Nasdaq

Custom Baskets

Calculation Methodology

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Change Log

Date	Version	Section	Change
October 19, 2026	0.10	Withholding taxes Eligible Exchanges	Withholding tax table updated GR added to Eligible Exchanges Reference to Benchmark Administrator removed
December 3, 2025	0.09	Withholding taxes	Withholding tax table updated
March 7, 2024	0.08	Withholding taxes Eligible Exchanges	Withholding tax table updated US added to Eligible Exchanges
June 21, 2023	0.07	Entire Document	3.5 Recalculations will include Basket level and composition 4.0 Any corporate actions will be handled by S&P Market Intelligence according to their standard. 5.12 Constituents under bankruptcy will be removed from a basket at Latest Available Traded Price 5.14 Deleted: A stock will be removed from a basket if it has not traded for a period of 50 consecutive days 6. Withholding Tax rates are reviewed by the Benchmark Administrator
October 26, 2022	0.06	Introduction Withholding taxes	IHS Markit has changed corporate name to S&P Global Market Intelligence Withholding tax table updated
September 15, 2021	0.05		Initial Version approved by the BMR Oversight Committee

Table of Contents

Introduction **5**

Terminology and Notation **6**

2.1 Date ($\boldsymbol{t}$) 6
2.2 Ex-Date (XD) 6
2.3 Payment Date (PD) 6
2.4 Effective Date (ED) 6
2.5 Closing Price ($\mathbf{Pt}, \mathbf{Closei}$) 6
2.6 Opening Price ($\mathbf{Pt}, \mathbf{Openi}$) 6
2.7 Price Adjustment Factor ($\mathbf{P_AFti}$) 6
2.8 Number of Shares ($\mathbf{NOSHti}$) 7
2.9 Number of Shares Adjustment Factor ($\mathbf{NOSH_AFti}$) 7
2.10 Gross Dividend Amount ($\mathbf{Divti}$) 7
2.11 Withholding Tax Rate ($\mathbf{T_Ratei}$) 7
2.12 Net Dividend Amount ($\mathbf{Divti} \times (\mathbf{1} - \mathbf{T_Ratei})$) 7
2.13 Subscription Price ($\mathbf{Psubi}$) 7
2.14 Foreign Exchange Rate ($\mathbf{FXti}$) 7

Basket Calculation **9**

3.1 Basket calculation process 9
3.2 Market Values 9
3.3 Basket Divisor 10
3.4 Intraday Basket Level publication 10
3.5 Recalculation and Republication of Basket Level 11

Corporate Events and Treatments **12**

Treatment Specifications **13**

5.1 Ordinary Cash Dividend 13
5.2 Special Cash Dividend 13
5.3 Stock Dividend or Script Dividend 14
5.4 Bonus Issue 15
5.5 Optional Dividend 15
5.6 Stock Split 15
5.7 Reverse Stock Split / Consolidation 16
5.8 Share Redenomination 16

5.9 Merger / Acquisition / Takeover 16
5.10 Demerger / Spin-off 18
5.11 Split-Off 20
5.12 Bankruptcy 20
5.13 Change of Listing 20
5.14 Suspension 20
5.15 Share Conversion 21
5.16 Write-Up of Capital 21
5.17 Write-Off of Capital 21
5.18 Change to No Par Value 22
5.19 Rights Issue 22
5.20 Capital Return or Capital Repayment 22
5.21 Share Buy-Back 23

Withholding Tax Rates 24

Eligible Exchanges 25

Appendix A 26

Country Specific Dividend treatments 26

Introduction

The scope of the Custom Basket Methodology document is to define the core corporate events and their standard treatment for the Custom Baskets.

The primary purpose of a Custom Basket is to reflect movements in the underlying composition accurately. The objective of this guide is to define a default treatment for corporate events based on market standards in line with what is deemed to be best practice. The treatments described below is the measures of how to include corporate events in the Custom Basket calculation.

The Custom Basket calculation and corporate event treatment is transparent and predictable to ensure that customers can easily replicate the baskets in order to support investments and trading activities associated with them.

The Custom Basket calculation process starts by retrieving the raw data associated with the baskets. The Input Data consists of share prices sourced from data vendors to which FX Rates, if applicable are applied. Once all the relevant data is crosschecked, then “Adjustment Factors” are calculated if required by corporate events. The “Adjustment Factors” for both, “Prices” and “Shares in the basket” are calculated to reflect the effect of corporate events. The “Adjustment Factors” are implemented for the opening price for the next business day for all baskets.

Terminology and Notation

2.1 Date (t)

Date ($\boldsymbol{t}$) is the period included in the basket specification around a Basket Session, i.e. the calculation period on a basket business day. Each Basket Session has an opening and a closing component denoted as "**t,open**" and "**t,close**", correspondingly. Date $\boldsymbol{t}$ is defined as the current session, where for instance $\boldsymbol{t-1}$ is the previous session and $\boldsymbol{t+1}$ is the next session.

2.2 Ex-Date (XD)

The ex-date ($\boldsymbol{XD}$) is the first date on which a share is considered without entitlement to participate in the capital change event, for example a dividend.

2.3 Payment Date (PD)

The payment date ($\boldsymbol{PD}$) is the date in which the company effectively makes the payment to shareholders.

2.4 Effective Date (ED)

The effective date ($\boldsymbol{ED}$) is the Date $\boldsymbol{t}$ in which the corporate event is applied in the basket calculation.

2.5 Closing Price ($\mathbf{P^i_{t,Close}}$)

A closing price ($\mathbf{P^i_{t,Close}}$) refers to the closing price of Share i as at date $\boldsymbol{t}$. The closing price comes directly from the market data feeds.

2.6 Opening Price ($\mathbf{P^i_{t,Open}}$)

The opening price ($\boldsymbol{P^i_{t,Open}}$) is the theoretical opening price of share i on day $\boldsymbol{t}$ post corporate actions. The opening price indicates how the share price has theoretically changed for the next opening trading session based on the closing price as at Date $\boldsymbol{t}$ and the information of corporate events effective on day $\boldsymbol{t+1}$. In general, if there is no corporate event related to share i effective on $\boldsymbol{t+1}$, the values of the $\boldsymbol{t+1}$ opening price ($\boldsymbol{P^i_{t+1,Open}}$) and the $\boldsymbol{t}$ closing price ($\boldsymbol{P^i_{t,Close}}$) are the same.

Note: The opening price is a derived price and not raw Input Data.

2.7 Price Adjustment Factor ($\mathbf{P_AF^i_t}$)

The price adjustment factor ($\boldsymbol{P_AF^i_t}$) is a multiplier associated to the closing price of share i as at day $\boldsymbol{t}$ ($\boldsymbol{P^i_{t,Close}}$). It is calculated at the end of the day $\boldsymbol{t}$ and is used to adjust the closing price as at the closing of date $\boldsymbol{t}$ to obtain a theoretical opening price on next calculation day $\boldsymbol{t+1}$; i.e. $\boldsymbol{P^i_{t+1,Open} = P^i_{t,Close} \times P_AF^i_t}$

In the case that no corporate event related to share $\boldsymbol{i}$ is effective on day $\boldsymbol{t+1}$, the price adjustment factor: $\boldsymbol{P_AF_t^i}$ is equal to 1.

2.8 Number of Shares ($\mathbf{NOSH_t^i}$)

The number of shares ($\boldsymbol{NOSH_t^i}$) is the number of shares $\boldsymbol{i}$ held in the basket during business day.

2.9 Number of Shares Adjustment Factor ($\mathbf{NOSH_AF_t^i}$)

The number of shares adjustment factor ($\boldsymbol{NOSH_AF_t^i}$) is a multiplier associated to number of share $\boldsymbol{i}$ held in the basket during business day $\boldsymbol{t}$ ($\boldsymbol{NOSH_t^i}$). It is calculated at the end of the day $\boldsymbol{t}$ and is used to adjust the share holding as at the closing of date $\boldsymbol{t}$ to obtain a theoretical share holding at the opening on next calculation day $\boldsymbol{t+1}$; i.e. $\boldsymbol{NOSH_{t+1}^i = NOSH_t^i \times NOSH_AF_t}$

In the case that no corporate event related to share i is effective on day $\boldsymbol{t+1}$, the number of shares adjustment factor: $\boldsymbol{NOSH_AF_t^i}$ is equal to 1.

2.10 Gross Dividend Amount ($\mathbf{Div_t^i}$)

The gross dividend amount ($\boldsymbol{Div_t^i}$) is the value of dividend scheduled to be paid (before Tax) for holding 1 unit of share i with the ex-date on day $\boldsymbol{t}$.

2.11 Withholding Tax Rate ($\mathbf{T_Rate^i}$)

The tax rate ($\boldsymbol{T_Rate^i}$) is the associated tax rate applied on dividends received on share i to calculate the deducted tax amount. The tax rates are usually determined by the country where the company is incorporated. The **Tax Table** in section 6 provides the rates applied for specific countries and is reviewed and updated on an annual basis. Country specific tax treaty rates are not taken into account.

2.12 Net Dividend Amount ($\mathbf{Div_t^i \times (1 - T_Rate^i)}$)

The net dividend amount ($\boldsymbol{Div_t^i \times (1 - T_Rate^i)}$) is the value of the net dividend scheduled to be paid after tax for holding one unit of share i with the ex-date on day $\boldsymbol{t}$.

2.13 Subscription Price ($\mathbf{P_{sub}^i}$)

The subscription price ($\boldsymbol{P_{sub}^i}$) is the price at which new shares are offered for a corporate event associated to share $\boldsymbol{i}$.

2.14 Foreign Exchange Rate ($\mathbf{FX_t^i}$)

The foreign exchange rate ($\boldsymbol{FX_t^i}$) is the associated foreign exchange rate applied on share i to translate its value to the basket currency where FX rates from Morningstar are used for intraday basket calculation and the official quote from WM Reuters at 4:00 pm UK time is used for the end of day basket calculation.

In the case of corporate events, the associated companies as issuers of component Stocks sometimes specify the *FX* rate used for the effective date ($\boldsymbol{t}$) in their terms. If this information is not available, the official quote from WM Reuters at 4:00 pm UK time is used as the FX Rate as at $\boldsymbol{t}_{-1}$ for basket business days.

Basket Calculation

3.1 Basket calculation process

In general, the basket calculation process is as below:

- **Step 1: Sourcing Input Data**

The basket calculation process starts by consolidating the raw data. The Input Data consists of Share prices sourced from data vendors. In addition to Input Data, other data such as FX Rates and Corporate Event Information may be used.

- **Step 2: Determining Adjustment Factors**

The Adjustment Factors for both share prices sourced from data vendors and Number of Shares held in the basket is calculated to reflect the effect of relevant corporate events. The Adjustment Factors are implemented for the opening price for the next business day for all baskets.

- **Step 3: Calculating Market Values**

Market Values of any share are the intermediate values for calculation derived using the data of Adjustment Factors, prices sourced from data vendors and Number of Shares held.

- **Step 4: Concluding Basket Level**

The final step is to conclude the basket level using the intermediate market values.

3.2 Market Values

The **closing Market Value** of any constituent, say share i, is the product of: 1) the closing price of share i as day $\boldsymbol{t}$, 2) the number of share *i* held at the close of day $\boldsymbol{t}$ and 3) the associate FX rate as at day $\boldsymbol{t}$ to translate the share currency into basket currency. Where the share price of share i for day t is not available, t -1 share price will be used. Where FX rates for day t are not available, t -1 for FX rates will be used.

$$\boldsymbol{MV^{i}_{t,Close} = (P^{i}_{t,Close} \times NOSH^{i}_{t} \times FX^{i}_{t,Close})}$$

The **opening Market Value** of any constituent, say share i, is the product of: 1) the opening price of this share as day t, 2) the number of shares held in the basket at the close of the same day and 3) the share i associated foreign exchange rate as at day $t-1$.

$$\boldsymbol{MV^{i}_{t,Open} = P^{i}_{t,Open} \times NOSH^{i}_{t} \times FX^{i}_{t-1,Close}}$$

The equation above can be derived as:

$$MV^{i}_{t,Open} = \left(P^{i}_{t-1,Close} \times P_AF^{i}_{t-1}\right) \times \left(NOSH^{i}_{t-1} \times NOSH_AF^{i}_{t-1}\right) \times FX^{i}_{t-1,Close}\,.$$

In general, we refer both **closing Market Value** of any constituent and **open Market Value** of any constituent as **Constituent Market Value,** while **Basket Level** refers to the sum of the Market Values of all constituents included in this basket.
Correspondingly, the closing basket market Value is:

$$Basket_MV_{t,Close} = \sum MV^{i}_{t,Close}$$

Correspondingly, the opening basket market Value is:

$$Basket_MV_{t,Open} = \sum MV^{i}_{t,Open}$$

3.3 Basket Divisor

A key component of the Custom Baskets is the **Divisor**. The starting value of the ***"Divisor"*** is defined as $MV_{t_0,Close}$ divided by the basket level at the inception $Basket_{t_0}$

At basket inception date t_0:

$$Divisor_{t_0} = \frac{MV_{t_0,Close}}{Basket_{t_0}}$$

On each basket business day t other than t_0:

$$Divisor_t = Divisor_{t-1} \times \frac{Basket_MV_{t,Open}}{Basket_MV_{t-1,Close}}$$

The "***Divisor***" is an essential tool used to maintain the continuity of basket levels across changes due to corporate events.

Finally, the basket level is determined as:

$$Basket\ Level_t = \frac{Basket_MV_{t,Close}}{Divisor_t}$$

Within this Methodology the impact of corporate events can be distributed across all the constituents within the basket by way of a divisor in order to keep the basket level constant.

3.4 Intraday Basket Level publication

The calculation of the intraday basket level follows the same formulae as of the open of business calculation except that the price and FX rates are replaced by intraday rates:

$$Basket\ Level_{t-intraday} = \frac{Basket_MV_{t-intraday}}{Divisor_t}$$

Where:

$$MV^{i}_{t-intraday} = (P^{i}_{t-intraday} \times NOSH^{i}_{t,Open} \times FX^{i}_{t-intraday})$$

3.5 Recalculation and Republication of Basket Level

If an error has been spotted in the basket calculation and level publication a restatement of the level will be made as soon as practically possible. The cut-off for any historical changes to be made on request will be limited to 60 days, however at Nasdaq's discretion the basket level can be restated from any certain point to incorporate any historical or omitted changes. Operations will be resumed and all restatements will include basket level and composition, however the intraday level time series will not be updated from the point of restatement.

There are numerous reasons which a restatement is needed; the most pertinent being incomplete information used in the calculation process due to incomplete or non-validated corporate action information at the moment of calculation. Non-validated Corporate Action information means that the information has not been confirmed by the Board of Directors or a meeting of the company' shareholders at the moment of calculation.

Corporate Events and Treatments

Corporate events are treated via "Adjustment Factors". For the occurrence of a corporate event associated to a basket constituent, the position of this constituent within the basket is adjusted by its adjustment factors.

Two types of "Adjustment Factors" are specified within the process:

- Price Adjustment Factor ($\boldsymbol{P_AF_t^i}$)
- Number of Shares Adjustment Factor ($\boldsymbol{NOSH_AF_t^i}$)

The following different types of corporate actions are defined below. Any other corporate actions different from the list will be handled by S&P Market Intelligence according to their standards.

No.	Event Type	CAPITAL RESTRUCTURE
1	DIVIDEND	Cash Dividend
2	DIVIDEND	Special Dividend
3	DIVIDEND	Stock Dividend or Script Dividend
4	DIVIDEND	Optional Dividend
5	DIVIDEND	Bonus
6	CAPITAL CHANGE	Stock Split
7	CAPITAL CHANGE	Reverse Stock Split / Consolidation
8	CAPITAL CHANGE	Share Redenomination
9	MERGER & ACQUISITION	Merger/Acquisition/Takeovers
10	MERGER & ACQUISITION	De-merger/ Spin-Off
11	MERGER & ACQUISITION	Split-Off
12	EXCEPTIONAL MARKET CONDITION	Bankruptcy
13	EXCEPTIONAL MARKET CONDITION	Change of Listing
14	EXCEPTIONAL MARKET CONDITION	Suspension
15	EXCEPTIONAL MARKET CONDITION	Share Conversion
16	EXCEPTIONAL MARKET CONDITION	Write-Up of Capital
17	EXCEPTIONAL MARKET CONDITION	Write-Off of Capital
18	EXCEPTIONAL MARKET CONDITION	Change to No Par Value
19	CAPITAL INCREASE	Rights Issue
20	CAPITAL RETURN	Capital Return or Capital Repayment

Treatment Specifications

5.1 Ordinary Cash Dividend

Dividends are payments made by a corporation to its shareholders. Sometimes, when a corporation earns a profit, that money can be put to two uses: it can be either re-invested in the business or it can be paid to the shareholders as a dividend. Any regular (3 times or more) payment given by a company to distribute its operating profit will be treated as an ordinary dividend for basket calculation purposes. The Gross Dividend Amount is the amount before applying tax rates. The Net Dividend Amount is the amount less applicable taxes as specified under chapter 6.

Example:

Company $\boldsymbol{i}$ announces to pay a regular dividend; the ex-date is day $\boldsymbol{t}$.

Specifically, the gross dividend amount is $\boldsymbol{Div_t^i}$ in the same currency as the share currency; the tax rate applicable to this dividend is $\boldsymbol{T_Rate^i}$. For FX, t_{-1} for basket business days will be used.

Treatment:

- A Price Return basket does not take into account the Cash Dividend:

$$\boldsymbol{P_AF_{t-1}^i = 1}$$

$$\boldsymbol{NOSH_AF_{t-1}^i = 1}$$

- A Gross Return basket requires adjustment for the Cash Dividend:

$$\boldsymbol{P_{t,Open}^i = P_{t-1,Close}^i - Div_t^i \times FX_{t-1}^i}$$

$$\boldsymbol{P_AF_{t-1}^i = \frac{P_{t,Open}^i}{P_{t-1,Close}^i}}$$

$$\boldsymbol{NOSH_AF_{t-1}^i = 1}$$

- A Net Total Return basket requires adjustment for the Net of Tax Cash Dividend:

$$\boldsymbol{P_{t,Open}^i = P_{t-1,Close}^i - Div_t^i \times FX_{t-1}^i \times (1 - T_Rate^i)}$$

$$\boldsymbol{P_AF_{t-1}^i = \frac{P_{t,Open}^i}{P_{t-1,Close}^i}}$$

$$\boldsymbol{NOSH_AF_{t-1}^i = 1}$$

5.2 Special Cash Dividend

Special Cash dividends are dividends that occur outside of the normal payment pattern established historically by the corporation. Whether a dividend is funded from operating earnings or from other sources of cash does not affect the determination of whether it is a special dividend. Instead, it is considered a special dividend when the market perceives it as a special dividend with dividends being paid outside the normal payment pattern.

Different from regular **Cash Dividends**, a tax rate will not apply in the case of **Special Dividends**. For example, when the cash payout is a return of capital or a distribution resulting from the disposal of an asset, tax will not be applicable for the special dividend. As a result, tax will not be factored when making adjustments on special dividends.

Example:

Company $\boldsymbol{i}$ announces to pay a special dividend $\boldsymbol{Div_t^i}$; the ex-date is day $\boldsymbol{t}$. For FX, t_{-1} for basket business days will be used.

Treatment:

- Special Dividend are adjusted within baskets as shown below:

$$\boldsymbol{P_{t,Open}^i = P_{t-1,Close}^i - Div_t^i \times FX_{t-1}^i}$$

$$\boldsymbol{P_AF_{t-1}^i = \frac{P_{t,Open}^i}{P_{t-1,Close}^i}}$$

$$\boldsymbol{NOSH_AF_{t-1}^i = 1}$$

5.3 Stock Dividend or Script Dividend

A stock dividend is a distribution of shares to shareholders. In some instances the stock dividend can be optional, whereby the shareholder may choose to receive shares instead of a cash payment. In this case, shares will be issued for the cash value.

Example:

Company $\boldsymbol{i}$ announces to pay a stock dividend; the ex-date is day $\boldsymbol{t}$.

Specifically, every 1 unit of share held pays the shareholders of $\boldsymbol{Div_Ratio_t^i}$ unit(s) of new shares in the same company.

Treatment:

A price adjustment is done on the opening of the event ex-date, and the number of shares is adjusted (increased) on the ex-date.

When there is no cash alternative, the stock dividend represents a script / bonus issue and the adjustment factor should be calculated in the same way.

$$\boldsymbol{P_{t,Open}^i = P_{t-1,Close}^i \times \frac{1}{(1 + Div_Ratio_t^i)}}$$

$$\boldsymbol{P_AF_{t-1}^i = \frac{P_{t,Open}^i}{P_{t-1,Close}^i} = \frac{1}{(1 + Div_Ratio_t^i)}}$$

$$\boldsymbol{NOSH_t^i = NOSH_{t-1}^i \times (1 + Div_Ratio_t^i)}$$

$$\boldsymbol{NOSH_AF_{t-1}^i = \frac{NOSH_t^i}{NOSH_{t-1}^i} = 1 + Div_Ratio_t^i}$$

For scenarios where the company pays a stock dividend; distributing a holding in a different company the treatment is the same as that of a spin-off and is covered in section 5.10.

In some instances, a company may issue a separate line of share with no intention to list it on an exchange, but to buy it back at a later date for a cash amount. In these cases the distribution is treated as a return of capital rather than a share distribution as the illiquid share line does not meet the basket criteria. For more information on Capital Returns please see section 5.20.

5.4 Bonus Issue

A bonus issue is a distribution of shares to shareholders in a similar manner to a stock dividend. Shareholders will be awarded a certain number of shares for every share they currently hold. Within a basket it is treated in the same manner as a stock dividend covered in 5.3.

5.5 Optional Dividend

A company offers its shareholders the choice of receiving the dividend in cash or in shares. It is assumed that investors select the default option as given by the company. For example, should a company offer a cash dividend with a stock option such as a scrip dividend that the cash option is selected, and should a company offer a stock dividend with an option to receive the value in cash then the stock option is selected. As a result the dividend will be applied in the same way as section 5.2 & 5.3 respectively.

5.6 Stock Split

A stock split increases the number of all shares outstanding by a multiple while decreasing the price by the same multiple causing the action to be market cap neutral.

Example:
Company $\boldsymbol{i}$ announces a stock split event; the ex-date is day $\boldsymbol{t}$.
Specifically, every 1 unit of share held splits into $\boldsymbol{Split_Ratio_t^i}$ unit(s) of new share in the same company.

Treatment:
The number of shares, dividends and the share price are adjusted by the split factor on the ex-date. The stock split does not have impact on the divisor as at the ex-date $\boldsymbol{t}$.

$$\boldsymbol{P_{t,Open}^i = P_{t-1,Close}^i \times \frac{1}{Split_Ratio_t^i}}$$

$$\boldsymbol{P_AF_{t-1}^i = \frac{P_{t,Open}^i}{P_{t-1,Close}^i} = \frac{1}{Split_Ratio_t^i}}$$

$$\boldsymbol{NOSH_t^i = NOSH_{t-1}^i \times Split_Ratio_t^i}$$

$$\boldsymbol{NOSH_AF_t^i = \frac{NOSH_t^i}{NOSH_{t-1}^i} = Split_Ratio_t^i}$$

Note:
Please note that this corporate event is always implemented at share level rather than at the basket level. If it was incorporated at the basket level, then it would mean that the effect of the corporate event is redistributed across the basket.

5.7 Reverse Stock Split / Consolidation

A reverse stock split or share consolidation is a reduction in the number of shares outstanding and an accompanying increase in the share price causing the action to be market cap neutral.

Example:
Company $\boldsymbol{i}$ announces a reverse stock split event; the ex-date is day $\boldsymbol{t}$.
Specifically, every 1 unit of share held splits into $\boldsymbol{Split_Ratio_t^i}$ unit(s) of new share in the same company.

Treatment:
The reverse split does not have impact on the divisor as at the ex-date $\boldsymbol{t}$.
The procedure is the same as in the section 5.6 above. In essence, it means that:

$$\boldsymbol{Split_Ratio_t^i = \frac{1}{Consolidation_Ratio_t^i}}$$

The calculation is the same regardless of whether the nominal value of a share changes ("share consolidation") or remains the same ("capital reduction").

5.8 Share Redenomination

The nominal value of existing shares in issue changes due to the change of currency. Therefore, the amount is converted using a set rate.

5.9 Merger / Acquisition / Takeover

A merger generally means that two or more companies merge to form a new company ("Resulting Name"). An acquisition or takeover is generally where two or more companies merge but one of the original companies becomes the "Surviving Name". In the vast majority of cases the target ceases to trade as a separate entity. Usually the shareholders of the merging companies exchange their company shares for shares in the resulting/surviving company.

A merger is deemed completed when it has been declared unconditional and has received the approval of all the regulatory agencies with jurisdiction over the transaction. Instances may occur where not all shares of the target company, under acquisition, have been tendered to the acquiring company. When the "squeeze out" level (the minimum percentage of shares which needs to be held by the acquirer in order for the purchase of the remaining shares to be guaranteed) has been reached, the merger will be deemed effective.

The target company is usually removed from baskets on or close to the delisting date, the date it is has been deemed effective.

The resulting company will replace the target company in baskets where the target company is removed if the Shares of the target company are exchanged to Shares of the resulting company. This also applies when as a result of the merger the merging companies are replaced by a newly created resulting company.

The terms of a merger or acquisition can be structured in numerous ways, generally following an exchange of either:

- a 100% cash offer
- a mixture between cash and share offer
- a 100% share offer

Action is only taken within a basket if the target entity is a member (component), in which case the terms are applied as per the offer.

Scenario 1:
Entity K and entity D merge to create a new company, entity O with terms of $\boldsymbol{a}$ number of shares of company K for $\boldsymbol{b}$ number of shares in company O alongside $\boldsymbol{x}$ number of shares in company D for $\boldsymbol{y}$ number of shares in company O.

Treatment:
In this scenario company D and company K will be removed from the basket on the effective date and company O will be added at the ratio dictated by the terms of the agreement with a divisor adjustment in principal if the market value of O is not equal to the combined value of companies D & K.

$$\boldsymbol{NOSH_AF_t^K = 0}$$

$$\boldsymbol{NOSH_AF_t^D = 0}$$

$$\boldsymbol{NOSH_t^O = \left(\frac{b}{a} * NOSH_{t-1}^K\right) + \left(\frac{y}{x} * NOSH_{t-1}^D\right)}$$

$$\boldsymbol{Divisor_t = Divisor_{t-1} \times \frac{Basket_MV_{t,Open}}{Basket_MV_{t-1,Close}}}$$

Scenario 2:
Entity K acquires entity D with a 100% cash offer.

Treatment:
In this scenario company D will be removed from the basket on the effective date and the basket will incur a divisor adjustment to counteract the drop in the basket Market Value.

$$\boldsymbol{NOSH_AF_t^D = 0}$$

$$\boldsymbol{Divisor_t = Divisor_{t-1} \times \frac{Basket_MV_{t,Open}}{Basket_MV_{t-1,Close}}}$$

Scenario 3:

Entity K acquires entity D, offering $\boldsymbol{a}$ number of shares of company K for $\boldsymbol{b}$ number of shares in company D.

Treatment:

In this scenario company D will be removed from the basket on the effective date and company K will be added to the basket based on the terms offered. If company K was already a basket constituent, then the number of shares will be the original number of shares plus the addition based on the terms.

$$\boldsymbol{NOSH_AF_t^D = 0}$$

$$\boldsymbol{NOSH_t^K = NOSH_{t-1}^K + (\frac{a}{b}) * NOSH_{t-1}^D}$$

Where $\boldsymbol{NOSH_{t-1}^K = 0}$ if K was not a basket constituent.

Should the event not be a market value neutral even then a divisor adjustment will occur using:

$$\boldsymbol{Divisor_t = Divisor_{t-1} \times \frac{Basket_MV_{t,Open}}{Basket_MV_{t-1,Close}}}$$

Scenario 4:

Entity K acquires entity D, offering $\boldsymbol{a}$ number of shares of company K for $\boldsymbol{b}$ number of shares in company D alongside a cash amount.

Treatment:

In this scenario the treatment will be the same as given in *Scenario 3*, with the cash portion being reflected in a divisor adjustment.

5.10 Demerger / Spin-off

A company or group of companies splits up so that its activities are carried on by two or more independent companies. One of the main reasons for doing this is to improve the value of the company's shares, especially if one part of the group's value can be better reflected by a separate share quotation.

A spin-off is the distribution of shares in a wholly-owned or a partially-owned company to the parent company's existing shareholders. A new independent company is formed from an existing division or a subsidiary of the parent company or corporation through issuing share entitlement in the new company.

For a current basket constituent incurring a spin-off:

- any cash paid as part of the spin-off is reinvested in the basket with a divisor change;
- the parent company is kept in the basket provided it remains listed and continues to trade;
- a position in the spun-off company is placed into the basket following the terms should it list on an exchange.

Example:

There is an entity $\boldsymbol{K}$ spins off n different entities $\boldsymbol{D1}, \boldsymbol{D2}, \ldots, \boldsymbol{Dn}$; the ex-date is day $\boldsymbol{t}$.

Specifically, every $\boldsymbol{1}$ unit holding of share $\boldsymbol{K}$ spins off $\boldsymbol{DRi}$ unit(s) of share $\boldsymbol{Di}$ $(\boldsymbol{i = 1, 2, \dots, n})$ and an amount of cash equal to $\boldsymbol{KCash}$ in the same currency as the shares ($\boldsymbol{KCash = 0}$ $\boldsymbol{if\ not\ applicable}$). The opening share prices in companies $\boldsymbol{D1, D2, \dots, Dn}$ are usually determined and announced in advance of the corporate event, say, as $\boldsymbol{P^{Di}_{t,Open}}$ $\boldsymbol{(i = 1, 2, \dots, n)}$.

Treatments:

When there is a demerger/spin-off event occurring on one basket constituent, three options are offered to treat this event as described below.

- **Option 1:** Provided the spun-off entities list on an exchange and become basket constituents.

$$\boldsymbol{P^{K}_{t,Open} = P^{K}_{t-1,Close} - KCash - \sum_{i=1}^{n} P^{Di}_{t,Open} \times DRi}$$

$$\boldsymbol{P_AF^{K}_{t-1} = \frac{P^{i}_{t,Open}}{P^{i}_{t-1,Close}}}$$

$$\boldsymbol{NOSH_AF^{K}_{t-1} = 1}$$

$$\boldsymbol{NOSH^{Di}_{t} = NOSH^{K}_{t-1,Close} \times DRi,}\ \textit{while}\ \boldsymbol{NOSH^{Di}_{t-1,} = 0;\ (i = 1, 2, \dots, n)}$$

- **Option 2:** If the spun-off entities do not become a basket constituent because they do not list on an exchange:

$$\boldsymbol{P^{K}_{t,Open} = P^{K}_{t-1,Close} - KCash - \sum_{i=1}^{n} P^{Di}_{t,Open} \times DRi}$$

$$\boldsymbol{P_AF^{K}_{t-1} = \frac{P^{i}_{t,Open}}{P^{i}_{t-1,Close}}}$$

$$\boldsymbol{NOSH_AF^{K}_{t-1} = 1}$$

$$\boldsymbol{NOSH^{Di}_{t} = 0}$$

- **Option 3:** In rare cases, the parent company ceases to be eligible for the basket itself:

$$\boldsymbol{NOSH_AF^{K}_{t-1} = 0}\ \textit{, and}\ \boldsymbol{NOSH^{K}_{t} = 0}$$

$$\boldsymbol{NOSH^{Di}_{t} = 0}$$

In scenarios where the spun-off entities are due to list on an exchange and become a basket constituent but are not immediately eligible; the treatment will follow scenario 1 with the spun off entities maintaining a theoretical price based on the adjustment factor to derive $\boldsymbol{P^{Di}_{t,Open}}$ until it commences trading.

All 3 options may incur a divisor adjustment unless:

$$MarketValue_t^K - MarketValue_{t-1}^K = \sum_{i=1}^{n} P_{t,Open}^{Di} \times DRi$$

It is worth noting that as the corporate event is actioned at the market close, although the above calculation is how the price will be determined the calculation will consider a sourced Price adjustment factor.

5.11 Split-Off

A Split-Off is another way a company can divest it's holding in either a wholly or partially owned company to shareholders. This is also done by offering shares in the child company at an exchange ratio; however, the main difference between this action and a Spin-off is that to obtain the shares in the new/child entity shareholders of the parent company must tender their shares in line with the exchange offer.

Treatment:

As this action is optional, no assumption is made that the investor will tender their shares and therefore no treatment is required within the basket.

5.12 Bankruptcy

A company legally declares inability or impairment of ability to pay their creditors. Creditors may file a bankruptcy petition against a debtor in an effort to recoup a portion of what they are owed. However, in the majority of cases, bankruptcy is initiated by the debtor. After undergoing reorganization, a company is liquidated.

Constituents that fall under bankruptcy as at t are removed from the basket after the close of "t+1" to give one day notice to clients. The share is then removed at the latest available traded price on close of t+1

5.13 Change of Listing

A change of listing is when a company should delist from one Stock Exchange to list the shares on another Exchange.

Treatment:

Following the close of business on the day in which the share delists from the original exchange it will be removed from the basket and the new listing of the share shall enter the basket on the open of the Effective Date in which it lists on the new exchange.

5.14 Suspension

There are two scenarios: a security is suspended before the Stock Exchange closes or it is announced that the share is going to be suspended for the open of the next trading session. However, for both cases the same implementation occurs for this corporate event. From the date of suspension, the share is kept within the basket at the last available price and quantity. When the company resumes trading again it will continue to be priced and its Market Value calculated as normal, however should the company then delist due to bankruptcy it will be removed in accordance with section 5.12.

5.15 Share Conversion

Share conversion is the exchange of one form of security for another share of the same company. For example: preferred share for common share, or debt securities for equity.

Treatment:
If a basket constituent is fully converted to another security that is not part of the basket, treatment is dependent upon whether the successor share is a listed tradeable Stock.

Example:

Share ***i*** is converted for share ***j***; the ex-date is day ***t***. Share ***i*** is part of the basket. Share ***j*** is not.

Every 1 unit of ***i*** is converted for $\boldsymbol{Conversion_rate_t^{ij}}$ unit(s) of share ***j.***

Treatment:

Share ***j*** is added to the basket with the following NOSH.

$$\boldsymbol{NOSH_t^j = NOSH_{t-1}^i \times Conversion_rate_t^{ij}}$$

- If both the converted share and the successor share are basket constituents prior to the conversion, the converted share is removed from the basket and the successor share adjusted as defined below.

Example:

Share ***i*** is converted for share ***j***; the ex-date is day ***t***. Both Share ***i*** and Share ***j*** are part of the basket.

Every 1 unit of ***i*** is converted for $\boldsymbol{Conversion_rate_t^{ij}}$ unit(s) of share ***j.***

Treatment:

$$\boldsymbol{P_AF_t^j = 1}$$

$$\boldsymbol{NOSH_AF_t^j = \frac{NOSH_{t-1}^j + NOSH_{t-1}^i \times Conversion_rate_t^{ij}}{NOSH_{t-1}^j}}$$

5.16 Write-Up of Capital

Existing shares in issue are converted into Ordinary Shares with an increased Nominal Value.

Treatment:
No treatment is required for this event.

5.17 Write-Off of Capital

Existing shares in issue are converted into shares with a reduced Nominal Value. This can happen because the market price of the shares has dropped below its Nominal Value.

Treatment:
No treatment is required for this event.

5.18 Change to No Par Value

Existing shares in issue are converted into shares with no Nominal (par) Value. This means that the Nominal Value is equal to the Issue Price.

Treatment:

No treatment is required for this event.

5.19 Rights Issue

Shareholders are offered the right to buy new shares in proportion to their existing holding at a set offer price usually (but not always) at a discount to the market price. Rights are an offer of additional shares to existing shareholders. A company may decide to distribute further shares as an alternative to increasing the dividend payout.

Right issues are disregarded if they are out of the money at the close of XD-1, and those in the money are adjusted after the close of XD-1.

Example:

There is an entity $\boldsymbol{i}$ offers rights issue; the ex-date is day $\boldsymbol{t}$.
Specifically, every $\boldsymbol{1}$ unit holding of the rights can buy $\boldsymbol{R}$ units of shares in entity $\boldsymbol{i}$ with at the subscription price $\boldsymbol{P^i_{Sub}}$.

Treatment:

Full subscription to the rights offering is assumed if the rights price is in the money. Shares and price and divisor are adjusted accordingly.

$$\boldsymbol{P^i_{t,Open}} = \frac{\boldsymbol{P^i_{t-1,Close}} + \boldsymbol{R} \times \boldsymbol{P^i_{Sub}}}{\boldsymbol{1} + \boldsymbol{R}}$$

$$\boldsymbol{P_AF^i_t} = \frac{\boldsymbol{P^i_{t,Open}}}{\boldsymbol{P^i_{t-1,Close}}}$$

$$\boldsymbol{NOSHAF^i_{t-1,}} = (\boldsymbol{1} + \boldsymbol{R})$$

In certain cases, the number of rights issued per underlying share may be high enough to considerably impact the company capitalization and is classified as a highly dilutive rights issue. This is determined as an instance when a ratio of five or more rights per share is offered. The treatment of such actions is kept in line with the regular rights issue treatment highlighted above.

5.20 Capital Return or Capital Repayment

Capital repayments to shareholders is the return of all or any portion of the issued capital of a company in the winding up of operations or the return of capital in excess of a company's requirements. A capital repayment refers to payments that exceed the growth (net income/taxable income) of a business back to "capital owners", such as shareholders, partners or unit holders. The capital repayment is a transfer of value from the company to the existing owners, but with a different tax treatment to the one applied to the dividends.

Strictly speaking these are dividends taken from paid-in capital rather than current earnings or retained earnings. They are generally not tax liable for the shareholder when paid.

At present this capital change type is being used for a variety of global events including the following:

- The nominal value of the company is adjusted, and the difference is returned to shareholders in cash
- Cash distributions resulting from the sale of capital assets or securities, or tax breaks from depreciation

If a company makes a distribution of shares in itself or a different company that doesn't qualify for addition into the basket because it isn't listed such as distribution in Treasury Share, the nominal value of the shares will be used to quantify the amount used for the return of capital. In a basket this value is treated in the same manner as a Gross Dividend as specified in section 5.2.

An exception to this treatment is made if a company uses the distribution of capital, either as a cash distribution or an issuance of non-tradeable shares 3 or more times in a similar pattern to return wealth to shareholders. In this case the treatment in baskets will be that of an ordinary dividend as specified in section 5.1. This can be seen in some countries such as Switzerland.

5.21 Share Buy-Back

The repurchase by a company of its own shares, to reduce the number of shares in issue, usually at a set price either as a percentage of shares issued or ratio of shares held.

Buy-backs are often carried out for the following reasons:

- return surplus cash to shareholders
- reduce the company's cost capital
- enhance earnings per share in the hope of increasing market price per share and to reduce the possibility of a hostile takeover bid

A share buyback may be performed via a repurchase tender offer (to all shareholders), an open market purchase or a privately negotiated purchase.

Treatment:
No treatment is required for this event.

Withholding Tax Rates[1]

Country of incorporation	Country Code	Withholding tax rate
Australia	AU	30%
Austria	AT	27.50%
Bahamas	BS	0%
Belgium	BE	30%
Bermuda	BM	0%
British Virgin Islands	VG	0%
Canada	CA	25%
Cayman Islands	KY	0%
Curacao	CW	0%
Cyprus	CY	0%
Denmark	DK	27%
Faroe Islands	FO	35%
Finland	FI	35%
France	FR	25%
Germany	DE	26.375%
Greece	GR	5%
Greenland	GL	0%
Gibraltar	GI	0%
Guernsey	GG	0%
Ireland	IE	25%
Isle of Man	IM	0%
Israel	IL	25%
Italy	IT	26%
Jersey	JE	0%
Liberia	LR	15%
Liechtenstein	LI	0%
Luxembourg	LU	15%
Malta	MT	0%
Marshall Islands	MH	0%
Netherlands	NL	15%
Norway	NO	25%
Panama	PA	10%
Peru	PE	5%
Portugal	PT	25%
Puerto Rico	PR	10%
Singapore	SG	0%
Spain	ES	19%
Sweden	SE	30%
Switzerland	CH	35%
Taiwan	TW	21%
United Kingdom	GB	0%
United States	US	30%

[1] Withholding taxes are reviewed at an annual basis and else when needed

Eligible Exchanges

All regulated exchanges for the countries in scope of Custom Baskets as specified below.

Country	Country Code
Austria	AT
Belgium	BE
Denmark	DK
Finland	FI
France	FR
Germany	DE
Greece	GR
Ireland	IE
Italy	IT
Netherlands	NL
Norway	NO
Portugal	PT
Spain	ES
Sweden	SE
Switzerland	CH
United Kingdom	GB
United States	US

Appendix A

Country Specific Dividend treatments

United Kingdom:

Although regular dividends in the UK are not taxed, Property Income Distributions (PIDs) from Real Estate Income Trusts (REITs) are subject to a tax rate of 20%. A REIT can declare a distribution that is solely a PID, a mixture of a PID and ordinary dividend or a combination of the two. In all 3 scenarios, only the amount declared as PID is taxed in the calculation of a Net Return basket.

Switzerland:

In Switzerland it is common practice for companies to make distributions to shareholders in the form of Capital Returns. For the basket calculation purposes, if this is part of a company's regular dividend policy then they would follow the same treatment as regular dividends.