

Discuss for
“Co-Location, HTF and Exchange Profitability”,
&
“Global Competition in Exchange Industries
and Challenges for Asia-Pacific Exchanges”

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Co-location Services and High Frequent Trading

❖ What is Co-location Services?

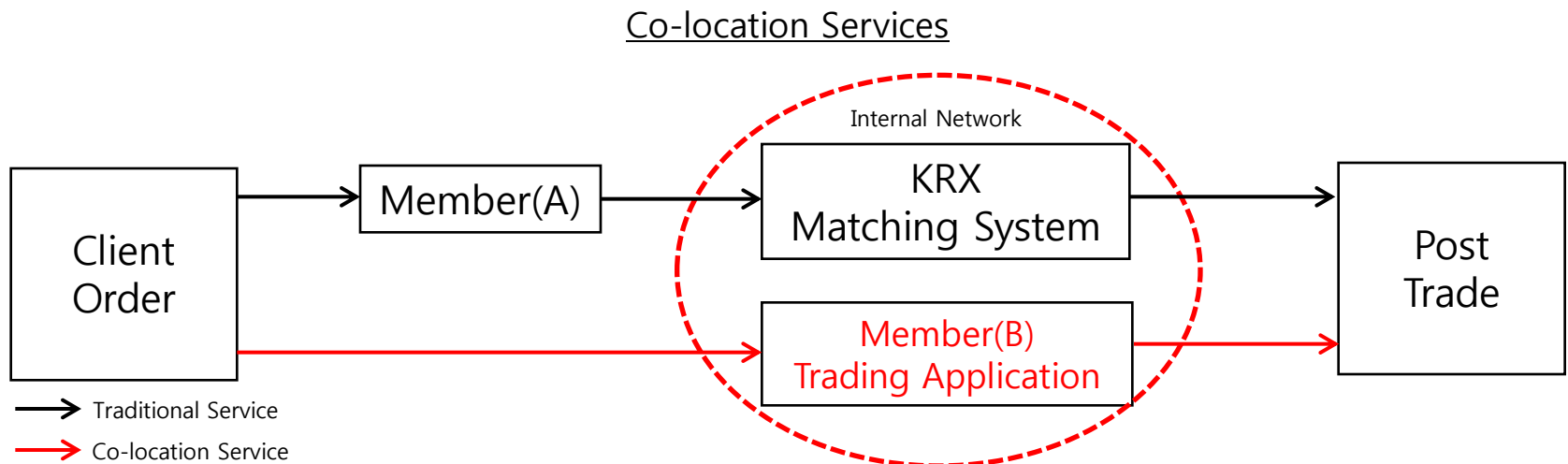
- Co-location means that exchange members(participants) trading applications are located in the same data-center as the exchange's matching engine
- Co-location serves low latency between order and execution time

❖ What is High Frequent Trading(HFT)?

- HFT is a type of algorithm trading characterized by low-latency (or fast execution speeds)

❖ Why are they promising?

- Co-location services help to fast access information and executions, which have more profits
- HFT provides market liquidity and reduces bid-ask spread, which produces cheap investing



Negative Perceptions on Co-location, HFT

❖ HFT can induce periodic market instability

- HFT usually provides market liquidity, but HFT unusually stops to provide liquidity to protect themselves from informed traders
- Unexpected order cancelation or program error can cause systematic risk such as Flash-Crash event (2010.5.6)

❖ HFT can make (arbitrage) profits as a predatory trader

- Some papers suspect that HFT can exploit uninformed trader (especially short-term noise trader) with fast access to order information
- Some classifies HFT types into good HFT and bad (predatory) HFT, which do compete with other active orders for consumption of available liquidity

Exchange Profitability in HFT(Low-latency) Business

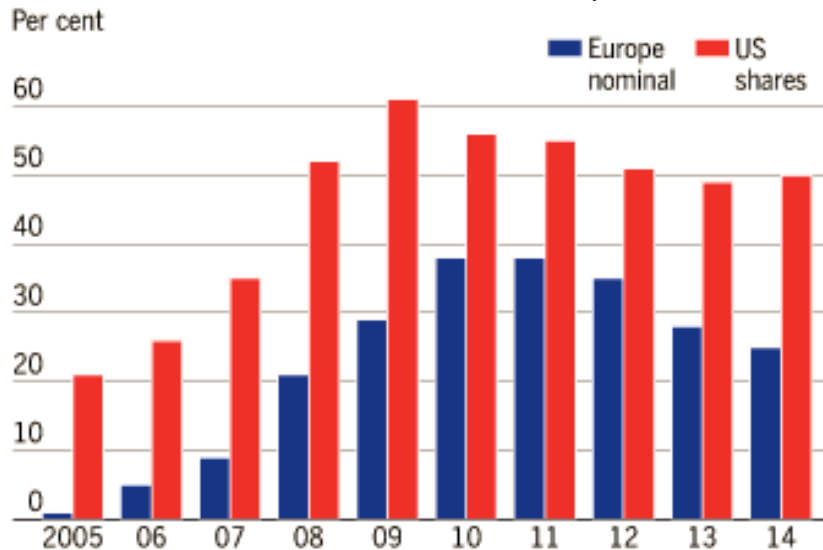
❖ HFT market share in equities declines

- Both in US and Europe, market share of HFT in equities has declined since 2009~2010
- In 2014, market share of HFT in equities is 50%, 25% respectively in US and Europe

❖ Revenues of HFT sharply declines

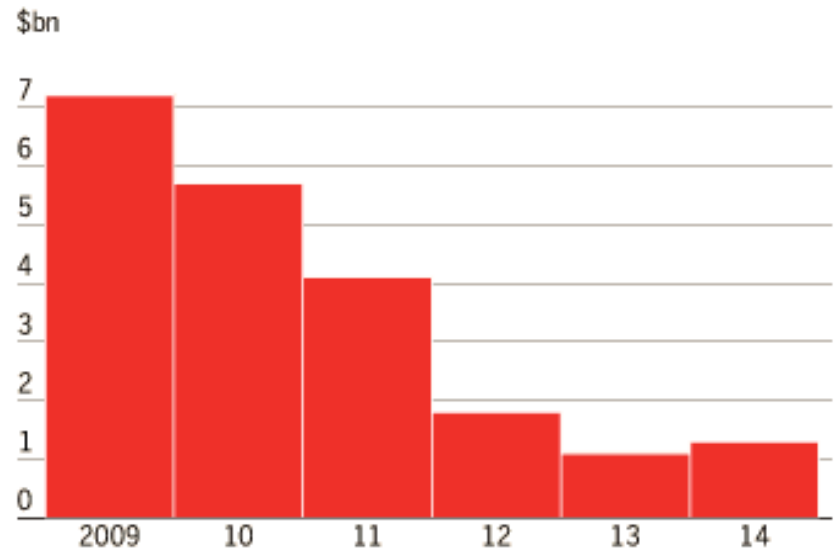
- Due to the competition and low volatility environment, revenues of HFT in US stocks has sharply declined from 7 \$bn (2009) to 1.2 \$bn (2014)

Market share of HFT in equities



Source: TABB Group

Revenues of HFT in US stocks



Source: TABB Group

Global Regulations on HFT, How we apply in Korea?

❖ Background

- On May 6, 2010, Dow Jones index dropped by 998.5pt (about 9%) during about some minutes, and it fortunately recovered up to that point (Flash Crash Event).
 - SEC and CFTC reports that some HFT ordered and canceled about 20,000 times by use of spoofing algorithms, and their strategies were regarded as fraud and market manipulation
- In addition, delay on Facebook's IPO(2012), Knight Capital's big loss(2012), Halt of CBOE(2013) were also attributed to HFT

❖ MiFID II(2018~)

- Firms and individuals that use Algo or HFT register to the regulatory authority, and they have effective system, procedures and arrangements to ensure resilience and capacity(testing & monitoring) as well as business continuity plans and mechanisms to control trading("kill function")
- Italy started to impose a tax on high frequent traders

❖ US (SEC & CFTC)

- Algorithm or HFT traders register to SEC or CFTC
- SEC and CFTC considers to reinforce Algo or HFT to the similar level of MiFID II

❖ How we apply in Korea?

- To achieve global competitiveness, we should adopt co-location services by stages
 - Proximity(1st) → Co-location for qualified investors(2nd) → Co-location completely(3rd)
- Similar to global regulations, we induce voluntary participants and be rigid for unfair trading

Environments around Global Derivatives Exchanges

- ❖ **Global ETD market is steadily growing, but OTC market has shrunk**
 - Trading volume of ETD market is growing about 10% annually except Korea during 10 years
 - The value of replacing outstanding OTC is just 14.5 \$trn to the lowest level since 2007
- ❖ **Asian ETD market is fast growing**
 - Commodity derivatives in China and India are fast growing
 - Equity and Equity-index derivatives also are steadily growing in India, Hong-Kong, Singapore, and Japan owing to the underlying asset's volatility and listing new products
- ❖ **US & Europe's Exchanges seeks to diversify business areas such as information, post-trade (OTC clearing, trade-repository)**
 - Due to the increase of competition and regulatory demands of OTC, global derivatives exchanges transformed their business from transaction to information and post-trade service
 - Major global derivatives exchanges seek to acquire both IT company and OTC clearing & trading platform as well as M&A with other exchanges
 - ICE acquire Superderivatives(2014), IDC(2015), Trayport(2015)
 - Deutsche Boerse acquire Clearstream(2002), 360T(2015)
 - LSE acquire Millennium IT(2009), Russel Index(2014), LCH.Clearnet(2012)
 - DB & LSE agrees on M&A(2015~2016)
 - CME acquire Dow Jones Index(2010), trying to merge GFI(2014~2015)
 - Nasdaq acquire Dorsey, Wright & Associates(2015), Blockchain IT companies(2015~)

Profitability of Global Derivatives Exchanges

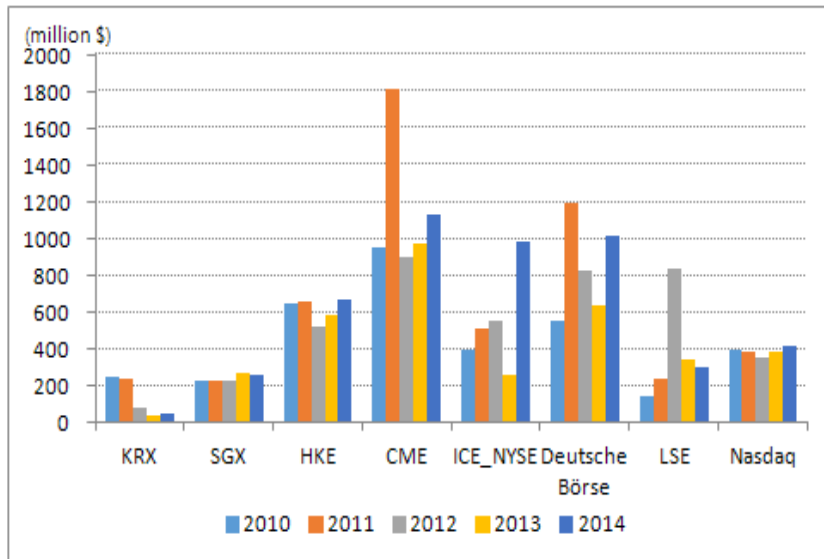
❖ Revenues of global derivatives exchanges is growing except Korea

- Net income of CME, ICE_NYSE, Deutsche Börse respectively obtain about 1 \$bn in 2014
- On the other hand, net income of KRX sharply declined because of the decline of ETD market

❖ Growth of traditional business is stagnant

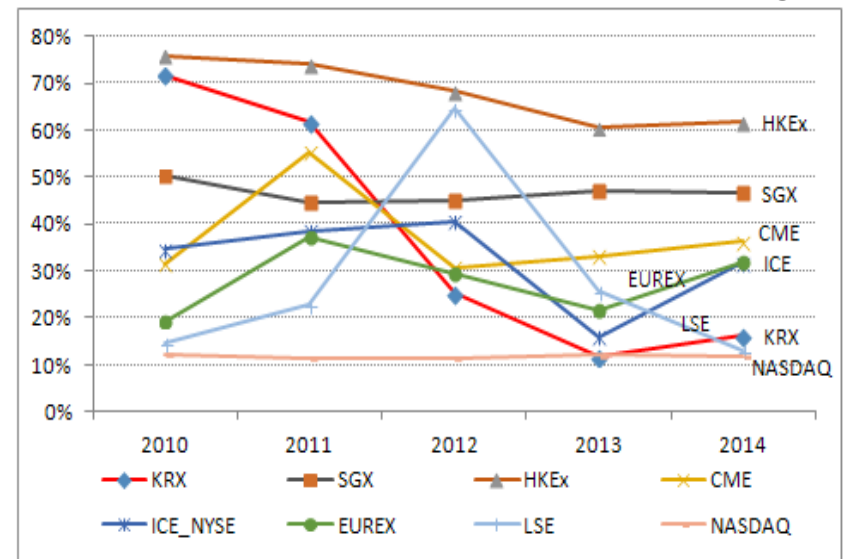
- In general, revenues to sales ratio of global derivatives exchanges is stagnant
- Especially KRX's revenues to sales ratio falls steeply (70%('10)→15%('15))

Net Income of Derivatives Exchanges



Source: Bloomberg

Revenues / Sales Ratio of Derivatives Exchanges



Source: Bloomberg

Business Diversification of Global Derivative Exchanges

❖ Global Derivatives Exchanges try to do business diversification

- CME, ICE, Eurex (DB) have centered derivatives exchanges, generating most of their revenues from trading services in the ETD market, and from clearing and settlement services of OTC
- LSE and Nasdaq focuses on Information contents and IT solution, whose contributions to revenues are fast increasing

❖ They regard GFS as a new business opportunity in the OTC derivatives market

- CME, ICE, DB, LSE preemptively invested back office infrastructure such as CCP, TR, electronic trading platforms for OTC derivatives
- Recently they invest Blockchain technology for OTC trading and interbank settlement

Business Contributions of Derivatives Exchanges

Fee	CME ('10 V.S '15)	ICE ('10 V.S '15)	DB ('10 V.S '15)	LSE ('10 V.S '15)
Transaction & Clearing	83%→84%	80%→69%	73%→76%	66%→57%
Information	13%→12%	13%→ 18%	10%→ 14%	27%→ 36%
Extra	4%→4%	6%→13%	17%→10%	7%→7%

Source: CME, ICE, DB, LSE

Business Diversification of Derivatives Exchanges

	CME	EUREX	ICE	LSE
Derivatives	○	○	○	○
Cash		○	○	○
Clearing	○	○	○	○
Settlement		○		○
Custody		○		○
Indices	○	○		○
Technology		○	○	○
Market Data	○	○	○	○
Collateral Management		○		

Source: CME, EUREX, ICE, LSE

How to improve both profitability and growth of KRX?

❖ De-regulation in ETD market

- Lower the minimum deposit for futures and options (30 million won, 50 million won & 1-year's futures experience)
- Lower the minimum trading unit of KOSPI200 futures and options

❖ Inducing institutional investors

- Permit KRX to list new products voluntarily
- Co-location service

❖ Business diversification for post-trade, information, and etc.

- Improve OTC settlement and clearing service and expand the underlying asset for CCP mandatory services
- Develop new indexes and export related index-related products (futures, ETF, ETN)
- Invest a innovative technology such as blockchain and apply it to OTC derivatives trading (CDS), OTC stock & bond issuance and trading, settlement and clearing

Thank you very much