete and include two new clearing fund components that cover the risk of guaranteeing trades on trade date prior to review and Clearing Fund collection. NSCC expects the accelerated trade guarantee to be enacted in 2012.</p>		
4.	Report trades to clearing corporation in a locked-in format and revise clearing output	Complete
<p>This building block is almost complete for equities. Today over 99.9% of all equity trades are submitted to NSCC on a locked-in basis and NSCC plans to eliminate equity matching for new settling trades completely by the end of 2012. (This excludes trades submitted through NSCC's Obligation Warehouse. Transactions matched through the Warehouse are not guaranteed by NSCC.) Corporate and municipal fixed income trades can be matched and validated in real-time.</p>		
5.	Rewrite Continuous Net Settlement (CNS) to enhance speed and capacity	Complete
<p>This building block was completed and implemented in 2004. The redesigned functionality allows NSCC to settle trades received before 11:30 am on settlement date the same day.</p>		

6.	Reduce reliance on checks and use alternative means of payments	In Progress (Significant Progress Achieved)
	<p>The reason for this building block is the requirement for end purchasers to fund their transactions in a timely manner prior to settlement date. According to the Federal Reserve's <i>FED Focus</i> publication checks dominated the non-cash payment market up until 2000. In 2010, nearly 80% of all non-cash payments were electronic, thus showing significant reduction in the reliance on checks.</p>	
7.	Immobilize shares prior to conducting transactions	In Progress (Significant Progress Achieved)
	<p>The rationale behind this building block is the lack of sufficient time for physical certificates to be processed in a shortened settlement cycle. Securities need to be obtained, converted to street name and then settled. The plan was to increase the use of the Direct Registration System (DRS) to process these securities more efficiently. Today, DRS is an industry standard and all listed securities are DRS eligible. Physical deposits since 2000 have declined 88% from 16,750 to less than 2,000 per day.</p>	
8.	Revise the prospectus delivery rules and procedures for initial public offerings	Complete
	<p>This required the development of an alternate means of communicating the terms of a new issue before the customer pays for a security. In 2005, the SEC approved a new standard called "access equals delivery" for prospectus delivery. The new rules allow the final prospectus to be posted on the SEC's website, eliminating the requirement to deliver a hard copy or electronic prospectus prior to or with trade confirmation to buyers of securities in registered offerings.</p>	
9.	Develop industry matching utility and linkages	Complete
	<p>Omgeo developed sequential institutional trade processing with central (concurrent) matching which includes a standard settlement instruction database and automatic trade configuration. Central matching was built by Omgeo in the early 2000. Omgeo also has a trade matching facility in Trade Suite which had a matching rate of 56% on T, 94% on T+1 and 95% on T+2 in August 2011. This compares to an affirm rate of 34% on T in Omgeo's sequential process. Although significant development has been completed in this space, in August 2011, 88% of all of Omgeo's institutional activity was processed through Omgeo's sequential Trade Suite product instead of the trade matching.</p>	

	<p>However, since this is not an issue of lack of availability of the necessary technology to accommodate T+2, it is therefore reasonable to expect that any move to shorter settlement cycles will accelerate the transfer to currently available central matching solutions.</p>	
<p>10.</p>	<p>Standardize reference data and move to standardized industry protocols</p>	<p>Complete</p>
	<p>This final building block refers to the creation of a counter party reference data to support institutional trade matching and to move to industry standard messaging. Omgeo has continued to enhance its standard settlement instruction database (ALERT), NSCC has introduced FIX messaging for trade capture and DTC has built ISO 15022 settlement messages since the initial assessment in 2000. The migration from 15022 messages to 20022 messages is already being adopted by DTCC’s reengineering initiative for Corporate Actions processing.</p>	