

Trends in High-Speed Trading

September 2023



Financial Services Agency

Terms and Data in the Document

[Terms]

- High-Speed Trading: Acts specified by Article 2, paragraph (41) of the Financial Instruments and Exchange Act.
- High-Speed Traders: a person specified by Article 2, paragraph (42) of the Financial Instruments and Exchange Act or a financial instruments business operator who engages in the high-speed trading listed in Article 29-2, paragraph (1), item (vii) of the Financial Instruments and Exchange Act.

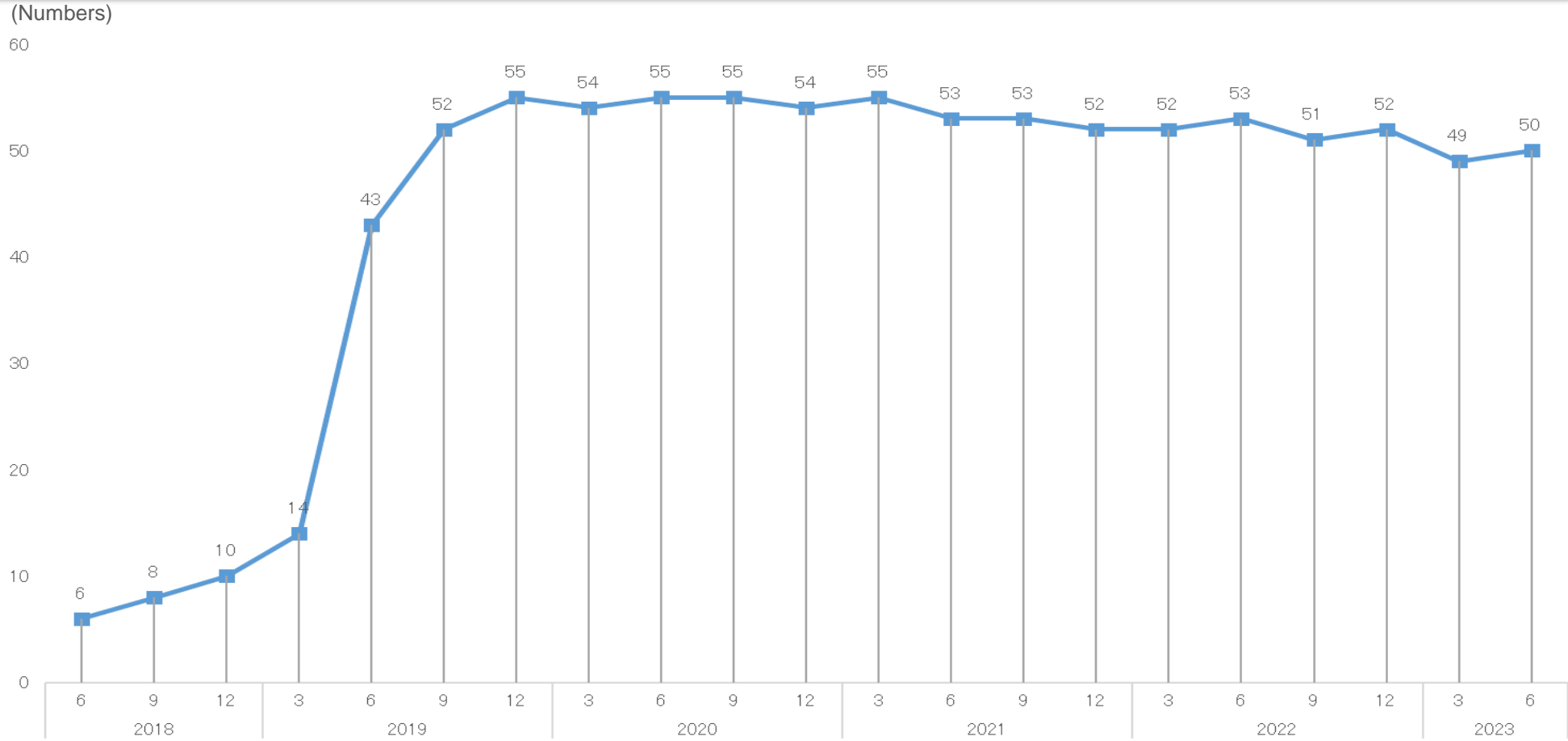
[Data]

- Prepared by the Financial Services Agency based on data from Tokyo Stock Exchange and Osaka Exchange.
- Extracted from all listed stocks on Tokyo Stock Exchange (4,277 stocks as of the end of June 2023) and all listed futures/options except securities options on Osaka Exchange (48 products as of end of June 2023, all contract months, both the Day Session and the Night Session).
- The figures for transactions by High-Speed Traders in the materials are the aggregate figures for High-Speed Trading by High-Speed Traders.
- Numbers are rounded down to the indicated units, and ratios are rounded to the nearest whole number, in principle.

Number of Registered High-Speed Traders

- The Financial Instruments and Exchange Act was amended in May 2017 (enforced April 2018) to require financial instruments business operators who engage in high-speed trading to register as registered High-Speed Traders is currently at around 50 companies.
- As of the end of June 2023, the number of registered High-Speed Traders was 50.
- For this update (April-June 2023), 1 company was newly registered and 0 companies were closed.

(Figure) Changes in the number of registered High-Speed Traders



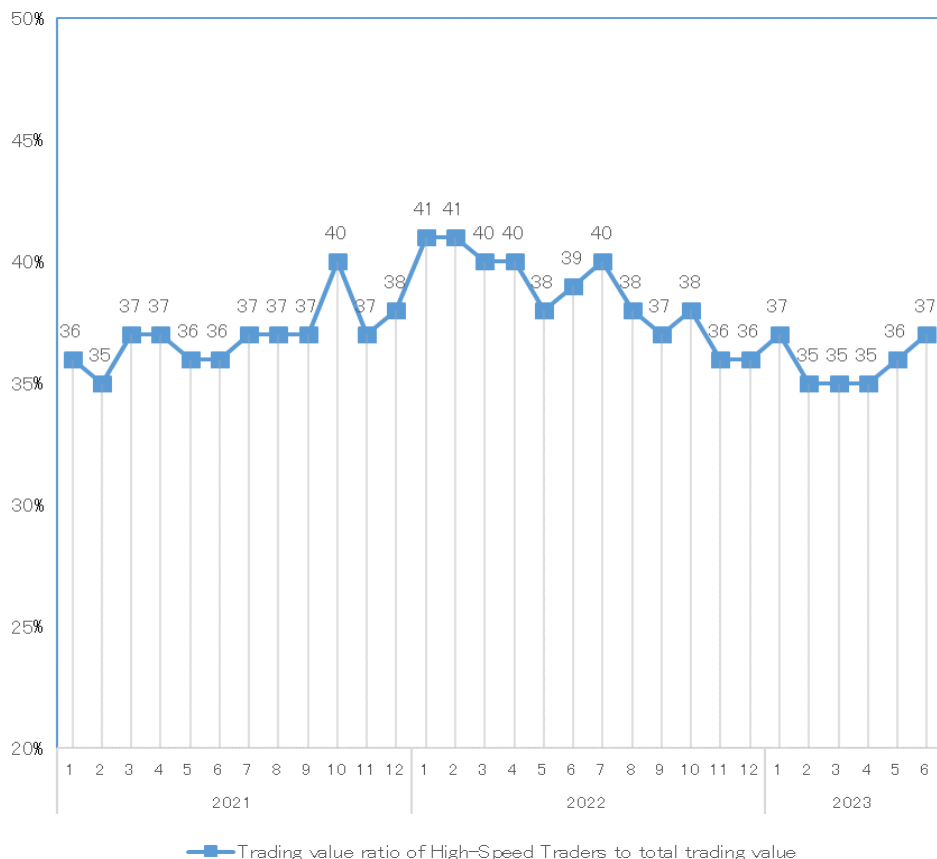
(1) The number of registered High-Speed Traders is as of the end of each month.
 (2) Only persons specified in Article 2, paragraph (42) of the Financial Instruments and Exchange Act are covered; i.e., financial instruments business operators who engage in the High-Speed Trading listed in Article 29-2, paragraph (1), item (vii) of the Financial Instruments and Exchange Act are not covered.

1. Tokyo Stock Exchange listed Stocks

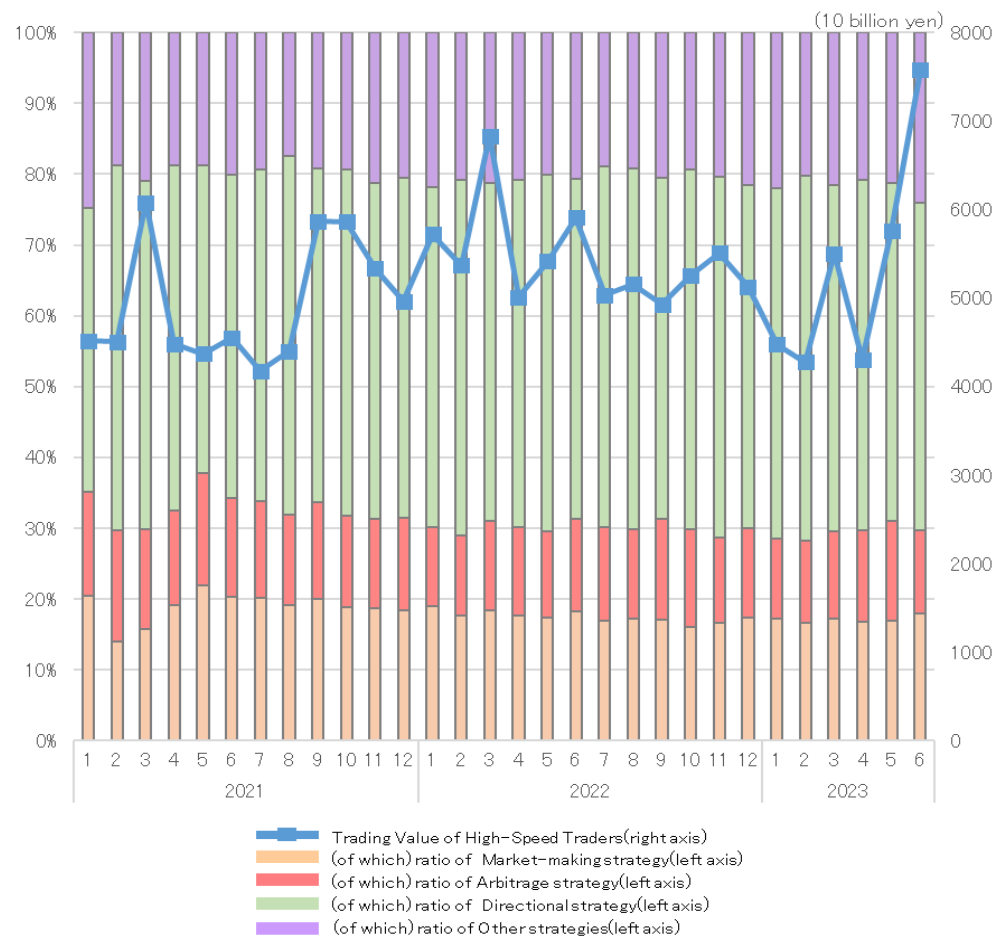
1-1. Trading Value Ratio and Trading Value of High-Speed Traders

- The trading value ratio of High-Speed Traders to total trading value¹² is around 35% (Figure 1-1-1).
- Of the trading value of High-Speed Traders, Market-making strategy is around 35%, Arbitrage strategy is around 10%, Directional strategy is around 50%, and Other strategies is around 20% (Figure 1-1-2).

(Figure 1-1-1) Changes in trading value ratio of High-Speed Traders to total trading value¹²



(Figure 1-1-2) Changes in trading value of High-Speed Traders³



(1) The monthly total of the selling price and the buying price.

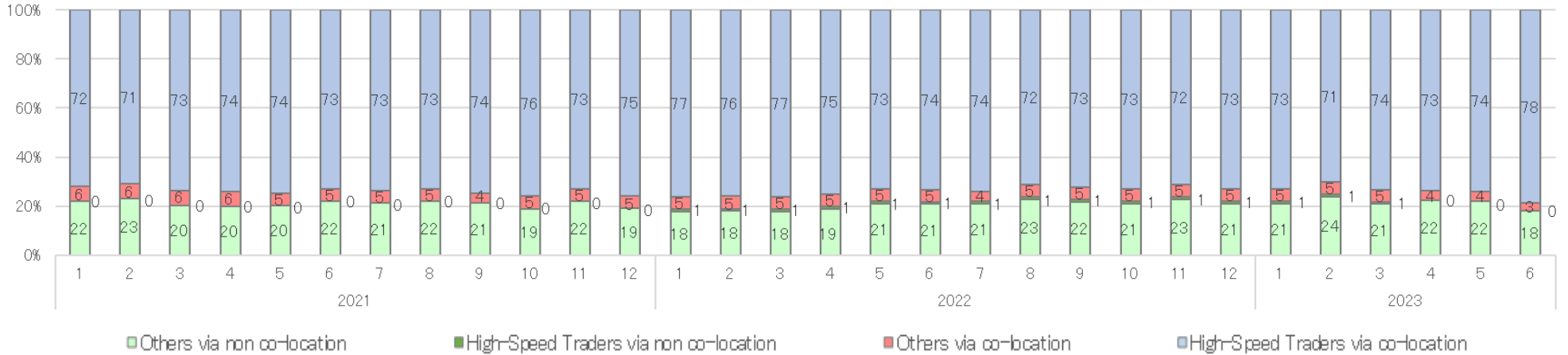
(2) Calculation of the trading value ratio: the monthly trading value of High-Speed Traders / the monthly total trading value.

(3) The definition of trading strategies is based on the Comprehensive Guidelines for Supervision of Financial Instruments Business Operators, etc. (Supplementary Guidelines): Guidelines for Supervision of High-Speed Traders III-3-1-1(2)(i).

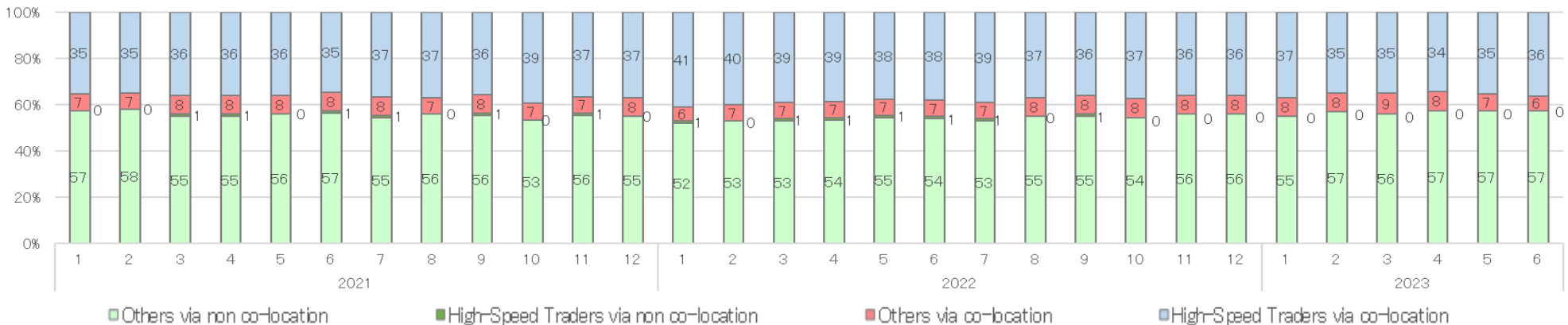
1-2. Ratio of Orders and of Trading Value by Order Server Location and Trading Entity

- The ratio of orders of High-Speed Traders via co-location to total orders is about 75%. On the other hand, the ratio of trading value of High-Speed Traders via co-location is about 35% (Figures 1-2-1 to 1-2-2)
- The ratio of orders of High-Speed Traders via non co-location to total trading value is less than 1% (Figure 1-2-2)

(Figure 1-2-1) Ratio of orders by order server location and trading entity to total orders¹



(Figure 1-2-2) Ratio of trading value by order server location and trading entity to total trading value²



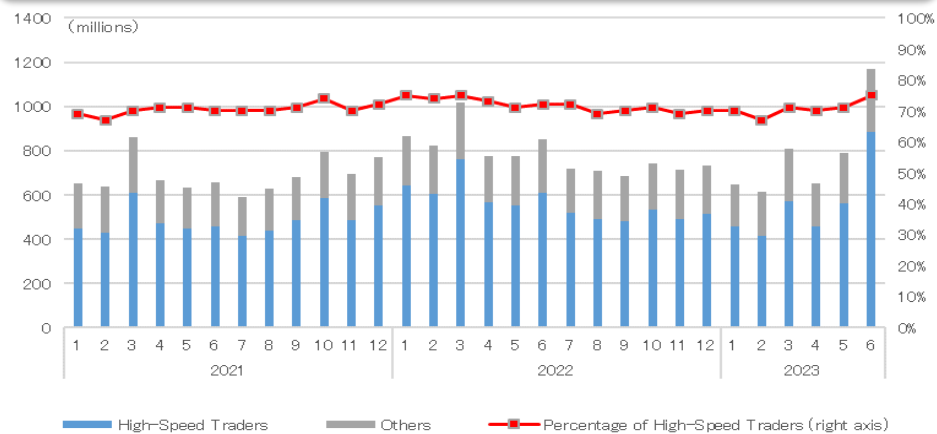
(1) The monthly total of new orders, amended orders, and cancelled orders.
 (2) The monthly total of the selling price and the buying price.
 (3) Co-location is the installation of participant servers in close proximity to the trading system of an exchange.

1-3. Transactions by High-Speed Traders:

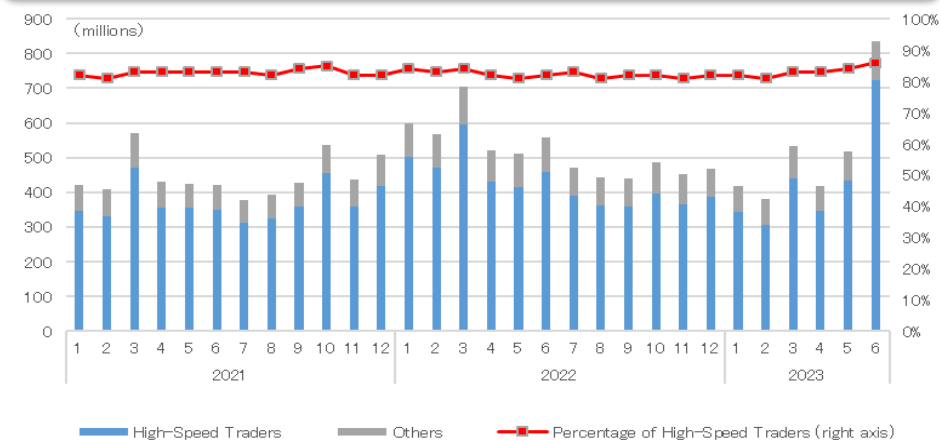
(1) New Orders, Cancelled Orders, Amended Orders and Executed Orders

- The ratio of orders (new orders, cancelled orders, amended orders) by High-Speed Traders to total orders is around 60-90% (Figures 1-3-1 to 1-3-3)
- The ratio of amended orders by High-Speed Traders to total amended orders is around 25%-35% (Figure 1-3-4)

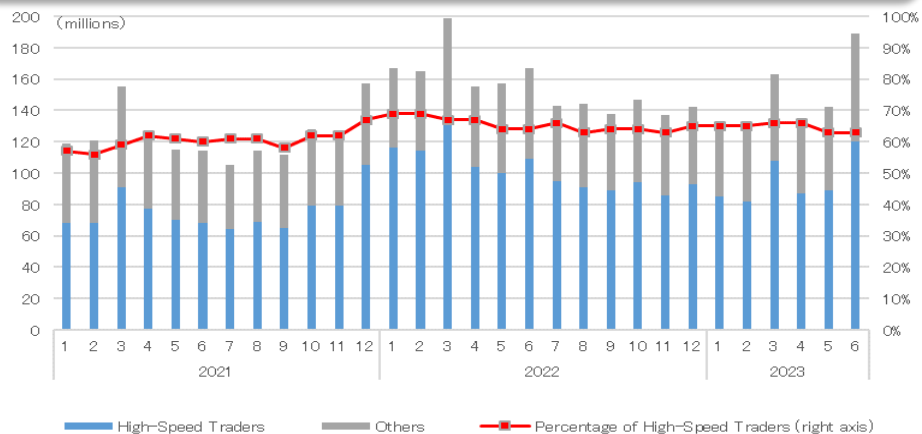
(Figure 1-3-1) Number of new orders by trading entity and ratio of new orders by High-Speed Traders to total new orders



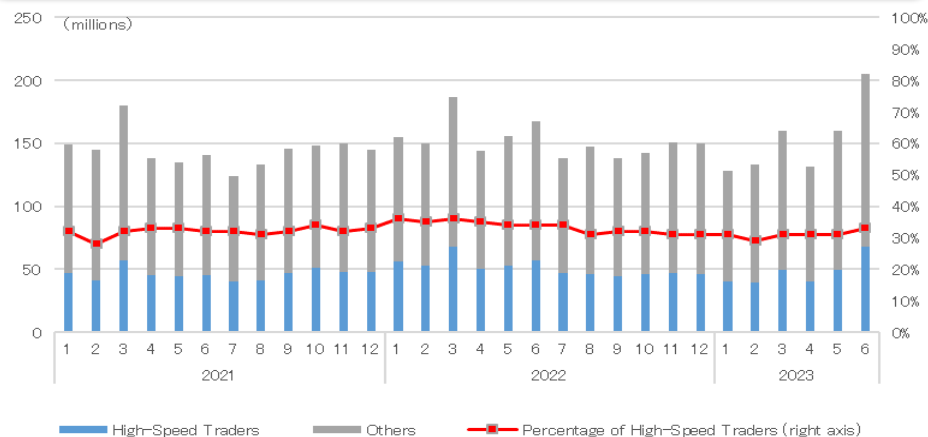
(Figure 1-3-2) Number of cancelled orders by trading entity and ratio of cancelled orders by High-Speed Traders to total cancelled orders



(Figure 1-3-3) Number of amended orders by trading entity and ratio of amended orders by High-Speed Traders to total amended orders



(Figure 1-3-4) Number of executed orders by trading entity and ratio of executed orders by High-Speed Traders to total executed orders

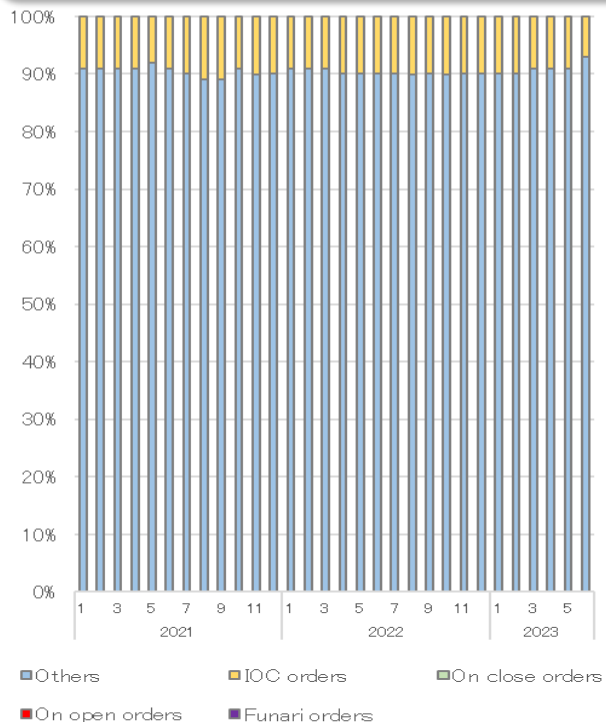


(1) Calculation of the ratio: the monthly total of new orders (cancelled orders, amended orders or executed orders) by High-Speed Traders / the monthly total of new orders (cancelled orders, amended orders or executed orders) by all participants.

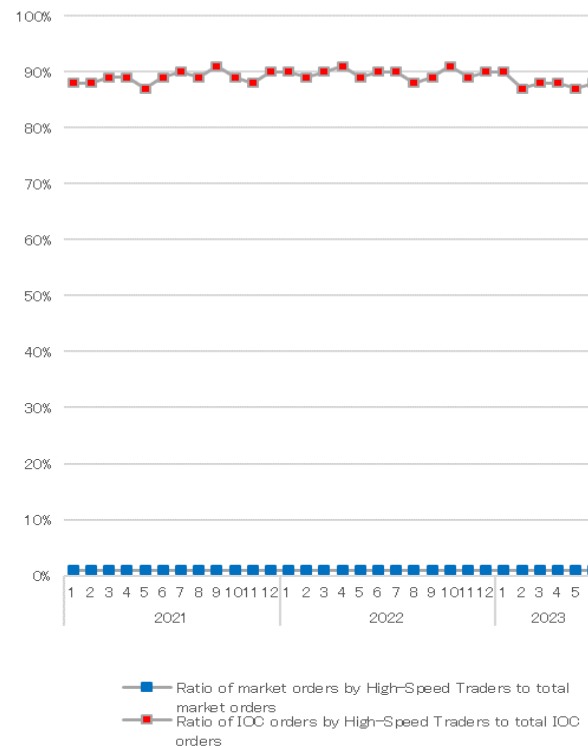
1-3. Transactions by High-Speed Traders: (2) Conditional Orders (including IOC Orders¹) and Market Orders

- The ratio of others (mainly limit orders) to total orders by High-Speed Traders is around 90% and the ratio of IOC orders is the remaining 10% or so (Figure 1-3-5).
- Also, the ratio of IOC orders by High-Speed Traders to total IOC orders is around 90% and the ratio of market orders by High-Speed Traders to total market orders is around 1% (Figure 1-3-6).

(Figure 1-3-5) Ratio of each type of conditional order to total orders by High-Speed Traders¹



(Figure 1-3-6) Ratio of IOC orders by High-Speed Traders to total IOC orders and ratio of market orders by High-Speed Traders to total market orders



(1) Conditional orders refer to On open orders, On close orders, IOC orders and Funari orders.

(2) Immediate Or Cancel orders. A conditional order that immediately executes part or all of its quantity at a specified price or a more favorable price and forfeits the order quantity that was not executed.

(3) Calculation of the ratio in Figure 1-3-5: the monthly number of On open orders (On close orders, IOC orders, Funari orders or others) by High-Speed Traders / the monthly total of conditional orders by High-Speed Traders.

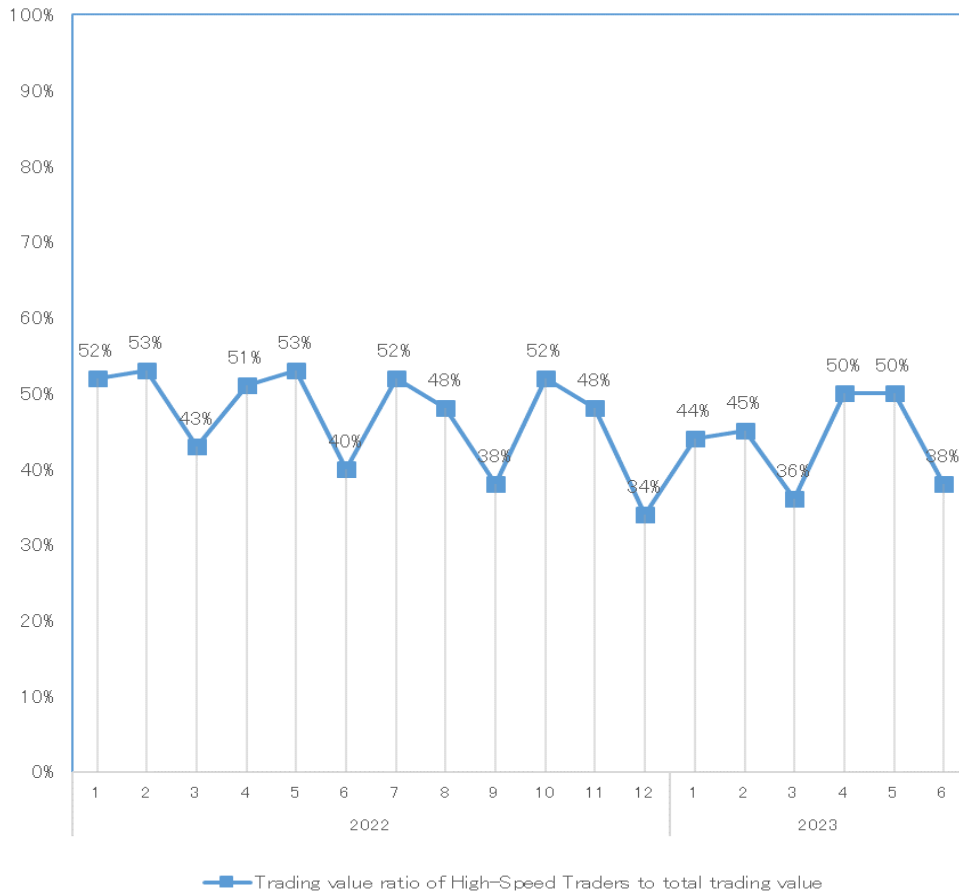
(4) Calculation of the ratio in Figure 1-3-6: the monthly total of IOC orders by High-Speed Traders / the monthly total of IOC orders by all participants. the monthly total of market orders by High-Speed Traders / the monthly total of market orders by all participants.

2. Osaka Exchange listed Products (Futures/Options)

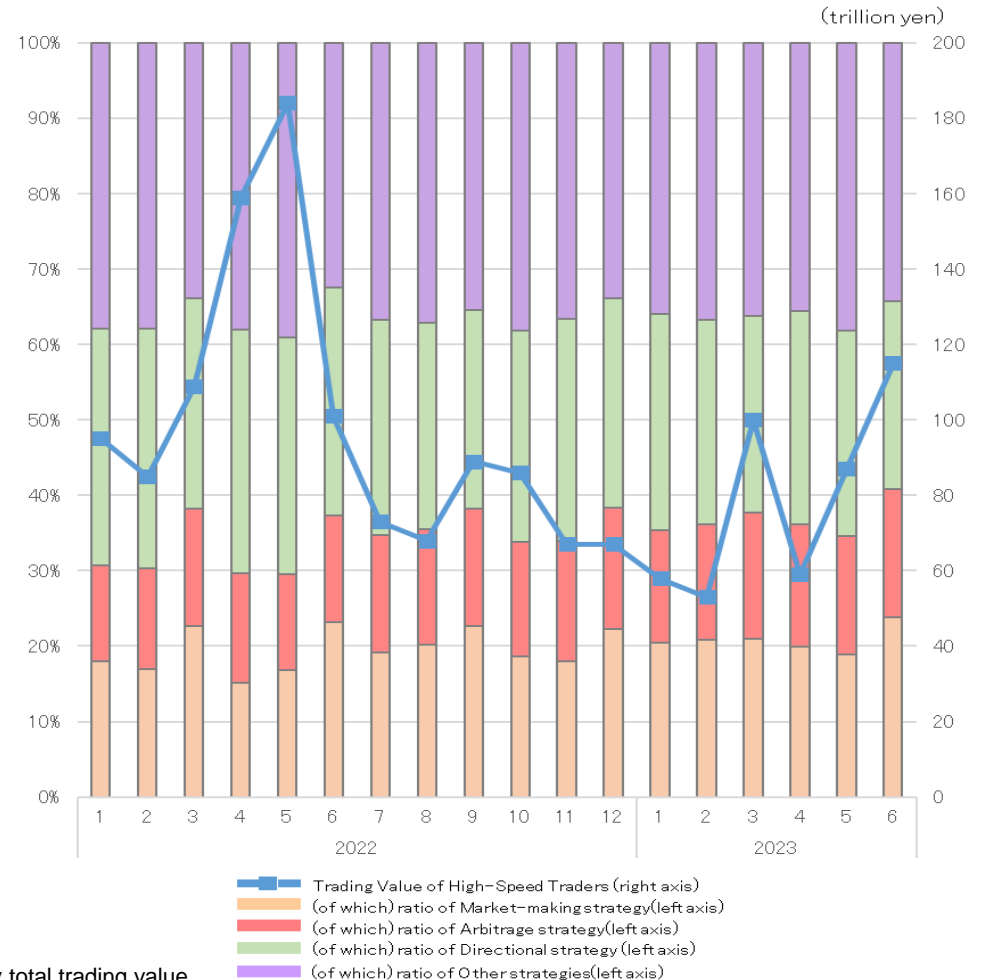
2-1. Trading Value Ratio and Trading Value of High-Speed Traders

- The trading value ratio of High-Speed Traders to total trading value¹² is around 35%-50% (Figure 2-1-1).
- Of trading value of High-Speed Traders, Market-making strategy is around 20%, Arbitrage strategy is around 15%, Directional strategy is around 25%, and Other strategies is around 35% (Figure 2-1-2).

(Figure 2-1-1) Changes in trading value ratio of High-Speed Traders to total trading value¹²



(Figure 2-1-2) Changes in trading value of High-Speed Traders³



(1) The monthly total of the selling price and the buying price.

(2) Calculation of the trading value ratio: the monthly trading value of High-Speed Traders / the monthly total trading value.

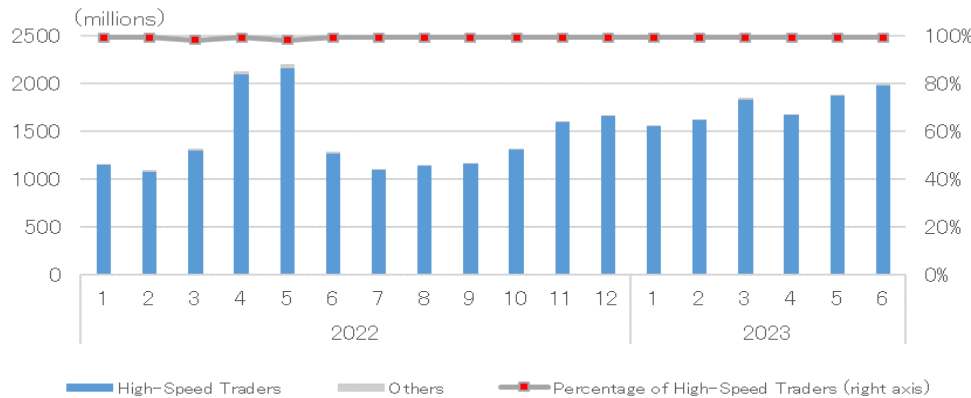
(3) The definition of trading strategies is based on the Comprehensive Guidelines for Supervision of Financial Instruments Business Operators, etc. (Supplementary Guidelines): Guidelines for Supervision of High-Speed Traders III-3-1-1(2)(i).

2-2. Transactions by High-Speed Traders:

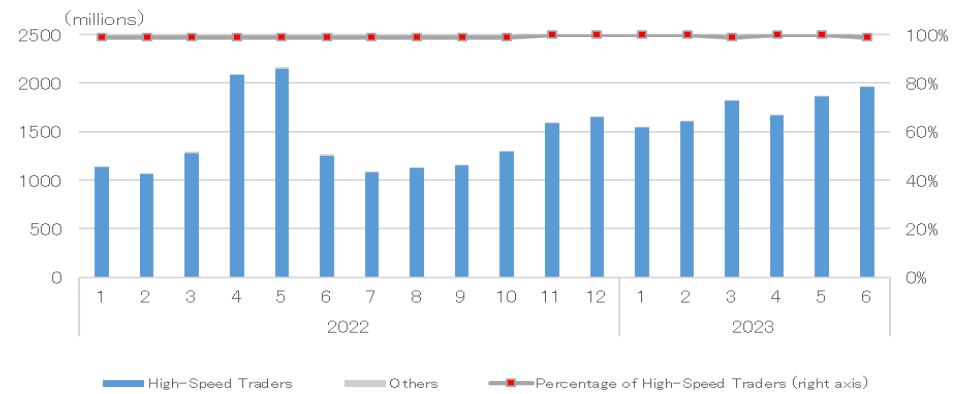
(1) New Orders, Cancelled Orders, Amended Orders and Executed Orders

- The ratio of orders (new orders, cancelled orders, amended orders) by High-Speed Traders to total orders is around 99% (Figures 2-2-1 to 2-2-2).
- On the other hand, the ratio of amended orders by High-Speed Traders to total amended orders and the ratio of amended orders by High-Speed Traders to total amended orders is around 60% (Figures 2-2-3 to 2-2-4).

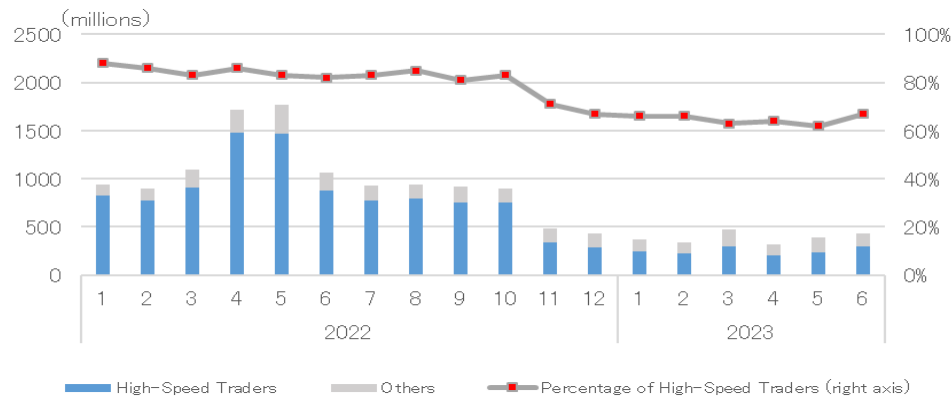
(Figure 2-2-1) Number of new orders by trading entity and ratio of new orders by High-Speed Traders to total new orders



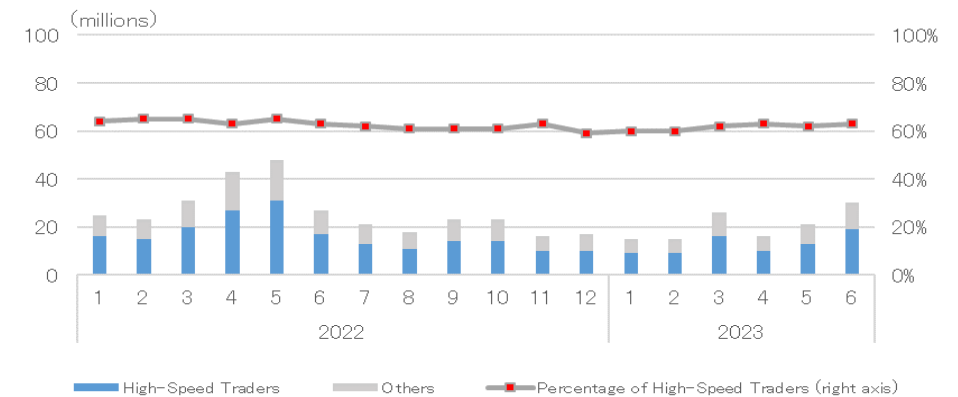
(Figure 2-2-2) Number of cancelled orders by trading entity and ratio of cancelled orders by High-Speed Traders to total cancelled orders



(Figure 2-2-3) Number of amended orders by trading entity and ratio of amended orders by High-Speed Traders to total amended orders



(Figure 2-2-4) Number of executed orders by trading entity and ratio of executed orders by High-Speed Traders to total executed orders

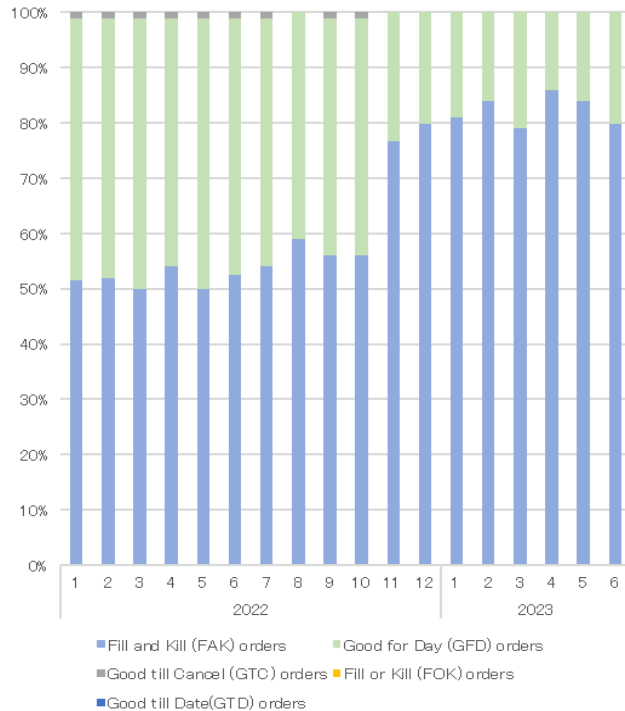


(1) Calculation of the ratio: the monthly total of new orders (cancelled orders, amended orders or executed orders) by High-Speed Traders / the monthly total of new orders (cancelled orders, amended orders or executed orders) by all participants.

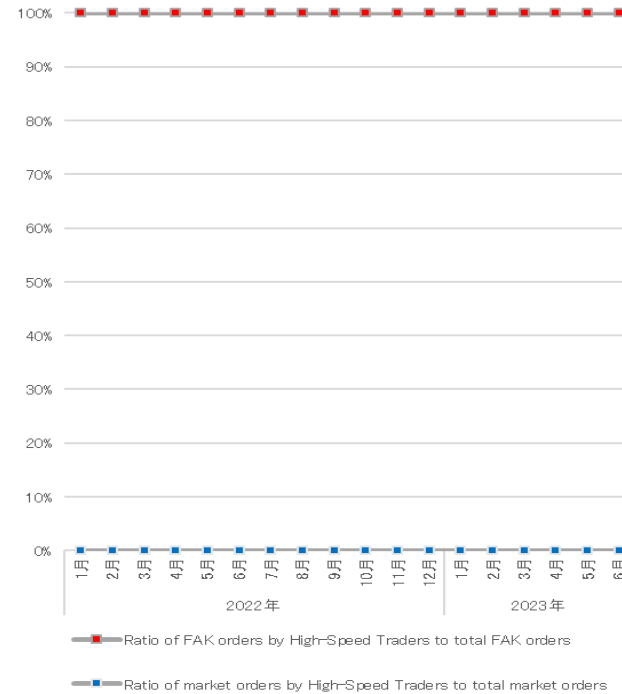
2-2. Transactions by High-Speed Traders: (2) Order Types and Market Orders

- The ratio of FAK orders to total orders by High-Speed Traders is around 80% and the ratio of GFD orders is the remaining 20% or so (Figure 2-2-5).
- The ratio of FAK orders by High-Speed Traders to total FAK orders is nearly 100% and the ratio of market orders by High-Speed Traders to total market orders is nearly 0% (Figure 2-2-6).

(Figure 2-2-5) Ratio of each type of order to total orders by High-Speed Traders¹²³⁴



(Figure 2-2-6) Ratio of FAK orders by High-Speed Traders to total FAK orders and ratio of market orders by High-Speed Traders to total market orders

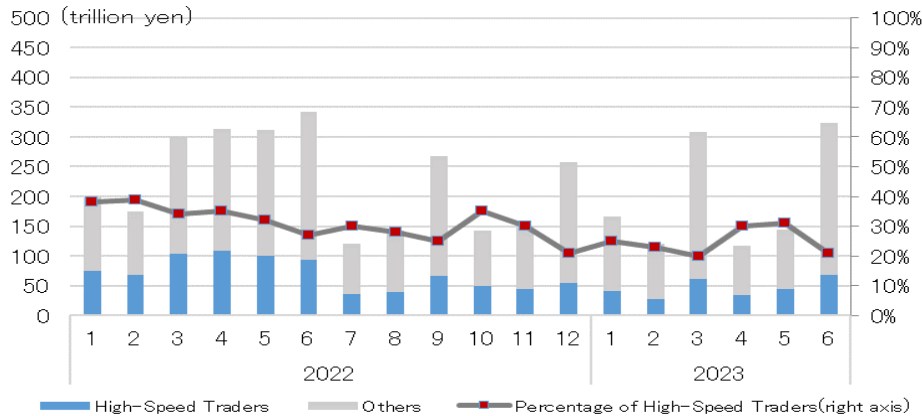


- (1) FAK (Fill And Kill) orders. orders in the case where there is unfilled volume after the order is partially executed, cancel the unfilled volume.
- (2) GFD (Good for Day) orders. orders that are valid until the end of the Day Session of the day (or, until the end of the Night Session if the order is submitted at the Night Session).
- (3) GTD (Good Till Date) / GTC (Good Till Cancel) orders. orders that are valid until the end of the Day Session on the date the specified period ends. Selectable from either GTD (valid until the end of the day session on the date the specified period ends) or GTC (valid until the cancellation. (If not cancelled, it is valid until the end of the day session on the last trading day)).
- (4) FOK (Fill Or Kill) orders. orders in the case where all the volume is not executed immediately, cancel all the volume.
- (5) Calculation of the ratio in Figure 2-2-5: the monthly number of each type of order by High-Speed Traders / the monthly total of order by High-Speed Traders.
- (6) Calculation of the ratio in Figure 2-2-6: the monthly total of FAK orders by High-Speed Traders / the monthly total of FAK orders by all participants. the monthly total of market orders by High-Speed Traders / the monthly total of market orders by all participants.

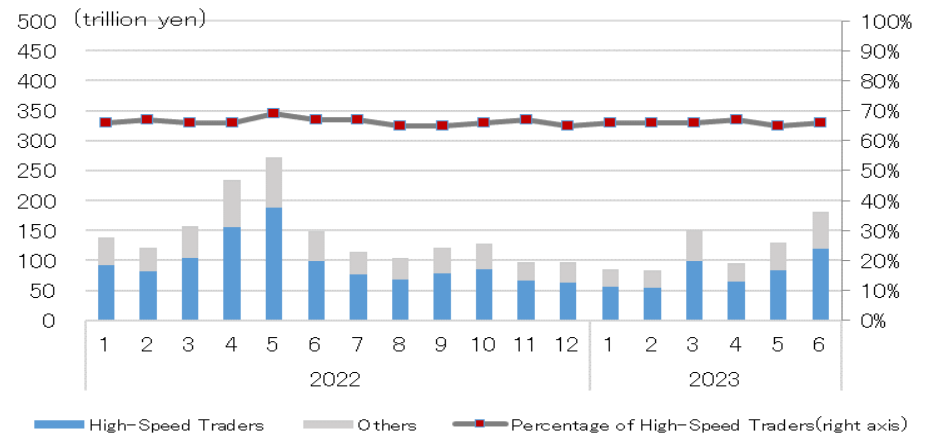
2-3. Trading Value and Trading Value Ratio of High-Speed Traders (by products)

• The ratio of trading value of high-speed trading activities to total trading value by product: 20-40% for 10-year JGB Futures, 60-70% for Nikkei 225 mini, 40-60% for Nikkei 225 Futures, and 30-60% for TOPIX Futures (Figures 2-3-1 to 2-3-4).

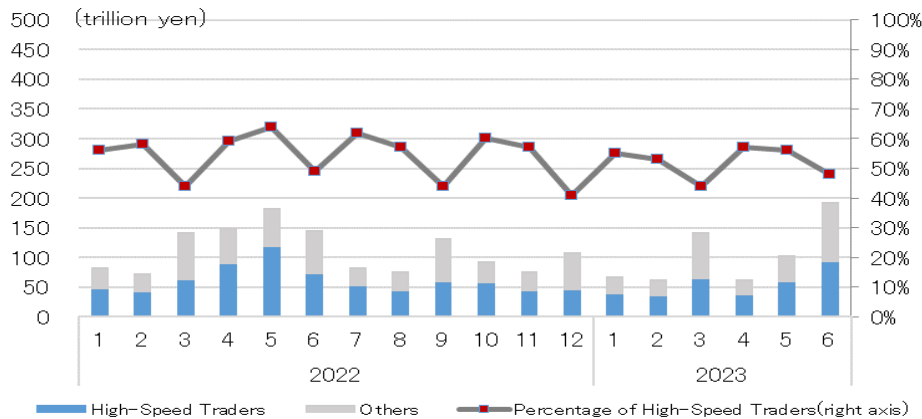
(Figure 2-3-1) Trading value of 10-year JGB Futures and trading value ratio of High-Speed Traders



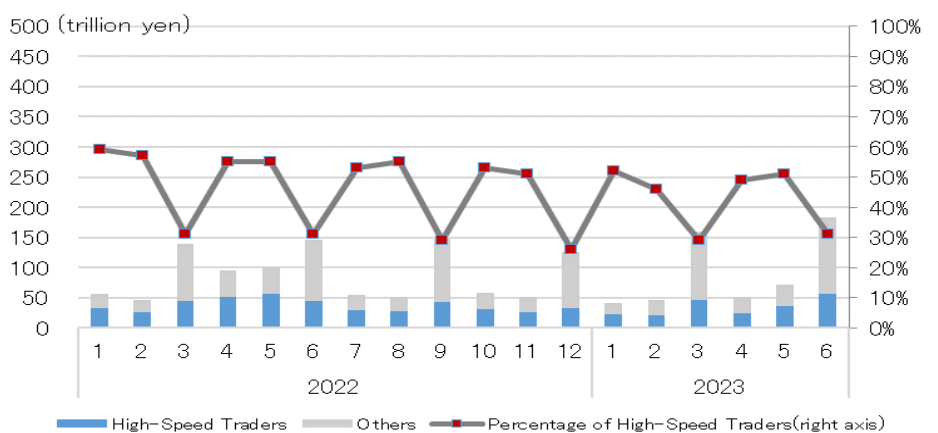
(Figure 2-3-2) Trading value of Nikkei 225 mini Futures and trading value ratio of High-Speed Traders



(Figure 2-3-3) Trading value of Nikkei 225 Futures and trading value ratio of High-Speed Traders



(Figure 2-3-4) Trading value of TOPIX Futures and trading value ratio of High-Speed Traders



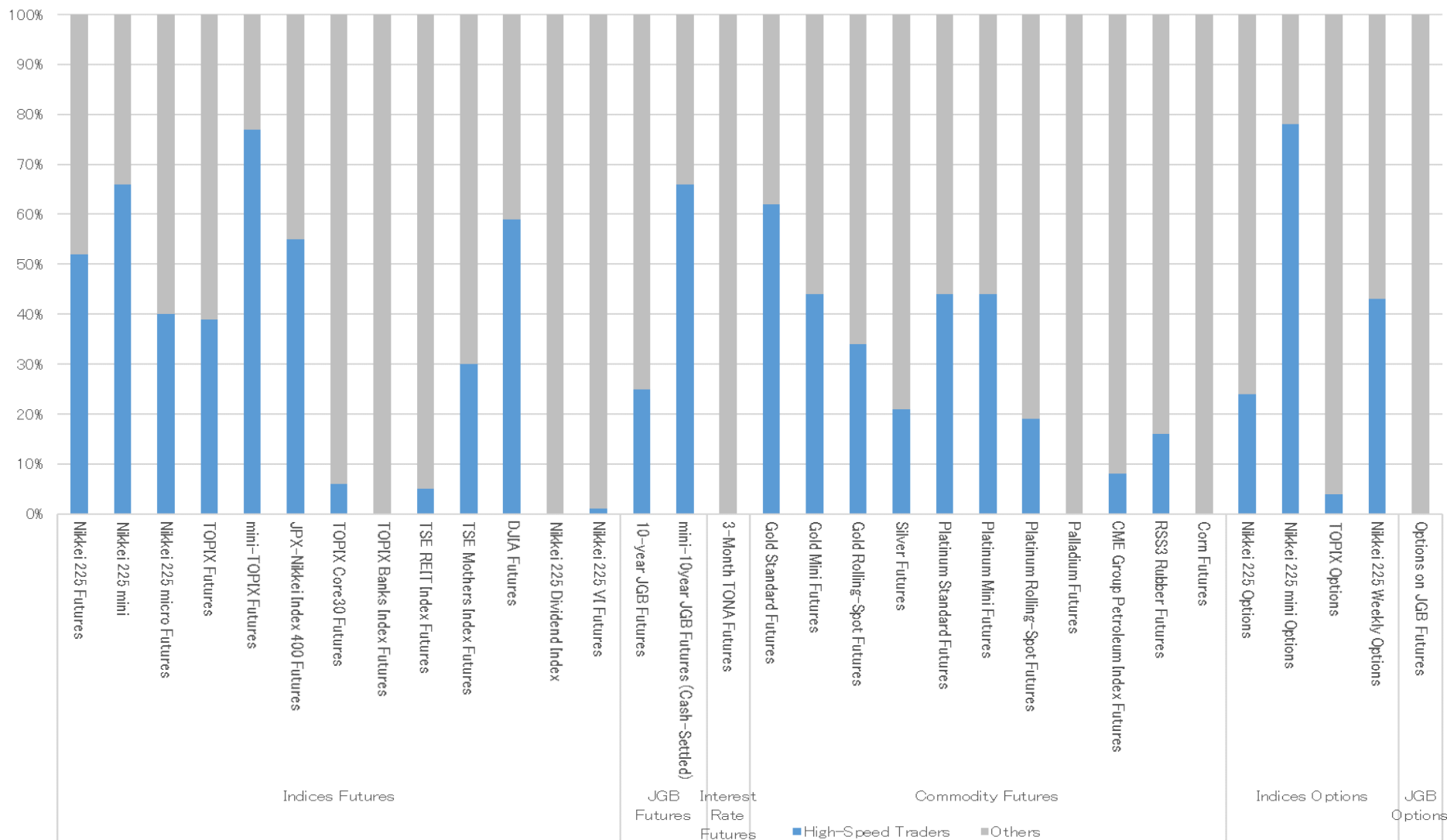
(1) Calculation of the trading value ratio: the monthly trading value of High-Speed Traders / the monthly total trading value.

(2) 4 products with high trading value.

2-4. Trading Value Ratio of High-Speed Traders (by products)

• The ratio of trading value of high-speed traders to total trading value varies by commodity.

(Figure 2-4) Trading value ratio of High-Speed Traders (by products)



(1) The products that are not traded from Jan. to Mar. 2023 are not placed.

(2) Calculation of the ratio: Trading value by trading entity traded from Jan. to Mar. 2023 / the total trading value by all participants traded from Jan. to Mar. 2023.