

# Nasdaq US Sustainable Momentum Index<sup>SM</sup> Methodology

## Index Description

The Nasdaq US Sustainable Momentum Index is designed to provide exposure to companies within the NASDAQ US Large Mid Cap Index that exhibit strong momentum.

## Index Calculation

The Nasdaq US Sustainable Momentum Index is a modified equal dollar weighting. The value of the Index equals the aggregate value of the Index share weights, also known as the Index Shares, of each of the Index Securities multiplied by each such security's Last Sale Price<sup>1</sup>, and divided by the divisor of the Index. The divisor serves the purpose of scaling such aggregate value to a lower order of magnitude which is more desirable for reporting purposes. The Index began on September 18, 2017, at a base value of 1,000.00.

The formula for index value is as follows:

Aggregate Adjusted Market Value/Divisor

The formula for the divisor is as follows:

(Market Value after Adjustments/Market Value before Adjustments) X Divisor before Adjustments

Three versions of the Index are calculated:

- The price return index (Nasdaq: NQSUMO) is ordinarily calculated without regard to cash dividends on Index Securities.
- The total return index (Nasdaq: NQSUMOT) reinvests cash dividends on the ex-date.
- The net total return index (Nasdaq: NQSUMON) reinvests cash dividends on the ex-date based on an Index security's country of incorporation withholding rate.

All Indexes reflect extraordinary cash distributions.

The Indexes are calculated during the trading day and are disseminated once per second from 09:30:01 to 17:16:00 ET. The closing value of the Index may change up until 17:15:00 ET due to corrections to the Last Sale Price of the Index Securities.

## Eligibility

Index eligibility is limited to specific security types only. The security types eligible for the index include common stocks, ordinary shares, depositary receipts, shares of beneficial interest and REITs.

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<sup>1</sup>For purposes of this document, Last Sale Price refers to the last regular way trade reported on such security's Index Market. The Index Market is the listing market for which prices are received and used by Nasdaq in the Index calculation and generally will represent the most liquid trading market of the Index Security. If a security does not trade on its Index Market on a given day or the Index Market has not opened for trading, the most recent last sale price from the Index Market (adjusted for corporate actions, if any) is used. For securities where Nasdaq is the Index Market, the Last Sale Price may be the Nasdaq Official Closing Price (NOCP) when Nasdaq is closed.

## Eligibility Criteria

To be eligible for inclusion in the Index, a security must meet the following criteria:

- be a component of the NASDAQ US Large Mid Cap Index (NQUSBLM);
- be in the top 15% of NQUSBLM in terms of the Sustainable Momentum (SUMO) Score or be in the top 35% if and only if a security is already in the Index (buffering process described below);
- one security per issuer is permitted<sup>2</sup>;
- may not have entered into a definitive agreement or other arrangement which would likely result in the security no longer being Index eligible;
- may not be issued by an issuer currently in bankruptcy proceedings; and
- additional proprietary eligibility are applied.

## Ranking Review

All securities in NQUSBLM are ranked by the Sustainable Momentum (SUMO) Score. The SUMO Score is a momentum score given to each security that is based on a series of intermediate factors and long term factors. The intermediate factors are the 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12 month risk adjusted returns. The long term factors are the 36, 48, and 60 month risk adjusted returns. The 12 month factor is adjusted for any security with high returns but abnormal volatility measures. The rolling six (6) month volatility relative to the universe (NQUSBLM) for the top securities in each of the factors are calculated (by highest return for the intermediate factors and lowest return for the long term factors) in order to determine a composite score. In other words, this allows for the process to calculate a composite score that takes into account intermediate term momentum as well as long term mean reversion. The process also systematically adjusts for bear market reversals. Each factor gets an individual SUMO score and the SUMO scores for all the factors are summed to create a composite SUMO Score.

## Index Evaluation

The Index is evaluated annually in March with data as of the end of February. In all the other months, the Index is evaluated to determine whether or not it is in a high volatility regime. The ratio of the 1 month to 12 month standard deviation of the daily returns of NQUSBLM are calculated, and if this ratio is greater than two standard deviations of the trailing seven year average of this ratio, then the Index is in a high volatility regime. If the Index is in a high volatility regime, then it is rebalanced in that month.

If there is a rebalance in any month other than the annual Evaluation, the above Eligibility Criteria are applied using market data through the end of the most recent month end. Securities meeting the criteria are included in the Index. Security additions and deletions are made effective after the close of trading on the third Friday in the following month.

Additionally, if at any time during the year other than the Evaluation, an Index Security no longer meets the Eligibility Criteria, or is otherwise determined to have become ineligible for inclusion in the Index, the security is removed from the Index and is not replaced. Ordinarily, a security will be removed from the Index at its Last Sale Price. If, however, at the time of its removal the Index Security is halted from trading on its primary listing

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<sup>2</sup> If an issuer has multiple securities, the security with the highest dollar trading volume will be selected for possible inclusion into the Index.

market and an official closing price cannot readily be determined, the Index Security may, in Nasdaq's discretion, be removed at a zero price. The zero price will be applied to the Index Security after the close of the market but prior to the time the official closing value of the Index is disseminated, which is ordinarily 17:16:00 ET.

### **Index Maintenance**

Index Share changes are not made during the quarter however changes arising from stock dividends and stock splits are made to the Index on the evening prior to the effective date of such corporate action. In the case of certain spin-offs or rights issuances, the price of the Index Security is adjusted and a corresponding adjustment is made to the Index Shares such that the weight of the Index Security does not change as a result of the action. However, for a spin-off event, if there is a no when-issued trading available for the spin-co security, the spin-co security may be added to the index at a zero value. In this case, the spin-co security will be removed from the Index after two full days of trading.

A special cash dividend announced by the listing exchange, will result in an adjustment to the Last Sale Price of an Index Security prior to market open on the ex-date for the special amount distributed. A corresponding adjustment will be made to the Index Shares of the security such that the weight of the Index Security will not change as a result of the action. A special dividend may also be referred to as extra, extraordinary, non-recurring, one-time, unusual, etc.

Ordinarily, whenever there is a change in an Index Security or a change to the price of an Index Security due to spin-offs, rights issuances or special cash dividends as mentioned above, the divisor is adjusted to ensure that there is no discontinuity in the value of the Index which might otherwise be caused by any such change. All changes are announced in advance and are reflected in the Index prior to market open on the Index effective date.

### **Index Weighting**

The Index employs a modified equal dollar weighting methodology.

Depending on the volatility regime that the Index is in, either the securities that are in the top 15% of the SUMO Scores are selected to be in the final basket or a buffer process is implemented. If the Index is in a high volatility regime, then the top 15% securities are selected and their weights are set to the target weight. The target weights are such that the securities in the top 10% of the SUMO Scores get 75% of the weight (equally weighted within the top 10%) and securities between 10-15% quantile get 25% of the weight (equally weighted within the quantile). The buffer process is such that all the existing weight of securities outside of the 35<sup>th</sup> percentile by their most recent month end SUMO rank as well as those securities whose existing weight exceeds 5% is aggregated ("excess weight"). This excess weight is distributed such that if a security that is currently in the index is within the top 35% of the SUMO ranks and its existing weight in the Index is less than the target weight, then its weight is set to the target weight. Otherwise, if the current weight is greater than the target weight, then the security remains at its current weight.

Additionally, if a security's weight is greater than 5%, then its weight is set to 3%. This buffer process is applied to all securities until there is no more excess weight left to be distributed. If the Index is in an annual rebalance and the Index is not in a high volatility regime, then the final weights of the securities are the weights derived from the buffering process. Otherwise, if the Index is in a high volatility regime, then the final weights of the securities are the target weights.

At the rebalancing, the Index is rebalanced such that the weights described in the above Ranking Review section for each Index security are applied.

The weighting methodology is applied to the capitalization of each Index Security, using the Last Sale Price of the security at the close of trading on the month end in February (for annual rebalance) or any other month if there is a rebalance due to the Index being in a high volatility regime.

Index Shares are then calculated multiplying the final weight of each security derived above by the new market value of the Index and dividing that by its corresponding Last Sale Price. The changes are effective after the close of trading on the third Friday in March or third Friday in any other month if a rebalance under the volatility regime determination is required.

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in order to ensure Index integrity.

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