
Basic Methodology for KRX Equity Indices

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1. Overview

1.1 Objective

- This methodology describes general requirements for constituent selection, calculation methods, and guidelines in relation to the equity indices administered by the Korea Exchange (hereinafter referred to as “KRX”) in order to manage the indices in an impartial and objective manner. Unless specifically defined otherwise in individual methodologies developed by the KRX (hereinafter “Individual Methodology”), all indices shall be subject to this methodology.

1.2 Use

- 1.2.1 Every methodology written and distributed by the KRX (hereinafter “KRX Methodology”) is prepared solely for informational purposes, and the KRX is not responsible for any results from investment or loss caused by the use of the contents.
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1.3 Copyright

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2. Management Responsibility

- 2.1 KRX determines its equity indices in accordance with KRX Methodology, and takes responsibility for the calculation,

administration, and management of such indices as below.

- Inclusion and removal of constituents
- Constituent weight changes
- Regular review of indices and application of changes
- Distribution of index values

2.2 KRX develops the methods and procedures for index calculation and ensures that the indices are determined accordingly.

2.3 KRX ensures that factors shaping the indices are correctly employed and the index values are published and distributed appropriately and timely.

2.4 KRX ensures reliable, transparent, and appropriate decision-making in relation to the development, calculation, and management of the indices as well as to other issues that may affect such indices.

3. Governance

- KRX has put in place the following governance arrangements to ensure transparency and reliability of its index administration including the calculation, management, and publication of indices.

3.1 Index Committee

3.1.1 KRX has put in place the Index Committee to manage the KRX indices in an impartial and objective manner. The Committee, mostly consisting of experts from outside of KRX, reviews how benchmark indices (i.e. benchmark indices developed by the KRX such as KOSPI 200, KOSDAQ 150, and KRX 300) are managed.

3.1.2 The Committee examines the screening results of benchmark index rebalancings; regularly reviews whether the methodology of such

indices remains relevant and consistent; and studies any material change in such methodology and any cessation of key indices to confirm them.

3.2 Index Management Committee

3.2.1 KRX runs the Index Management Committee, consisting of KRX staff who have expertise in indices, to manage the KRX indices other than benchmark indices and to review the application of a corporate action to the indices.

3.2.2 The Committee determines exceptions to calculation methods of key indices and how to handle an event that is not covered in the methodology. The Committee also reviews and confirms any significant change to the KRX index methodologies or any cessation of index calculation.

3.3 Monitoring Panel

3.3.1 KRX runs the Monitoring Panel consisting of experts in index management, development and marketing within the Index Business department.

3.3.2 The Monitoring Panel examines evaluation on rebalancings of general indices other than benchmark indices and regular evaluation on methodology, and reviews the appropriateness of daily index measure and new index development.

3.4 Index Business department

3.4.1 The Index Business department conducts daily monitoring on the KRX indices to handle corporate actions, and continuously reviews the methodology.

3.4.2 In the event that Expert Judgement is deemed necessary to deal with a specific corporate action, KRX seeks to address the issue

through the Index Committee or the Index Management Committee.

4. Definitions

- **(Exchange market)** Markets referred to in Article 8-2(4) of the Financial Investment Services and Capital Markets Act, Article 4(1) of the KOSPI Market Business Regulation and Article 4(1) of the KOSDAQ Market Business Regulation.
- **(Overseas securities market)** A stock, bond, derivatives, or commodities market operated in a foreign country in accordance with the statutes of the foreign country by an entity that serves functions equivalent to KRX.
- **(Composite Index)** An index of all stocks traded on the exchange market.
- **(Industry Index)** An index that summarizes the performance of companies grouped in accordance with the Korean standard industrial classification.
- **(Sector Index)** An index that represents companies grouped in accordance with the Global Industry Classification Standard (GICS) classification.
 - * Global Industry Classification Standard: A global standard to classify equities into sectors, jointly developed by MSCI and S&P. (Visit <http://us.spindices.com> for details.)
- **(Thematic Index)** An index that captures specific social, economic, or environmental circumstances or developments in order to show their influence on the exchange market.
- **(Strategy Index)** An index that reflects a specific investment strategy

based on the stock prices of companies traded on the exchange market.

- **(Global Index)** An index contains stocks, some listed on an overseas securities market and others on the exchange market.
- **(Free-float ratio)** The percentage of total shares outstanding which are readily available in the market.
- **(Weight)** A weight reflects each stock's market capitalization, indicating their representation in a given index.
- **(Index calculation shares)** The number of shares used to compute the current index market value, which mostly equals to the number of shares outstanding. When the number increases due to a stock dividend or a capital increase resulting in ex-rights or ex-dividend, the calculation to reflect such increase takes place on the day the ex-rights or ex-dividend is applied to a given index.
- **(Current index market value)** The sum of values that are calculated by taking each constituent's index calculation shares and multiplying it by each current stock price. For those whose base prices are determined according to their assessment prices resulting for example from a capital reduction or spinoff, their market capitalization as of the preceding trading day is used.
- **(Base index market value)** The sum of values that are calculated by taking each constituent's index calculation shares and multiplying it by each stock price as of the base date.
- **(Base date)** The date where the index value is determined for the first time. Performance of an index is calculated against the index value as of the base date.

- **(Average daily market capitalization)** The average daily market capitalization of a constituent company over a screening period. This is the sum of values that are calculated by taking each closing price at each trading day during the screening period and multiplying it by the number of stock outstanding on the respective trading day, divided by the number of trading days of the exchange market over the period.
- **(Average daily trading value)** The sum of trading value at each trading day during the screening period, divided by the number of trading days of the applicable constituent.
- **(Market capitalization turnover ratio)** Median value among the results calculated by first dividing trading value of a constituent by its market capitalization for the days trading occurred during the period specified by individual methodology and then multiplying by 100.
- **(Free-float market capitalization turnover ratio)** Median value among the results calculated by first dividing trading value of a constituent by its free-float market capitalization for the days trading occurred during the period specified by individual methodology and then multiplying by 100.
- **(Finance)** Except as otherwise provided in a methodology, matters related to finance shall use consolidated financial statements (excluding non-controlling interests) prepared pursuant to the accounting standards prescribed by the Act on External Audit of Stock Companies and others (hereinafter referred to the “Act”). If no consolidated financial statement is available or if it falls under the period before the introduction of such accounting standards, the financial statements described in the Act shall be used.

Nevertheless, sales turnover (excluding that of holding companies)

shall use the financial statements set forth in the Act.

5. Input Data

5.1 Stock price

- 5.1.1** A stock price refers to the price made in the regulated market for a security at the time of index calculation.
- 5.1.2** In the absence of any transaction of a constituent company on the calculation day, the special quotation is used. When such quotation is absent, the base price is used.
- 5.1.3** The price of a security listed on a foreign exchange refers to the price made in the respective overseas securities market or in other markets concerned. When the price is not available for KRX due to trading suspension or discontinuance, system failure, or other reasons, the most recently available price is used. In cases where no price is available on the calculation day, the closing price on the most recent trading day is used.

5.2 Share counts

- 5.2.1** Index calculation shares used to compute the current index market value is typically the number of shares outstanding.
- 5.2.2** Index calculation shares used for a free-float index is calculated by multiplying the number of shares outstanding with a given free-float ratio.

6. Free-float Ratio

- 6.1** A free-float ratio refers to the percentage of total shares outstanding which are readily available in the market. The ratio is calculated

using the formula below and rounded off to zero decimal places.

$$Free - float ratio(\%) = \left(1 - \frac{Restricted\ shares}{Outstanding\ shares}\right) \times 100$$

* A company that has both common and preferred shares outstanding shall have two free-float ratios accordingly.

6.2 Free float

6.2.1 A free float refers to the number of outstanding shares excluding locked-in shares which mean an outstanding share of which trading is restricted or that is not practically traded, including:

- shares held by the largest shareholder or any special stakeholder;
- shares held by central or local governments;
- treasury stocks;
- shares held through employee stock purchase plans (ESPPs); and
- other shares deemed restricted shares, including:

*E.g.

- shares locked up by court order under receivership;
- shares locked up by lenders; and
- shares held by persons who are not the largest shareholder or any special stakeholder but deemed major shareholders considering their ownership percentage and the composition of shareholders.

6.2.2 A free float is calculated based on periodic reports for a given financial year (including business reports submitted by a listed company), disclosure about changes in ownership percentage, and others.

6.2.3 The free float of a global index determined in partnership with a foreign index provider may be calculated based on methods of the foreign index provider.

6.3 Calculations

6.3.1 The calculation of a free-float ratio takes place on the trading day

following the last trading day of the June and December delivery month for KOSPI 200 futures contracts. The ratio remains the same if a newly calculated figure is within the five percent range.

6.3.2 The calculation of a free-float ratio may take place on different schedule when the ratio is expected to change significantly due for example to a spinoff, a merger or acquisition, the largest shareholder's ownership percentage change.

6.3.3 The calculation of a free-float ratio may take place on different schedule considering possible impacts of changes in the ratio (or market capitalization) on fund rebalancings and subsequent market implications such as facilitation of index tracking.

6.4 The free-float ratio of a global index determined in partnership with a foreign index provider may be calculated based on methods of the foreign index provider.

7. Capping Factor

7.1 An index may limit the weight of any single constituent in the index not to be more or less than a certain level (hereinafter referred to as the "Capping Level"). If the weight of any constituent becomes more or less than Capping Level, the constituent's index calculation shares shall be multiplied by the Capping Factor to limit the weight.

7.2 The weight of a company is calculated based on average daily market capitalization over the three months preceding the month when the relevant rebalancing takes place. Some indices may employ different criteria.

7.3 The value of a Capping Factor is rounded off to four decimal

places.

◆ **Example of Capping Factor calculations (with one security of which weight exceeds the Capping Level of 25 percent)**

※ Market capitalization refers to float-adjusted market capitalization

Capping Level (0.25)	=	$\frac{\text{Modified market cap of stock}}{\text{Modified market cap of index}}$
Modified market cap of stock	=	$\frac{0.25 \times (\text{market cap of index} - \text{market cap of stock})}{0.75}$
Modified market cap of index	=	$\text{Market cap of index} - \text{market cap of stock} + \text{modified market cap of stock}$
※ Capping Factor	=	$\frac{\text{Modified market cap of stock}}{\text{Market cap of stock}}$

* Modified market cap of stock : market cap adjusted to the Capping Level using the Capping Factor

** Modified market cap of index : market cap excluding that of stock of which market cap exceeds the Capping Level + modified market cap of stock

7.4 The Capping Factor is applied to the applicable rebalancing date until the next rebalancing. Such calculation may take place on different schedule and weight calculation criteria may change, considering market conditions and prospects for any linked financial instruments. However, if operation of an index-linked product is disrupted because the weight of a specific constituent is excessively high, then Capping Factor may be adjusted anytime regardless of regular rebalancing date.

8. Constituents

8.1 Constituents of the equity indices are common stocks listed on the exchange market, excluding mutual funds, collective investment schemes, foreign securities, and depository receipts (DRs).

8.2 Apart from Composite and Industrial Indices that cover constituents referred in Article 8.1 herein, [other indices including equity, thematic, and strategic indices may exclude the below constituents according to each index's individual methodology.](#)

- real estate investment trusts (REITs);
 - companies investing in ship;
 - companies investing in social infrastructure;
 - special purpose acquisition companies (SPACs);
 - companies on the KRX's watchlist;
 - companies listed on the KOSDAQ market and designated as prudence-required stock;
 - issues scheduled to be delisted; and
 - others deemed disqualified*
- * (example) A constituent deemed to impede the index operation, e.g. a stock under a listing maintenance review of which trading is subject to a long-term suspension.

9. Index Calculations

9.1 Weighting Scheme

- The equity indices are weighted in proportion to their respective free-float market cap, except for the Equal Weighted Indices and other specific purpose indices that may use different weighting methodology by applying a AWF (Adjusted Weighting Factor)

according to their objectives.

- How and when to calculate the AWF for different reasons are stipulated in the each index methodology.

9.2 Index Calculation

9.2.1 The formula to calculate an equity index is as follows

$$Index\ value = \frac{Current\ free - float\ market\ value}{Base\ free - float\ market\ value} \times Base\ value$$

where the base free-float market cap refers to the free-float market capitalization as of the base date.

9.2.2 Index calculation shares to compute the current index market value is the number of shares outstanding. When the number increases due to a stock dividend or a capital increase resulting in ex-rights or ex-dividend, the calculation to reflect such increase takes place on the day the ex-rights or ex-dividend is applied to a given index.

9.2.3 In cases of calculating a company's current index market value on the day the company resumes trading after suspension, where the company's base price is determined according to its assessment price resulting, for example, from a capital reduction or spinoff, its market capitalization right before the suspension is used.

9.2.4 The current index market value of an equity index determined in partnership with a foreign index provider may be calculated based on methods of the foreign index provider.

9.2.5 In cases of change in constituents or in the number of shares, the base index market value is modified using the formula below to maintain the continuity of a given index.

$$\begin{aligned} & \text{Modified base index market value} \\ &= \frac{\text{Current index market value from previous day} \pm \text{Change in current index market value}}{\text{Current index market value}} \\ & \times \text{Previous base index market value} \end{aligned}$$

9.2.6 How and when to adjust the base index market value for different reasons are stipulated in the Corporate Actions and Events Methodology.

○ Refer to the Corporate Actions and Events Methodology.

9.2.7 The base index market value of an equity index determined in partnership with a foreign index provider may be calculated based on methods of the foreign index provider.

9.2.8 An AWF is adjusted by using the formula below to maintain the continuity of the index calculated with the AWF. .

$$AWF_t = \frac{MC_{t-1} \times AWF_{t-1}}{MC_t}$$

MC_{t-1} : Index market capitalization before adjustments

MC_t : Index market capitalization before adjustments + Change in current index market capitalization

* MC is index market capitalization applied free-float rate

9.2.9 How and when to adjust the AWF for different reasons are stipulated in the Corporate Actions and Events Methodology.

○ Refer to the Corporate Actions and Events Methodology.

9.3 Value Indication and Calculation Time

9.3.1 The value of an index is rounded off to two decimal places and indicated as points.

9.3.2 The equity indices are calculated from ten seconds after the start of trading on the exchange (exchange opening) to the end of trading on the exchange (exchange closing.) The calculation time for an equity index determined in partnership with a foreign

index provider or others may otherwise be stipulated in its methodology, if necessary.

9.3.3 The calculation continues until all closing prices are confirmed.

9.3.4 In the event of exchange market suspension, indices are not calculated until the trading resumes.

9.3.5 The equity indices are calculated every one, two, or ten seconds. For certain purposes, such interval may be adjusted or only closing prices may be calculated on a daily basis.

9.3.6 The equity indices are calculated real-time on the KRX Information Distribution System using the prices of constituent companies determined on the KRX Transaction System.

9.4 Calculation during Contingency

- The Guidelines on Index Cessation shall apply mutatis mutandis to cases where index calculation is impossible due for example to failure of critical infrastructure, force majeure, or men-made disasters.
- Refer to the Guidelines on Index Cessation.

9.5 Corrections

- The Guidelines on Corrections to Indices shall apply mutatis mutandis to cases where material errors arise from index calculation.
- Refer to the Guidelines on Corrections to Indices.

10. Constituent Change

10.1 Rebalancing

- Any benchmark index or other index that is regularly reconstituted

for specific purposes is reconstituted after regular screening in compliance with its methodology that indicates how and when rebalancing takes place.

10.2 Other Maintenance

- Such reconstitution may take place on different schedule for certain indices. How and when such maintenance takes place is indicated in a respective methodology.

11. Methodology Change

11.1 The methodology of an equity index is subject to change or revision when it fails to meet its objective or to satisfy the demand of market participants or subscribers.

11.2 The Guidelines on Public Comments shall apply mutatis mutandis to handling the comments from market participants or subscribers in relation to index calculation methods.

- Refer to the Guidelines on Public Comments.

11.3 The Guidelines on Complaints shall apply mutatis mutandis to handling complaints in relation to index calculations and management.

- Refer to the Guidelines on Complaints.

11.4 Any significant change to the KRX Methodology shall be confirmed after an evaluation by Index Committee (in case of benchmark indices) or Index Management Committee (in case of all other indices except the benchmark indices). The comments from index subscribers or other stakeholders may be considered in the process. Significant changes may refer to:

- Change of index concept or purpose
- Change of methodology that could result in significant rebalancing
- Change of methodology that could influence the index properties such as return ratio and volatility

12. KRX's Expert Judgment

- 12.1 KRX Methodology was published for the purpose of preventing random and separate decision by presenting all items necessary for calculating and managing KRX indices in an objective manner.
- 12.2 KRX's equity indices are automatically calculated and then published based on the trading price settled during the daytime market hours and the number of listed shares. Therefore, the KRX does not make any separate expert judgment in regard to the input data.
- 12.3 Notwithstanding 12.1 and 12.2, if any exception or complicated case that is not addressed in methodologies including those stated below arises, then the KRX's Index Committee and Index Management Committee shall examine the case and make a judgment. For an urgent case, the examination by Index Committee can be skipped and the KRX may come to a conclusion in a way that conforms to the KRX's index policy and guidelines.
- An occurrence of a corporate action that could influence the index but not defined in the methodology
 - An important corporate action that occurs in between the screening base date and the regular rebalancing date
 - A case where response should be different from the methodology considering the index concept, target, and impact

on the rebalancing

12.4 If necessary, the KRX will collect the opinions of external experts, market participants and stakeholders and use them to make an expert judgment. Once such judgment is made, the background and details will be notified in advance via the KRX index website and be permanently archived electronically.

13. Partnership

13.1 KRX partners up with global index administrators to provide a wider range of indices to subscribers at home and abroad.

13.2 In the event of outsourcing to a third party some functions of index development or calculation, KRX shall follow the Guidelines on Outsourcing Index Administration.

- Refer to the Guidelines on Outsourcing Index Administration.

14. Index Distribution

14.1 Index value and constituent data are provided as paper or electronic copies via the KRX index website (<http://index.krx.co.kr>), its major vendors, and other media. The information is created in the KRX Information Distribution System and disseminated through various channels including securities networks and the File Transfer Protocol (FTP).

14.2 Users can subscribe to the KRX index data products to receive detailed information of the index such as constituent companies' index shares, free-float ratio and capping level.