Index Methodology

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KEDI Index Calculation Methodology

1. Introduction

This KEDI Index Calculation Methodology outlines the equity index calculation methods and the treatment of Corporate Actions in accordance with the index policies and practices of KEDI (Korea Daily Economic Index). The objective of this document is to ensure transparency and consistency in the index calculation methodology and corporate action processing.

This methodology provides a general overview of index calculation methods. KEDI reserves the right to determine the most appropriate methodology for corporate events not covered in this document or events of a complex nature. In the actual calculation of individual indices, local market practices may take precedence, or specific provisions may apply depending on the circumstances. Such exceptions are detailed in the methodology of each respective index.

KEDI specializes in the development of customized indices and establishes independent methodologies for each index to reflect their diverse structures. The specific methodology for each individual index includes detailed information such as the index design and maintenance guidelines, the definition of the underlying investment universe, and periodic reconstitution.

By providing stakeholders with detailed information regarding the calculation and maintenance of KEDI indices, KEDI adheres to the Principles for Financial Benchmarks set forth by the International Organization of Securities Commissions (IOSCO) regarding the quality and integrity of index methodologies.

2. Equity Index Calculation

2.1 Price adjustment Factor(PAF) Index

The Price Adjustment Factor(PAF) index is calculated by multiplying the closing index value of the previous trading day by the daily return of the base prices of its constituents. The base price refers to the price at the market open used for calculating the daily return. In the event of a Corporate Action, the price is adjusted using the Price Adjustment Factor(PAF). If the currency of an index constituent differs from the currency in which the index is calculated, the price is converted into the index currency using the applicable exchange rate. The index is calculated based on the following fundamental formulas:

$$Index_t = (1 + R_t) \times Index_{t-1}$$

$$R_t = \sum_i \left(\frac{p_{i,t}}{p_{i,t-1} \times PAF_{i,t}} \times w_{i,t-1} \times f_{i,t}\right) - 1$$

$Index_t$:	Index value at time t
$Index_{t-1}$:	Index value on the previous trading day *(Base Index $Index_0 = 1{,}000.00$)*
R_t :	Index return on day t
$p_{i,t}$:	*Closing price of constituent i at time t*
$PAF_{i,t}$:	Price Adjustment Factor of constituent i at time t
$w_{i,t}$:	Weight of constituent i at the close of time $t-1$
$f_{i,t}$:	Applicable exchange rate of constituent i at the close of time t

2.1.1 Price Return(PR)

The Price Return(PR) version of the Price Adjustment Factor index reflects only the price movements of the constituent stocks and does not reinvest dividends. It is calculated using the fundamental Price Adjustment Factor index formula.

2.1.2 Total Return(TR)

The Total Return(TR) version of the Price Adjustment Factor index assumes that all distributed dividends are immediately reinvested.

$$Index_t = (1 + R_t + R_{div,t}) \times Index_{t-1}$$

$$R_t = \sum_i \left(\frac{p_{i,t}}{(p_{i,t-1} \times PAF_{i,t}} \times w_{i,t-1} \times f_{i,t}\right) - 1$$

$$R_{div,t} = \sum_i (\frac{D_{i,t}}{p_{i,t}} \times w_{i,t-1} \times f_{i,t})$$

$D_{i,t}$: Dividend per share issued by constituent i at time t

$R_{div,t}$: Index dividend yield at time t

2.1.3 Net Total Return(NTR)

The Net Total Return(NTR) version of the Price Adjustment Factor index assumes that dividends are reinvested after the deduction of applicable taxes.

$$Index_t = (1 + R_t + R_{div,t}) \times Index_{t-1}$$

$$R_t = \sum_i (\frac{p_{i,t}}{(p_{i,t-1} \times PAF_{i,t}} \times w_{i,t-1}) - 1$$

$$R_{div,t} = \sum_i (\frac{D_{i,t} \times (1 - tax_i)}{p_{i,t}} \times w_{i,t-1})$$

tax_i: Tax rate applicable to the dividend income of constituent i

2.2 Base Market Capitalization Adjustment(BMCA) Index

The Base Market Capitalization Adjustment Index is calculated by applying the rate of change in the current market capitalization relative to the base market capitalization of the previous day. The Base Market Capitalization refers to the index market capitalization at the market open, used for calculating daily returns. In the event of a Corporate Action, the index is adjusted to reflect the modified base price and base number of shares outstanding. If the currency of a constituent differs from the currency in which the index is calculated, the price is converted using the applicable exchange rate. The index is calculated using the following fundamental formulas:

$$Index_t = \frac{MarketCap_{compare,t}}{MarketCap_{base,t}} \times Index_{t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$MarketCap_{compare,t} = \sum_i (P_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t})$$

$Index_t$: Index value at time t

$Index_{t-1}$: Index value on the previous trading day *(Base Index $Index_0 = 1{,}000.00$)*

$MarketCap_{compare,t}$: Comparative Market Capitalization at time t

$MarketCap_{base,t}$: Base Market Capitalization at time t

$P_{i,t}$: Closing price of constituent i at time t

$P'_{i,t}$: Base price of constituent i at time t

$S_{i,t}$: Number of shares outstanding of constituent i at the close of time t

$S'_{i,t}$: Base number of shares outstanding of constituent i at time t

$IIF_{i,t}$: Index Inclusion Factor of constituent i at the close of time t

$IIF'_{i,t}$: Base Index Inclusion Factor of constituent i at time t

$f_{i,t}$: Applicable exchange rate of constituent i at the close of time t

2.2.1 Price Return(PR)

The Price Return(PR) version of the Base Market Capitalization Adjustment Index reflects only the price movements of the constituent stocks and does not reinvest distributed dividends. It is calculated using the fundamental Base Market Capitalization Adjustment Index formula.

2.2.2 Total Return(TR)

The Total Return(TR) version of the Base Market Capitalization Adjustment Index assumes that distributed dividends are immediately reinvested.

$$Index_t = \frac{MarketCap_{compare,t}}{MarketCap_{base,t}} \times Index_{t-1}$$

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i((P'_{i,t}+D'_{i,t}) \times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i((P_{i,t-1}+D_{i,t-1}) \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$MarketCap_{compare,t} = \sum_i ((P_{i,t} + D_{i,t}) \times S_{i,t} \times IIF_{i,t} \times f_{i,t})$$

$D_{i,t}$: Dividend per share issued by constituent i at time t

$D'_{i,t}$: Base dividend per share of constituent i at time t

2.2.3 Net Total Return(NTR)

The Net Total Return(NTR) version of the Base Market Capitalization Adjustment Index assumes that dividends are reinvested after the deduction of applicable taxes.

$$Index_t = \frac{MarketCap_{compare,t}}{MarketCap_{base,t}} \times Index_{t-1}$$

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i((p'_{i,t}+D'_{i,t}(1-tax_i))\times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i((P_{i,t-1}+D_{i,t-1}(1-tax_i))\times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$MarketCap_{compare,t} = \sum_i((P_{i,t}+D_{i,t}(1-tax_i)) \times S_{i,t} \times IIF_{i,t} \times f_{i,t})$$

tax_i: Tax rate applicable to the dividend income of constituent i

3. Covered Call Index Calculation

KEDI's covered call strategy indices are calculated using different formulas depending on whether it is a rollover day or a non-rollover day, as follows:

3.1 Covered Call on Price Adjustment Factor(PAF) Index

[Index Calculation on Non-Rollover Days]

$$CoveredCallIndex_t = EquityIndex_t - (OptionMid_{i,t} \times 100 \times Unit_{i,t})$$

$$EquityIndex_t = EquityIndex_{t-1} \times (1 + R_t + R_{div,t})$$

$$R_t = \sum_i(\frac{p_{i,t}}{(p_{i,t-1} \times PAF_{i,t}} \times w_{i,t-1} \times f'_{i,t}) - 1$$

$$R_{div,t} = \sum_i(\frac{D_{i,t}}{p_{i,t}} \times w_{i,t-1} \times f'_{i,t})$$

$$Unit_{i,t} = Unit_{i,t-1}$$

$CoveredCallIndex_t$: *Covered Call Strategy Index value at time t* ($CoveredCallIndex_0 = 1{,}000.00$)

$EquityIndex_t$: *Equity Portfolio Index value held at time t*

R_t : Equity Portfolio Index return on day t

$R_{div,t}$: Equity Portfolio Index dividend yield at time t

$p_{i,t}$:	Closing price of constituent i at time t
$PAF_{i,t}$:	Price Adjustment Factor of constituent i at time t
$w_{i,t}$:	Weight of constituent i at the close of time t
$f'_{i,t}$:	Applicable exchange rate return of constituent i at the close of time t
$D_{i,t}$:	Dividend per share issued by constituent i at time t
$Option_Mid_{i,t}$:	Mid-price of option i at time t (Average of the consolidated best bid and ask prices across U.S. exchanges)
$Unit_{i,t}$:	Number of contracts of option i at time t

[Index Calculation on Rollover Days]

$$CoveredCallIndex_t = EquityIndex_t - \left(OldOptionMid_{i,t} \times 100 \times OldUnit_{i,t}\right) + \left((NewOptionBid_{i,t} - NewOptionMid_{i,t}) \times 100 \times Unit_{i,t}\right)$$

$$EquityIndex_t = EquityIndex_{t-1} \times (1 + R_t + R_{div,t})$$

$$R_t = \sum_i \left(\frac{p_{i,t}}{(p_{i,t-1} \times PAF_{i,t}} \times w_{i,t-1}\right) - 1$$

$$R_{div,t} = \sum_i \left(\frac{D_{i,t}}{p_{i,t}} \times w_{i,t-1}\right)$$

$$Unit_{i,t} = \frac{CoveredCallIndex_{t-1} \times cover_ratio_{i,t-1}}{Underlying_{i,t-1} \times 100}$$

$$cover_ratio_{i,t-1} = Min\left[\left\{\left(\frac{Target\ Premium}{Term}\right) \times \left(\frac{Underlying_{i,t-1}}{Option_Mid_{i,t-1}}\right)\right\},\ 1.0\right]$$

$OldOptionMid_{i,t}$:	Mid-price of the existing (old) option i at time t
$NewOptionMid_{i,t}$:	Mid-price of the new target option i at time t
$NewOptionBid_{i,t}$:	Bid price of the new target option i at time t
$OldUnit_{i,t}$:	$Unit_{i,t}$ calculated at the previous rollover time
$cover_ratio_{i,t}$:	Cover ratio of the constituent option i at time t
$Underlying_{i,t}$:	Closing price of the underlying asset for option i at time t

$Target\ Premium$: Target Premium value

$Term$: Factor based on the option writing frequency (Monthly: 12, Weekly: 52, Daily: 365)

3.1.1 Total Return(TR)

The Total Return (TR) version of Covered Call on Price Adjustment Factor(PAF) Index assumes that distributed dividends and received option premiums are immediately reinvested. The Total Return Index is calculated using the fundamental formula for the Covered Call on Price Adjustment Factor(PAF) Index.

3.1.2 Net Total Return(NTR)

The Net Total Return(NTR) version of Covered Call on Price Adjustment Factor(PAF) Index assumes that distributed dividends are reinvested after the deduction of applicable taxes, along with the received option premiums. It is calculated by substituting the dividend($D_{i,t}$) in the fundamental formula of the Covered Call Strategy Index with the net dividend.

$$D_{i,t} \rightarrow D_{i,t}(1 - tax_i)$$

$$ex)\ R_{div,t} = \sum_i \left(\frac{D_{i,t}(1 - tax_i)}{p_{i,t}} \times w_{i,t-1}\right)$$

tax_i: Tax rate applicable to the dividend income of constituent i

3.2 Covered Call on Base Market Capitalization Adjustment(BMCA) Index

[Index Calculation on Non-Rollover Days]

$$CoveredCallIndex_t = EquityIndex_t - (OptionMid_{i,t} \times 100 \times Unit_{i,t})$$

$$EquityIndex_t = \frac{MarketCap_{compare,t}}{MarketCap_{base,t}} \times EquityIndex_0$$

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i((P'_{i,t}+D'_{i,t}) \times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i((P_{i,t-1}+D_{i,t-1}) \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$Unit_{i,t} = Unit_{i,t-1}$$

$CoveredCallIndex_t$: $Covered\ Call\ Strategy\ Index\ value\ at\ time\ t$ ($CoveredCallIndex_0$ = 1,000.00)

$Option_Mid_{i,t}$:	Mid-price of option i at time t (Average of the consolidated best bid and ask prices across U.S. exchanges)
$Unit_{i,t}$:	Number of contracts of option i at time t
$EquityIndex_t$:	*Equity Portfolio Index value held at time t*
$EquityIndex_0$:	Initial Base Equity Portfolio Index value (= 1,000.00)
$MarketCap_{compare,t}$:	Comparative Market Capitalization at time t
$MarketCap_{base,t}$:	Base Market Capitalization at time t
$P_{i,t}$:	Closing price of constituent i at time t
$P'_{i,t}$:	Base price of constituent i at time t
$S_{i,t}$:	Number of shares outstanding of constituent i at the close of time t
$S'_{i,t}$:	Base number of shares outstanding of constituent i at time t
$IIF_{i,t}$:	Index Inclusion Factor of constituent i at the close of time t
$IIF'_{i,t}$:	Base Index Inclusion Factor of constituent i at time t
$f_{i,t}$:	Applicable exchange rate return of constituent i at the close of time t
$D_{i,t}$:	*Dividend per share issued by constituent i at time t*

[Index Calculation on Rollover Days]

$$CoveredCallIndex_t = EquityIndex_t - \left(OldOptionMid_{i,t} \times 100 \times OldUnit_{i,t}\right) + \left((NewOptionBid_{i,t} - NewOptionMid_{i,t}) \times 100 \times Unit_{i,t}\right)$$

$$EquityIndex_t = \frac{MarketCap_{compare,t}}{MarketCap_{base,t}} \times EquityIndex_0$$

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i((P'_{i,t}+D'_{i,t}) \times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i((P_{i,t-1}+D_{i,t-1}) \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$Unit_{i,t} = \frac{CoveredCallIndex_{t-1} \times cover_ratio_{i,t-1}}{Underlying_{i,t-1} \times 100}$$

$$cover_ratio_{i,t-1} = Min\left[\left\{\left(\frac{Target\ Premium}{Term}\right) \times \left(\frac{Underlying_{i,t-1}}{Option_Mid_{i,t-1}}\right)\right\},\ 1.0\right]$$

$OldOptionMid_{i,t}$:	Mid-price of the existing (old) option i at time t
$NewOptionMid_{i,t}$:	Mid-price of the new target option i at time t
$NewOptionBid_{i,t}$:	Bid price of the new target option i at time t
$OldUnit_{i,t}$:	$Unit_{i,t}$ calculated at the previous rollover time
$cover_ratio_{i,t}$:	Cover ratio of the constituent option i at time t
$Underlying_{i,t}$:	Closing price of the underlying asset for option i at time t
$Target\ Premium$:	Target Premium value
$Term$:	Factor based on the option writing frequency (Monthly: 12, Weekly: 52, Daily: 365)

3.2.1 Total Return(TR)

The Total Return(TR) version of Covered Call on Base Market Capitalization Adjustment(BMCA) Index assumes that distributed dividends and received option premiums are immediately reinvested. The Total Return Index is calculated using the fundamental formula for the Covered Call on Base Market Capitalization Adjustment(BMCA) Index.

3.2.2 Net Total Return(NTR)

The Net Total Return(NTR) version of Covered Call on Base Market Capitalization Adjustment(BMCA) Index assumes that distributed dividends are reinvested after the deduction of applicable taxes, along with the received option premiums. It is calculated by substituting the dividend($D_{i,t}$) in the fundamental formula of the Covered Call Strategy Index with the net dividend.

$$D_{i,t} \rightarrow D_{i,t}(1 - tax_i)$$

$$ex)\ MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i((p'_{i,t}+D'_{i,t}(1-tax_i))\times S'_{i,t} \times IIF'_{i,t} \times f_{i,t-1})}{\sum_i((P_{i,t-1}+D_{i,t-1}(1-tax_i))\times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$MarketCap_{compare,t} = \sum_i((P_{i,t}+ D_{i,t}(1 - tax_i)) \times S_{i,t} \times IIF_{i,t} \times f_{i,t})$$

tax_i: Tax rate applicable to the dividend income of constituent i

4. Rebalancing

4.1 Selection Date

The Selection Date refers to the reference date for selecting constituents in accordance with the procedures defined in the index methodology. Unless a Selection Date is separately defined in the specific index methodology, the Selection Date shall be the same as the Weighting Date.

4.2 Weighting Date

The Weighting Date refers to the reference date for determining the individual weights of the selected constituents. Unless separately defined in the index methodology, the Weighting Date is applied as the last business day of March, June, September, and December.

4.3 Rebalancing Date (Effective Date)

The Rebalancing Date refers to the reference date on which the actual rebalancing is applied using the constituents finalized on the Selection Date and the weights calculated on the Weighting Date. As a general rule, the Rebalancing Date is three business days after the Weighting Date. Constituent selection, weight determination, and rebalancing execution are all based on the market closing price. Furthermore, if a specific interval between the Selection Date and the Rebalancing Date is defined in the individual index methodology, such specific dates shall apply.

4.4 Treatment of Dual-Class Companies

1) Inclusion Criteria: Even if a single company issues multiple classes of shares (e.g., GOOGL, GOOG), the company is treated as a single entity for the purpose of index constituent selection.

2) Market Capitalization for Weighting: The aggregated market capitalization of all investable share classes are used for determining index eligibility (inclusion/maintenance) and calculating the weight of the constituent within the index.

3) Representative Class for Index Calculation: For the calculation of the Price Return Index, only one representative share class is used per company, selected based on the following order of priority

- Criteria for Selecting the Representative Class:
  1) The share class with the largest free-float market capitalization.
  2) The share class with the highest trading volume (if the first criterion is equal).

4.5 Projection

During the index rebalancing process, a time gap naturally occurs between the Weighting Date when the new constituents and their target weights are finalized and the Rebalancing Date when the new portfolio officially goes live.

Depending on how the index handles price movements and market changes during this interim period, the methodology is classified into two types: Non-Projected and Projected indices.

1) Non-Projected Index (Fixed Target Weights)

   In a Non-Projected Index, the target weights determined on the Weighting Date are strictly enforced on the Rebalancing Date. The constituents and their exact target weights calculated on the Weighting Date are directly applied to the closing prices on the Rebalancing Date.

2) Projected Index (Drifting Target Weights)

   In a Projected Index, the methodology theoretically assumes that the new constituents and weights are immediately invested on the Weighting Date.
   The target weights determined on the Weighting Date are allowed to drift in tandem with the daily price movements (and corporate actions) of the underlying assets during the interim window. Therefore, the weights are allowed to naturally evolve based on the actual market performance before being officially implemented.

4.6 Ad-Hoc Rebalancing

In addition to the scheduled periodic rebalancing, Ad-hoc Rebalancing may occur when specific predefined conditions are met. The specific triggers for ad-hoc adjustments vary by index. For detailed criteria, please refer to the individual methodology document for each specific index. However, if either the date on which the conditions for an ad-hoc adjustment are satisfied, or the scheduled implementation date of such ad-hoc adjustment, falls within the period covering the Selection Date, Weighting Date, and Rebalancing Date of a regular periodic rebalancing, the ad-hoc rebalancing will not be performed.

5. Procedures for Missing Data

The KEDI Index prioritizes the use of actual transaction data from listed markets to most accurately reflect the fair trading value of the market in index calculation. To enhance data reliability, data is collected primarily from major exchanges, and data sources are dualized along with the operation of automated anomaly detection algorithms to prepare for potential errors.

Nevertheless, in cases where valid market data does not exist at a specific point in time or errors are detected, the data is supplemented using alternative data sources or theoretical price calculations as described in the subsequent sections of this document.

5.1 Absence of Equity Price Data

If valid market data for equity prices does not exist, the most recently secured valid price data is used for index calculation.

5.2 Absence of Option Price Data

If valid market data for option prices (e.g., quote errors, lack of liquidity) does not exist, the fair value of the option is estimated and used for index calculation through theoretical price calculation methods. The following mathematical models are applied for theoretical price calculation depending on the option type.

5.2.1 Theoretical Price of European Options

For European options, the theoretical price is calculated according to the following Black-Scholes formula.

$$C = S \cdot N(d_1) - K \cdot e^{-r\tau} \cdot N(d_2)$$

$$P = K \cdot e^{-r\tau} \cdot N(-d_2) - S \cdot N(-d_1)$$

$$d_1 = \frac{ln(S/K) + (r + \frac{\sigma^2}{2})\tau}{\sigma\sqrt{\tau}} \qquad d_2 = d_1 - \sigma\sqrt{\tau}$$

C : Theoretical price of European Call Option

P : Theoretical price of European Put Option

S : Current price of underlying asset

K : Strike Price

r : Risk-free interest rate

τ : Time to maturity

σ : Implied Volatility

$N(\cdot)$: Cumulative Standard Normal Distribution Function

5.2.2 Theoretical Price of American Options

For American options, the Binomial Model is applied to account for the possibility of early exercise.

[Up/Down Factors]

$$u = e^{\sigma\sqrt{\Delta t}},\ d = \frac{1}{u}$$

[Risk-Neutral Probability]

$$p = \frac{e^{r\Delta t} - d}{u - d}$$

[Option Value at Maturity]

$$C_i = \max(S_i - K, 0)$$

$$P_i = \max(K - S_i, 0)$$

[Current Option Value (Recursive Step)]

$$V_{i,j} = \max\begin{pmatrix} \text{Eearly Exercise Value } (call\text{: } \max\big(S_{i,j} - K, 0\big), put\text{: } \max(K - S_{i,j}, 0)\ \big), \\ \text{Discounted Expect Value: } e^{-r\Delta t} \cdot \big(p \cdot V_{i+1,j+1} + (1-p) \cdot V_{i+1,j}\big) \end{pmatrix}$$

S :	Current price of underlying asset
K :	Strike Price
r :	Risk-free interest rate
τ :	Time to maturity
σ :	Implied Volatility
T:	Total time to option maturity
N :	Number of time steps
$\Delta t (= \frac{T}{N})$:	Length of a single time step
u, d:	Up/Down factors
p:	Risk-neutral probability
$S_{i,j}$:	Underlying asset price at step i, node j
$V_{i,j}$:	Option value at step i, node j

Corporate Event Application Methodology

1. Objective and Scope

The primary objective of the Corporate Event Application Methodology is to ensure that the index continues to be a faithful and accurate representation of the underlying market or strategy it aims to measure. Corporate events such as mergers, acquisitions, takeoffs, or capital restructurings can affect the price, share count, or investability of a constituent. This methodology outlines the standard procedures for adjusting the index to maintain continuity and investability while minimizing unnecessary turnover.

2. General Principles

- **Index Continuity:** Adjustments are designed to ensure that the index level is not affected by non-market driven price changes. This is typically achieved through adjustments of Price Adjustments Factor or Base Market Capitalization.
- **Transparency:** All corporate event applications are handled according to pre-defined rules to ensure predictability for market participants.
- **Timeliness:** Adjustments are generally implemented effective as of the close of the day prior to the ex-date or effective date of the event, based on the best available information. However, where the effective date falls within two (2) business days of the announcement date, such that the event cannot be reflected in advance, the adjustment will be implemented within two (2) business days from the date on which the announcement is identified.

3. Priority of Methodologies

This document provides the general framework for corporate event treatment across all indices managed by the firm. However, certain indices may have unique characteristics or objectives that require specialized treatment.

In the event of any conflict or inconsistency between the rules outlined in this general Corporate Event Application Methodology and the rules specified in an Individual Index Methodology, the Individual Index Methodology shall take precedence.

1. Cash Dividend

A cash dividend is a distribution of cash by a company to its shareholders.

1.1 Regular Cash Dividend

For Price Return index no adjustment is made. Conversely, for Total Return and Net Total Return indices, dividends are assumed to be reinvested at the closing price of the ex-dividend date. For Net Total Return indices, the withholding tax rate applied is the maximum rate applicable to foreign investors in the country where the company is incorporated.

[Total Return(TR)]

$$Index_{tr,t} = Index_t + Index_{D,t}$$

$$Index_{D,t} = Index_{D,t-1} + Index_t \times \frac{D_t}{MarketCap_t}$$

[Net Total Return(NTR)]

$$Index_{ntr,t} = Index_t + Index_{ND,t}$$

$$Index_{ND,t} = Index_{ND,t-1} + Index_t \times \frac{D_t^{net}}{MarketCap_t}$$

$Index_{tr,t}$: Total return index value at time t

$Index_{ntr,t}$: Net total return index value at time t

$Index_t$: Price index value at time t

$Index_{D,t}$: Index-equivalent value of cumulative gross dividend at time t

$Index_{ND,t}$: Index-equivalent value of cumulative net(after tax) dividend at time t

D_t: Total gross dividend amount of the index at time t

D_t^{net}: Total net(after withholding tax) dividend amount of the index at time t

$MarketCap_t$: Total market captalization of index constituents at time t

1.2 Special Dividend

A special dividend is a payment made to shareholders from sources other than retained earnings, or a one-time payment distinct from regular cash dividends. The base price on the ex-date (when the right to the dividend expires) is adjusted downward by the dividend amount. However, for constituents listed on the Korea Exchange, the base price is not adjusted on the ex-date for cash dividends, including special dividends. This adjustment is therefore not applied to Korean constituents.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{P_{t-1} - D_{special,i,t}}{P_{t-1}}$$

$D_{special,i,t}$: Special dividend amount of constituent i at time t

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{t-1} - D_{special,i,t}$$

$D_{special,i,t}$: Special dividend amount of constituent i at time t

1.3 Dividends Declared After Ex-Date

If a company modifies a dividend amount after the ex-dividend date, adjustments regarding that dividend may be made. Typically, companies in Japan and Korea do not finalize dividend amounts prior to the ex-dividend date. In such cases, an estimated dividend amount is used to make adjustments on the ex-dividend date.

Subsequently, when the actual dividend amount is announced, if there is a discrepancy between the estimated and actual amounts, an additional adjustment is made on the business day following the confirmation.

1.4 Dividends Application Criteria

1.4.1 Full Disclosure Prior to Ex-Date

- Condition: Both Shareholder Register Closure and Dividend Declaration are disclosed prior to the Ex-date.
- Application: The confirmed dividend amount is applied on the Ex-date.

1.4.2 Partial Disclosure (Shareholder Register Only)

- Condition: Only Shareholder Register Closure is disclosed by the business day preceding the Ex-date.
- Application: An Estimated Dividend is applied on the Ex-date. The difference between the estimated and actual amount is adjusted on the business day following the Dividend Declaration date. *(Note: Estimated Dividend refers to the dividend paid in the same quarter of the previous year)*

1.4.3 No Prior Disclosure

- Condition: Neither Shareholder Register Closure nor Dividend Declaration is disclosed prior to the Ex-date.
- Application: The dividend amount is applied on the business day following the Dividend Declaration date.

1.4.4 Exceptions regarding Disclosure Timing

- Declaration on Ex-Date (with Prior Register Closure): If the Register Closure was disclosed previously but the Dividend Declaration is made on the Ex-date, the rule for Case 1.4.2 applies. (Apply Estimated Dividend on Ex-date, adjust difference the next day).
- Declaration on Ex-Date (No Prior Disclosure): If there was no prior disclosure and the Dividend Declaration is made on the Ex-date, the rule for Case 1.4.3 applies. (Apply dividend on the business day following the Ex-date).

2. Stock Dividend

A stock dividend is a dividend paid to existing shareholders in the form of shares rather than cash. Shares that were not previously issued are distributed. If a specific company issues 1% new shares to pay a stock dividend, the total number of shares increases by 1%, and the new shares are distributed to existing shareholders. Consequently, an individual shareholder receives 1 share for every 100 shares held. Since the market capitalization of the company does not change during this process, the price of individual shares decreases proportionally.

2.1 Dividend in Same Class of Shares

This refers to a dividend where newly approved shares of the same class are distributed to existing shareholders. The base price on the ex-dividend date is adjusted according to the following formula.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

$$S'_{i,t} = S_{i,t-1} + Number\ of\ new\ shares\ in\ issue$$

2.2 Dividend in Different Class of Shares

This refers to a dividend paid in a different class of shares issued by the same company, or shares of a different company.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = 1 - \frac{(Dividend\ Ratio \times Market\ price\ of\ New\ Stock)}{Before\ Ex-Price}$$

$$Theoretical\ Ex\text{-}Price = (Dividend\ Ratio \times Market\ price\ of\ New\ Stock)$$

Before Ex-Price:	Closing price prior to the Ex-date
Dividend Ratio:	Ratio of new shares paid per existing share held
Market price of New Stock:	Market price of the newly distributed stock

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} - (Dividend\ Ratio \times Market\ price\ of\ New\ Stock)$$

3. Paid-in Capital Increase / Bonus Issue

A Paid-in Capital Increase refers to a company raising capital by issuing new shares. Issuing new shares results in a dilution of existing ownership stakes, as the total number of shares increases while the number of shares held by individual shareholders remains the same. For all Total Return and Net Total Return indices, the stock price fluctuation due to market valuation is applied on the ex-rights date using the calculation methods below. If the Offer Price is equal to or higher than the Market Price, no adjustment is applied as there is no additional dilution effect. A Bonus Issue refers to issuing new shares to existing shareholders in proportion to their holdings without any cash consideration. There is no change in corporate value; however, like a stock split, the number of shares held increases, and the price is adjusted in proportion to the increase.

3.1 Paid-in Capital Increase in Same Class of Shares

[Price adjustment Factor(PAF) Index]

Case 1: Where the Offer Price does not change after the Ex-date

$$PAF_{i,t} = \frac{BasePrice}{Before\ Ex{-}Price}$$

BasePrice:	Base price announced by the exchange one day prior to the Ex-date
Before Ex-Price:	Closing price prior to the Ex-date

Case 2: Where the Offer Price changes after the Ex-date

$$PAF_{i,t} = \frac{(Old\ Shares \times Before\ Ex{-}Price) + (New\ Shares \times Offer\ Price)}{(Old\ Shares + New\ Shares) \times Before\ Ex{-}Price}$$

Old Shares:	Shares in issue before capital change
New Shares:	Number of new shares in issue
Before Ex-Price:	Closing price prior to the Ex-date
Offer Price:	Issue price per share

[Base Market Capitalization Adjustment(BMCA) Index]

Case 1: Where the Offer Price does not change after the Ex-date

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{BasePrice}{Before\ Ex{-}Price}$$

$$S'_{i,t} = S_{i,t-1} + Number\ of\ new\ shares\ in\ issue$$

BasePrice:	Base price announced by the exchange one day prior to the Ex-date
Before Ex-Price:	Closing price prior to the Ex-date

Case 2: Where the Offer Price changes after the Ex-date

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{(Old\ Shares \times Before\ Ex{-}Price) + (New\ Shares \times Offer\ Price)}{(Old\ Shares + New\ Shares) \times Before\ Ex{-}Price}$$

$$S'_{i,t} = S_{i,t-1} + Number\ of\ new\ shares\ in\ issue$$

3.2 Paid-in Capital Increase in Different Class of Shares

Similar to a paid-in capital increase in the same class of shares, but this grants the right to purchase different types of securities such as preferred shares, bonds, or warrants at a discounted price

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Theoretical\ Ex{-}Price}{Before\ Ex{-}Price}$$

$$Theoretical\ Ex\text{-}Price = Before\ Ex\text{-}Price - \left(\frac{New\ Shares}{Old\ Shares} \times (Market\ Price\ of\ New\ Shares - Issue\ Price\ of\ New\ Shares)\right)$$

Theoretical Ex-Price:	Theoretical price on the ex-date
Before Ex-Price:	Closing price prior to the Ex-date
Old Shares:	Shares in issue before capital change
New Shares:	Number of new shares
Market Price of New Shares:	Market price of the newly issued shares
Issue Price of New Shares:	Issue price of the new shares

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{(Old\ Shares \times Before\ Ex{-}Price) + (New\ Shares \times Offer\ Price)}{(Old\ Shares + New\ Shares) \times Before\ Ex{-}Price}$$

$$S'_{i,t} = S_{i,t-1} + Number\ of\ new\ shares\ in\ issue$$

3.3 Bonus Issue in Same Class of Shares

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

$$S'_{i,t} = S_{i,t-1} + Number\ of\ new\ shares\ in\ issue$$

3.4 Bonus Issue in Different Class of Shares

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Theoretical\ Ex-Price}{Before\ Ex-Price}$$

$$Theoretical\ Ex\text{-}Price = Before\ Ex\text{-}Price - \left(\frac{New\ Shares}{Old\ Shares} \times (Market\ Price\ of\ New\ Shares)\right)$$

Theoretical Ex-Price:	Theoretical price on the ex-date
Before Ex-Price:	Closing price prior to the Ex-date
Old Shares:	Shares in issue before capital change
New Shares:	Number of new shares
Market Price of New Shares:	Market price of the newly issued shares

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \left(\frac{New\ Shares}{Old\ Shares} \times Market\ Price\ of\ New\ Shares\right)$$

4. Stock Split & Consolidation (Reverse Split)

Stock split is a corporate event where a company increases the number of existing shares while simultaneously lowering the price per share. Although the number of shares increases, the par value is split by the corresponding ratio, so it does not affect the company's market capitalization. Stock consolidation is the opposite event of a split; it consolidates the existing par value by a specific ratio to reduce the number of shares outstanding. The number of shares is consolidated by a specific ratio, and the par value increases by the corresponding ratio, so it does not affect the company's market capitalization.

4.1 Stock Split

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ changee}$$

$$S'_{i,t} = S_{i,t-1} \times \frac{Shares\ in\ issue\ after\ capital\ change}{Shares\ in\ issue\ before\ capital\ change}$$

4.2 Stock Consolidation (Reverse Split)

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

$$S'_{i,t} = S_{i,t-1} \times \frac{Shares\ in\ issue\ after\ capital\ change}{Shares\ in\ issue\ before\ capital\ change}$$

5. Spin-off

A spin-off refers to a corporate event where a company separates specific assets, intellectual property (IP), technology, or existing products to establish an independent new entity. In this process, the shareholder composition of the pre-spin-off company and the new company remains the same. Shares of the new company are distributed to the shareholders of the existing company (surviving entity) according to their existing shareholding ratios.

5.1 Price Adjustment of Surviving Entity

Following the spin-off, the stock price adjustment occurs based on the date the surviving entity is relisted.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = Spin\text{-}off\ Adjustment\ Factor \times Capital\ Reduction\ Adjustment\ Factor$$

$$Spin\text{-}off\ Adjustment\ Factor = \frac{Open\ Price}{Before\ Ex{-}Price \times Capital\ Reduction\ Adjustment\ Factor}$$

Capital Reduction Adjustment Factor: Capital Reduction Adjustment Factor (Spin-offs are typically accompanied by a capital reduction. If there is no capital reduction, a value of 1 is applied)

Open Price: Opening price of the surviving entity on the relisting date

Before Ex-Price: Closing price prior to the Ex-date

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times Spin\text{-}off\ Adjustment\ Factor \times Capital\ Reduction\ Adjustment\ Factor$$

$$S'_{i,t} = S_{i,t-1} \times Capital\ Reduction\ Adjustment\ Factor$$

$$Spin\text{-}off\ Adjustment\ Factor = \frac{Open\ Price}{Before\ Ex{-}Price \times Capital\ Reduction\ Adjustment\ Factor}$$

Capital Reduction Adjustment Factor: Capital Reduction Adjustment Factor (Spin-offs are typically accompanied by a capital reduction. If there is no capital reduction, a value of 1 is applied)

5.2 Inclusion of New Entity

If a constituent company of the index establishes a new company through a spin-off, the shares of the new company are automatically included as a constituent of the index. Subsequently, when the new company is listed, the number of shares of the new company is determined using the spin ratio r. However, this adjustment is made only when the share price of the new company can be verified in the market.

[Price adjustment Factor(PAF) Index]

$$Spun\text{-}Off\ Shares = Existing\ Shares \times Spin\ Ratio$$

$Spun\text{-}Off\ Shares$: Number of newly issued shares of the new entity

$Existing\ Shares$: Number of shares of the surviving entity issued previously

$Spin\ Ratio$: Spin-off ratio

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_{existing}(P_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1}) + \sum_{new}(P_{new,t} \times S_{new,t} \times IIF_{new,t} \times f_{new,t-1})}{\sum_{existing}(P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$P_{new,t}$ = Opening price of the new entity on the listing date

$S_{new,t} = Existing\ Shares \times Spin\ Ratio$

6. Capital Reduction

Capital reduction is an action where a company cancels shares or reduces the par value to decrease its capital. Companies may conduct a capital reduction for purposes such as improving financial structure, boosting stock price, or compensating for deficits. The impact on the stock price varies depending on the method of capital reduction, and thus the method of adjusting the stock price differs according to the type of capital reduction. Once a capital reduction is decided, a period of trading suspension is announced, and after this period, price adjustment and relisting occur simultaneously, upon which trading resumes.

6.1 Capital Reduction without Compensation

This is a method of cancelling shares without any separate compensation to existing

shareholders. The number of shares decreases, but the overall market capitalization remains unchanged. In this case, the stock price is adjusted proportionally to the decrease in the number of shares.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

$$S'_{i,t} = Shares\ in\ issue\ after\ capital\ change$$

6.2 Capital Reduction with Compensation

This is a method of cancelling shares or reducing capital by paying compensation to shareholders. It is usually conducted for the purpose of returning excess capital to shareholders or improving capital structure, and a certain amount is refunded to shareholders along with the capital reduction. In this case, the value is adjusted based on the market value minus the refund amount.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Theoretical\ Ex\text{-}Price}{Before\ Ex\text{-}Price}$$

$$Theoretical\ Ex\text{-}Price = \frac{(Before\ Ex\text{-}Price \times Old\ Shares) - Total\ Refund\ Amount}{New\ Shares}$$

Theoretical Ex-Price:	Theoretical price on the ex-date
Before Ex-Price:	Closing price prior to the Ex-date
Total Refund Amount:	Total cash amount refunded to shareholders
Old Shares:	Shares in issue before capital change
New Shares:	Number of new shares in issue

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = P_{i,t-1} \times \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

$$S'_{i,t} = Shares\ in\ issue\ after\ capital\ change$$

7. Mergers & Acquisitions (M&A)

Mergers and acquisitions refer to corporate events where two or more companies combine to form an enterprise. Generally, this is a single corporate event that occurs when a company acquires all shares of a specific company by paying cash or stock as consideration. If newly issued shares are paid as consideration, the number of shares of the surviving entity increases.

7.1 Case where both Target and Acquiring Companies are Constituents

In the case of cash consideration, the weight of the acquired company is distributed proportionally to the remaining constituents on the last trading day or delisting date of the acquired company. In the case of stock consideration, the number of shares of the surviving entity increases by the number of shares of the acquired company multiplied by the merger ratio. After the M&A, the acquired company is removed from the index. Additional constituent inclusion due to the decrease in the number of constituents is not considered.

[Price adjustment Factor(PAF) Index]

Cash Consideration: The Target company is removed. The weight of the Target is distributed proportionally to the remaining constituents.

Stock Consideration: The Target company is removed. The number of shares of the Acquiring company increases.

- $PAF_{i,t} = 1$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$S'_{Acquiring,t} = Merging\ Shares + (Acquired\ Shares \times Exchange\ Ratio)$$

Note: *The Target company is removed from the numerator* $\sum_i$ *calculation*

7.2 Case where only Acquiring Company is a Constituent

In the case of an acquisition using cash, neither the price nor the number of shares is adjusted. In the case where newly issued shares are paid as consideration, the number of shares of the surviving entity increases by the number of shares of the acquired company multiplied by the merger ratio.

[Price adjustment Factor(PAF) Index]

Cash Consideration: No adjustment is made.

Stock Consideration: The number of shares of the Acquiring company increases.

- $PAF_{i,t} = 1$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$S'_{Acquiring,t} = Merging\ Shares + (Acquired\ Shares \times Exchange\ Ratio)$$

7.3 Case where only Target Company is a Constituent

The acquired company is generally removed from the index on its last trading day or delisting date.

Among the corporate events corresponding to 7.1 ~ 7.2, if newly issued shares are used as consideration, the number of shares is adjusted, and the following formula is applied.

$$Existing\ Company\ Shares = Merging\ Shares + (Acquired\ Shares \times Exchange\ Ratio)$$

Existing Company Shares:	Number of shares outstanding of the surviving entity
Merging Shares:	Number of shares outstanding of the merging/acquiring company immediately prior to the merger/acquisition
Acquired Shares:	Number of shares outstanding of the acquired company immediately prior to the merger/acquisition
Exchange Ratio:	Merger/Acquisition ratio

[Price adjustment Factor(PAF) Index]

- The Target company is removed from the index on its last trading day or delisting date.
- The weight of the removed constituent is distributed proportionally among the remaining members.

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_{remaining} (P_{i,t} \times S_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_{all} (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

Note: *The Target company is excluded from the numerator, and the Base Market Capitalization is adjusted downward to maintain index continuity.*

8. Stock Conversion

Stock conversion refers to the conversion of one type of security of a specific company into another type of security. Example: Conversion of preferred stock to common stock, or conversion of one class of common stock to another class of common stock.

8.1 Mandatory Conversion

Mandatory conversion describes a situation where all shareholders are subject to conversion under identical conditions.

[Price adjustment Factor(PAF) Index]

$$PAF_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ change}$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P'_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$P'_{i,t} = \frac{Shares\ in\ issue\ before\ capital\ change}{Shares\ in\ issue\ after\ capital\ changee}$$

$$S'_{i,t} = Shares\ in\ issue\ after\ capital\ change$$

8.2 Voluntary Conversion

In the case of non-mandatory stock conversion, adjustments are not applied. As shareholders can choose whether to convert, the existing shares and the converted shares may trade simultaneously.

8.3 Conversion of Convertible Bonds (CB), Exercise of Stock Options and Warrants, etc.

When converting preferred stock or convertible bonds to common stock, or exercising stock options and warrants, the number of shares outstanding increases. The increase is reflected in the base number of shares outstanding on the date the new shares resulting from the exercise of rights are listed.

[Price adjustment Factor(PAF) Index]

$$Total\ Shares\ After\ Conversion = Shares\ Before\ Conversion + New\ Shares\ Issued$$

[Base Market Capitalization Adjustment(BMCA) Index]

$$MarketCap_{base,t} = MarketCap_{compare,t-1} \times \frac{\sum_i (P_{i,t} \times S'_{i,t} \times IIF_{i,t} \times f_{i,t-1})}{\sum_i (P_{i,t-1} \times S_{i,t-1} \times IIF_{i,t-1} \times f_{i,t-1})}$$

$$S'_{i,t} = Shares\ Before\ Conversion\ + New\ Shares\ Issued$$

Note: *Since these events typically involve the listing of new shares without a mandatory price dilution adjustment by the exchange, the closing price from the previous trading day is used.*

9. Delisting

Delisting refers to the case where a specific company's stock is no longer traded on the public market through the exchange. While delisting may occur because a company ceases operations, it can also happen for various other reasons. When delisting occurs, the company undergoes procedures to become a private entity in accordance with the regulations of the country where it is located. A delisted company is removed from the index constituents as of the last trading day or the delisting date, and it does not affect the index value calculated by KEDI's stock index calculation methodology. Upon the removal of the delisted constituent, its weight within the index is redistributed proportionally among the remaining constituents based on their respective weights at the time of removal.

10. Stock Suspension

In the event that a constituent's stock trading is suspended, the implementation of any corporate actions is postponed. Upon the resumption of trading, all accumulated corporate actions will be implemented and reflected in the index simultaneously.

However, if the trading suspension is due to reasons where trading may not resume, a decision on the deletion or replacement of the constituent will be determined within five (5) business days, following a notice and consideration period of at least one (1) business day.

During a period between the Selection Date and the Rebalancing Date, suspended stocks are treated as follows:

- Implementation Timing: A notice and consideration period of at least one (1) business day will be observed starting from the effective date of the trading suspension. The final determination and replacement process will be completed and effective on or before the Rebalancing Date(Effective Date).

10.1 Existing Constituents

An existing index constituent that is suspended from trading will generally be maintained in the index without adjustments to its index weight or Index Inclusion Factor (IIF).

However, the following exception applies:

- Suspension due to Pending Delisting: If an existing constituent is suspended due to an event leading to its imminent delisting (e.g., M&A completion, liquidation, or regulatory delisting), the stock will be deleted from the index.
- Replacement: To maintain the target number of constituents, the removed stock will be replaced by the next highest-ranked eligible security based on the Selection Criteria defined in the individual index methodology.

10.2 New Additions

Stocks that are currently suspended from trading are not eligible to be added to the index as new constituents.

- Disqualification: If a selected stock is suspended before the Rebalancing Date, its eligibility will be reconsidered at the subsequent rebalancing period.
- Replacement: In the event that a stock is disqualified from inclusion due to suspension, the next highest-ranked eligible security according to the Selection Criteria will be added to the index as a replacement.

Note: The Index Committee may exercise its discretion in determining whether and when to implement share or IIF changes for suspended stocks.

11. IPO

IPO refers to corporate events where the shares of a specific company are newly listed on an exchange defined within the index investment universe. To ensure the stability and representativeness of the index, the following rules are applied.

11.1 General Principles

- Inclusion Timing: Newly listed securities are reviewed for eligibility on the next scheduled Selection Date following their listing.
- Eligibility Criteria: As of the Selection Date, the securities must satisfy the basic investment universe requirements, including liquidity, market capitalization, and other financial criteria defined in the respective index methodology. However, for underlying investment universe conditions such as trading volume or return over a specific period, the period from the listing date to the rebalancing review date shall be applied.

11.2 Fast Entry

Newly listed securities that may significantly impact the market representativeness may be considered for fast entry prior to the regular rebalancing date.

- Eligibility Criteria: A new listing is subject to Index Committee review for its fast entry, if its market capitalization at the close on the listing date exceeds that of the security ranked at the 50th percentile by market capitalization among the current index

constituents.

- Inclusion Process: Based on publicly disclosed information, the Index Committee will conduct a review in accordance with the index methodology for constituent selection and index calculation. For early inclusion cases, period-based requirements (e.g., 3-month average daily trading volume, period return, etc.) are waived.
- Inclusion Timing: The inclusion and weighting will be determined after the close of trading on the 5th business day following the listing date (D+5). The security is then included in the index after the close of trading on the 10th business day following the listing date (D+10). At the time of inclusion, existing constituents are maintained, and the total number of constituents may increase.
- In the event that specific provisions for new listings are stipulated in an individual index methodology, the individual methodology shall take precedence.

12. Change in Number of Shares Outstanding

For Corporate Actions that result in a change in the number of shares outstanding of an index constituent, the timing of reflecting the change is applied differently depending on the nature of the event. The following rules are applied in order to preserve the stability and representativeness of the index.

12.1 Immediate Reflection

Where a change in the number of shares outstanding occurs together with a change in the constituent's base price, the change in the number of shares outstanding is reflected immediately at the time the event is applied.

- Price adjustment Factor(PAF) Index: Where the Corporate Action results in a change in the PAF value, the change in the number of shares outstanding is reflected immediately at the time the change is applied.
- Base Market Capitalization Adjustment(BMCA) Index: Where the Corporate Action results in a change in the constituent's base price, the change in the number of shares outstanding is reflected immediately at the time the change is applied.

12.2 Cumulative Reflection

Where only the number of shares outstanding changes, without any accompanying change in the PAF value or the base price (e.g., exercise of stock options, conversion of convertible bonds or exercise of warrants, acquisition or disposal of treasury shares, etc.), such changes are not reflected immediately upon occurrence but are managed on a cumulative basis.

* Provided, however, that in the case of shares listed on the Korea Exchange (KRX), the change is reflected immediately upon disclosure.

- Where the cumulative rate of change remains below 2%, the change is not reflected

and continues to accumulate until the next change occurs.

- Once the cumulative rate of change in the number of shares outstanding, measured against the last reflection reference date, reaches 2% or more, the accumulated changes are reflected in the index in a single batch within three (3) business days from that point.