

JPX IR Day 2018



Vitalization of ETF Market and Approach to Low Latency Trading

Your Exchange of Choice

Hiroki Kawai, Executive Officer
Tokyo Stock Exchange, Inc.

July 3, 2018



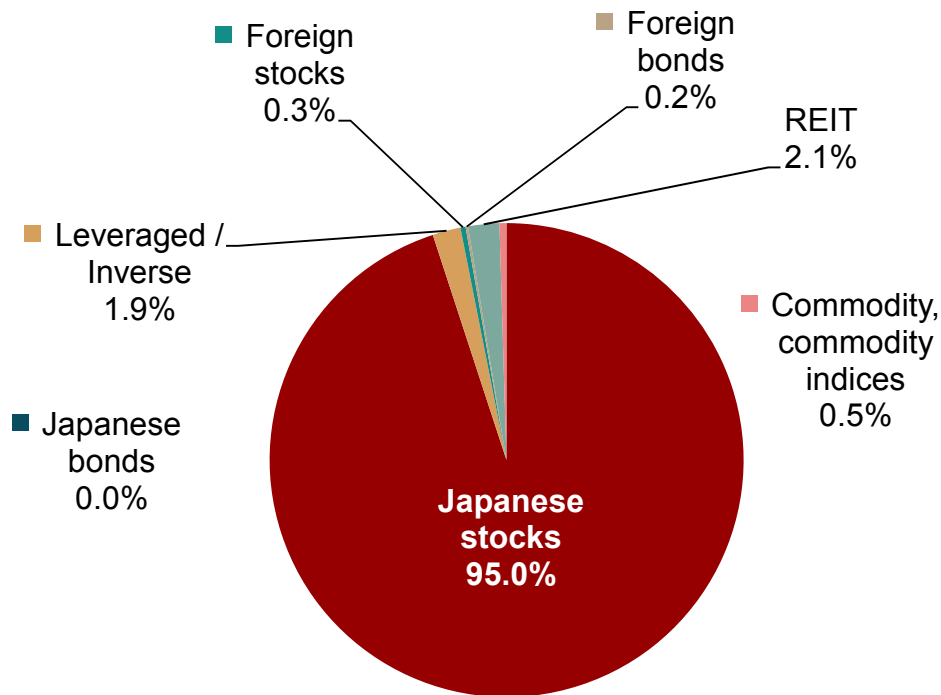
Vitalization of ETF Market



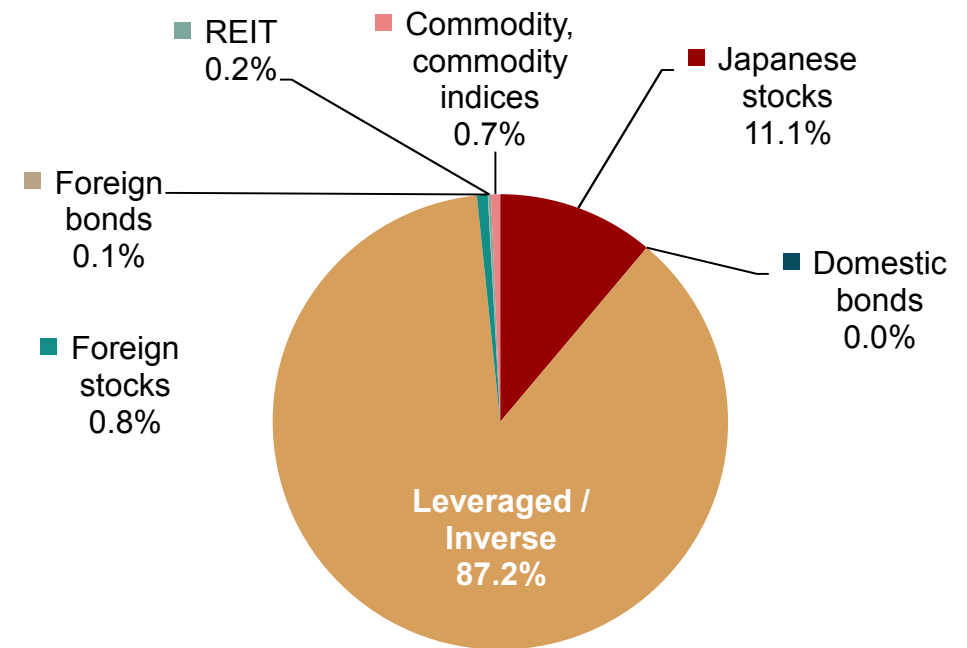
Market Making Scheme (1) Current State of ETF Market

- ETFs allow for investment in a variety of asset classes, etc. at a low cost and can also be traded at exchanges in the same way as stocks. Thus, ETFs are expected to be utilized as a trading tool and for long-term diversified investment by market participants, including retail investors.
- Currently, however, there is a focus on Japanese stocks for AUM and on leveraged/inverse ETFs for trades. From a long-term diversified investment viewpoint, it can be said that ETFs are not being fully utilized.

AUM



Average Daily Trading Value



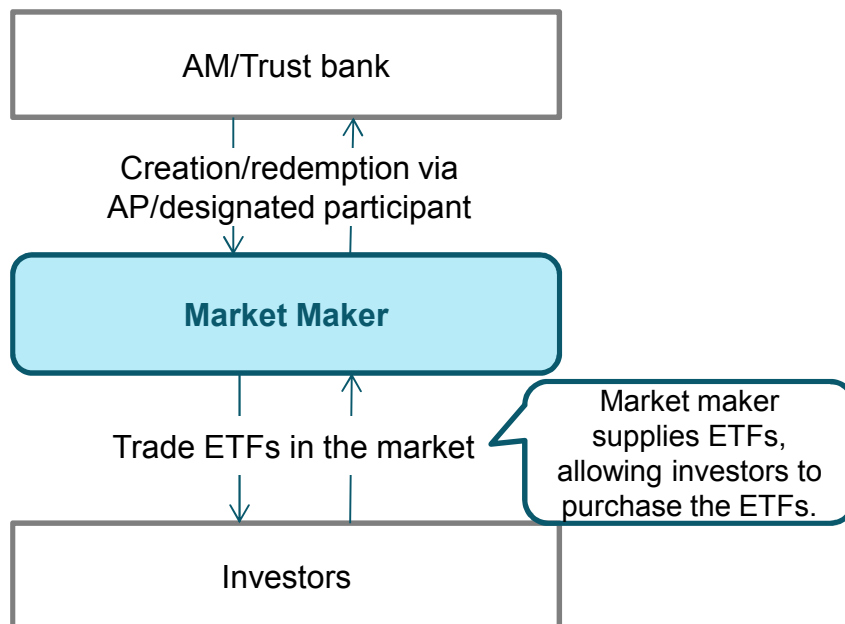
*Source: TSE. AUM is as of the end of 2017. Average daily trading value is that for 2017.

Market Making Scheme (2) Why is MM necessary?

- ETFs gain exposure in the market through the creation/redemption mechanism. As such, market makers play a crucial role as the trading counterparties who acquire the necessary assets for ETF creation/redemption.
- Currently, however, market makers display bid/ask quotes on a voluntarily basis, resulting in a limited number of issues with sufficient liquidity.

➡ If the scheme requires continuous quoting, then quotes are displayed in adequate quantities at appropriate prices at all times and investors can trade at better prices. With the introduction of the scheme, ETFs are expected to be utilized as a long-term diversified investment tool.

Trading Flow



Sample Order book under current illiquid conditions

Ask	Price	Bid
	1,720	
2	1,719	
3	1,718	
	1,717	
	1,716	
	1,715	
	1,714	20

Spreads and quantities (values) specified by the scheme.

Order book under MM scheme

Ask	Price	Bid
287	1,720	
17,460	1,719	
3	1,718	
	1,717	2
	1,716	17,490
	1,715	6,000
	1,714	204

Market Making Scheme (3) Overview

- TSE gives incentives to market makers that fulfill obligation to make certain continuous quotes.
- TSE started to accept applications for MM in April 2018, and MM Scheme launched on July 2, 2018.

Item	Provisions	Description
Eligible issues	ETFs (excluding leveraged / inverse ETFs)	<ul style="list-style-type: none"> • ETNs are not eligible. • Leveraged / inverse ETFs are not eligible.
Qualifications	Prop desk of trading participant / Registered low latency trader	<ul style="list-style-type: none"> • Prop desk of trading participant (Type 1 financial instruments business operator/foreign securities broker) • Agency (registered as low latency trader)
Continuous quote obligation Display quotes in sufficient quantities at appropriate prices at all times	1. No. of ETFs for continuous quoting	<ul style="list-style-type: none"> • Must fulfill continuous quote obligation for at least a certain number of ETFs (e.g. at least 30 issues of which at least 20 are illiquid)
	2. Quoting time	<ul style="list-style-type: none"> • At least 80% of the time during continuous auction. • Exempt from obligation during trading halts, etc.
	3. Spread & minimum quantity	<ul style="list-style-type: none"> • Largest spreads / minimum quantity depend on type of ETF
Incentives Attractive level for market makers	1. Proportional to trading value	<ul style="list-style-type: none"> • Higher incentive rates for illiquid issues • No incentives for issues with a certain level of liquidity
	2. Proportional to no. of quotes	<ul style="list-style-type: none"> • Charge no fees in effect on quotes to allow adequate quantity of quotes to be made for market making
	3. Virtual server* with no fees *ID necessary to make quotes	<ul style="list-style-type: none"> • To encourage market making for more issues, if continuous quote obligation is fulfilled for a certain no. of issues, a virtual server will be provided with no fees.



*For more information, see the link below:
<https://www.jpx.co.jp/english/equities/products/etfs/market-making/index.html>

Market Making Scheme (4) MMs and Eligible Issues

- Since the day 1, five market makers are providing liquidity to 98 issues.

Market makers (Since day 1)

- Nomura Securities Co., Ltd.
- Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
- Vivienne Court Trading (leading Australian market maker)
- Optiver Australia Pty Limited (leading Australian market maker)
- Flow Traders Asia Pte Ltd (leading Singaporean market maker)

Eligible issues

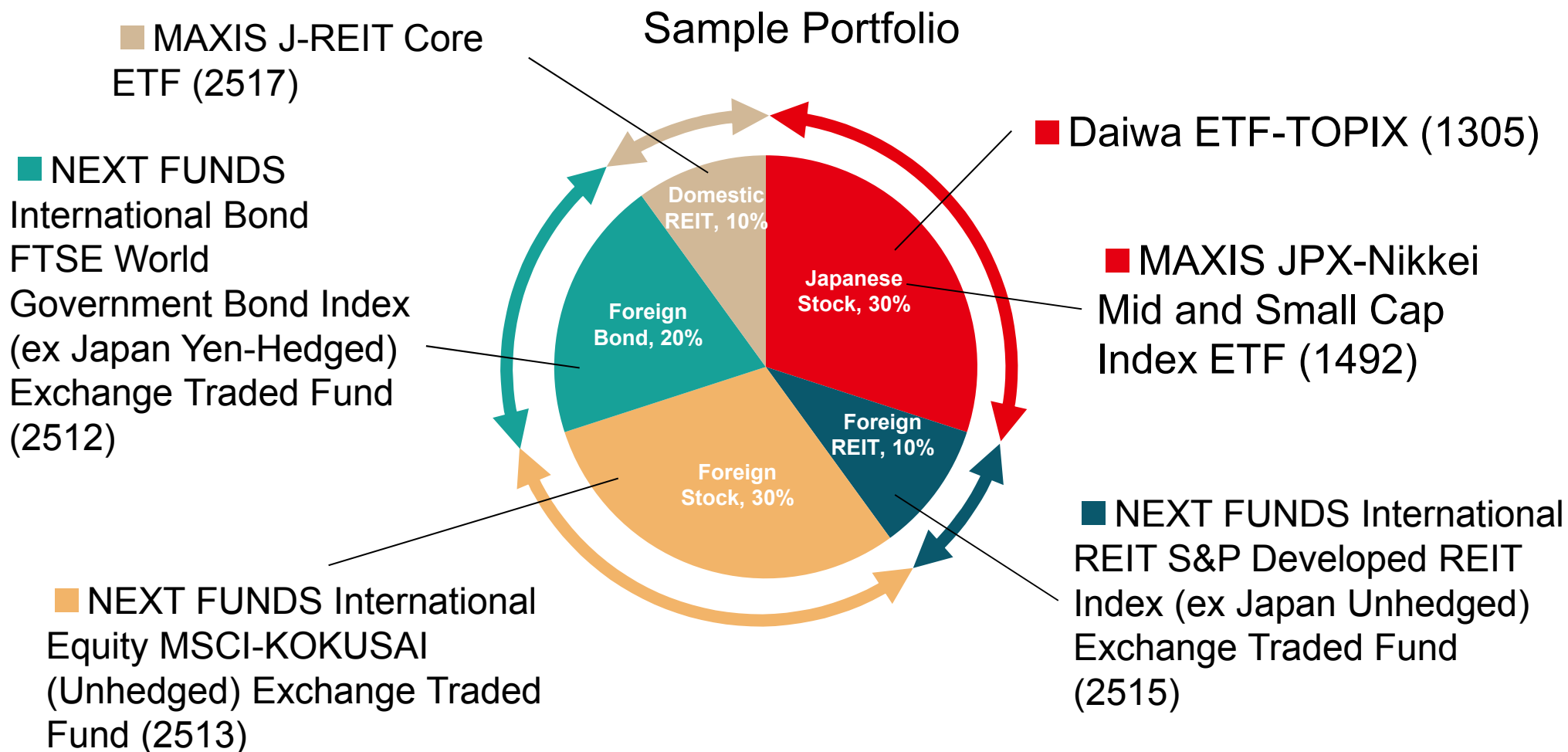
- In the past, mainly ETFs tracking Japanese leading indices enjoyed high liquidity. Now that the continuous quote obligation will cover illiquid issues, ETFs tracking a wider variety of indices and assets have been selected.
 - * By market: 20, By sector: 24, By size: 6, By theme: 22, Domestic/foreign bonds: 5, Foreign stocks: 5, Domestic/foreign REITs: 10, Commodity: 3, etc.
(The figures indicate no. of issues.)

Sponsored scheme

- Apart from TSE's MM incentive scheme, under the sponsored market making scheme in which asset managers set their own continuous quote obligation and incentives, three AMs* have selected 24 issues for market making in order to improve liquidity of and increase the AUM of their ETFs.
 - * Nomura Asset Management Co., Ltd., Daiwa Asset Management Co. Ltd., and Asset Management One Co., Ltd.

Reference: Portfolio Capitalizing on ETFs

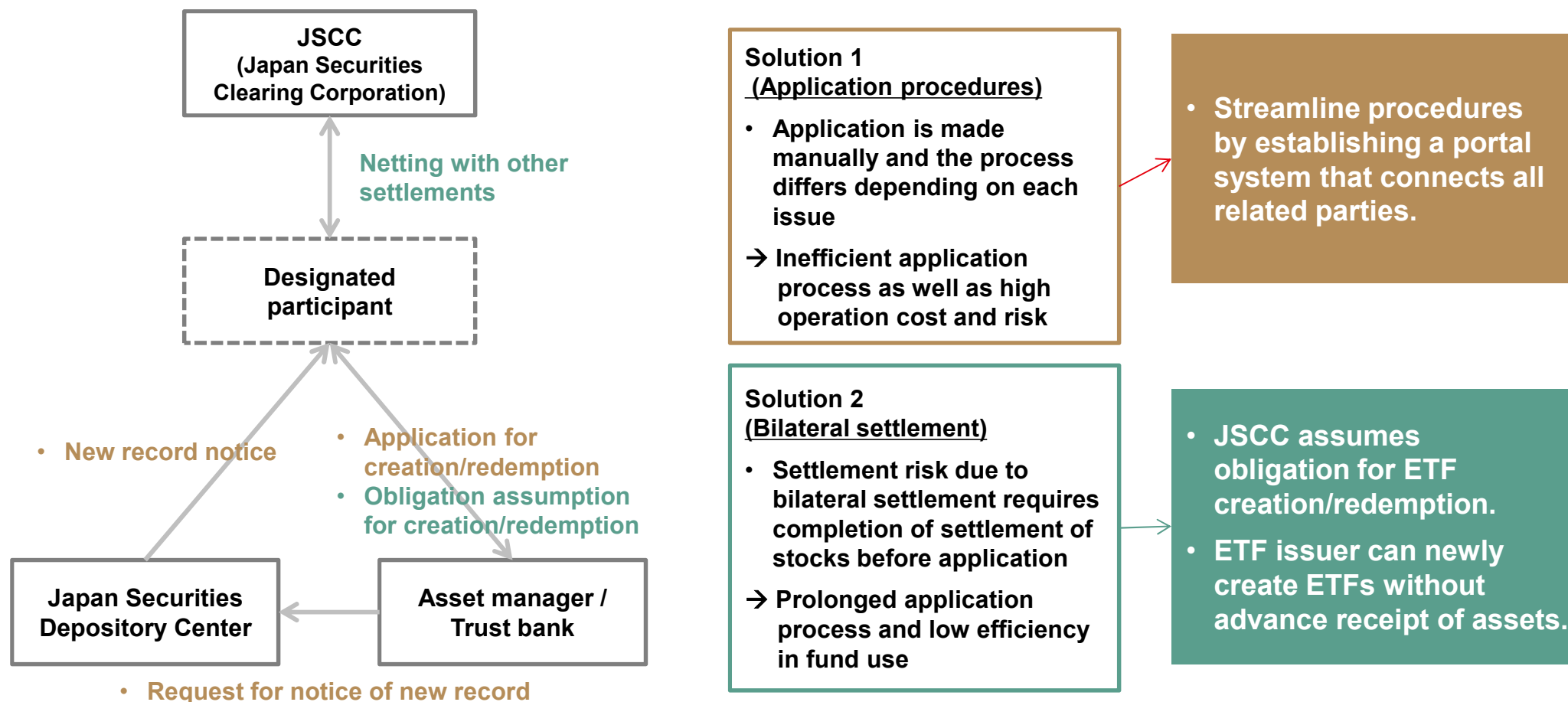
- The ETF Market Making Scheme enables creation and trading of portfolios that hold a variety of asset classes by making use of market making eligible issues.



*Each issue for each asset class was randomly selected from those for which market makers have actually applied.

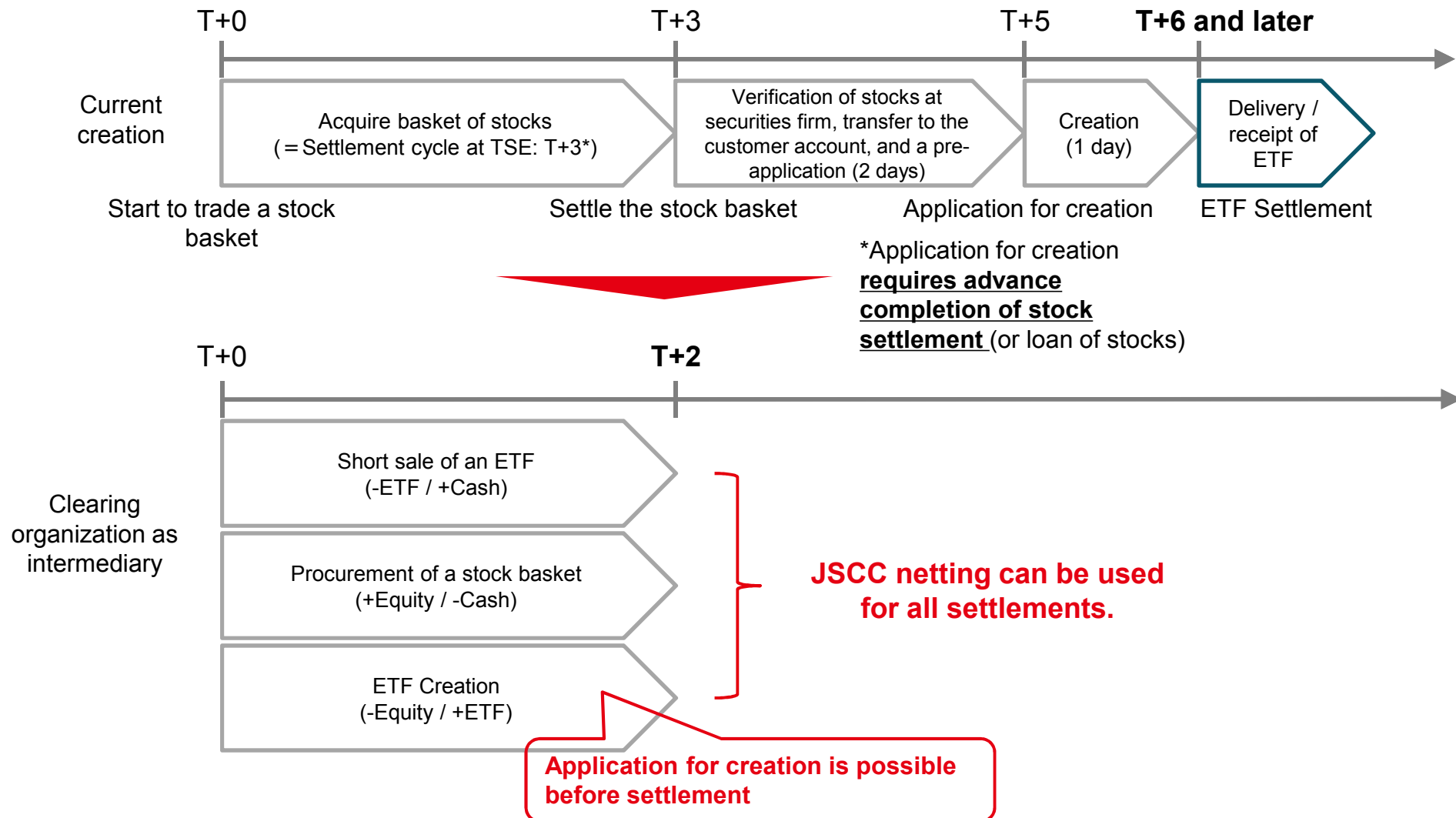
Smoother Creation/Redemption (1) Overview

- In the current ETF creation/redemption process in Japan, (1) there remains a lot of manual work with the application process and settlement period being different for each issue, and (2) the period from application to settlement is long and costly due to practices of advance receipt of assets to avoid OTC settlement risk
- Improvement will be made through obligation assumption by a clearing organization and establishment of a portal system for ETF creation/redemption. (Changes are due to happen after the shortening of settlement cycles for stocks, etc., which is schedule for Jul 16, 2019.)



Smoother Creation/Redemption (2) Settlement/Trading

- JSCC will make it possible to net stocks and ETFs, adding to the facilitation of a shortened and streamlined creation/redemption process, for more active arbitrage, etc. that makes better use of both stocks and ETFs. This, coupled with the MM scheme, is expected to result in higher liquidity for the ETF market.



*With shortened settlement cycle of stocks (T+3→T+2), settlement for ETF creation/redemption with JSCC as intermediary is expected to be T+2.

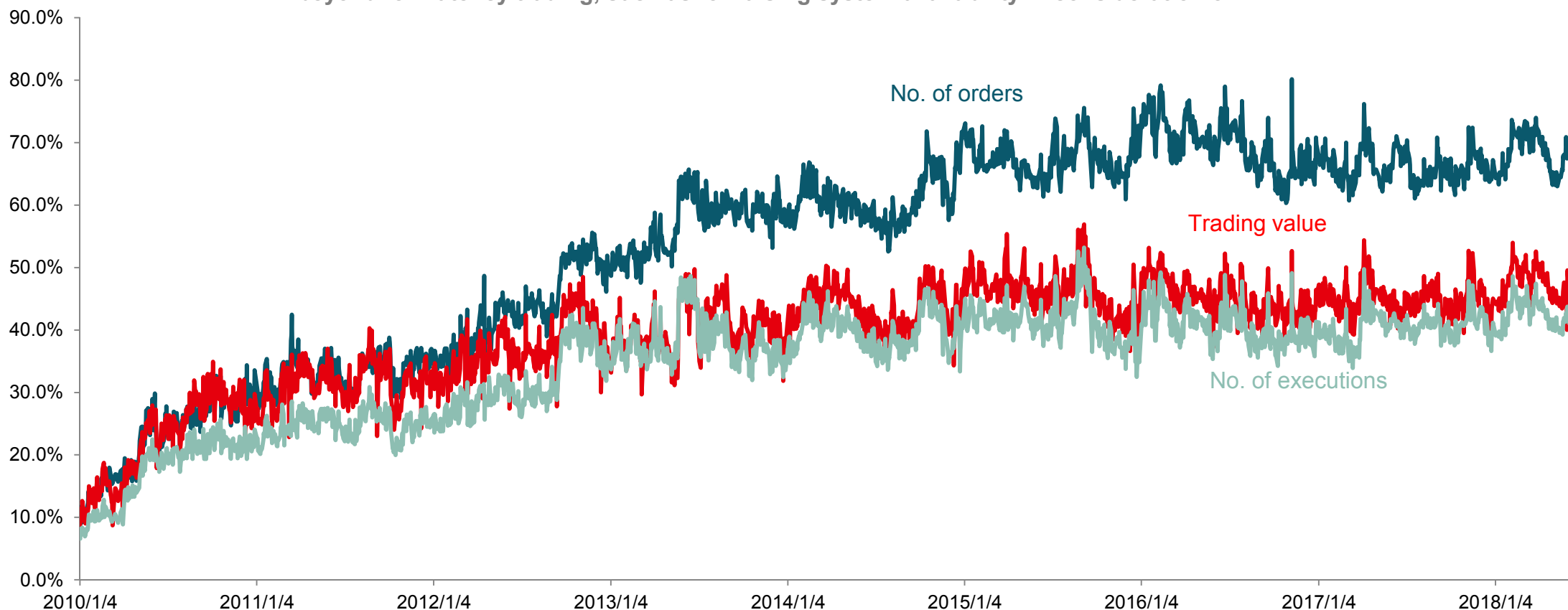
Approach to Low Latency Trading



- Low latency trading has an increasing presence in the market due to advancements in information technology and sophisticated trading methods among other developments. We need to further understand the actual state of low latency trading and maintain a stable market to avoid unforeseeable circumstances that could affect the market.

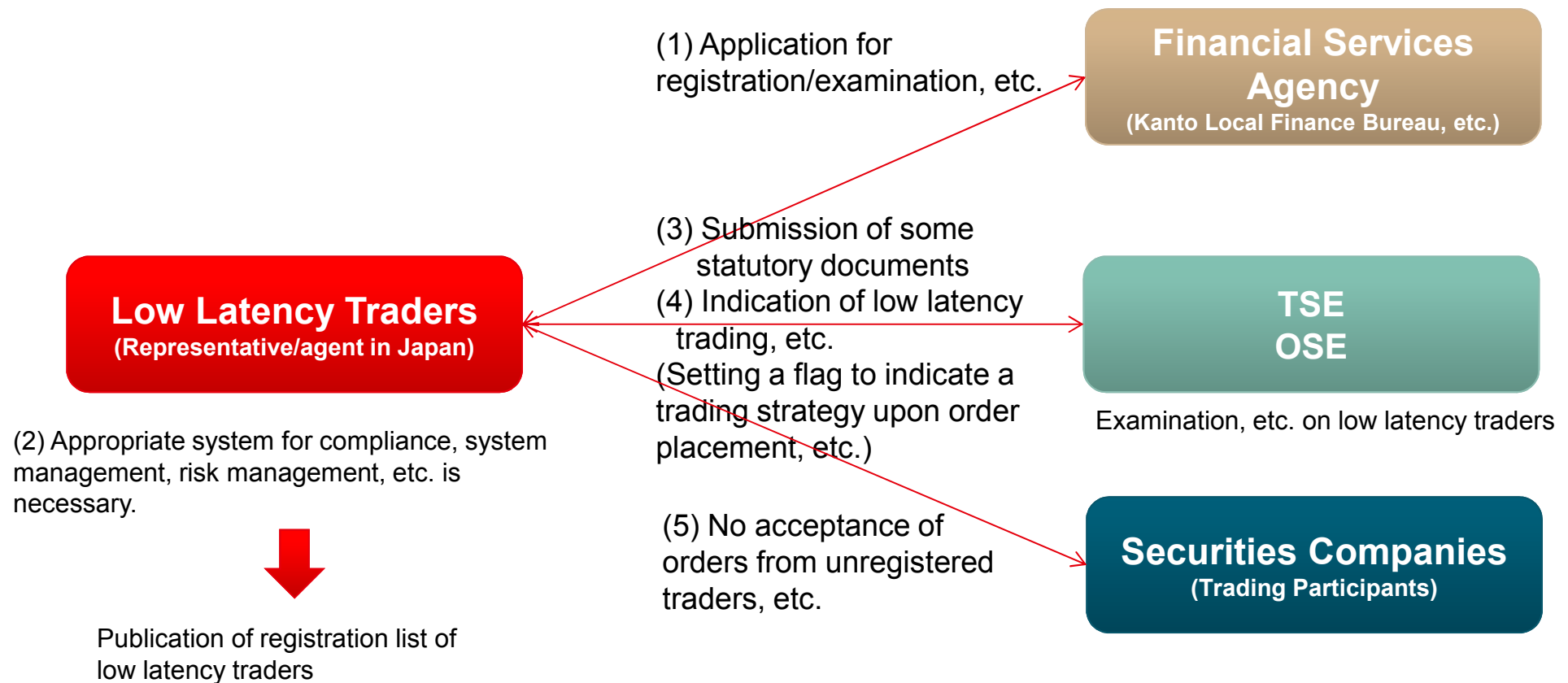
Co-location ratio

*The co-location ratio differs from that of low latency trading, because co-locations are used for various purposes beyond low latency trading, such as for raising system availability in consideration of BCP.



*Source: TSE

- The registration regime for low latency traders was introduced in April 2018.
- The regime specifies such matters as registration of low latency traders with the regulatory authority, development of management system, appropriate system management, and indication of low latency trading upon order placement.



Basic Policy

A constantly changing environment surrounding the securities market due mainly to advancements in information technology and the spread of algorithmic trading

Sophisticated and diversified investor needs regarding trading rules and execution services



We will reinforce market functionality by improving trading rules and enhancing trading services to adapt to environmental changes and user needs.
(Q3 FY2019)

Major Initiatives

I Improve trading rules

- Improve sequential trade quotes (STQ)
- Facilitate the formation of closing prices

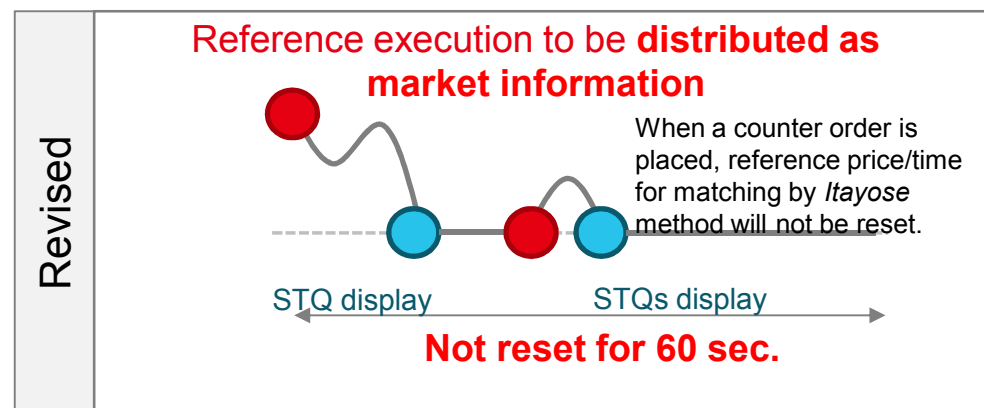
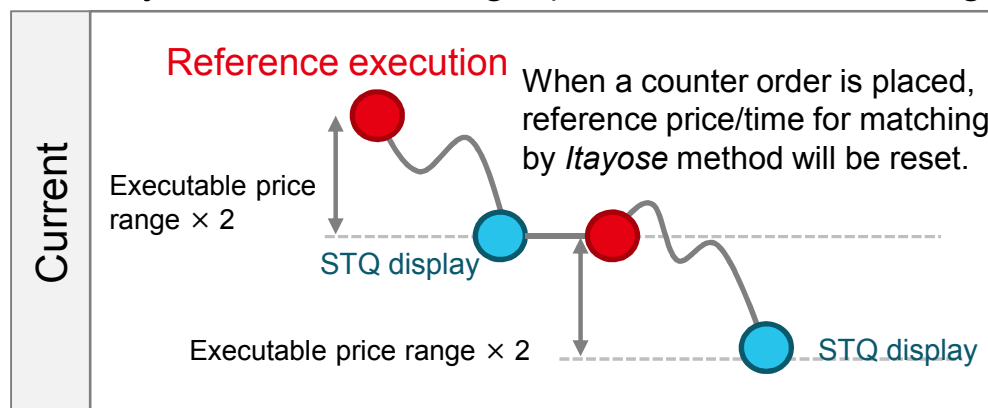
II Improve systems

- Enhance risk management
- Improve environment for user tests
- Enhance processing capabilities

- We will improve trading rules to reduce sharp and sudden price movements, as well as to facilitate formation of closing prices in response to trading needs at end-of-day closing auction.

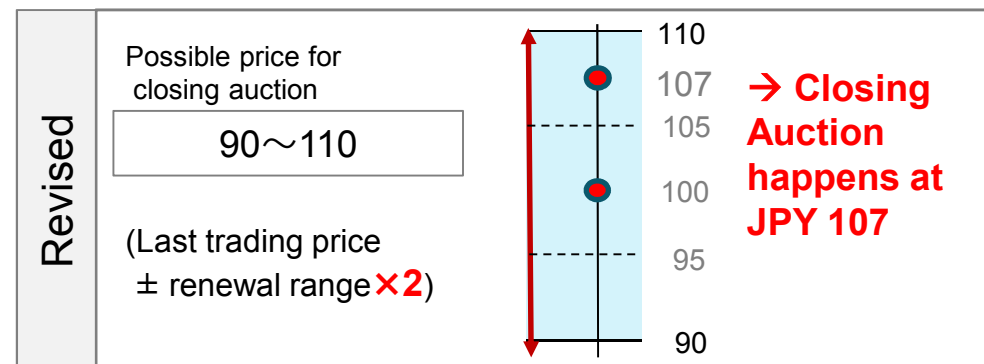
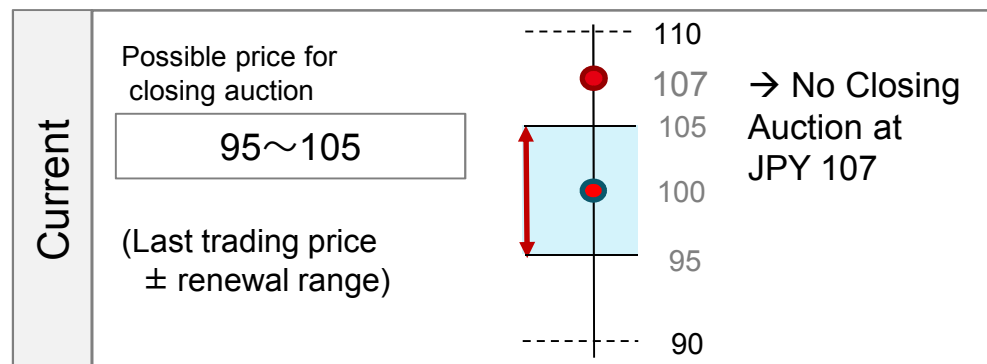
Review of STQ

- To prevent sudden and sharp price movements, the new mechanism does not allow the price to move beyond a certain range (twice the renewal range) for 60 seconds.



Review of End-of-Day Closing Auction System

- While the current end-of-day closing auction system is being followed, renewal range will be doubled only for the end-of-day closing auction to provide opportunities for smoother execution.



Supplementary Information



Criteria and Concept for Quote Obligation in Market Making Scheme

- The scheme has been designed to provide an environment where investors can always trade many illiquid ETFs at an appropriate price with sufficient number of orders.

	Criteria	Concept
No. of ETFs for Continuous Quoting	At least 30 ETFs, of which 20 or more are illiquid (or at least 15 foreign index ETFs)	<ul style="list-style-type: none">• To avoid a large number of applications for only highly liquid ETFs, market makers are required to sign up for illiquid or foreign ETFs. <p>*Market makers do not necessarily apply for many ETFs for first six months after sign up.</p>
Maximum Spread	20 bps (TOPIX, etc.) - 50 bps (Foreign stocks) * 80 bps are used for some ETFs. * Two to three ticks are used for low priced ETFs.	<ul style="list-style-type: none">• The level is designed to have <u>low costs compared to other financial products.</u>
Minimum Quantity	JPY 5 mil. (Foreign stocks) - JPY 30 mil. (TOPIX, etc.)	<ul style="list-style-type: none">• <u>A certain quantity is secured for retail investors to trade with confidence about liquidity.</u>• For TOPIX/JPX-Nikkei 400/Nikkei 225, sufficient quantity is provided for a certain size of institutional investors.
Quoting Time Period	No less than 80%	<ul style="list-style-type: none">• <u>Higher criteria are set compared to those of other market making scheme.</u>

Criteria and Concept for Quote Obligation in Market Making Scheme

- The level of the scheme for illiquid ETFs has been designed to be attractive for market makers.

	Criteria	Concept
Incentives Proportional to Trading Value	0 – 0.9 bps of trading value * The rate will be reviewed according to liquidity (every three months). * Higher rates are applied to ETFs tracking indices linked to 20-year savings-type NISA.	<ul style="list-style-type: none">• Higher rate is provided on illiquid ETFs that involve a higher risk when displaying quotes.
Incentives Dependent on No. of Orders	Refund of JPY 0.1 per order	<ul style="list-style-type: none">• For highly accurate market making, access fees imposed proportional to the number of orders should be exempted. <u>Thus, incentives almost equivalent to the amount of access fees are provided.</u>
Provision of Virtual Servers	TSE can provide market makers who display quotes for more than 40 ETFs with virtual servers free of charge according to the number of ETFs for quoting.	<ul style="list-style-type: none">• Since trading larger amounts of ETFs requires higher capacity, TSE provides partial savings on equipment usage fees.

Eligible ETFs For Market Making Scheme

*Codes in **bold** refer to ETFs to which Sponsored ETF Market Making Scheme applies.

Japanese equities (by market)

Code	Name
1305	Daiwa ETF-TOPIX
1306	TOPIX ETF
1308	Listed Fund TOPIX
1348	MAXIS TOPIX ETF
1473	One ETF TOPIX
1475	iShares Core TOPIX ETF
1320	Daiwa ETF-Nikkei 225
1321	Nikkei 225 Exchange Traded Fund
1330	Listed Fund 225
1329	iShares Core Nikkei225 ETF
1346	MAXIS NIKKEI225 ETF
1369	One ETF Nikkei225
1591	NEXT FUNDS JPX-Nikkei 400 Exchange Traded Fund
1593	MAXIS JPX-Nikkei 400 ETF
1599	Daiwa ETF JPX-Nikkei 400
1474	One ETF JPX-Nikkei 400
1319	Nikkei 300
1563	TSE Mothers Core ETF
2516	TSE Mothers ETF
1551	JASDAQ-TOP20 ETF

Enhanced

Code	Name
1574	MAXIS TOPIX Risk Control (10%) ETF
1490	Listed Fund MSCI Japan Equity High Dividend Low Volatility (Beta Hedged)
1499	MAXIS Japan Equity High Dividend 70 Market Neutral ETF

Japanese equities (by theme)

Code	Name
1586	Listed Fund TOPIX Ex-Financials
1670	MAXIS S&P Mitsubishi Group ETF
1698	Listed Fund Japan High Dividend (TSE Dividend Focus 100)
1577	NEXT FUNDS Nomura Japan Equity High Dividend 70 Exchange Traded Fund
1598	NEXT FUNDS Russell/Nomura Fundamental Exchange Traded Fund
1477	iShares MSCI Japan Minimum Volatility (ex-REITs) ETF
1478	iShares MSCI Japan High Dividend ETF
1399	Listed Fund MSCI Japan Equity High Dividend Low Volatility
1479	Daiwa ETF MSCI Japan Human and Physical Investment
1480	NEXT FUNDS Nomura Enterprise Value Allocation Exchange Traded Fund
1481	Listed Fund Japanese Economy Contributor Stocks
1483	iShares JPX/S&P CAPEX & Human Capital ETF
1484	One ETF JPX/S&P CAPEX & Human Capital
1485	MAXIS JAPAN Proactive Investment in Physical and Human Capital 200 ETF
1489	NEXT FUNDS Nikkei 225 High Dividend Yield Stock 50 Exchange Traded Fund
1494	One ETF High Dividend Japan Equity
1651	Daiwa ETF TOPIX High Dividend Yield 40 Index
1652	Daiwa ETF MSCI Japan Empowering Women Index (WIN)
2518	NEXT FUNDS MSCI Japan Empowering Women Select Index Exchange Traded Fund
1653	Daiwa ETF MSCI Japan ESG Select Leaders Index
1654	Daiwa ETF FTSE Blossom Japan Index
1498	One ETF ESG

Eligible ETFs for Market Making Scheme (cont.)

Japanese equities (by size and sector)

Code	Name
1310	Daiwa ETF TOPIX Core30
1311	TOPIX Core 30 Exchange Traded
1344	MAXIS TOPIX Core30 ETF
1312	Russell/Nomura Small Cap Core Linked ETF
1492	MAXIS JPX-Nikkei Mid and Small Cap ETF
1493	One ETF JPX-Nikkei Mid Small
1617	NEXT FUNDS TOPIX-17 FOODS ETF
1618	NEXT FUNDS TOPIX-17 ENERGY RESOURCES ETF
1635	Daiwa ETF·TOPIX-17 ENERGY RESOURCES
1619	NEXT FUNDS TOPIX-17 CONSTRUCTION & MATERIALS ETF
1620	NEXT FUNDS TOPIX-17 RAW MATERIALS & CHEMICALS ETF
1621	NEXT FUNDS TOPIX-17 PHARMACEUTICAL ETF
1622	NEXT FUNDS TOPIX-17 AUTOMOBILES & TRANSPORTATION EQUIPMENT ETF
1639	Daiwa ETF·TOPIX-17 AUTOMOBILES & TRANSPORTATION EQUIPMENT
1623	NEXT FUNDS TOPIX-17 STEEL & NONFERROUS ETF
1624	NEXT FUNDS TOPIX-17 MACHINERY ETF
1625	NEXT FUNDS TOPIX-17 ELECTRIC APPLIANCES & PRECISION INSTRUMENTS ETF
1642	Daiwa ETF·TOPIX-17 ELECTRIC APPLIANCES & PRECISION INSTRUMENTS
1626	NEXT FUNDS TOPIX-17 IT & SERVICES, OTHERS ETF
1643	Daiwa ETF·TOPIX-17 IT & SERVICES, OTHERS
1627	NEXT FUNDS TOPIX-17 ELECTRIC POWER & GAS ETF
1628	NEXT FUNDS TOPIX-17 TRANSPORTATION & LOGISTICS ETF
1629	NEXT FUNDS TOPIX-17 COMMERCIAL & WHOLESALE TRADE ETF
1630	NEXT FUNDS TOPIX-17 RETAIL TRADE ETF
1631	NEXT FUNDS TOPIX-17 BANKS ETF
1648	Daiwa ETF·TOPIX-17 BANKS
1632	NEXT FUNDS TOPIX-17 FINANCIALS (EX BANKS) ETF
1633	NEXT FUNDS TOPIX-17 REAL ESTATE ETF
1613	TOPIX Electric Appliances Exchange Traded
1615	TOPIX Banks

REITs

Code	Name
1343	NEXT FUNDS REIT ETF
1345	Listed Fund J-REIT (Tokyo Stock Exchange REIT) Bi-Monthly Dividend Payment Type
1597	MAXIS J-REIT ETF
1595	NZAM ETF J-REIT
1398	SMAM REIT ETF
1476	iShares Japan REIT ETF
1488	Daiwa ETF Tokyo Stock Exchange REIT
2517	MAXIS J-REIT Core ETF
1660	MAXIS High Yield J-REIT ETF
2515	NEXT FUNDS International REIT S&P Developed REIT Index (ex Japan Unhedged) Exchange Traded Fund

Foreign equities, foreign bonds, and commodities

Code	Name
1678	NEXT FUNDS Nifty 50 Linked Exchange Traded Fund
1557	SPDR® S&P500® ETF Trust
2513	NEXT FUNDS International Equity MSCI-KOKUSAI (Unhedged) Exchange Traded Fund
2514	NEXT FUNDS International Equity MSCI-KOKUSAI (Yen-Hedged) Exchange Traded Fund
1655	iShares S&P 500 ETF
2511	NEXT FUNDS International Bond Citi World Government Bond Index (ex Japan Unhedged) Exchange Traded Fund
2512	NEXT FUNDS International Bond Citi World Government Bond Index (ex Japan Yen-Hedged) Exchange Traded Fund
1486	Listed Fund US Bond (No Currency Hedge)
1487	Listed Fund US Bond (Currency Hedge)
2510	NEXT FUNDS Japan Bond NOMURA-BPI Exchange Traded Fund
1540	Japan Physical Gold ETF
1671	Simplex WTI ETF
1699	NEXT FUNDS NOMURA Crude Oil Long Linked Exchange Traded Fund

These materials are prepared solely for the purpose of providing information regarding Japan Exchange Group Inc., and as such, they are not intended as an offer or sale of securities or other similar action whether inside or outside Japan. Our securities have not been and will not be registered under the United States Securities Act of 1933, as amended (the "Securities Act"), and may not be offered or sold in the United States absent registration or an applicable exemption from registration requirements.

These materials contain forward-looking statements. These statements are based on our assumptions and beliefs in light of the information currently available to us and are subject to risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, our actual results may vary materially from those we currently anticipate. Given these risks and uncertainties, you are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date of these materials. We disclaim any obligation to update any of the forward-looking statements contained in these materials to reflect future actual events or developments.