Index Methodology Guide for the FactSet Japan Semiconductor Index™

Version 1.0 – August 11, 2021

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Index Introduction and Objective

1.1 Index Overview

The FactSet Japan Semiconductor Index is an equity benchmark designed to track the performance of Japan's growing domestic semiconductor industry, and captures companies that are engaged in semiconductor manufacturing, semiconductor related materials production, and semiconductor capital and processing equipment.

The FactSet Japan Semiconductor Index is a float-adjusted, modified market capitalization weighted index reconstituted and rebalanced semi-annually.

The FactSet Japan Semiconductor Index is calculated and maintained by Solactive AG based on a methodology developed by FactSet. It is calculated on a price, total and net total return basis in Japanese Yen (JPY). The index is calculated continuously, and on an end-of-day basis, from Monday to Friday from 1:00 a.m. to 10:50 p.m. CET (Central European Time). Index values are distributed via various data channels and market data vendors, including the price marketing services of Boerse Stuttgart AG. End-of-day price and total return values of the index may also be obtained from FactSet upon request.

Whenever possible, constituent changes to the index are announced five business days before becoming effective.

1.2 Inception Date and Base Value

The Index Inception Date was January 31, 2017 with a base value of 1000.00. The inception date refers to when the first back-tested index value was calculated. The back test is based on a similar methodology used to calculate the index when it was officially launched on August 11, 2021.

1.3 Index Valuation Days

Index Valuation Days are business days, Monday to Friday where the Tokyo Stock Exchange is opened for trading.

1.4 Commencement Date

The index commencement date was August 11, 2021. Commencement date refers to when the index was officially launched with continuous and end-of-day calculations.

1.5 Reconstitution and Rebalance Schedule

The index is reconstituted and rebalanced semi-annually after the close of the last business day of January and July ("Reconstitution Day" and "Rebalance Day").

If any of the existing or new index components is not trading on Reconstitution Day/Rebalance Day due to an exchange holiday, the reconstitution/rebalance is moved to the next Japan business day.

The data used to reconstitute and rebalance the index is as of the close of 2nd Friday of January and July ("Selection Day"). Subsequent adjustment to the index composition may be made to account for corporate actions that occur between the Selection Day and the Reconstitution Day or Rebalance Day.

Index Construction

2.1 Constituent Selection and Weighting Schema

1. Select all common stocks primarily listed in Tokyo Stock Exchange and JASDAQ.

2. The securities have a minimum total market capitalization of $30 Billion JPY and a minimum three-month ADTV (Average Daily Trading Value) of $200 Million JPY.

   Existing constituent may remain in the index if their total market capitalization is greater than $24 Billion JPY and three-month ADTV is greater than $160 Million JPY.

3. Select securities that derived at least 25% or more of their revenues from the following semiconductor manufacturing and capital equipment related industries as defined by FactSet RBICS* Level 6:

RBICS L6 Name	RBICS L6 ID
Assembly Equipment Manufacturing	551030101010
Audio Multimedia Semiconductors	551020401510
Conventional Flat Panel Display Equipment	551520301010
Diversified Semiconductor Capital Equipment Makers	551030102510
Diversified Semiconductor Manufacturing Services	551030152010
Diversified Semiconductors	551020201010
Flash Memory Semiconductors	551020251010
General Analog and Mixed Signal Semiconductors	551020101010
Image Sensor and Image Capture Semiconductors	551020401515
Light Emitting Diode Discrete Semiconductors	551020151010
Microprocessor (MPU) Semiconductors	551020302510
Multimedia Semiconductors	551020401520
Networking Semiconductors	551020401010

Other Communications Semiconductors	551020401015
Other Discrete Semiconductors	551020151510
Other Front-End Processing Equipment Makers	551030101515
Other Memory Semiconductors	551020251510
Other Nonvolatile Memory Semiconductors	551020251015
Other Optoelectronics Discrete Semiconductors	551020151015
Other Power Analog and Mixed Signal Semiconductors	551020101510
Other Processor Semiconductors	551020303010
Other Programmable Logic and ASIC Semiconductors	551020351010
Other Specialized Semiconductors	551020402010
Peripheral Semiconductors	551020402510
Photolithography Equipment Manufacturing	551030101520
Power, Control and Mixed Signal Semiconductors	551020102010
Programmable Logic Device Semiconductors	551020351510
RF Analog and Mixed Signal Semiconductors	551020102510
Security and Identification Semiconductors	551020403010
Semiconductor Assembly and Packaging Services	551030151510
Semiconductor Capital Equipment/Parts Distribution	551030101015
Semiconductor Components/Subsystems Manufacturing	551030102010
Semiconductor Foundry Services	551030151010
Semiconductor packaging and Testing Services	551030151515

Semiconductor Process Analysis Tool Manufacturing	551030102015
Semiconductor Testing Services	551030151520
Semiconductors Distributors	551530151015
Specialty Analog and Mixed Signal Semiconductors	551020103010
Test, Measurement and Metrology Equipment Makers	551030102020
Video Multimedia Semiconductors	551020401525
Volatile Memory Semiconductors	551020252010

*RBICS classifies a company to both its primary and ancillary lines of business based the percentage (%) revenues generated from them, respectively.

4. Select securities that are classified to one of the following nine (9) industries as defined by FactSet RBICS Focus** L6 associated with semiconductor related materials and components; securities must also be mapped to "Semiconductor" in Revere Hierarchy***.

RBICS L6 Name	RBICS L6 ID
Diversified Electronic Components	551010301010
General Purpose Test and Measurement Equipment	551510451010
Diversified Specialty/Performance Chemicals Makers	451020301010
Electronic Interconnect Components	551010101510
Cinema Projection Systems Manufacturing	551510251010
Other Interconnect Components	551010102010
Electronic Materials Manufacturing	451020301510
Diverse Nonmetallic Minerals Processors	451515101510
Wafer Blank Makers and Equipment Manufacturing	551030101525

**RBICS Focus classifies a company to its primary line of business that generally generates 50% or more of its revenues.

** *Revere Hierarchy is a very granular business classification system built from the bottom-up, where the lowest hierarchical levels are able to capture companies' exposure to specific products and services.

5. Securities that remain after Step 1 to Step 4 are further divided into 2 categories: (1) Pure Play and (ii) Quasi Play.

   Pure Play is defined as securities that derived at least 50% of their aggregated revenue from RBICS Level 6 industries in Step 3, or securities that are classified to one of the RBICS Focus Level 6 industries in Step 3. Quasi Play is defined as securities that derived between at least 25% but less than 50% of their aggregated revenue from RBICS L6 in Step3, or all securities that pass Step 4.

6. Rank securities by their float-adjusted market capitalization within each of the 2 categories from highest to lowest. Select up to the top 40 ranked securities in the Pure Play category. If the Pure Play category contains less than 30 securities, then include, in descending order, the top ranked Quasi Play securities until the total index constituent number reaches 30. The index shall have a minimum of 30 constituents and a maximum of 40 constituents.

7. Apply the float-adjusted modified market capitalization weighting methodology to securities that remain by dividing their individual float-adjusted market capitalization to the sum total float-adjusted market capitalization of all securities. The aggregated weight of the Quasi Play category is capped at 30%, and Individual security weights are capped at 10%.

In addition to the above selection schema, FactSet may at its discretion and in consultation with index licensee, modify one or more selection criterion to ensure relevant and timely capture of the theme. Whenever possible, any modifications shall be announced 60 days prior to annual Reconstitution Day.

2.2 Index Return Formulas

The price, total and net total returns levels of the index are calculated using the following formulas.

$$I_{(t)} = \frac{\sum_{i=1}^{n} S_{i(t)} \times P_{i(t)}}{D_{(t)}}$$

where:
$I_{(t)}$ = Index value on Index Valuation Day (t)
$D_{(t)}$ = Divisor on Index Valuation Day (t)
n = Number of stocks in the index
$P_{i(t)}$ = Closing price of stock (i) on Index Valuation Day (t)
$S_{i(t)}$ = Number of allocated shares of stock (i) on Index Valuation Day (t)

and on Inception Date, where (t) = 0, the initial divisor is calculated as follows:

$$D_{(0)} = \frac{\sum_{i=1}^{n} S_{i(0)} \times P_{i(0)}}{I_{(0)}}$$

where:
$I_{(0)}$ = Price Returns Index value on Index Inception Date
$D_{(0)}$ = Divisor on Index Inception Date
n = Number of stocks in the index on Index Inception Date
$P_{i(0)}$ = Price of stock (i) on Index Inception Date

$S_{i(0)}$ = Number of allocated shares of stock (i) on Index Inception Date

Allocated shares ("S") are the number of shares required for each constituent such that all constituents are float-adjusted modified market capitalization weighted. Allocated shares ("S") would be adjusted accordingly to account for Corporate Actions.

Net total return is calculated to account for the effect of tax withholding on dividends by adjusting dividend taken out due to tax payment.

2.3 Index Divisor Adjustments

From time to time, the index divisor is adjusted to account for corporate actions that could distort index value and continuity using the following formula:

$$D_{(t+1)} = D_{(t)} \times \frac{\sum_{i=1}^{n} AS_{i(t+1)} \times AP_{i(t+1)}}{\sum_{i=1}^{n} S_{i(t)} \times P_{i(t)}}$$

where:
$D_{(t+1)}$ = Divisor for Index Valuation Day (t+1) after CA and rebal adjustment
$D_{(t)}$ = Divisor for Index Valuation Day (t)
$AP_{i(t+1)}$ = Adjusted price of stock (i) calculated for open on Index Valuation Day (t+1) after CA adjustment
$P_{i(t)}$ = Closing price of stock (i) on Index Valuation Day (t)
$S_{i(t)}$ = Number of allocated shares of stock (i) on Index Valuation Day (t)
$AS_{i(t+1)}$ = Adjusted number of allocated shares of stock (i) for open on Index Valuation Day (t+1) after CA adjustment.

Divisor adjustments are generally implemented on the date the corporate action becomes effective, such that for example, the ex-dividend date rather than the payment date is used to time the divisor adjustment.

Find below a detailed calculation for AP, AS, and S in case of corporate actions and rebalancing.

$AP_{i(t)}$ = Adjusted price of stock (i) is determined for the open on Index Valuation Day (t) shall mean:

    - If index constituent opens ex-date in respect of the corporate action, then $AP_{i(t)}$ is determined as per Corporate Action Adjustment Section.
    - Otherwise

$$AP_{i(t)} = P_{i(t-1)}$$

$S_{i(t)}$ = Number of allocated shares of stock (i) on Index Valuation date (t) is determined as

$$S_{i(t)} = AS_{i(t)}$$

$AS_{i(t)}$ = Adjusted number of allocated shares of stock (i) for open on Index Valuation Day (t) after CA adjustment is determined as:

- If such day opens immediately following the Rebalancing Day (t-1) and if:
  - index constituent opens ex-date in respect to corporate action, then $AS_{i(t)}$ is determined as per Corporate Action Adjustment Section with $S_{i(t-1)}$ replace with:

$$S_{i(t-1)} = \frac{I_{(t-1)} \times Weight_{i(t-1)}}{P_{i(t-1)}}$$

  - index constituent does not opens ex-date in respect to corporate action, then $AS_{i(t)}$ is determined as:

$$AS_{i(t)} = \frac{I_{(t-1)} \times Weight_{i(t-1)}}{P_{i(t-1)}}$$

- On any other day:
  - index constituent opens ex-date in respect to corporate action, then $AS_{i(t)}$ is determined as per Corporate Action Adjustment Section
  - Otherwise:
$$AS_{i(t)} = S_{i(t-1)}$$

where $Weight_{i(t-1)}$ is determined as per Section 2.1.

2.4 Corporate Action Adjustments

Special Cash Dividend:

$$AP_{i,t} = P_{i,t-1} - D_{i,t}$$

Where
t   = Index Valuation Date (t) is ex-date for corporate action.
$D_{i,t}$ = Dividend amount corresponding to stock (i) with ex-date (t).

Spin-off Adjustment

If an index constituent (i.e. the parent company) distributes part of its business into a spun-off company, the spun-off company will be added to the Index according to the transaction terms on the ex-date.

The parent company will remain in the Index with unchanged calculation parameters. The spun-off company will remain in the Index until the next ordinary rebalancing.

The spun-off company will be added to the Index with an open price of zero on ex-date.

If the spun-off company does not start to trade on the effective date (i.e. ex-date), a theoretical price for the spun-off company will be implemented (**see the equation below**) as a fixed price until it commences trading, from which time official prices will be used.

$$P_{f(t)}=[P_{i(t-1)}- AP_{i(t)}]xShareRatio_{i(t)}$$

Where

$P_{i(t-1)}$ = Closing price of Parent Company on Index Valuation Date (t-1).
$AP_{i(t)}$ = Open price of Parent Company on Index Valuation Date (t).
$P_{f(t)}$ = Price of Spun-off Company on Index Valuation Date (t).

Rights Issue Adjustment

$$AP_{j,t}=\frac{P_{j,t-1} + C_{j,t} \text{ x Share Ratio}_{j,t}}{1 + \text{Share Ratio}_{j,t}}$$
$$AS_{j,t}=S_{j,t-1} \text{ x} \left(1+ \text{Share Ratio}_{j,t}\right)$$

Where
$C_{j,t}$ = Official tender price.

Stock Splits Adjustment

$$AP_{j,t}=\frac{P_{j,t-1}}{\text{Share Ratio}_{j,t}}$$
$$AS_{j,t}=S_{j,t-1} \text{ x Share Ratio}_{j,t}$$

Stock distribution

$$AP_{j,t}=P_{j,t-1} \text{ x} \frac{1}{1+\text{Share Ratio}_{j,t}}$$

$$AS_{j,t}=S_{j,t-1} \text{ x} \left(1+\text{Share Ratio}_{j,t}\right)$$

Index Maintenance

Constituent changes may occur between review periods due to corporate events that disqualify their eligibility for index inclusion. Adjustments to corporate events are described below:

3.1 Corporate Actions – Delisting

A constituent is removed immediately after being delisted from its primary markets.

3.2 Corporate Actions – Merger or Acquisition

If a merger or acquisition results in one constituent acquiring another, the acquiring company remains a constituent, and the acquired company is removed. If a non-constituent acquires a constituent, the acquired constituent is removed. If a constituent acquires a non-constituent, the acquiring constituent remains a constituent.

3.3 Corporate Actions – Spin-off

If a constituent spins or splits off a portion of its business, both the spun-off company and the parent company (the entity representing the existing constituent) will be kept in the index, and be considered for removal from the index at the next Reconstitution or Rebalance Day should they fail to meet the eligibility criteria in Section 2.1.

3.4 Corporate Actions – Bankruptcy

If a constituent is delisted after bankruptcy, it will be removed immediately with a price of 0 from the index.

Index Calculation and Data Correction

4.1 Index Calculation

Price, Total Return, and Net Total Return values for the FactSet Japan Semiconductor Index are calculated by Solactive AG. The price, total and net total return values are calculated on a continuous and end-of-day basis by using the trading price for each component in the index from relevant exchanges and markets. Index values are rounded to 2 decimal places and divisors are rounded to 6 decimal places.

If trading in a stock is suspended prior to the market opening, the stock's adjusted closing price from the previous day will be used in the index calculation until trading commences. If trading in a stock is suspended while the relevant market is open, the official closing price published by relevant exchange for that stock will be used for all subsequent index calculations until trading resumes.

In case of exceptional market conditions disrupting normal closing auction, or causing official closing prices not being available, Solactive and FactSet reserve the right to utilize other prices in the calculation of the official closing level.

4.2 Data Correction

Incorrect index constituent data, corporate action data, or index divisors will be corrected upon detection. If such errors are discovered within five days of occurrence, they will be corrected retroactively on the day of discovery. If discovered after five days, corrective actions will be decided based on the errors' significance and feasibility of a correction.

4.3 Decision Making in Undocumented Events

A FactSet Index Committee consisting of select employees of FactSet Research Systems Inc. is responsible for amending rules as documented in the Index Methodology Guide due to undocumented or extraordinary events.

Additional Information

5.1 Contact Information

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