



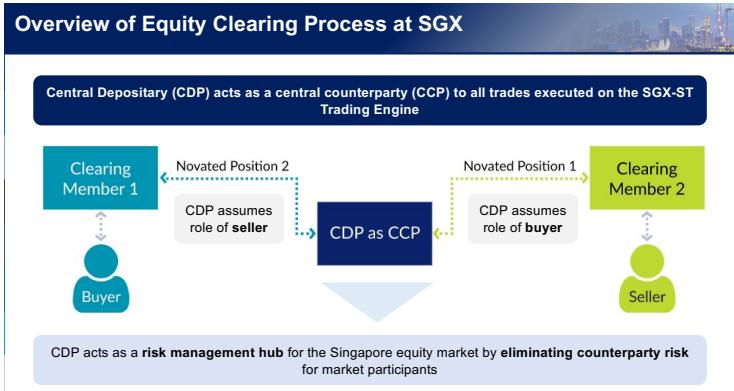
### BC3204 Financial Service Processes and Analytics

Tutorial 3 Question 2 – Equities Clearing Process for SGX vs. DTCC

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### Overview of Equity Clearing Process at SGX



### Introduction of New Securities Settlement Framework



## Introduction of New Securities Settlement Framework



### Settlement cycle shortened from 3 to 2 business days

- Settlement cycle for equities and on-exchange corporate bonds instructions will follow a T+2 cycle and will be effective on trades with a Trade Date of 10 December 2018 and later

### Outstanding trades will be cash-settled by T+8

- By T+2, if there are insufficient securities in the market, the buyer will not receive the securities but can enjoy its economic benefits
- By T+8, if there are still insufficient securities, the trade will be settled in cash

### Enhancement of the Real-Time Gross Settlement (RTGS) system

- Money and securities settlement will be conducted simultaneously in the same as in batch settlement (i.e. by book entry)

### New broker-linked functionality which made available to investors

- Investors can give their chosen brokers visibility over specific securities, giving brokers the ability to offer more personalized products and services to their clients

## Introduction of New Securities Settlement Framework



### Simultaneous and conditional delivery-versus-payment settlement

- Trades will be settled on a DVP basis by simultaneous transfer of securities and money held in trust with the CDP
- Removal of CDP as the central counterparty guaranteeing institutional DVP settlements and of the two-tier bank guarantee



### Singapore Dollar (SGD) deposits finalised in MEPS+

- Deposit of SGD by settlement participants and the release of SGD to settlement participants will be made through and finalized in the electronic inter-bank payment and fund transfer system operated by the Monetary Authority of Singapore ("MEPS") instead of in settlement bank



### Introduction of mandatory partial settlement

- Partial settlement will become available in the market and will be mandatory on trades settling as batch

## Impact of New Securities Settlement Framework



**IMPACT**  
of the changes to the Securities  
Settlement Framework

Harmonise Singapore's stock market with that of global markets such as Australia, Europe, Hong Kong and the US

Risks reduction across systems and markets as securities and funds are made to investors earlier

Strengthen Singapore's position as an international financial centre

## Settlement Process

Date	Events
T+0	Orders on the SGX are matched and executed by the CAS trading system.
T+0 or T+1	Trade confirmations are generated automatically and sent to the executing broker, that onward delivers the confirmations to their clients for clarification of the trade details and indication of the depository agent (DA) that settles the trade
T+1	<ul style="list-style-type: none"> <li>Both Delivering and Receiving DAs need to input settlement instructions into SGX PTS-WEB for pre-matching</li> <li>There is no earmarking of security positions for trades that have been matched successfully. Trades will only be settled if cash or securities are available during the settlement run on settlement date</li> <li>Cancellations received before the market cut-off time for trades in either the "matched" or "awaiting settlement" statuses require a bilateral cancellation from the counterparties</li> </ul>

## Settlement Process [Con't]

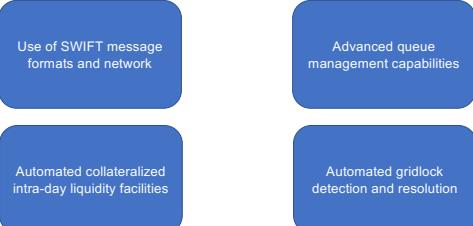
Date	Events
T+2	<ul style="list-style-type: none"> <li>After a trade is executed through the clearing member, on T+2, the <b>settlement of cash trades take place</b></li> <li>This means that sellers deliver securities to the clearing house in exchange for cash payments and the clearing house delivers securities to the buyers in exchange for cash payments</li> <li>The settlement batch run commences at 13:30. Cash and securities settlement takes place simultaneously in the market at 15.30</li> <li>Settlement confirmations for the SGX-PTS WEB batch run are sent at 16.30</li> <li>CDP moves the securities via book-entry electronic system. <b>Should a seller have insufficient shares for delivery as at the start of the final settlement run at 1:30pm on T+2, CDP will conduct buying-in on that afternoon.</b> Securities bought in successfully will be used to fulfill the seller's delivery obligation on the next business day</li> </ul>

## Buying-In

<b>1:30 pm</b>  Seller has insufficient shares in the account for settlement by the start of the final settlement run	<b>4pm - 5pm</b> Buy-in continues if not yet successful	CDP cash settles outstanding sell allocations if buy in is unsuccessful. Ie. Transfer final gains or losses to parties
T+2	T+3	

## Payment

### MAS Electronic Payment System (MEPS+)



## Membership

	Non-banks	Singapore Licensed Banks
Trading Rights	None, must obtain trading membership	
Clearing Rights	Can clear its own, other members' or its customers' trades	
Clearing Fund	Higher of S\$500,000 and 0.6 bp of Member past 12 months' traded value	
Reserve Fund	Transfer 30% of yearly net profits into a reserve fund if base capital less unappropriated profits falls below S\$15 million	N.A.

\*One basis point(bp) is equal to 1/100th of 1%, or 0.01%, or 0.0001



## Question 2

### Process of Equities Clearing in US

## US Equities Clearing System



**DTCC**

ADVANCING FINANCIAL MARKETS. TOGETHER.<sup>®</sup>

- Clears and settles virtually all security transactions in the US - settles transactions between buyers and sellers of securities
- Plays a critical role in automating, centralizing, standardizing, and streamlining the financial markets.

#### Depository Trust Company (DTC)

- One of the world's largest securities depositories
- Provides safekeeping through electronic record-keeping of securities balances
- Also acts as a clearinghouse to process and settle trades in securities

#### National Securities Clearing Corporation (NSCC)

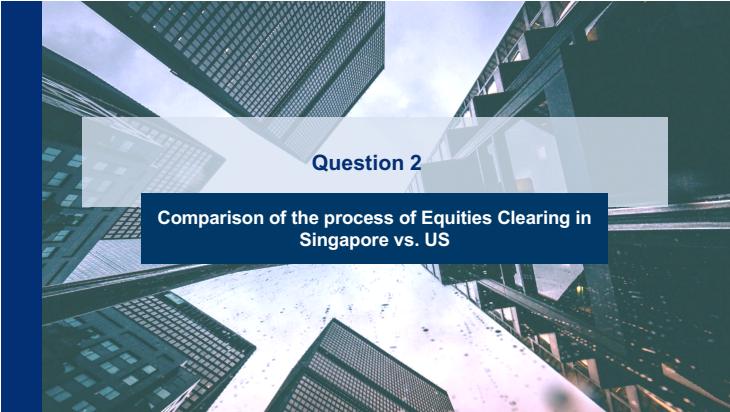
- Provides centralised clearing, risk management, information and settlement services
- Operates as a seller for every buyer, and buyer for every seller
- Offers **multilateral netting**: brokers can offset buy and sell positions in a single payment obligation

## US Settlement Process

Date	Old T+3 Process	New T+2 Process
T+0	<ul style="list-style-type: none"> <li>• Trade information sent to NSCC for clearing (Trade Capture)</li> <li>• DTC receives instructions from NSCC to move client securities positions in accordance to the clearing services</li> </ul>	
T+1	<ul style="list-style-type: none"> <li>• At T+0 EOD, or at midnight of T+1, NSCC takes on role of the central counterparty clearing house (CCP), then processes and matches the trade.           <ul style="list-style-type: none"> <li>• Becomes CCP through DTCC's Continuous Net System (CNS)</li> <li>• Automated book-entry accounting system that centralises settlement</li> <li>• Maintains orderly flow of security and money balances</li> </ul> </li> <li>• DTC risk management controls are in place           <ul style="list-style-type: none"> <li>• Collateral monitor: ensure DTC participants maintain sufficient collateral to cover debit balances – ensure DTC has enough liquidity to complete EOD settlement</li> <li>• Process security movements between counterparties as CCP: generates audit trail for reconciliation and reporting</li> </ul> </li> </ul>	

## US Settlement Process [Con't]

Date	Old T+3 Process	New T+2 Process
T+2	<ul style="list-style-type: none"> <li>• After novation, NSCC provides report to brokers and financial professionals at T+2 12PM</li> <li>• Includes net securities positions after the trade, and money to be settled</li> </ul>	<ul style="list-style-type: none"> <li>• Report is provided to brokers and financial professionals at T+2 12PM, as usual for settlement</li> <li>• By 3:45PM EST, numbers need to be confirmed and DTC rolls balances to client's settling bank</li> <li>• Once all bank balances have been acknowledged, applicable debit/credit will be posted to settling banks</li> </ul>
T+3		<ul style="list-style-type: none"> <li>• NSCC gives DTC settlement guideline with final figure of each client's net debit or credit</li> <li>• DTC transfers ownership of securities via book-entry electronic movements and transfers funds between settling bank</li> <li>• Broker-dealers inform settling banks upon receipt of NSCC clearing calculations to send funds to DTC</li> </ul>



## Question 2

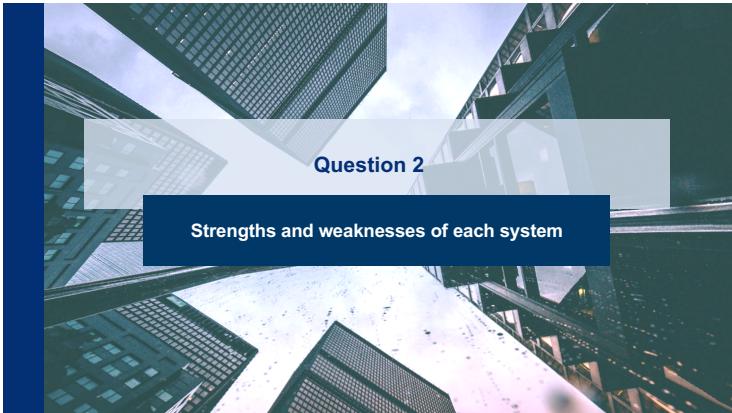
### Comparison of the process of Equities Clearing in Singapore vs. US

## Comparing Similarities And Differences

	SG - CDP	US – DTC & NSCC
CC Identity	Subsidiary of exchange (SGX)	Subsidiaries of DTCC, unrelated to US exchanges
Settlement Processes	CDP deals <b>directly with custodian banks</b> - as CCP and CSD (Central Security Deposit)	<b>Institutional Trade</b> - Trade <b>matched by Omgeo</b> - Settlement performed by DTC <b>Broker to Broker Trade</b> - Trade <b>matched by NSCC</b> - Settlement performed by DTC
Exchanges	Acts as CCP to trades executed on SGX-ST, SGX-DT, etc. as well as privately negotiated married trades reported to SGX-ST	Acts as CCP to trades executed <b>across 50 trading venues</b> in US and captured on the Universal Trade Capture System (UTC)
Settlement	Settles on <b>T+2</b>	Settles on <b>T+3 / new T+2</b>

## Comparing Similarities And Differences

	SG - CDP	US – DTC & NSCC
Collateral Amount	The higher of 500k or 5% of previous 12 months trading volume. Total collateral is >40M	Based on investment value, usually 50%
Ratio	1:1 settlement per transaction	Multilateral netting
Matching	Matching of seller and buyer conducted by <b>SGX</b>	Matching of seller and buyer conducted by <b>DTCC</b>
Buy Action	It is done in an active way.	It is done in a passive way.



## Question 2

### Strengths and weaknesses of each system

## Where US does better than Singapore

Strength of U.S	Weakness of Singapore
NSCC's utilizes Multilateral Netting <ul style="list-style-type: none"> <li>lower capital requirements</li> <li>risk is centralized</li> <li>use of funds are optimized</li> </ul>	SGX utilizes <b>1:1 settlement per transaction</b> <ul style="list-style-type: none"> <li>Higher capital requirements – each trade has its own capital required</li> </ul>
Each trade is tied to its own collateral. <ul style="list-style-type: none"> <li>Value of collateral depends on trade size</li> <li>Fluctuates depending on circumstance (eg. Gamestop Frenzy)</li> </ul>	Collateral posted is not solely dependent on current trade <ul style="list-style-type: none"> <li>Amount tied to the past 12 months trade volume</li> <li>Requires a certain set amount by collective members to be achieved</li> <li>Even if trade is small, might have large collateral</li> </ul>

## Where Singapore does better than US

Strength of SG	Weakness of U.S
Buying in is done <b>actively</b> <ul style="list-style-type: none"> <li>The CDP will do it on behalf of the buyer</li> <li>Checking of availability of securities for settlement is done automatically</li> </ul>	Buying in is done <b>passively</b> <ul style="list-style-type: none"> <li>The buyer has to voluntarily post notice of buy-in in case of failed delivery of securities</li> </ul>
Failed buy-in, will automatically proceed to cash settle outstanding sell allocations if: <ul style="list-style-type: none"> <li>Sell trade unsettled at the end of ISD**+5.</li> <li>The sell trade involves a security that can no longer be acquired in the market.</li> </ul>	Participants have to instruct DTC to attempt to redeliver failed transactions

\*ISD = Intended settlement date



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