Transitioning to T+2 and the journey toward T+0

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Summary

- On September 5, 2017, the U.S. will officially transition from Trade+3 days settlement to Trade+2 days settlement cycle.

- This transition is expected to reduce:
  - Operational Risk
  - Systemic Risk
  - Counterparty Risk
  - Liquidity Risk
  - Market Risk

- This transition will require tremendous effort by trust companies, financial services firms, service providers, industry associations, exchanges, DTCC, and regulators.

- The move to a T+2 settlement cycle impacts the trade processing flows and requires changes to multiple processes and regulations.

Where We Were (in the U.S.)

1920's

Financial transactions cleared and settled in one day

1960's

SEC forced the exchanges to close every Wednesday to help the complex clearing and settlement processes

The settlement process moved to a T+5 cycle

1990's

SEC adopted Rule 15c6-1 under the 1934 Securities Exchange Act

This resulted in moving the settlement cycle from T+5 to T+3

Where Are We Headed (In the U.S.)?

- After almost 23 years, in September 2017 the industry will move from a T+3 settlement cycle to a T+2 settlement cycle
- Consideration of the feasibility of moving to T+1 or T+0
- Consensus that current technology is not the barrier
- The many business practices is the hindrance
- New technology will definitely help!

Current Settlement Environment

Securities in the U.S. settle and clear:

- Over different periods of time
- Through different clearinghouses and depositories
- Based on category of security which also determines process flow
- T+3 for stocks and corporate and municipal bonds
- Government securities and stock options settle T+1
- Trades in some classes (i.e., Commercial Paper) settle T+0

Initiating The Journey

DTCC hired the Boston Consulting Group ("BCG") to explore feasibility

Initial cost of moving to T+2 = $550MM vs. T+1= $1.8B

Annual recurring savings for T+2 = $195MM vs. T+1 = between $175MM and $370MM

Migrating to T+2 would allow recovery of initial investment in 2.5 to 3.5 years

After much debate the industry agreed move to T+2 was more manageable and would produce more benefits

Benefits of moving to T+2

- Potential to increase efficiencies by reducing funding requirements and better and more efficient utilization of capital
- Could enhance liquidity due to reduced liquidity needs for NSCC
- Could result in reduction in operational risk and operational incidents and improvements in operational controls
- Potential decline in counterparty risk and exposure
- Global harmonization by alignment of settlement cycles across geographies
- Reduction from 65% to 13% for those on T+3

Benefits of Moving to T+2 (Cont.)

- Significant benefits through reduction of exposure to credit, market, and liquidity risk as well as related reductions to systemic risk
  - Decreases the total number of unsettled trades as well as the total market value of unsettled trades
  - Reduction in operational costs
  - Fewer unsettled trades and a reduced time period of exposure to such trades will reduce the central counterparties ("CCP's") credit, market and liquidity risk exposure to its members
  - Reduces liquidity and other risks for funds that must satisfy investor redemption requests
  - Could result in reduced margin charges and other fees that clearing broker-dealers may pass down to introducing broker-dealers, institutional investors and retail investors
  - Could reduce trading costs and free up capital for other strategic deployment

The Journey to T+2

The T+2 initiative started almost three years ago and was not driven by regulatory mandate

DTCC has worked in close collaboration with several industry organizations and trade associations

Numerous industry working groups were assembled for this initiative

All through the journey the working groups have kept the regulators well informed

In 2014, the DTCC (in collaboration with industry participants) formed an Industry Steering Committee (“ISC”)

The ISC created a T+2 Industry Working Group

The Journey to T+2 (Cont.)

The ISC provides overall direction and guidance to the T+2 project

ISC is co-chaired by representatives from SIFMA and ICI and is comprised of representatives from many trade associations and each of the impacted market segments

The T+2 Industry Working Group is responsible for evaluating the changes that are needed for a move to T+2

The ISC published a requirements document in early 2015

ISC released its T+2 plan in December 2015

The Journey to T+2 (Cont.)

In December 2015, the MSRB published updated rule changes to facilitate the T+2 settlement cycle

In March 2016, FINRA published its rule changes in support of T+2

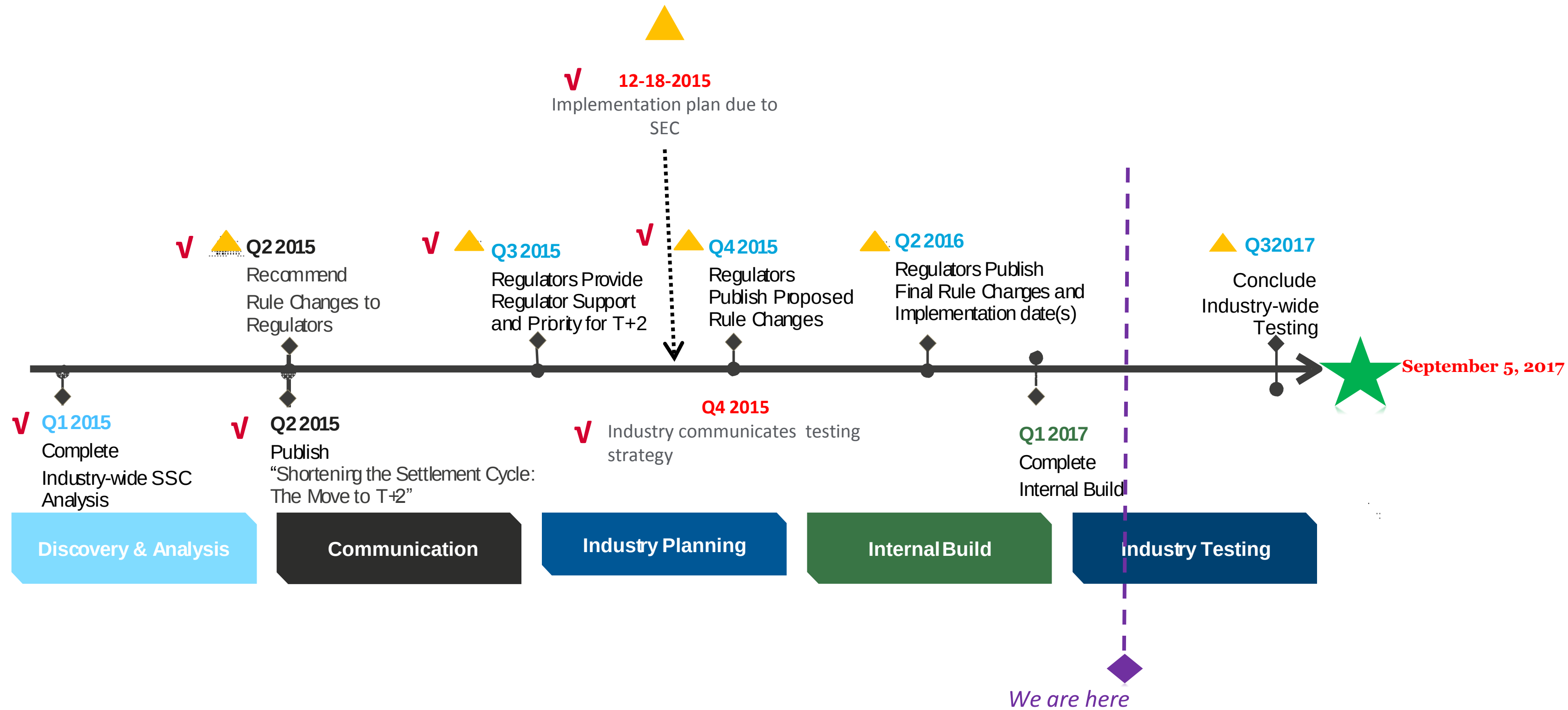
Late September 2016, NASDAQ issued T+2 rule changes to facilitate moving to a shorter settlement cycle

In September 2016, the SEC issued its proposal to shorten the settlement cycle from T+3 to T+2.

On March 22, 2017 the SEC announced it has amended Rule 15c6-1(a) to shorten the standard settlement cycle for broker-dealer transactions from three business days after trade date to two business days after trade date

The OCC, FRB and other regulators plan to issue updated rules after the SEC proposed rule is finalized

High Level Industry Timeline (T+2)



Critical milestones that could impact the implementation timeframe of Q3 2017

As of 02_08_2016

Summary of the SEC Rule (T+2)

- On October 6, 2016, the SEC issued a Proposed Rule to amend Rule 15c6-1 under the Securities Exchange Act of 1934 (“Exchange Act”) to shorten the standard settlement cycle for certain broker-dealer transactions from three business days after the trade date (“T+3”) to two business days after the trade date (“T+2”). The deadline for comments from the industry was December 5, 2016. The SEC issued the amended rule (as proposed) in March 2017.

Summary of the SEC Rule (T+2) (Cont.)

- Subject to exceptions enumerated in the rule, the prohibition in Rule 15c6-1 applies to all securities.   The term “security” in the Exchange Act covers, equities, corporate bonds, unit investment trusts, mutual funds, exchange-traded funds, American Depository Receipts, security-based swaps, and options
- Many of these securities (e.g., options and certain mutual funds) generally settle on a settlement cycle less that T+3 today
- ETFs, certain closed-end funds, and certain open-end retail mutual funds settle in T+3 today

Key Exemptions in the T+2 Rule

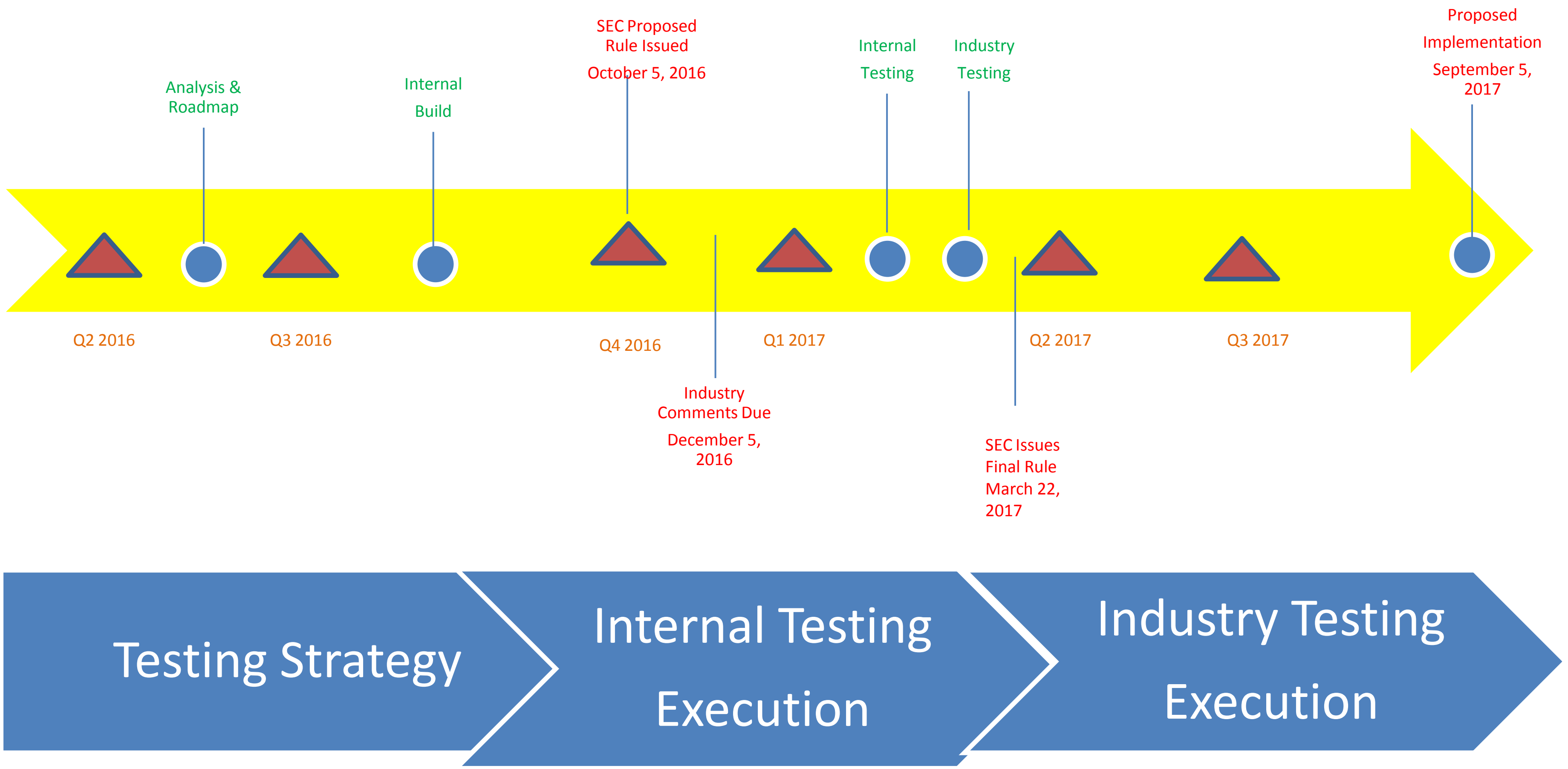
- Securities that do not generally trade in the U.S.
- Transactions in securities that do not have transfer or delivery facilities in the U.S.
- If less than 10% of the annual trading volume in a security that has U.S. transfer or delivery facilities occurs in the U.S.
- Purchase or sale of any security issued by an insurance company that is funded by or participates in a “separate account”, including a variable annuity contract or any other insurance contract registered as a security under the Securities Act of 1933

Why September 5, 2017?

Fifth of September is:

- Not a high volume day
- Not a standard corporate action date
- In 2017, it falls after the Labor Day weekend
- Provides participants an extra day to migrate and test code changes
- Allows participants an extra day to plan for the "double settlement day"

T+2 Journey Timeline -- U.S.A



T+2 Change Impacts

- There are several technological and operational changes necessary to support a two day settlement cycle
  - Impact on operating business model
  - Coordination with vendors and service providers
  - Impact on trading and other operating systems
  - Oversight of operation policies, procedures and processes
  - Impact on internal and external customers
  - Impact on agreements

T+2 Change Impacts (continued)

- Certain steps related to the allocation, confirmation, and affirmation of trades will need to occur earlier in the settlement cycle
- Revised regulatory changes will impact compliance elements
- SEC believes that no amendments to other SEC rules are required

T+2 Change Impacts (continued)

- Ancillary consequences for how market participants comply with existing regulations
- Shortening the standard settlement cycle to T+2 would reduce the timeframes to effect a close-out under Rule 204 of Regulations SHO
- Impact to “deemed to own” provision in Regulation SHO

T+2 Change Impacts (continued)

- Impact to “promptly transmit funds” and “promptly deliver securities” within Exchange Act 15c3-1?
- Impact to Exchange Act Rule 10b-10?
- Impact to 12 CFR 12.4?
- Impact on certain asset classes?
- Benefit or burden to retail investor?
- Impact on prospectus delivery obligations?

T+2 Change Impacts (continued)

- Benefits and impact of “blockchain” or “distributed ledger” technology?
  - Blockchain technology represents a decentralized ledger where transactions can be recorded and changes associated with transactions can be monitored over time
  - At the Commonwealth Club in San Francisco, the Federal Reserve Chair Janet Yellen emphasized the importance of the Blockchain and hinted that the Fed is exploring the potential of the technology
  - The World Economic Forum stated that in 2017 10% of the world’s GDP will be overseen by Blockchain technology which is currently being tested by leading banks and financial institutions worldwide
  - A Swiss startup Procivis has recently announced its proof of-concept for a Blockchain-backed government platform
  - Blockchain is a fast emerging technology allowing effectively secured value transfer over the internet
  - Blockchain has a potential to bring changes to the industry -- think of it as a system facilitator rather than a replacement for a current system
  - A number of technology, banking and financial experts and thought leaders were spotted at the recent Davos event where a Blockchain council was created to drive the development and adoption of Blockchain technology around the globe.

Status of T+2 Migration

T+2
Migration

- T+2 industry testing is running from February 13, 2017 until implementation on September 5, 2017
- Testing is being conducted using a bi-weekly testing cycle
- Testing for T+2 has been recognized as a critical success factor by the industry
- The industry infrastructures participating in the industry test will include DTCC's subsidiaries OMGEO, NSCC and DTC, as well as the exchanges Bats and Nasdaq and the OCC
- The industry T+2 test is designed to support full end-to-end testing
- T+2 testing is not mandated
- The T+2 test scenarios were determined by the T+2 Industry Testing Working Group
- DTCC has established a new test environment to allow Members to test in T+2 and T+3 environments concurrently
- Members can submit test transaction throughout the testing cycle
- Members can participate in as many testing cycles as they want
- Any changes to the testing cycle will be done in coordination with the industry and communicated to the industry prior to the change
- The Test Calendar is attached as Appendix B

Countries with Shortened Settlement Period

Prior to October 6, 2014, Germany, Slovenia, and Bulgaria operated on a T+2 settlement cycle

On October 6, 2014, Austria, Belgium, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Iceland, Italy, Ireland, the Netherlands, Latvia, Lichtenstein, Lithuania, Luxembourg, Malta, Norway, Poland, Portugal, Romania, Slovakia, Spain (certain fixed income trades only), Sweden, Switzerland, and the United Kingdom moved to a T+2 settlement cycle

Australia and New Zealand transitioned to a T+2 settlement cycle in March 2016

Israel, Chile, and Saudi Arabia are on a T+0 settlement cycle

China is on a T+1 settlement cycle

India is on a T+2 settlement cycle

Countries Considering T+2 Migration

Currently Japan, Singapore and Canada are considering a transition to T+2 settlement cycle

Canada is also planning its migration to T+2 on September 5, 2017

Why Stop at T+2?

- There is recognition that shortening the settlement cycle further than T+2 could potentially result in further risk reduction
- Successful transition to a settlement cycle shorter than T+2 would require larger investments by market participants
- Transitioning to a settlement cycle shorter than T+2 would require real-time capabilities for certain settlement processes
- Time of coordination would be much longer
- Would increase funding costs for market participants who rely on the settlement of foreign currency (“FX”) transactions, since FX transactions occur on T+2
- Moving to T+2 in the U.S. market would harmonize with non-US markets that have already transitioned to a T+2 settlement cycle
- The SEC staff will submit a report by September 5, 2020 examining the impact of adoption of a settlement cycle shorter than T+2

Conclusion

On Track

Industry testing continues

No show stoppers so far

Since industry testing in not mandatory, please ensure your processes will be compliant

Reference materials are listed in the Appendix

Use the FIRMA network as an additional resource to address questions and concerns

Q & A

- $(1+x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \cdots$?????
- $\mathcal{D}\rho^{\mathrm{SM}}$đ = ?????
- $f(x) = a_0 + \sum_{n=1}^{\infty}\left(a_n \cos\frac{n\pi x}{L} + b_n \sin\frac{n\pi x}{L}\right)$
  \+ ?????

APPENDIX A

- **<u>List of Rules and Regulations potentially impacted with change to T+2 implementation:</u>**

SEC Rule 15c6-1(a)
MSRB Rule G-12(b)(ii)(B)
MSRB Rule G-15(b)(ii)(B)
NYSE Rule 64(a)
NASDAQ Rule (11329(b)
OCC Regulations, Part 12.9 (a)
FDIC Rules and Regulations, Part 344.7(a)
FINRA Rule 11860(a)(4)
MSRB G-15(b)(ii)(C)
Regulation SHO Rule 204
Letter of Free Funds (b-d)

FINRA Rule 11140(b)(1)
NASDAQ Rule 11140(b)(1)
NYSE Rule 235
NYSE Rule 236
FINRA Rule 11150 (a)
NASDAQ Rule 11150 (a)
MSRB G-12(b)(ii)(C)
MSRB G-12(b)(ii)(D)
FRB Regulation T
SEC Rule 15c3-3(m)
Rule 10b-10

APPENDIX B-Test Calendar

Test Cycle 1	2/13/17 - 2/24/17	
Test Cycle 2	2/27/17 – 3/10/17	
Test Cycle 3	3/13/17 – 3/24/17	T+2 Implementation-Double Settlement Day Scenario
Test Cycle 4	3/27/17 – 4/7/17	OCC Exercise & Assignment (E&A) test
Test Cycle 5	4/10/17 – 4/21/17	T+2 Implementation-Double Settlement Day Scenario
Test Cycle 6	4/24/17 – 5/5/17	Bank Holiday-Double Settlement Day Scenario
Test Cycle 7	5/8/17 – 5/19/17	
Test Cycle 8	5/22/17 – 6/2/17	T+2 Implementation-Double Settlement Day Scenario
Test Cycle 9	6/5/17 – 6/16/17	
Test Cycle 10	6/19/17 – 6/30/17	OCC E&A test
Test Cycle 11	7/3/17 – 7/14/17	T+2 Implementation-Double Settlement Day Scenario
Test Cycle 12	7/17/17 – 7/28/17	OCC E&A test
Test Cycle 13	7/31/17 – 8/11/17	
Test Cycle 14	8/14/17 – 8/25/17	The test environment will continue to be available post 8/25/17

APPENDIX C

More on the Risks identified on Slide 2:

- **Liquidity risk**

  The risk that a firm unwinding a portfolio of illiquid instruments may have to sell them at less than their fair value. An illiquid market may be defined as one characterized by wide bid/ask spreads, lack of transparency and large movements in price after any sizeable deal.

- **Market risk**

  The risk that value will be lost due to a change in some market variable, such as commodity or equity prices, interest rates or foreign exchange rates. The market risk of a derivatives position may arise from a change in the value of the underlying or from other sources such as implied volatility or time decay (theta).

- **Systemic risk**

  The risk that the financial system as a whole may not withstand the effects of a market crisis. In recent years, attention has been focused on emerging derivatives markets, where a handful of players dominate trading. The concern is that the failure of any of these might have serious and widespread consequences for others in the market. The economic crisis and credit market contraction that developed in 2008 raised concerns about financial institution collapses and resulting systemic risk.

APPENDIX C (Cont.)

- **Operational risk**

  The risk that a firm's internal practices, policies and systems are not adequate to prevent a loss being incurred, either because of market conditions or operational difficulties. Such deficiencies may arise from failure to measure or report risk correctly, or from a lack of controls over trading staff. Although operational risk is harder to define precisely than market or credit risk, it is considered by many to have been a contributor to some of the highly publicized losses of recent years. Along with market risk and credit risk, operational risk is one of three components of the first pillar of capital requirements for credit institutions (banks) under Basel II.

- **Counterparty risk**

  The risk that a counterparty to a transaction or contract will default (fail to perform) on its obligation under the contract. Counterparty risk is not limited to credit risk (the risk that the counterparty cannot fulfil its contractual obligations for payment) but may also result from other problems associated with a counterparty unwilling to honor the contract.

APPENDIX D

- **List Of Reference Materials:**

- T+2 Industry Implementation Playbook (12/18/2015)
- SEC 17 CFR Part 240 Release No. 34-78962; File No. S7-22-16 (Proposed Rule) (10/19/2016)
- CAPCO T+2- Are You Ready? (2016)
- MSRB Regulatory Notice 2016-15
- PwC- Shortening the Settlement Cycle: The Move to T+2 (2015)
- HSBC Client Guide- EU Industry Wide Shortened Settlement Cycle For Securities (2014)
- FINRA Regulatory Notice 16-09
- CAPCO-Where Do We Go From Here?
- DTCC Connection: Industry Gathers at T+2 Readiness Forum
- DTCC Connection: 2016: A Year of Execution For DTCC
- CAPCO Journal: Time is Risk : Shortening the U.S. Trade Settlement Cycle
- T2 Settlement Overview FAQs
- DTCC Shortened Settlement (T+2) (March 2016)
- T2 Settlement-Cash Products In Scope for T+2 (August 2016)
- DTCC T+2 Test Approach: Detailed Testing Framework
- The Shortened Settlement Cycle I How it Will Impact You (March 1, 2017)
- SEC Release # 34-80295 (Amendment to Securities Transactions Settlement Cycle) (March 22, 2017)
- Various news articles