

# BC3402

## Financial Service Processes and Analytics

IT in the Trade Cycle (II) & (III)



Nanyang Business School

### Overview

- Straight through processing
  - What is STP
  - Technological and non-technological factors that motivates STP
- Moves towards STP in Singapore and other ASEAN markets



Nanyang Business School

### Straight Through Processing (STP)

- The initial drive for shortening settlement cycle of securities.
- STP: Represents the complete automation of trade-related processes in the securities industry. It constitutes an end-to-end streamlining of operations within and across firms
- Includes trade initiation, settlement, auxiliary process (risk management, accounting)
- STP replaces manual communication processes of trade transactions
- Both internal and external parties involved in the trading process has to contribute to this.



Nanyang Business School

### Trends that lead to STP

1. Exploding trading volumes
2. Shrinking margins
3. Evolving marketplaces
4. Changing revenue model
5. Transformation of the buy-side
6. Globalization
7. Regulatory pressures



The demand for greater efficiency through STP



Nanyang Business School

## 1. Exploding Trading Volume

- Growth in trading
  - Increase in securities issued (USD71 trillion in 2000 and USD120 trillion in 2006)
  - Increase in trade frequency (esp. bull markets) (NYSE 1 billion a day in 1997 to 3 billion in 2005)
- Increase trading volume leads to higher settlement exposure – the risk of counterparty default the trade agreement is made and the time payment is made.
  - Credit risk – risk that party defaults on obligations
  - Liquidity risk – risk that party can only meet partial obligation
- Improving T+3 to T+1 reduces total exposure by US\$250billion



Nanyang Business School

## 2. Thinning Margins

- Increase volume but lower margins
  - Buy-side vs. Sell-side
- Reasons behind falling margins
  - Evolution of electronic trading, through Electronic communication networks
  - Increased commoditization of financial products
  - Regulatory changes – decimalization of stock prices in 2001 instead of \$1/16. Margins declined as much as 38%



Nanyang Business School

## The Good Old Days.....



## Modern Times



Nanyang Business School

## UBS Trading Floor at Stamford, CT



## Thinning Margins - Commoditization

- Standardization of financial products
  - Able to objectively and succinctly define the characteristics of the traded product
- Move to greater standardization of products
  - Increase market participation
  - Increase liquidity -> decrease bid-ask spread
  - E.g. International Swaps and Derivatives Association (ISDA) working on industry standard for credit derivatives such as Credit Default Swaps (CDS)



Nanyang Business School

## Thinning Margins - Electronic Trading

- 1996: LSE change from open outcry to electronic screen-based trading (The Big Bang)
  - Significant number of traders lose their jobs
- NYSE did the same too with a partly automated trading system (NYSE Hybrid Market on Jan 24, 2007)
  - Mostly liquid stocks trade here
  - Total shares handled by trading floor specialists and floor brokers fell from 86% in 2006 to 18% by mid 2007
  - 30% layoff of floor traders on day before system went live
  - “Death of the floor trader” syndrome



Nanyang Business School

## Thinning Margins - Regulation

- In 2000/2001, SEC mandates all stock quotes to be cents, instead of \$0.0625 (\$1/16) as the minimum increment.
  - Move from imperial to metric
  - Reduce bid-ask by 50% since then
- Regulation for greater transparency in different security classes e.g. fixed income
  - Fixed income (e.g. bonds)
  - National Association of Securities Dealers require all corporate bonds traded prices to be posted 15 minutes after the transaction onto their online system (Trade Reporting and Compliance Engine – TRACE)
  - Increase price transparency -> decrease spread



Nanyang Business School

Sell side afraid that buy / S.S. eliminated  
side goes to market directly ~ clearing time

### 3. Evolving Marketplaces and Direct Market Access

- A good marketplace should have: 1) transparency; 2) access and 3) competition
- Regulators are forcing marketplaces to display prices
- Merger and Acquisitions consolidate the world of exchanges.
  - CBOT acquired by Chicago Mercantile Exchange: 70% electronic trading and 25% open outcry
  - NYSE and NASDAQ have acquired various ECN (Electronic Communication Networks)



Nanyang Business School

### Evolving Marketplaces and Direct Market Access (Cont'd)

- Fragmentation market: Buyers need to go to different markets to determine the price for their trades.
- US market is fairly fragmented – but there are actions taken by marketplace to consolidate them
- Multiple venues for trading – 1) Exchanges 2) ECNs 3) Dark books 4) Private negotiated (OTC)



Nanyang Business School

### Evolving Marketplaces and Direct Market Access (Cont'd)

- DMA tools allow buy-side clients to directly access electronic exchanges, liquidity pools, ECNs without having to go through the broker's trading desk

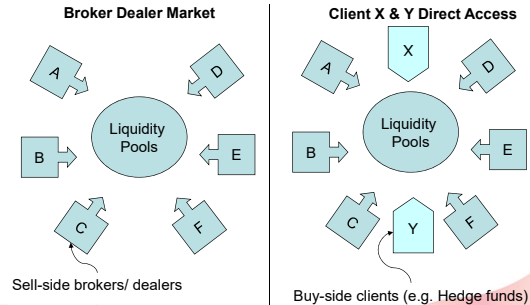
Example: [Lava Trading](#); [Rediplus](#); PASSPORT

- Mainly buy-side uses this to reduce commission paid to the broker-dealer
- Hedge funds uses DMA aggressively; over 30% of buy orders are routed through DMAs
- Expanding into different classes of FI including FX, options, and futures
- Also known as Executive Management Systems (EMS) and in direct competition with Order Management Systems which are traditionally used by broker dealers to route orders to liquidity pools.



Nanyang Business School

### DMA with electronic market access



Nanyang Business School

## 4. Changing Revenue Models

- Two strategies in increasing profits in a market that experience shrinking profit margin: 1) Low-touch model and 2) High-touch models
- Low touch model:
  - create and offer sophisticated electronic and algorithm trading to clients.
  - automation to increase speed and reduce human intervention (decrease cost per trade)
  - Sell-side is more interested in making buy-side trades to be more cost effective and speedy



Nanyang Business School

## Changing Revenue Model (Cont'd)

- High touch model (structured profits)
  - Provide more complex structured products
  - Role of financial engineers –intellectual labor intensive
  - Tailor products to needs of particular clients
  - Occur infrequently but carry high margins
  - Largely used for hedging



Nanyang Business School

*i.e. Accumulators.*

*product JP: 2008 J5/ 2008 to help buy side clients hedge against possible financial risk*

## 5. Transformation of buy-side

- Change in composition of buy-side – becoming savvy and wants more control over the trade
- Major player – the hedge funds US\$1.2 trillion in 2006 Assets Under Management (AUM)
- A move towards greater autonomy from the buy-side. They want better control over execution of the trades.
- Use multiple dealer-brokers for research and execution of the trade.
- Buy side now have better access to liquidity pools than before (through DMA tools)



Nanyang Business School

## 6. Globalization

- First Trans-Atlantic merger of Euronext and NYSE in 2006/2007
- Hostile takeover of LSE by NASDAQ (failed in 2007)
- Strategic alliance between Tokyo Stock Exchange with NYSE
- NYSE looking at buying a stake in National Stock Exchange of India and even in China
- The move towards reducing global market fragmentation: a consolidated liquid pool



Nanyang Business School

## 7. Regulatory Pressure

- SOX, Reg NMS (United States), MiFID (Euro)
- Reg NMS
  - Deadline Fall 2007
  - Promote market transparency, use of electronic trading to access markets
  - Implicit guarantee that investors get best available price from brokers and dealers
  - Electronic display of prices from different markets by brokers/ dealers

## Straight Through Processing

### Four Pillars of STP

- Seamless communication between parties
- Significant real-time processing, less batch processing
- Electronic, not physical processing
- Concurrent, not sequential, exchange of information

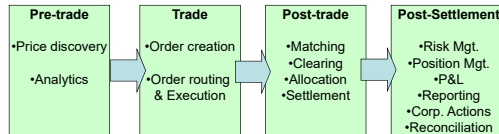
## Performance Metrics for STP

- Connectivity: between systems, both within firms and between firms involved in the trade execution and post-trade monitoring
- Speed: achieve T+1 settlement time
- Accuracy: Ensure integrity of financial data
- Standardization: For industry participants to effectively and seamlessly exchange transaction related information.
- Scalability: Ability to scale up for new markets
- Reliability: Fault resistance, redundancy built into it
- Security: Involves large quantum of monetary assets being transacted.
- Extendibility: Flexible enough to accommodate new products

## The Trade Lifecycle

- The business activities that is associated with a trader or investor buying and selling a security.
- When does it begin?
- When does it end?
- Who is involved?
- What information technology is required throughout the trade cycle?

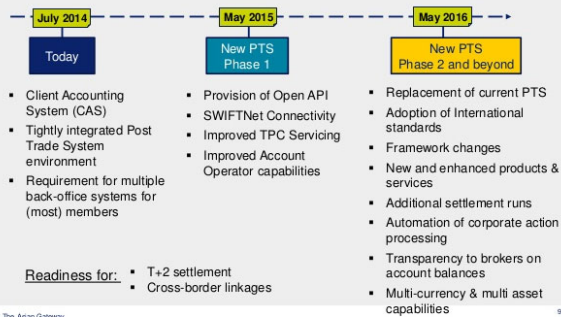
## The Trade Lifecycle



•STP automates this entire process as much as possible

## CHANGES TO THE POST TRADE (S'PORE AND ASEAN)

### SGX – New Post Trade System (PTS) Timeline



## ASEAN TRADING LINK

ASEAN Vertical Clearing and Settlement Structure for Equity Securities

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam (HNDQ)	Vietnam (HOSE)
<b>Trading</b>	Indonesia Stock Exchange (IDX)	Bursa Malaysia (BM)	Philippine Stock Exchange (PSE)	Singapore Exchange (SGX)	Stock Exchange of Thailand (SET)	Hanoi Stock Exchange (HNQ)	Ho Chi Minh Stock Exchange (HOSE)
<b>Matching</b>	Kustodian Sentral Efek Indonesia (KSEI)	Bursa Malaysia Securities Clearing (BMSC)	Philippine Depository & Trust Corporation (PDTIC)	Central Depository (CDP)	Thailand Clearing House (TCH)	Vietnam Securities Depository (VSD)	Vietnam Securities Depository (VSD)
<b>Clearing</b>	Kliring Penjaminan Efek Indonesia (KPEI)	Bursa Malaysia Depository (BMD)	Securities Clearing Corporation of the Philippines (SCCP)	Central Depository (CDP)	Thailand Clearing House (TCH)	Vietnam Securities Depository (VSD)	Vietnam Securities Depository (VSD)
<b>Securities Settlement</b>	Kustodian Sentral Efek Indonesia (KSEI)	Bursa Malaysia Depository (BMD)	Philippine Depository & Trust Corporation (PDTIC)	Central Depository (CDP)	Thailand Clearing House (TCH)	Vietnam Securities Depository (VSD)	Vietnam Securities Depository (VSD)
<b>Cash Settlement</b>	Approved Commercial Banks	Bank Negara Malaysia (BNM)	Approved Commercial Banks	Approved Commercial Banks	Approved Commercial Banks	Bank for Investment & Development of Vietnam (BIDV)	Bank for Investment & Development of Vietnam (BIDV)