

(Reference Translation)

TSE Index Guidebook  
(TOPIX Sector Indices •  
TOPIX-17 series)

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Tokyo Stock Exchange, Inc.

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## Record of Changes

DATE	Changes
2018/7/23	* First Edition
2020/3/31	* Revised the date for adjusting base market value following the shortening of stock settlement cycle to T+2
2020/6/30	* Revision to bring forward the date for minor adjustments related to ex-dividend
2020/12/25	Clarification of the treatment of section transfers, etc.
2022/4/4	Revisions pertaining to cash equity market restructuring

## Introduction

- Tokyo Stock Exchange, Inc. (TSE) calculates and publishes the TOPIX Sector Indices and TOPIX-17 series in accordance with the methods described in this document. If an event not specified in this document occurs, or if TSE determines that it is difficult to use the methods described in this document, TSE may use an alternative method of index calculation as it deems appropriate.
- Copyright of this document is owned by TSE and any copies, reprints and reproductions of this document in whole or in part are prohibited without the prior approval of TSE. This document is prepared solely for the understanding of indices calculated and published by TSE, and is not to be construed as a solicitation for trading any securities or related financial instruments. Information expressed in this document is subject to change without notice and in those cases TSE undertakes no obligation to update any recipients of this document. TSE shall accept no liability or responsibility for any loss or damage arising from errors, delays, or termination of the calculation or publication of TOPIX Sector Indices and TOPIX-17 series, changes to its calculation or publication method, the use of TOPIX Sector Indices and TOPIX-17 series or all or any part of this document or other similar events.
- TSE calculates both price and total return versions of all indices described in this guidebook.

## I. Outline of Indices

- The TOPIX Sector Indices consists of indices created by dividing the constituents of TOPIX into the following 33 sectors according to the industrial sectors defined by the Securities Identification Code Committee (SICC).
- TOPIX-17 Series consists of indices created by dividing the constituents of TOPIX into following 17 categories based on the 33 sectors according to the industrial sectors defined by the Securities Identification Code Committee (SICC).

Index Name	Constituent (33 Sectors)
TOPIX-17 FOODS	<ul style="list-style-type: none"><li>• Fishery, Agriculture &amp; Forestry</li><li>• Foods</li></ul>
TOPIX-17 ENERGY RESOURCES	<ul style="list-style-type: none"><li>• Mining</li><li>• Oil and Coal Products</li></ul>
TOPIX-17 CONSTRUCTION & MATERIALS	<ul style="list-style-type: none"><li>• Construction</li></ul>

Index Name	Constituent (33 Sectors)
	<ul style="list-style-type: none"> <li>• Metal Products</li> <li>• Glass and Ceramics Products</li> </ul>
TOPIX-17 RAW MATERIALS & CHEMICALS	<ul style="list-style-type: none"> <li>• Textiles and Apparels</li> <li>• Pulp and Paper</li> <li>• Chemicals</li> </ul>
TOPIX-17 PHARMACEUTICAL	<ul style="list-style-type: none"> <li>• Pharmaceutical</li> </ul>
TOPIX-17 AUTOMOBILES & TRANSPORTATION EQUIPMENT	<ul style="list-style-type: none"> <li>• Rubber Products</li> <li>• Transportation Equipment</li> </ul>
TOPIX-17 STEEL & NONFERROUS METALS	<ul style="list-style-type: none"> <li>• Iron and Steel</li> <li>• Nonferrous Metals</li> </ul>
TOPIX-17 MACHINERY	<ul style="list-style-type: none"> <li>• Machinery</li> </ul>
TOPIX-17 ELECTRIC APPLIANCES & PRECISION INSTRUMENTS	<ul style="list-style-type: none"> <li>• Electric Appliances</li> <li>• Precision Instruments</li> </ul>
TOPIX-17 IT & SERVICES, OTHERS	<ul style="list-style-type: none"> <li>• Other Products</li> <li>• Information &amp; Communication</li> <li>• Services</li> </ul>
TOPIX-17 ELECTRIC POWER & GAS	<ul style="list-style-type: none"> <li>• Electric Power and Gas</li> </ul>
TOPIX-17 TRANSPORTATION & LOGISTICS	<ul style="list-style-type: none"> <li>• Land Transportation</li> <li>• Marine Transportation</li> <li>• Air Transportation</li> <li>• Warehousing and Harbor Transportation Service</li> </ul>
TOPIX-17 COMMERCIAL & WHOLESALE TRADE	<ul style="list-style-type: none"> <li>• Wholesale Trade</li> </ul>
TOPIX-17 RETAIL TRADE	<ul style="list-style-type: none"> <li>• Retail Trade</li> </ul>
TOPIX-17 BANKS	<ul style="list-style-type: none"> <li>• Banks</li> </ul>
TOPIX-17 FINANCIALS (EX BANKS)	<ul style="list-style-type: none"> <li>• Securities and Commodities Futures</li> <li>• Insurance</li> <li>• Other Financing Business</li> </ul>
TOPIX-17 REAL ESTATE	<ul style="list-style-type: none"> <li>• Real Estate</li> </ul>

- For index calculation, the following is applied: a liquidity factor as set in the Free Float Weight Calculation Methodology, the TOPIX cap-adjustment ratio, and a transition factor.
- The base date and base value for each index is as below:

Index		Base Date	Base Point
TOPIX Sector Indices	Chemicals, Pharmaceutical, Wholesale Trade, Retail Trade, Banks, Securities & Commodity Futures, Insurance, Other Financing Business	1992/01/06	1,000
	Sectors other than the above	1968/01/04	100
TOPIX-17 Series		2002/12/30	100

## II. Index Calculation

### 1. Outline

- TOPIX Sector Indices and TOPIX-17 series are calculated using free-float adjusted market capitalization weighting. Each index is denominated in points and is calculated to the second decimal place (values beyond the second decimal are rounded).

### 2. Formula

$$\text{Index} = \frac{\text{CMV}}{\text{BMV}} \times \text{Base Point}$$

CMV = Current market value (free-float adjusted)

BMV = Base market value (free-float adjusted)

$$\begin{aligned} &\text{Current Market Value} \\ &= \sum (\text{Number of Shares for Each Constituent} \times \text{Stock Price for Each Constituent}) \end{aligned}$$

### 3. Stock Price Used for Calculation

- The stock prices used for calculating and adjusting base market value for TOPIX Sector Indices and TOPIX-17 series are prices from auction trading on TSE and are determined by the following order of priority:

(1) Special Quote or Sequential Trade Quote, (2) Contract Price, (3) Base Price for Index Calculation when neither (1) or (2) are available (determined in the following order: (1) Theoretical Ex-rights Price, (2) Most Recent Special Quote or Sequential Trade Quote on or before the previous trading day, (3) Most Recent Contract Price before the previous trading day.)

#### 4. Number of Shares Used for Index Calculation

- The number of shares used for index calculation is determined by multiplying the total number of listed shares by the free-float weight (FFW) ratio.

<p>Number of Shares Used for Index Calculation for Each Stock = Total Number of Listed Shares × FFW Ratio</p>
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- In general, the “total number of listed shares” in the above formula is equal to the number of listed shares, but in some cases these numbers are different due to corporate actions such as stock splits. For example, in a stock split, the number of listed shares changes on the listing change date, which comes after the effective date. On the other hand, the total number of listed shares used in index calculation (before FFW adjustment) changes on the ex-rights date, leading to a brief period in which the two numbers are different.
- Also, the total number of listed shares used in index calculation (before FFW adjustment) is generally equal to the number of issued shares, but in the case of Nippon Telegraph and Telephone Corporation, Japan Tobacco, Inc., and Japan Post Holdings Co., Ltd., the government of Japan holds some issued shares that have not been listed, leading these two numbers to be different.
- Please refer to the appendix for information on calculating FFW ratio.

#### III. Adjustments to Base Market Value

- Whenever the market value of the index changes due to an increase or decrease in constituent issues, capital raising, or similar events other than market fluctuations, the base market values for TOPIX Sector Indices and TOPIX-17 series are adjusted as follows to maintain continuity.

## 1. Events that Require Adjustment

### 1) Inclusion or Removal of Constituents

	Event Requiring Adjustment		Adjustment Date	Stock Price Used for Adjustment
Inclusion	New listing of a newly formed company resulting from a corporate consolidation, etc. (*1) that results in a TOPIX constituent being delisted and the new company being included in TOPIX.		New listing date (*2)	Base price
	Inclusion into TOPIX		Date of inclusion into TOPIX	Stock price at end of trading on business day before adjustment date
Removal	Delistings	New listing of a newly formed company resulting from a corporate consolidation, etc. (*1) that results in a TOPIX constituent being delisted and the new company being included in TOPIX.	Listing date of the newly formed company (normally two business days following delisting date)	Stock price at end of trading on business day before delisting date (*3)
		Delistings other than those stated above (e.g. mergers/acquisitions between two TOPIX constituents with surviving company remaining as a TOPIX constituent, etc.)	Delisting date	Stock price at end of trading on business day before adjustment date
	Removal from TOPIX		Date of removal from TOPIX	Stock price at end of trading on business day before adjustment date

\*: Adjustments to the base market value are made after the end of trading on the business day before the adjustment date (i.e., before the market opens on the adjustment date). The same shall apply hereinafter.

\*1: Stock transfer, stock swap, merger for creating a new company, or demerger.

\*2: Next business day when the new listing date falls on a holiday.



\*3: The stock price at the end of trading on the business day before the delisting date is used to calculate the index for the period from the delisting date to the removal date.

## 2) Changes in Number of Shares Used for Index Calculation

Event Requiring Adjustment		Adjustment Date	Stock Price Used in Adjustment
Changes in free-float weight (FFW)		Date of change	Stock price at end of trading on business day before adjustment date
Public offering		Additional listing date (day after payment date) (*1)	Stock price at end of trading on business day before adjustment date
Third-party allotment		Five business days after additional listing date (two business days after payment date)	Stock price at end of trading on business day before adjustment date
Issues to shareholders with payment		Ex-rights date	Payment price per share
Exercise of subscription warrants		Last business day of the month following exercise	Stock price at end of trading on business day before adjustment date
Conversion of preferred stock, etc.		Last business day of the month following conversion	Stock price at end of trading on business day before adjustment date
Cancellation of treasury stock		Last business day of the month following cancellation	Stock price at end of trading on business day before adjustment date
Merger/Stock swap	Situations in which a constituent of an index calculated by TSE (*2) is the non-surviving entity	Delisting date of the non-surviving entity	Stock price at end of trading on business day before adjustment date

Event Requiring Adjustment		Adjustment Date	Stock Price Used in Adjustment
	(mergers/stock swaps between two issues that are both constituents of an index calculated by TSE)		
	Situations other than those described above	Listing change date (effective date)	Stock price at end of trading on business day before adjustment date
Rights offering (limited to case where the allotted subscription warrant securities are listed) (*4)		Ex-rights date	Payment price per share
Sale of shares held by the Japanese government (Nippon Telegraph, Telephone and Japan Tobacco and Japan Post Holdings only)		Date determined by TSE (*3)	Stock price at end of trading on business day before adjustment date
Demerger (absorption-type)		Listing change date (effective date)	Stock price at end of trading on business day before adjustment date
Other adjustments (*5)		Last business day of the month in which the information appears in “Sho-ho” (TSE Notice) or the last business day of the following month	Stock price at end of trading on business day before adjustment date

Note: Since market value does not change when there is a stock price revision made due to an increase (or decrease) in the number of shares used for index calculation such as a stock split, reverse stock split, or gratis allotment of shares (limited to cases where treasury stock is allotted), etc., no adjustment is made to the base value.

\*1: Next business day when the change (addition) date falls on a holiday (same applies below)

\*2: Constituents of an index calculated by TSE include domestic common shares.

\*3: Generally the delivery date

\*4: The number of shares for Rights offering used for calculating indices will correspond to the number of shares to be allocated to shareholders. The case where the allotted subscription warrant securities are not listed is

treated as “Exercise of subscription warrants”.

- \*5: For example, situations in which an issuer of convertible bonds or other securities conducts a stock split; the number of shares calculated based on ratios for stock splits, reverse stock splits, or share allotments to shareholders, etc. is different than the final number of shares determined after the effective date; or revisions have been made by listed companies after data has been reflected in index calculation.

### 3) Data Source

- Information on the reason for base market value adjustments, details on the adjustment, the adjustment date and other data is available through the “Sho-ho” (TSE Notice) published daily by TSE based on reports, etc. made by listed companies. (Please refer to the appendix for information on calculating FFW.)
- If a listed company revises the contents of a previously published report that resulted in an index adjustment, retroactive index adjustments will NOT be made based on the revised contents.

## 2. Adjustment Method

### 1) Indices that do not reflect dividends (i.e. price indices)

#### A) Adjustment Method

- Base market value will be adjusted according to the formula below in order to maintain the continuity of the index:

$$\frac{\text{Previous Business Day Market Value}}{\text{Pre - Adjustment Base Market Value}} = \frac{(\text{Previous Business Day Market Value} \pm \text{Adjustment Amount})}{\text{New Base Market Value (After Adjustment)}}$$

\*Adjustment Amount = Increase (Decrease) in Number of Shares Used for Index Calculation X Stock Price Used for Adjustment

Therefore,

$$\text{New Base Market Value} = \frac{\text{Old Base Market Value} \times (\text{Previous Business Day Market Value} \pm \text{Adjustment Amount})}{\text{Previous Business Day Market Value}}$$

## B) Adjustment Example

- If, for example, the old base market value is 20 trillion yen and the previous day's market value is 400 trillion yen, TOPIX on the previous day will be:

$$\text{Previous Day TOPIX} = \text{¥}400 \text{ tn} \div \text{¥}20 \text{ tn} \times 100 = 2,000.00$$

- Now, suppose that Stock A increases the number of listed shares used for index calculation by 100 million shares due to a public offering. If the closing price of the stock on the previous day was ¥2,000, the adjustment amount is 100 million shares x ¥2,000 = ¥200 billion. The new base market value, therefore, is:

$$\text{New Base Market Value} = \text{¥}20 \text{ tn} \times (\text{¥}400 \text{ tn} + \text{¥}200 \text{ bn}) \div \text{¥}400 \text{ tn} = \text{¥}20.01 \text{ tn}$$

- As illustrated below, if there is no price change in any constituent, the value for TOPIX today is the same as the previous day: 2000 points. Thus, continuity in the index is maintained though adjustments to base market value even if the market value of constituents changes due to public offerings, etc.

$$(\text{¥}400 \text{ tn} + \text{¥}200 \text{ bn}) \div \text{¥}20.01 \text{ tn} = 2,000 \text{ points}$$

## 2) Total Return Index

- Dividends used in calculating the Total Return Index are gross (i.e. before tax)
- Since the dividend amount for the current period is not fixed as of the ex-dividend date, adjustments made to reflect dividends in the base market value are made in two stages: 1) adjustment using estimated dividends and 2) minor adjustments made to reflect differences in estimated dividend and dividend amount announced in the earnings report, etc.

### A) Adjustments Using Estimated Dividends

- The total dividend amount for all constituents is calculated on ex-dividend dates using estimated dividends, and base market value is adjusted as above. In principle, the estimated dividend amount used is as follows:

1. Dividend amount for the current period as announced in timely disclosure documents, if available
  2. Dividend amount for the previous period if the dividend for the current period is not fixed (e.g. the dividend is not announced in disclosure documents as (1) above, or the amount is not determined, etc.)
- The base market value adjustment method is basically as described in the previous section, except an adjustment is made to reflect dividends as follows:

$$\text{New Base Market Value} = \frac{\text{Old Base Market Value} \times (\text{Previous Business Day Market Value} - \text{Total Dividends} \pm \text{Adjustment Amount})}{\text{Previous Business Day Market Value}}$$

- \* Dividends Per Constituent = Number of Shares Used for Index Calculation on Business Day Before Ex-Dividend Date × Estimated Dividend Per Share
- \* Total Dividends = Sum of Dividends for All Constituents
- \* Adjustment Amount = Increase (Decrease) in Number of Shares Used for Index Calculation X Stock Price Used for Adjustment

B) Minor Adjustment Made to Reflect Difference Between Estimated Dividend and Dividend Announced in the Earnings Report, etc.

- Minor adjustments are made with respect to those constituents for which the estimated dividend used on the ex-dividend date and the dividend announced in the earnings report or the notice of dividends of surplus (hereinafter the "earnings report, etc.") are different. Specifically, the total dividend adjustment amount is calculated and the base market value adjustments are made on the last business day of the month in which the dividend is announced in the earnings report, etc. (hereinafter the "publication date"; if the publication date is one business day before the last business day of the month or the last business day of the month, adjustments will be, as a general rule, made on the last business day of the next month).

$$\text{New Base Market Value} = \frac{\text{Old Base Market Value} \times (\text{Previous Business Day Market Value} - \text{Total Dividend Adjustment} \pm \text{Adjustment Amount})}{\text{Previous Business Day Market Value}}$$

- \* Adjusted Dividend Per Constituent = Number of Shares Used for Index Calculation on Business Day Before Ex-Dividend Date × (Dividend Announced in Earnings Report, etc. - Estimated Dividend Per Share)
- \* Total Adjusted Dividends = Sum of Adjusted Dividends for All Constituents
- \* Adjustment Amount = Increase (Decrease) in Number of Shares Used for Index Calculation X Stock Price Used for Adjustment

### **3) Net Total Return Index**

- In addition to the Total Return Index explained above, TSE also calculates the TOPIX Net Total Return Index which reflects the tax rate applied to constituent stock dividends.
- The base market value adjustment to reflect the dividend amount is made at the same time as (2). But when calculating the base market value, the "total dividend amount" and the "total dividend minor adjustment amount" shall each be multiplied by (1 minus the dividend tax rate).
- The tax rate used in calculating the TOPIX Net Total Return Index is withholding tax rate for listing shares (except for the local tax) at the adjustment date.

## **IV. Other**

### **1. Publication/Dissemination of Index Data**

#### **1) Index Values**

- The price index values are disseminated in real-time through the Market Information System to securities companies, news media, and other institutions all over the country every 15 seconds.
- The Total Return Index is calculated daily at market close.

#### **2) Index Data**

- Index data relating to TOPIX Sector Indices and TOPIX-17 series (base market value, number of shares for each constituent, etc.) is provided for a fee through the Tokyo Market Information service.

### **2. Licensing**

- TSE reserves all calculation, publication and other rights pertaining to TOPIX Sector Indices and TOPIX-17 series. As such, commercial use of such indices in the composition and/or sale of financial products such as funds or linked bonds (including using the index as the basis for options, swaps, warrants, or other OTC derivatives) or

provision of index data requires a license from TSE.

### **3. Contact**

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