

(Reference Translation)

TSE Index Guidebook (TOPIX New Index Series - Size-based TOPIX Sub-Indices)

October 9, 2018
Tokyo Stock Exchange, Inc.

Published: August 17, 2018

DISCLAIMER: This translation may be used for reference purposes only. This English version is not an official translation of the original Japanese document. In cases where any differences occur between the English version and the original Japanese version, the Japanese version shall prevail. This translation is subject to change without notice. Tokyo Stock Exchange, Inc., Japan Exchange Group, Inc., Osaka Exchange, Inc., Japan Exchange Regulation, and/or their affiliates shall individually or jointly accept no responsibility or liability for damage or loss caused by any error, inaccuracy,

Contents

Record of Changes	3
Introduction	4
I. Outline of Stock Price Indices	4
II. Index Calculation	5
1. Outline.....	5
2. Formula	5
3. Stock Price Used for Calculation	6
4. Number of Shares Used for Index Calculation.....	6
5. Constituent selection	7
III. Adjustments to Base Market Value.....	11
1. Events that Require Adjustment	11
1) Inclusion or Removal of Constituents.....	11
2) Changes in Number of Shares Used for Index Calculation	14
3) Data Source.....	16
2. Adjustment Method	16
1) Indices that do not reflect dividends (i.e. price indices).....	16
2) Total Return Index.....	17
IV. Other	19
1. Publication/Dissemination of Index Data	19
1) Index Values.....	19
2) Basic information	19
2. Licensing.....	19
3. Contact.....	19

Record of Changes

DATE	Changes
2018/7/23	* First Edition
2018/8/17	* Added "TOPIX Small 500" (Launch Date: October 9,2018)

Introduction

- Tokyo Stock Exchange, Inc. (TSE) calculates and publishes TOPIX New Index Series and Size-based TOPIX Sub-Indices (hereinafter collectively referred to as "TSE-calculated indices") 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 TSE-calculated indices, changes to its calculation or publication method, the use of TSE-calculated indices 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 Stock Price Indices

- TOPIX New Index Series classifies TOPIX constituents into TOPIX Core30, TOPIX Large70, TOPIX 100, TOPIX Mid400, TOPIX 500, TOPIX 1000, and TOPIX Small500 based on free-float adjusted market capitalization and liquidity.

Size-based TOPIX Sub-indices	TOPIX New Index Series			
Large-cap Stocks	Core30	TOPIX 100	TOPIX 500	TOPIX 1000
	Large70			
Medium-cap Stocks	Mid400	TOPIX Small500		
Small-cap Stocks	Small			

- In order to accurately reflect market movements, TSE conducts an annual review of the constituents of the indices in TOPIX New Index Series in October.

- As a general rule, the number of constituents in TOPIX Core30, TOPIX Large70, TOPIX 100, TOPIX Mid400, TOPIX 500, TOPIX 1000, and TOPIX Small 500 are 30, 70, 100, 400, 500, 1000, and 500, respectively. After the October Review, the number of constituents may increase or decrease due to inclusions of constituents at the Monthly Review or delisting of constituent companies.
- The base date and base value for each index is indicated below:

Index			Base Date	Base Point
TOPIX Series	New Index	TOPIX Core30	1998/04/01	1,000
		TOPIX Large70		
		TOPIX 100		
		TOPIX Mid400		
		TOPIX 500		
		TOPIX Small		
		TOPIX 1000	2003/09/12	1,000
		TOPIX Small500	2018/08/31	1,000
Size-based TOPIX Sub-Indices			1968/01/04	100

II. Index Calculation

1. Outline

- TSE-calculated indices 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 place 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)

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

3. Stock Price Used for Calculation

- The stock prices used for calculating TSE-calculated indices are determined by the following order of priority:

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

$$\begin{aligned} \text{Number of Shares Used for Index Calculation for Each Stock} \\ = \text{Total Number of Listed Shares} \times \text{FFW Ratio} \end{aligned}$$

- 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.

5. Constituent selection

(1). October Review (inclusion and removal)

a. Summary

- Issues are included and removed during the "October Review". These issues are selected from companies listed on the TSE First Section based on liquidity and free-float adjusted market capitalization as of the base date, which is the last business day of August.
- The list of constituent changes is published on the fifth business day of October, and index calculation applying such constituent changes will begin on the last business day of October.
- Constituents of the TOPIX New Index Series are selected on the base date in accordance with the following procedures.

b. TOPIX Core30 selection criteria

(a) First, the 15 largest stocks by free-float adjusted market capitalization are selected from the top 90 stocks out of TOPIX constituents based on total trading value during the last three-year period.

(b) Remaining 15 constituents

i Selection from current TOPIX Core30 constituents

Out of the current constituents, the 15 largest stocks by free-float adjusted market capitalization as of the base date are selected. These 15 stocks must be from the top 90 stocks out of TOPIX constituents based on total trading value during the last three-year period and must also be ranked within the top 40 stocks by free-float adjusted market capitalization as of the base date.

ii If it is not possible to select 15 stocks in accordance with the procedures above, the remaining stocks will be selected from the top 90 stocks out of TOPIX constituents based on total trading value during the last three-year period.

c. TOPIX 100 selection criteria

(a) First, the TOPIX Core30 constituents are selected.

(b) Remaining 70 constituents

i Selection from current TOPIX 100 constituents

Out of the current TOPIX 100 constituents, the 70 largest stocks by free-float adjusted market

capitalization as of the base date are selected. These 70 stocks must be from the top 200 stocks based on total trading value for the last three-year period and must also be ranked within the top 130 stocks by free-float adjusted market capitalization as of the base date.

ii If it is not possible to select 70 stocks in accordance with the procedures above, the remaining stocks will be selected from the top 200 stocks out of TOPIX constituents based on total trading value during the last three-year period.

d. TOPIX 500 selection criteria

(a) First, the TOPIX 100 constituents are selected

(b) Remaining 400 constituents

i Selection from the current TOPIX 500 constituents

Out of the current TOPIX 500 constituents, the 400 largest stocks by free-float adjusted market capitalization as of the base date are selected. These 400 stocks must be from the top 1,000 stocks based on total trading value during the last three-year period and must also be ranked within the top 600 stocks by free-float adjusted market capitalization as of the base date.

ii If it is not possible to select 400 stocks in accordance with the procedures above, the remaining constituents will be selected from the top 1,000 stocks out of TOPIX constituents based on trading value during the last three-year period.

e. TOPIX 1000 selection criteria

(a) First, the TOPIX 500 constituents are selected.

(b) Remaining 500 stocks

i Selection from current TOPIX 500 constituents

Out of the current TOPIX 500 constituents, the 500 largest stocks by free-float adjusted market capitalization as of the base date are selected. These 500 stocks must be from the top 1,200 stocks out of TOPIX constituents based on total trading value during the last three-year period and must also be ranked within the top 1,200 stocks by free-float adjusted market capitalization as of the base date.

ii If it is not possible to select 500 stocks in accordance with the procedures above, the remaining constituents will be selected from the top 1,200 stocks out of TOPIX constituents based on total trading value during the last three-year period.

f. TOPIX Small selection criteria

All stocks in TOPIX constituent universe excluding those in TOPIX 500

g. TOPIX Large70 selection criteria

- Constituents of TOPIX 100 excluding those in TOPIX Core30

h. TOPIX Mid400 selection criteria

Constituents of TOPIX 500 excluding those in TOPIX 100

i. TOPIX Small500 selection criteria

Constituents of TOPIX 1000 excluding those in TOPIX 500

(2). Monthly review (inclusion only)

a. Summary

- Issues are included into the TOPIX New Index Series indices during the “Monthly Review”. These issues are selected from the following based on liquidity and free-float adjusted market capitalization as of the base date.

- | |
|---|
| <ul style="list-style-type: none">• Companies that were newly listed on the TSE First Section (excluding initial listings of parent companies established due to stock transfer, etc.)• Companies that were assigned to the TSE First Section from the Second Section• Companies whose listing markets were altered to the TSE First Section from Mothers |
|---|

- The base date of the monthly review is the last business day of every month (last business day of the month of an initial listing). The list of constituent inclusions is published on the fifth business day of every month (fifth business day of the month after that of an initial listing or above transfer and index calculation applying such constituent inclusions will begin on the last business day of the month following an initial listing or above transfer (inclusion occurs on the same day as inclusion in TOPIX).

b. Criteria for inclusion

- As a general rule, newly listed companies on the TSE First Section will be added to TOPIX Small. However, stocks with a large free-float adjusted market capitalization and trading value (stocks that satisfy at least the following criteria as of the last business day of the month preceding that of inclusion) will be added to TOPIX Core30, TOPIX Large70, TOPIX Mid400 respectively (inclusion occurs on the same day as inclusion in TOPIX). However, as long as a newly listed company does not satisfy at least the criteria for TOPIX Mid400, it will not be included in the TOPIX 1000.

Index	Free-Float adjusted Market Capitalization Ranking	Trading Value Ranking
TOPIX Core30	20	90
TOPIX Large70	70	200
TOPIX Mid400	400	1,000

(3). Removal of constituents in addition to the periodic review

- Removal of constituents is conducted due to delisting, designation of Securities to Be Delisted and reassignment to the TSE Second Section (removal occurs on the same day as removal from TOPIX).

(4). Inclusion of constituents in addition to the periodic review

- In cases where a company in the TOPIX New Index Series is delisted due to a stock transfer, stock- swap, merger, or the creation of a new company through a merger or spin-off, and the surviving or succeeding company is promptly listed on the TSE First Section, the stocks of such new company will be included in whichever index of the TOPIX New Index Series that is based on the highest liquidity and largest free-float adjusted market capitalization in which the delisted company was included (inclusion occurs on the same day as inclusion in TOPIX).

Example: Assuming both Company A in TOPIX Core30 and Company B in TOPIX Large70 are delisted due to a stock-swap and Company C, the newly established holding company, is promptly listed on the TSE First Section, then Company C will be added to TOPIX Core30.

- Even though the number of constituents may decrease due to delisting between the periodic reviews, no supplementary inclusions are made to meet the intended number of constituents for each index (inclusions to meet the intended number of constituents for

each index are only made during the October Review).

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 TSE-calculated indices 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 Listings	New listings on 1st section (direct listing, listing via other exchange)	Last business day of the month following listing	Stock price at the end of trading on the business day before adjustment date
		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.*2	New listing date*3	Base price
	Change in listed section/market to 1st section from 2nd section, Mothers or JASDAQ markets		Last business day of the month following designation to new section/market*4	Stock price at the end of trading on the business day before adjustment

	Event Requiring Adjustment		Adjustment Date	Stock Price Used for Adjustment
				date
	Periodic review in October		Last business day of October	Stock price at the end of trading on the business day before adjustment date
Removal	Delistings	New listing of a newly formed company resulting from a corporate consolidation, etc. ^(*) that results in a TOPIX constituent being delisted and the new company being included in TOPIX.	Listing date of the newly formed company (normally three business days following delisting date)	Stock price at the end of trading on the business day before delisting date*5
		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 the end of trading on the business day before adjustment date
	Designation as Securities to be Delisted		Four business days after designation*6	Stock price at the end of trading on the business day before adjustment date
	Section/market change from 1st section to		Date of change	Stock price at

	Event Requiring Adjustment	Adjustment Date	Stock Price Used for Adjustment
	2nd section or JASDAQ		the end of trading on the business day before adjustment date
	Periodic review in October	Last business day of October	Stock price on the business day before the adjustment date

*: If the ratio of the free-float adjusted market capitalization of a newly listed company on the TSE 1st Section to the adjusted market value of TOPIX reaches or exceeds 1% on any day during the five business days counting from the initial listing date, the company is included into the indices in several phases (The second and subsequent installments will take place on the last business day two months following the previous installment.)

*: For issues newly listing on the 1st section (other than companies formed through consolidation, etc.) or switching from the Mothers market to the 1st section, if the date of inclusion in the TOPIX index falls within a “when-issued transaction” period, the issue will be included in TOPIX on the last business day of the month following the end of the when-issued transaction period.

Note: Stock splits with an allotment date (base date) on or after January 4, 2006 do not have a when-issued transaction period. When-issued transactions may continue to take place for third-party allotments according to the circumstances.

*1: Consolidation, acquisition, merger or split (personnel split).

*2: The new company will be included in whichever index of the TOPIX New Series that is based on the highest liquidity and largest free-float adjusted market capitalization in which the delisted company was included

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

*4: Issue is counted amongst constituents from the designation date, but for technical purposes FFW will be set to 0.00 and the number of shares used for index calculation will be 0 from the designation date until the adjustment date in order to essentially push back the date that the issue is reflected in the calculation of TOPIX. For Ex-TOPIX, FFW is set to 1.00 and the issue is reflected in index calculation from the designation date.

*5: 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.

*6: Next business day when the designation date falls on a holiday.

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 the end of trading on the business day before adjustment date
Public offering		Additional listing date (day after payment date) ^{*1}	Stock price at the end of trading on the business day before adjustment date
Third-party allotment		Five business days after additional listing date (two business days after payment date)	Stock price at the end of trading on the 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 the end of trading on the business day before adjustment date
Conversion of preferred stock, etc.		Last business day of the month following conversion	Stock price at the end of trading on the business day before adjustment date
Cancellation of treasury stock		Last business day of the month following cancellation	Stock price at the end of trading on the business day before adjustment date
Merger/Acquisition	Situations in which a constituent of TSE-calculated indices ^{*2} is the non-surviving entity (mergers/acquisitions)	Delisting date of the non-surviving entity	Stock price at the end of trading on the business day before adjustment date

Event Requiring Adjustment		Adjustment Date	Stock Price Used in Adjustment
	between two issues that are both constituents of an index calculated by the TSE)		
	Situations other than those described above	Listing change date (effective date)	Stock price at the end of trading on the business day before adjustment date
Rights offering (limited to case where the allotted subscription warrant securities are listed) ^{*3}		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 ^{*4}	Stock price at the end of trading on the business day before adjustment date
Company split (merged split)		Listing change date (effective date)	Stock price at the end of trading on the 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 the end of trading on the business day before adjustment date

*: Since market value does not change when there is a stock price revision made due to a stock split, gratis allotment of shares (limited to case where the allotted treasury stock), reverse split, 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 TSE-calculated indices include domestic common shares, domestic preferred equity contribution securities, domestic participating classified stocks, foreign stocks with exclusive listing on the TSE and REITs.

*3: 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”.

*4: Generally the delivery date

*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 splits, paid-in allotment to shareholders, right offering, etc. is different than the final number of shares determined after the effective date; or revisions 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)

① 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,

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

② 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:

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

- 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.

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

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 dividends and the dividend amount announced in the earnings report.

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 and Actual Dividends

- 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 are different. Specifically, the total dividend adjustment amount is calculated on the 7th day of the 3rd month after the ex-dividend date (or the previous business day if the 7th day falls on a holiday), and the base market value is adjusted by that amount. (For example, for companies that announce earnings in March, the adjustment is made on June 7th.)
- Data used to calculate the adjustment amount is the information available as of three business days before the adjustment date. However, if a dividend adjustment is announced outside of this timeframe and the TSE deems that the adjustment will have a significant impact on the index value, an additional minor adjustment will be made.

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

- * Adjusted Dividend Per Constituent = Number of Shares Used for Index Calculation on Business Day Before Ex-Dividend Date × (Dividend Announced in Earnings Digest Summary - 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

IV. Other

1. Publication/Dissemination of Index Data

1) Index Values

- 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. The TOPIX Core30, TOPIX500 and TOPIX100 price index are disseminated every second, and other indices are disseminated every 15 seconds.
- The total return index is calculated daily at market close.

2) Basic information

- Basic information relating to TSE-calculated Indices (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 TSE-calculated Indices. 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

Information Services

Tokyo Stock Exchange, Inc.

E-mail : index@jpx.co.jp