

Nikkei 225 Total Return Index Index Guidebook

Nikkei Inc.

- This document is the index guidebook of the Nikkei 225 Total Return Index calculated and published by Nikkei Inc. (Nikkei) since December 3, 2012. The document is drawn up by Nikkei and it would be changed or modified corresponding to the revision of the index calculation rule etc.
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- This English document is a translation of the original document dated December 3, 2012 in Japanese and may not be an entirely accurate translation of the original Japanese document. In any case where differences arise between the English version and the original Japanese version, the original Japanese document will prevail.

(December 4, 2015 version)

1 : Concept

The Nikkei 225 Total Return Index measures the performance of the Nikkei 225, including both movements in the price and reinvestment of dividend incomes from the component stocks at the closing of ex-dividend dates. It is common for Japanese companies to fix dividends paying to their shareholders after the ex-date. Therefore estimated dividends are used for the index calculation on the ex-date. The difference between the estimated dividend and the actual dividend reflects the index on the next business day when the dividend is fixed.

2 : Index Calculation

(1) Basic points

- Index value on a day is calculated by multiplying the index value on the previous day by the change rate on the day based on the return of the Nikkei 225 including dividends.
- Dividends used for the calculation are estimated dividends published by Nikkei (reflecting the estimated figures published until (or including) the day before the ex-dividend dates). If the actual dividends are changed from the estimated dividends, the index value is adjusted by reflecting the differences on the next business day when the dividends are fixed. For the retroactive calculation of the index in the past, see 4-(2).
- The timing to fix the dividends is the same as that for the calculation of the “Nikkei Stock Average DP Index” (i.e. on the dates of annual regular shareholder meetings in case of the annual dividends/ on the dates of the publication by the companies in case of the other dividends).
- Unit of the index value is “points” and the figure is rounded to two decimal places.
- The index value on December 28, 1979 was 6569.47 (equal to closing price of the Nikkei 225 (price index) on the day).
- The index is calculated and published as the value on the end-of-day basis since December 3, 2012.

(2) Formula

*In the following formula, “*Nikkei225*” indicates its closing price.

$$\begin{aligned} \text{Index Value}_t &= \text{Index Value}_{t-1} \\ &\times \frac{\text{Nikkei 225}_t + \text{Estimated Ex-Dividend}_t + \text{Dividend Adjustment}_t}{\text{Nikkei 225}_{t-1}} \end{aligned}$$

- t : current day, $t-1$: previous day.

Estimated Ex-Dividend is calculated as follows:

$$\begin{aligned} & \text{Estimated Ex-Dividend}_t \\ &= \sum \frac{\text{Estimated Ex-Dividend of Constituent}_t / \text{Presumed Par Value}_{\text{ex-date}} \times 50}{\text{Divisor of Nikkei 225}_{\text{ex-date}}} \end{aligned}$$

- *Estimated Ex-Dividend of Constituent* indicates dividend per share (gross cash dividend, including special dividend and commemorative dividend). The value is zero on the other days than the ex-dividend date.
- *Presumed Par Value* and *Divisor of Nikkei 225* on the ex-dividend date are used for the calculation.
- The figure is rounded to two decimal places.

Dividend Adjustment is calculated as follows:

$$\begin{aligned} & \text{Dividend Adjustment}_t \\ &= \sum \frac{\text{Dividend Adjustment of Constituent}_t / \text{Presumed Par Value}_{\text{ex-date}} \times 50}{\text{Divisor of Nikkei 225}_{\text{ex-date}}} \end{aligned}$$

- *Dividend Adjustment of Constituent* is equal to the actual (fixed) dividend per share minus the estimated ex-dividend. The value is zero on the other days than the adjustment date. *Presumed Par Value* and *Divisor of Nikkei 225* on ex-dividend date are used for the calculation.
- The figure is rounded to two decimal places.

3 : Calculation example

(1) Calculation on Feb 27, 2012 (Ex-dividend date)

*In the following example, t is Feb 27, 2012 and, $t-1$ is Feb 24, 2012.

- $\text{Index Value}_{t-1} = 13434.99$
 - $\text{Nikkei 225}_{t-1} = 9647.38$
 - $\text{Nikkei 225}_t = 9633.93$
 - $\text{Estimated Ex-Dividend}_t = 7.25$
- | | |
|---------------------------|--|
| J.Front Retailing (3086) | : (3.5 / 50 × 50) / 24.966 = 0.140190... |
| Seven & i Holdings (3382) | : (33 / 50 × 50) / 24.966 = 1.321797... |
| Takashimaya (8233) | : (5 / 50 × 50) / 24.966 = 0.200272... |
| Aeon (8267) | : (23 / 50 × 50) / 24.966 = 0.921252... |
| Toho (9602) | : (15 / 500 × 50) / 24.966 = 0.060081... |
| Fast Retailing (9983) | : (115 / 50 × 50) / 24.966 = 4.606264... |

- *Dividend Adjustment*_t = 0

$$\text{Index Value}_t = 13434.99 \times \{(9633.93 + 7.25 + 0) / 9647.38\} = 13426.355... \approx \underline{13426.36}$$

(2) Calculation on April 13, 2012 (adjustment date)

*In the following example, *t* is April 13, 2012 and, *t-1* is April 12, 2012.

- April 12, 2012: the dividend per share of Fast Retailing (9983) was fixed as 130 (it's figure was 115)
- *Index Value*_{t-1} = 13389.84
- *Nikkei 225*_{t-1} = 9524.79
- *Nikkei 225*_t = 9637.99
- *Estimated Ex-Dividend*_t = 0
- *Dividend Adjustment*_t = 0.60
Fast Retailing (9983) : $\{(130 - 115) / 50 \times 50\} / 24.966 = 0.600817...$

$$\text{Index Value}_t = 13389.84 \times \{(9637.99 + 0 + 0.60) / 9524.79\} = 13549.818... \approx \underline{13549.82}$$

4 : Treatment of the index value

(1) Publication of the index value

As a general rule, the indices are published as the value on the end-of-day basis by 4:30pm on every business date on Nikkei Indexes (<http://indexes.nikkei.co.jp/en/>).

(2) Retroactive calculation in the past

The Nikkei 225 Total Return Index was calculated retroactively back to December 28, 1979 on the end-of-day basis. However, from 1979 to 1990 dividend used on ex-dividend date was not the estimated dividend but the actual dividend.

(3) Modification of the index value

If any event which affects the index value occurs, as a general rule, retroactive calculation for the modification will not be conducted. However if the Nikkei Stock Average (Nikkei 225) used to calculate the Nikkei 225 Total Return Index is modified retroactively, this index may also be modified retroactively.

5 : Nikkei 225 Net Total Return Index

In addition to the above index including gross dividends, the Nikkei 225 Net Total Return Index is also calculated on the end-of-day basis as a reference value, using dividends after the deduction of tax for the calculation. Base date of the index and the value on the date are the same as the Nikkei 225 Total Return Index (December 28, 1979, 6569.47). The

Nikkei 225 Net Total Return Index was calculated retroactively until its daily calculation start of December 3, 2012.

History of changes in tax rates for the index calculation (ex-dividend date basis)

Period	Tax rate
Jan 1980 to Dec 2002	20%
Jan 2003 to Oct 2012	10%
Nov 2012 to Oct 2013	10.147%
From Nov 2013	20.315% *

*The tax rate was applied from ex-dividend date in December 2013 because of no ex-dividend constituent stocks in November

6 : Others

(1) Licensing

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In addition, the disclaimers in the above are also applied to Nikkei Stock Average (Nikkei 225) which is used to calculate the Nikkei 225 Total Return Index.

(3) Contact

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Appendix : Change history of Index Guidebook

November 13, 2012 version	Initial version
December 26, 2013 version	In “5 : Nikkei 225 Net Total Return Index” - Added description the history of changes in of tax rates for the index calculation.
December 4, 2015 version	In “5 : Nikkei 225 Net Total Return Index” - Added description of the inception date and the inception value.