MarketVector™

INDEX GUIDE

MarketVector™ Global Quantum Leaders Index

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Contents

Regulation and Disclosures

Regulation

In accordance with Art. 13 No. 1 (a) of Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 (the "Benchmark Regulation"), this document provides the rules for establishing, calculating and maintaining the MarketVector™ Equity Index family, which is comprised of MVIS®, MarketVector™ and BlueStar® Indexes (together the "Indexes").

MarketVector Indexes GmbH (the "Index Owner") makes no warranties or representations as to the accuracy and/or completeness of the Indexes and does not guarantee the results obtained by persons using the Indexes in connection with trading funds or securities. The Index Owner makes no representations regarding the advisability of investing in any fund or security.

The Index Owner reserves the right to update the rules in this Index Guide at any time. The Index Owner also reserves the right to make, in exceptional cases or in temporary situations, exceptions to the rules in this Index Guide. The Indexes are the property of MarketVector Indexes GmbH. The Index Owner has selected an index calculator to calculate the Indexes.

MVIS® and BlueStar® are registered trademarks of Van Eck Associates Corporation and therefore protected globally against unlawful usage. The use of Indexes from the MarketVector Index family in connection with any financial products or for benchmarking purposes requires a license. Please contact MarketVector Indexes GmbH for more details.

Approval of Index Methodologies

The Index Owner has established the Indexes and their individual methodology covered in this Index Guide. A detailed written "Procedure for Index Development" describes the steps and approvals required to develop, document and approve an Index and its methodology. The intention of the Procedure for Index Development is to ensure that the methodology of an Index meets the requirements of Art. 12 of the Benchmark Regulation and is approved and implemented according to a robust and reliable process. The methodology for each index and its methodology covered in this Index Guide has been analysed by the Index Owner's Index Operations department in order to ensure that it is robust and reliable, has clear rules on use of discretion, allows sustainable validation (based on reasonable back testing) and is traceable and verifiable. Furthermore, the size, liquidity and transparency of the underlying market for each methodology has been tested and particular circumstances for each relevant market have been taken into account.

Each index methodology and the related detailed analysis was presented by the Index Operations Department to the Independent Oversight Function for its approval. Based on the aforementioned approval process and its documentation each Index Methodology was presented to the Management Board (Geschäftsführer) of the Index Owner for final approval.

Review of this Index Guide

According to Art. 13 No. 1 (b) of the Benchmark Regulation, the Index Owner reviews this Index Guide on an annual basis and immediately in case of special circumstances that require a review. The review takes place in meetings attended by the Independent Oversight Function and the Management Board of the Index Owner. If changes to this Index Guide are considered necessary, the process described in Section 5.5 applies.

1 Index Description

The MarketVector™ Global Quantum Leaders Index is a thematic index tracking the performance of companies primarily focused on the development of quantum computing technology or are leaders in ownership of quantum computing related patents.

1.1 Index Universe

1.1.1 Pure-Play/Thematic Screening

The index only includes companies with at least 50% (25% for current components) of their revenues or operating activity from quantum computing technology or services, or have at least five patents related to quantum computing technology.

"Quantum computing" refers to the development of hardware, software, and technologies that utilize the principles of quantum mechanics to perform computations based on quantum mechanical states, rather than the traditional binary framework of classical computing. Quantum computing technologies include, but are not limited to:

- research, design, and manufacturing of quantum computers and related hardware systems,

- application of quantum computing in areas such as scientific research, optimization, and secure communications,

- integration and interaction of quantum computing with traditional computing systems,

- development of specialized software and algorithms tailored for quantum computing hardware, and/or

- creation of quantum-enhanced encryption algorithms and cybersecurity solutions

Patent data used in this index is sourced from EconSight AG. EconSight AG is a provider of data, analytics, and insights including a patent portfolio of active total Quantum Computing Technology patents of publicly traded companies. The patent data used is as of the 15th of the month prior to a review. If, for any reason, the data is not available the data from the previous review is used.

Furthermore, companies that are included in the China universe of the MarketVector™ Total Global Equity Index are not eligible for inclusion in this index.

1.1.2 Exclusion Criteria

The index universe will include only common securities and securities with similar characteristics from financial markets that are freely investable for foreign investors and that provide real-time and historical component and currency pricing, excluding:

- Limited Partnerships (LPs).

1.1.3 Exchange Eligibility

Due to certain restrictions security listings on exchanges in the following countries do not qualify for the index universe: Bahrain, China (domestic market), India, Kuwait, Luxembourg, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, and Vietnam.

Furthermore, securities listed on the following exchanges or exchange segments are not eligible for this index: Paris Euronext Auction, Hamburger Boerse, Boerse Berlin, Oslo Euronext Growth, London Stock Exchange (AIM, AIMI, ASQ1, ASQ2, ASX1, ASXN, SFM2, SFM3, SSQ3, SSX3, SSX4, EQS).

Companies from financial markets that are not freely investable for foreign investors or that do not provide real-time and historical component and currency pricing may still be eligible if they have a listing on an eligible exchange and if they meet all the size and liquidity requirements on this exchange.

1.1.4 ESG Screening

The index considers ESG factors as detailed in section 7.2. MarketVector Indexes utilizes ESG data provided by ISS. The index does not consider companies that derive at least 50% of their revenue from the defense industry and violate certain ESG criteria included in the following categories: Norm-based research and controversial weapons. Further, companies that are not covered by ISS or for which all relevant data fields are not collected by ISS may be eligible for inclusion.

1.2 Investable Universe

1.2.1 Market Capitalization and Liquidity Criteria

Securities must meet the following size and liquidity requirements to be included in the investable universe. If composite country volume data exists, it will be used to identify the investable universe.

All of the following applies for securities that are currently not included in the index:

- free-float of at least 10%,

- full market capitalization exceeding 150.00 million USD (100.00 million USD for companies with at least 50% of revenue or operating activity from quantum computing technology or services),

- a three-month average daily trading volume of at least 1.00 million USD (0.25 million USD for companies with at least 50% of revenue or operating activity from quantum computing technology or services) at the current quarter and at the previous two quarters, and

- at least 0.25 million shares (0.20 million shares for companies with at least 50% of revenue or operating activity from quantum computing technology or services) traded per month over the last six months at the current quarter and at the previous two quarters.

All of the following applies for securities already in the index:

- free-float of at least 5%,

- a full market capitalization exceeding 75.00 million USD, and

- a three-month average daily trading volume of at least 0.20 million USD in at least two of the latest three quarters (current quarter and at the previous two quarters).

In addition, at least one of the following applies for securities already in the index:

- a three-month average daily trading volume of at least 0.60 million USD (0.20 million USD for companies with at least 25% of revenue or operating activity from quantum computing technology or services) at the current quarter or at one of the previous two quarters, or

- at least 0.20 million shares traded per month over the last six months at the current quarter or at one of the previous two quarters.

1.2.2 Initial Public Offerings, Special Purpose Acquisition Companies, and Spin-Offs

Modified investability rules are applied for recent Initial Public Offerings (IPOs), spin-offs and post-merger/acquisition Special Purpose Acquisition Companies (SPACs). Such companies qualify for fast-track addition to the investable universe once; either at the next regularly scheduled review if it has been trading since at least the last trading day of the month two months prior to the review month or else at the following regularly scheduled review. In order to be added to the index the IPO security has to meet all of the following size and liquidity requirements:

- the IPO must have a full market capitalization exceeding 150.00 million USD (100.00 million USD for companies with at least 50% of revenue or operating activity from quantum computing technology or services),

- the IPO must have a free-float factor of at least 10%,

- the IPO must have an average daily trading volume of at least 1.00 million USD (0.25 million USD for companies with at least 50% of revenue or operating activity from quantum computing technology or services), and

- the IPO must have traded at least 0.25 million shares (0.20 million shares for companies with at least 50% of revenue or operating activity from quantum computing technology or services) per month (or per 22 days).

This rule is applicable for newly spun-off companies and post-merger/acquisition SPACs (using the merger/acquisition date like an IPO date) as well.

1.3 Eligible Universe

1.3.1 Share Class

One share class of each company in the investable universe is included in the eligible universe. In case more than one share class fulfills the above specified market capitalization and liquidity rules, only the largest share class by free-float market capitalization qualifies for the eligible universe. In exceptional cases (e.g. significantly higher liquidity), the Index Owner can decide for a different share class.

In case the free-float market capitalization of a currently not included share class of an index component

- exceeds the free-float market capitalization of the currently selected share class by at least 25%, and
- fulfills all market capitalization and liquidity eligibility criteria for non-components

the currently selected share class will be replaced by the larger one.

In exceptional cases (e.g. significantly higher liquidity), the Index Owner can decide to keep the current share class instead.

1.3.2 Pricing Source

For each company in the investable universe one pricing source qualifies for the eligible universe. In cases where a company has multiple listings (e.g. ADRs, GDRs, or listings on markets other than in the home country), the price sources will be selected to the eligible universe in the following order:

1. US price source,
2. UK price source - London Stock Exchange International Order Book (IOB) only,
3. Home-market price source,
4. Most liquid foreign-market price source.

Once a company has qualified for the investable universe, only the most liquid single exchange price source within the country qualifies for the eligible universe.

In exceptional cases, the Index Owner can assign alternative pricing sources.

2   Index Review

2.1   Review Schedule

Components of the index are reconstituted and rebalanced on a quarterly basis in March, June, September, and December according to the following schedule:

1. The eligible universe and component selection is determined based on the closing data on the last business day in February, May, August, and November. If a security does not trade on the last business day in February, May, August, or November, the last available price for this security will be used.

2. Component weights are determined based on closing data as of the Wednesday prior to the second Friday of March, June, September, and December. If a security does not trade on the Wednesday prior to the second Friday of March, June, September, and December, the last available closing data for this security will be used.

3. The underlying review and rebalance data (i.e. weights, shares outstanding, free-float factors, and new weighting cap factors) is announced on the second Friday of March, June, September and December.

4. Changes will be implemented and based on the closing prices as of the third Friday of March, June, September, and December. If the third Friday is not a business day, the review will take place on the last business day before the third Friday. If a security does not trade on the third Friday of March, June, September, or December, then the last available price for this security will be used. Changes become effective on the next index dissemination day.

2.2   Selection Procedure

Upon an index reconstitution, securities included in the eligible universe are selected to the index based on the following procedure. The index targets a coverage of 30 components.

1. The 15 largest securities based on free-float market capitalization with at least 50% (25% for current components) of revenue or operating activity from quantum computing technology or services are selected to the index.

2. If there are fewer than 15 eligible securities with at least 50% (25% for current components) of revenue or operating activity from quantum computing technology or services, all such eligible securities will be selected to the index.

3. Additional securities are added based on the following procedure:

    (a) All remaining eligible securities are sorted based on the number of quantum computing related patents (if two securities have the same number of patents, the one with the larger free-float market capitalization is placed on top). Securities are assigned a rank with the company at the top of the list receiving a rank of 1.

    (b) The highest ranking securities are selected to the index until a total of 20 (inclusive of securities selected in the step above) are selected.

    (c) Current index components ranking in the top 40 are also selected to the index.

    (d) If fewer/greater than 30 securities have been selected to the index the highest/lowest ranking securities are added/removed until a total of 30 securities have been selected.

4. In case the number of eligible securities is below the minimum of 30, additional securities are added by the Index Owner's decision until the number of securities selected to the index reaches the minimum of 30 components.

2.3   Weighting Scheme

Upon an index rebalance,components selected to the index will be weighted according to a tiered modified float-adjusted market cap weighting strategy as follows where companies with at least 50% (25% for current components) of revenue or operating activity from quantum computing technology or services are referred to as "Quantum Computing", while all other stocks are referred to as "Quantum Computing patents":

- The maximum security weight is the lesser of:

    - 8% for "Quantum Computing" or 4% for "Quantum Computing patents"
    - the security's three-month average daily trading volume in USD divided by 750.00 million.

- The minimum weight of "Quantum Computing" is 20% and the maximum weight of "Quantum Computing patents" is 80%.

- Components are weighted in proportion to their free-float adjusted market capitalization.

- If the aggregate weight of components in any tier is greater/less than the maximum/minimum tier weight, the weight of components in that tier will be reduced/increased in proportion to their free-float adjusted market capitalization so that the aggregate weight of components in that tier is equal to the maximum/minimum tier weight. The excess weight is redistributed proportionally among remaining tiers and this process is repeated until the aggregate weight of all tier weights equals 100% and no tier weight violates its maximum/minimum tier weight.

- If a security's weight exceeds the maximum weight, the weight will be reduced to the maximum weight and the excess weight will be redistributed among uncapped and components equally within the security's respective tier. This process is repeated until the sum of all components' weights is equal to 100% and no component's weight exceeds the maximum security weight.

- The maximum weight of components takes precedence over tier weights. In case the fixed tier weights create a conflict with the maximum component weights, tier weights may be adjusted accordingly (on a proportional basis) to allow the aggregate weight of all index components to equal 100% while satisfying all other capping scheme constraints.

The nominal value used in the liquidity overlay may be adjusted downward to allow the aggregate weight of all index components to equal to 100% while satisfying all other capping scheme constraints.

3 Index Dissemination and Identifiers

This index is calculated on weekdays between 01:00 and 22:40 (CET) and index values are disseminated to data vendors every 15 seconds on days when either the US equity market is open for trading or at least one of the index components is available for trading.

The index is disseminated in USD.

Real-time index values are calculated with the midpoint between the latest available real-time bid- and ask-prices. The closing values for this index are calculated at 22:40:00 CET with fixed 16:00 London time exchange rates from WM company.

The MarketVector™ Global Quantum Leaders Index is calculated as a price return index and a total return net index and has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Price Return Index	DE000SL0P350	BS2KQ50	SL0P35	MVQTML	.MVQTML
Total Return Net Index	DE000SL0P368	BS2KSZ4	SL0P36	MVQTMLTR	.MVQTMLTR

The index was launched on February 11, 2025 with a base index value of 1000.00 as of December 31, 2018.

4 General Definition

4.1 Free-Float

The indexes are free-float adjusted - the number of shares outstanding is reduced to exclude closely held shares (amount larger than 5% of the company's full market capitalization) from the index calculation.

At times, other adjustments are made to the share count to reflect foreign ownership limits or sanctions. These are combined with the block-ownership adjustments into a single factor. To avoid unwanted double counting, either the block-ownership adjustment or the restricted stocks adjustment is applied, whichever produces the higher result.

Free-float factors are reviewed quarterly.

4.2 Index Types/Dividend Payments

The total return index includes all dividend payments (for the total return net indexes on a net-dividend basis, i.e., net dividend equals declared dividend less withholding tax, and for the total return gross indexes on a gross-dividend basis, i.e., gross dividend equals declared dividend) and the price return index only includes special dividends from non-operating income or cash dividends that are either declared as special or extraordinary, or do not coincide with the company's regular dividend distribution schedule.

Australian companies may pay dividends with or without franking credits (unfranked, partially franked or fully franked) attached. Withholding tax will only be applied on the unfranked portion of the dividend but not on the franked portion of the dividend or unfranked portion of the dividend declared to be conduit foreign income.

For the most recent list of withholding taxes, please refer to our website (www.marketvector.com/withholding-taxes).

If the dividend amount for an index component is not available on the ex-date, an amount of zero will be applied. If for the same index component the dividend amount is available after the ex-date and applied to the price of this company, there will still be no adjustment to the index on this day either.

For dividends of Japanese and South Korean companies a post ex-date dividend adjustment is in place due to fact that they do not confirm their dividends prior to the ex-date. The delta amount between the confirmed and estimated dividend amount will be applied by using the index dividend points calculated with the number of shares on the dividend ex-date. In regards to the post ex-date dividend adjustment the historical index levels are not restated.

5   Ongoing Maintenance

5.1   Changes to Free-Float Factors and Number of Shares

Changes to the number of shares or the free-float factors due to corporate actions like stock dividends, splits, rights issues, spin-offs etc. are implemented on the ex-date.

Any secondary issuance, share repurchase, buy back, tender offer, Dutch auction, exchange offer, bought deal equity offering or prospectus offering will be updated at the quarterly review if the change is smaller than 10%. Changes larger than 10% will be pre-announced (three trading days notice) and implemented on the first dissemination day of the following month (on a best effort basis). If necessary and information is available, resulting float changes will be taken into consideration.

Share changes that result from M&As shall impact all indexes of the MarketVector™ Equity Index family that contain affected companies on the merger effective date with no weighting cap factor change; the 10% share change restriction is removed. Nevertheless, share changes due to M&As in the MarketVector™ Total Global Equity Index or its derived subset indexes may not result in adjustments to other indexes, nor may changes in other indexes have any effect on them.

5.2   Changes due to Mergers & Takeovers

A merger or takeover is deemed successful if it has been declared wholly unconditional and has received approval of all regulatory agencies with jurisdiction over the transaction. The result of a merger or takeover is typically one surviving security and one or more non-surviving securities that may not necessarily be delisted from the respective trading system(s).
The following treatments are applied for mergers and takeovers containing stock terms:

- If an index component merges with or takes over another index component:

  The surviving security remains in the index and the other security is deleted immediately from the index. Its shares and float are adjusted according to the terms of the merger/takeover. The index market capitalization of the merged company corresponds to the market capitalization of the two separate companies.

- If a non-index component merges with or takes over an index component:

  – If the surviving security meets the eligible index universe requirements, it will be added to the index. Its shares and float will be adjusted according to the terms of the merger/takeover and will replace the current index component.

  – If the surviving security does not meet the eligible index universe requirements, it will not be added to the index and the current index component will be deleted immediately from the index.

The following treatments are applied for mergers and takeovers with cash terms only:

- If a non-index component merges with or takes over an index component:

  – The index component will be deleted.

5.3   Changes due to Spin-Offs

The spun-off company will be added to the index where the parent company is an index constituent according to the transaction terms, with a price of zero, on the ex-date. If the spun-off does not start trading on the ex-date a fixed indicative price will be used until the first trading day. If an indicative price is not possible to be calculated the spun-off company will be added with a price of zero to the index. If the spun-off does not qualify for the index it will be deleted after two trading days based on its respective closing price.

5.4   Additions due to Replacements

On an ongoing basis, for all corporate events that result in a security deletion from the index, the deleted security will be replaced with the highest ranked non-component on the most recent selection list immediately only if the number of components in the index would drop below 20. The replacement security will be added at the same weight as the deleted security. Only in case the number of components drops below its minimum due to a merger of two or more index components, the replacement security will be added with its uncapped free-float market capitalization weight.

In all other cases, i.e. there is no replacement. The additional weight resulting from the deletion will be redistributed proportionally across all other index constituents.

In case the number of index components drops below the minimum component number and no non-component security is eligible as a replacement, the determination of the addition is subject to the Index Owner's decision.

5.5   Changes to the Index Guide

Any changes to the Index Guide will be reviewed and approved by the Legal and Compliance Department. Legal and Compliance may also request a conclusive description and further information on any change and may consult the operations department on such changes. The key elements to be analyzed in this phase of the change process are robustness, transparency, reliability and integrity. The result of the review will be communicated to the operations department. The email will be archived by the operations department.

In case of changes that might immediately change the composition of an index or must be considered material for any other reason also need to be approved by the Independent Oversight Function ("IOF") prior to their publication and implementation.

In case of material changes an advance notice will be published and provided to users. MarketVector Indexes will generally disseminate a notification related to an Index Guide change 30 days prior to the change. A shorter period of time may be applied at MarketVector Indexes' discretion if the relevant index has not been licensed for a financial product to a third party. The notice will describe a clear time frame that gives the opportunity to analyze and comment upon the impact of such proposed material change. Any material comments received in relation to the Index Guide change and MarketVector Indexes' response to those comments will be made publicly accessible after any consultation, except where confidentiality has been requested by the originator of the comments.

5.6   Discretion regarding the Use of Input Data

Pursuant to Art. 12 No.1. (b), MarketVector Indexes has established the following rules identifying how and when discretion may be exercised in the administration of an index.

In case input data are or appear to be qualitatively inferior or different sources provide different data, an extraordinary event, or a situation is not covered by the index rules, MarketVector Indexes may use or change data/index composition at its own discretion according to the following discretion policy after a plausibility check. Regarding input data, this may include:

- Liquidity and size data,

- Ownership structures,

- Revenue and asset breakdowns,

- Corporate action information,

- Dividends, volatility and other secondary data.

Regarding extraordinary events, this may include:

- Trading stops,

- Regulatory actions,

- Detection of fraud,

- Tradability,

- Etc.

Any changes must subject to reasonable discretion. The decision on any change must be required, appropriate, commensurable and in line with the respective index scope and objective and must reasonably consider in a balance weight the interest of Users, investors in related products and the integrity of the market.

Index operations ensures consistency in the use of discretion in its judgement and decision. Employees involved in the operations team must have shown the respective experience and skills. Significant decisions are subject to sign-off by a supervisor. In case of material changes to data the relevant situation will be analyzed in detail, described and presented to the IOF and discussed and reviewed with the IOF.

The broad range of possible data quality problems does not allow to define specific steps for each possible instance. MarketVector Indexes will always weight the different interest of the index users, the integrity of the market and other involved parties and determine the least disadvantageous measure that equally considers the relevant interests best.

In order to avoid individual decisions on the use of data in similar cases for the future an update of the index rules can be taken into consideration if applicable. Other possible mitigation measures are the change of input data sources or providers and/or own data research where possible and reasonable.

Records are kept about material judgement or discretion by MarketVector Indexes and will include the reasoning for said judgement or discretion.

5.7   Input Data and Contributor Selection

According to the input data requirements under Art. 11 of the Benchmark Regulation, the following shall apply with regard to the input data used for the management and provision of an index and the relevant input data providers ("Contributors"):

- the input data shall be sufficient to represent accurately and reliably the market or economic reality that the benchmark is intended to measure;

- the input data shall be transaction data, if available and appropriate. If transaction data is not sufficient or is not appropriate to represent accurately and reliably the market or economic reality that the index is intended to measure, input data which is not transaction data may be used, including estimated prices, quotes and committed quotes, or other values;

- the input data shall be verifiable;

- clear guidelines regarding the types of input data, the priority of use of the different types of input data and the exercise of expert judgement, to ensure compliance with the Index Guide and index methodology and the aforementioned requirements are defined in the Code of Conduct for Contributors; and

- where an index is based on input data from Contributors, MarketVector Indexes will obtain, where appropriate, the input data from a reliable and representative panel or sample of Contributors so as to ensure that the resulting index is reliable and representative of the market or economic reality that the index is intended to measure.

In order to control the quality of contributors, MarketVector Indexes will conduct the following controls:

- Evaluate market share, reputation, quality and cost of possible input data sources and providers before selecting them on the basis of the gathered information and data;

- Compare the input data of one Contributor with the input data from one or more other Contributors in order to ensure the integrity and accuracy of the input data and in case of bad quality replace a Contributor with another Contributor.

MarketVector Indexes will not use input data from a contributor if it has any indication that the Contributor does not adhere to its Code of Conduct for Contributors and in such a case shall obtain representative publicly available data.

6   Calculation

6.1   Index Formula

The index is calculated using the Laspeyres' formula:

$$Index\ Value = \frac{\sum_{i=1}^{n} p_i * q_i * ff_i * cf_i * fx_i}{D} = \frac{M}{D}.$$

Where (for all securities (i) in the index):

p_i = security price,
q_i = number of shares,
ff_i = free-float factor,
fx_i = exchange rate (local currency to index currency),
cf_i = weighting cap factor (if applicable, otherwise set to 1),
M = free-float market capitalization of the index,
D = divisor.

6.2   Input Data

The following rounding procedures are used for the index calculation:

- Rounding to 2 decimal places:
    - index values,
    - free-float factors (ff_i),
- Rounding to 4 decimal places:
    - security prices (p_i),
- Rounding to 6 decimal places:
    - divisors (D),
- Rounding to 12 decimal places:
    - exchange rates (fx_i),
- Rounding to 16 decimal places:
    - company-weighting cap factors (cf_i).

6.3   Divisor Adjustments

Index maintenance - reflecting changes in shares outstanding, capital actions, addition or deletion of securities to the index - should not change the level of the index. This is accomplished with an adjustment to the divisor. Any change to the securities in the index that alters the total market value of the index while holding security prices constant will require a divisor adjustment.

$$Divisor_{new} = Divisor_{old} * \frac{\sum_{i=1}^{n} p_i * q_i * ff_i * cf_i * fx_i \pm \Delta MC}{\sum_{i=1}^{n} p_i * q_i * ff_i * cf_i * fx_i}.$$

ΔMC = Difference between closing and adjusted closing market capitalization of the index.

6.4   Corporate Action Related Adjustments

Corporate actions range widely from routine share issuances or buy backs to unusual events like spin-offs or mergers. These are listed on the table below with notes about the necessary changes and whether the divisor will be adjusted.

p_i = security price,

q_i = number of shares.

- Cash dividend (for total return indexes only)   Divisor change: Yes

  $$p_{(i,adjusted)} = p_i - (Dividend * (1 - Withholding\ Tax))$$

  (In total return gross indexes the withholding tax is 0.)

- Special cash dividend (for price and total return indexes)   Divisor change: Yes

  $$p_{(i,adjusted)} = p_i - (Dividend * (1 - Withholding\ Tax))$$

  (In total return gross indexes the withholding tax is 0.)

- Split   Divisor change: No

  Shareholders receive 'B' new shares for every 'A' share held.

  $$p_{(i,adjusted)} = p_i * A/B$$

  $$q_{(i,adjusted)} = q_i * B/A$$

- Rights Offering   Divisor change: Yes

  Shareholders receive 'B' new shares for every 'A' share held. If the subscription-price is either not available or not smaller than the closing price, no adjustment will be made.

  $$p_{(i,adjusted)} = ((p_i * A) + (Subscription\ Price * B))/(A + B)$$

  $$q_{(i,adjusted)} = q_i * (A + B)/A$$

- Stock dividend (withholding taxes are applied, if applicable)   Divisor change: No

  Shareholders receive 'B' new shares for every 'A' share held.

  $$p_{(i,adjusted)} = p_i * A/(A + B)$$

  $$q_{(i,adjusted)} = q_i * (A + B)/A$$

- Stock dividend from treasury
  (withholding taxes are applied, if applicable)   Divisor change: Yes

  Stock dividends from treasury are adjusted as ordinary cash dividends. Shareholders receive 'B' new shares for every 'A' share held.

  $$p_{(i,adjusted)} = p_i - (p_i * B)/(A + B)$$

- Stock dividend of a different company security
  (withholding taxes are applied, if applicable)   Divisor change: No

  The shares of the different company will be added according to the terms.

- Addition/Deletion of a company   Divisor change: Yes

  Net change in free-float market value determines the divisor adjustment.

- Changes due to a merger/takeover   Divisor change: Yes

  Net change in free-float market value determines the divisor adjustment. In case of no change, the divisor change is 0.

- Spin-offs   Divisor change: No

  Shareholders receive 'B' new shares for every 'A' share held.

- Changes in shares outstanding   Divisor change: Yes

  Net change in free-float market value determines the divisor adjustment. In case of no change, the divisor change is 0.

With corporate actions where cash dividends or other corporate assets are distributed to shareholders, the price of the security will drop on the ex-dividend day (the first day when a new shareholder is eligible to receive the distribution.) The effect of the divisor adjustment is to prevent this price drop from causing a corresponding drop in the Index.

Corporate actions are announced at least four days prior to implementation.

6.5   Data Correction and Disruptions

MarketVector Indexes will usually receive information about errors or disruption from calculation agent, client, internal systems (IT) or by monitoring the respective output.
Incorrect or missing input data will be corrected immediately:

- The error is immediately communicated to the calculation agent, if applicable.

- Calculation agent will be asked to investigate the reason for the error.

- An email will be sent to all affected clients to inform them about the error; this includes the reason for the issue and an estimate on when the issue will be solved.

- MarketVector Indexes recalculates missing EOD data points and disseminates to vendors and clients.

In case of a material error,

- Legal and Compliance to check the relevant agreements for liability of the calculation agent.

- If MarketVector Indexes identifies any conduct that may involve manipulation or attempted manipulation of an index by calculation agent it will report this to the regulator.

- Where possible and economically reasonable MarketVector Indexes will try use another calculation agent.

Investigations and communication regarding disruptions with calculation agents will be handled by Compliance and Senior Management. They are either caused by disruptions in calculation or dissemination, which might affect different servicers.

- The disruption is immediately communicated to the calculation/dissemination agent, if applicable.

- Calculation/dissemination agent will be asked to investigate the reason for the disruption.

- An email will be sent to all affected clients to inform them about the disruption; this includes the reason for the issue and an estimate on when the issue will be solved.

- MarketVector Indexes prompts calculation agent to make all efforts to restart index calculation.

- MarketVector Indexes prompts Dissemination agent to make all efforts to restart index dissemination.

- MarketVector Indexes recalculates missing EOD data points and disseminates to vendors and clients.

- Legal and Compliance to check the relevant agreements for liability of the calculation/dissemination agent.

- If MarketVector Indexes identifies any conduct that may involve manipulation or attempted manipulation of an index by calculation/dissemination agent it will report this to BaFin.

- Where possible and economically reasonable MarketVector Indexes will try use another calculation and/or dissemination agent.

7   Appendix

7.1   Changes to the Index Guide

This table contains all changes to the index guide after January 1, 2018 when the European Benchmark Regulation became effective.

Date	IG Version	Change
-	-	-

7.2   ESG Filters

Key Elements of the benchmark methodology for the indexes in this table reflect environmental, social and governance (ESG) factors.

Data standards used:

- Data Input: MarketVector Indexes sources ESG data externally from ISS, where data is not available, best efforts is made to model required data.

- Verification and quality of data: The provider of ESG-related data input is selected by the Administrator based on an assessment of its existing processes in order to ensure the reliability and representativeness of the ESG-related data. The data provider has established processes in accordance with accepted and established market standards that ensure the permanent quality and reliability of the ESG-data provided.

- Reference standards: ISS Norm-Based Research framework consists of the Principles of the UN Global Compact, the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles for Business and Human Rights, and is embedded in the Sustainable Development Goals.

Category	Field name	Description	Filter
Norm-Based Research	NBSOverallScore	NBR Overall Score: This factor assigns a 1-10 score to an issuer based on the issuer's link with any violations of international standards. Score 10 aligns with a Red flag; scores from 6 to 9 align with the Amber flag; scores from 2 to 5 reflect an 'active' Green flag; and a score of 1 communicates a Green 'No allegation' signal.	IS <=8
Norm-Based Research	NBRUnionRightsSeverityIndicator	NBR Union Rights Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Union Rights. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBRWorkDiscrimSeverityIndicator	NBR Workplace Discrimination Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Workplace Discrimination. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBROverallSeverityIndicator	NBR Overall Severity Indicator: This factor is based on the worst Case Severity Indicator, which is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A

Norm-Based Research	NBRBriberySeverityIndicator	NBR Bribery Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Bribery. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBRChildLabourSeverityIndicator	NBR Child Labour Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Child Labour. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBREnvironProtSeverityIndicator	NBR Environmental Protection Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Environmental Protection. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBRFHumanRightsSeverityIndicator	NBR Fundamental Human Rights Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Fundamental Human Rights. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBRForcedLabourSeverityIndicator	NBR Forced Labour Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Forced Labour. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBRLabourStandSeverityIndicator	NBR Labour Standards Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Labour Standards. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A

Norm-Based Research	NBRMoneyLaunderSeverityIndicator	NBR Money Laundering Severity Indicator: This factor is based on the worst Case Severity Indicator within the Key Thematic Area Money Laundering. The Case Severity Indicator is a measure of the reported risk or impact on society or the environment, and takes into account the degree of corporate involvement. The 'Very Severe' value identifies instances where the company is reportedly causing/contributing to critical adverse impact. The 'Severe' value identifies instances where the company is reportedly causing/contributing significant adverse impact. The 'Moderate' value identifies instances where the company is causing/contributing to adverse impact, or linked to significant/critical adverse impact. The 'Potential' value identifies instances where the impact and/or corporate involvement have not been clearly determined.	N/A
Norm-Based Research	NBSIsLabourDiscriminationGender	NBR Assessment - Gender Discrimination: This factor identifies companies involved in one or more workplace gender discrimination controversies where there is verification by an authoritative body but the issue remains unaddressed; where the issuer has entered contract(s) that would, when actualised, lead to a failure to respect established norms; where there are credible allegations; where the failure to respect established norms has been verified, yet the issuer is implementing remedial measures; or where there are credible allegations but there is fragmentary information about the issuer's ongoing involvement.	N/A
Norm-Based Research	NBSIsLabourDiscriminationRacial	NBR Assessment - Racial Discrimination: This factor identifies companies involved in one or more workplace racial discrimination controversies where there is verification by an authoritative body but the issue remains unaddressed; where the issuer has entered contract(s) that would, when actualised, lead to a failure to respect established norms; where there are credible allegations; where the failure to respect established norms has been verified, yet the issuer is implementing remedial measures; or where there are credible allegations but there is fragmentary information about the issuer's ongoing involvement.	N/A
Norm-Based Research	AFLCIOBoycottList	This factor identifies issuers that have been listed on the AFL-CIO Boycott List	N/A
Controversial Weapons	APMinesOverallFlag	Anti-personnel Mines - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any anti-personnel mines programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	BiologicalWeaponsOverallFlag	Biological Weapons - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any biological weapons programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	ChemicalWeaponsOverallFlag	Chemical Weapons - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any chemical weapons programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	ClusterMunitionsOverallFlag	Cluster Munitions - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any cluster munitions programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	DepletedUraniumOverallFlag	Depleted Uranium - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any depleted uranium programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	IncendiaryWeaponsOverallFlag	Incendiary Weapons - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any incendiary weapons programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'

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Controversial Weapons	NuclearWeaponsNonNPTOverallFlag	Nuclear Weapons Outside NPT - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any nuclear weapons programme outside of the Non-Proliferation Treaty (NPT). The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Controversial Weapons	NuclearWeaponsOverallFlag	Nuclear Weapons Inside NPT - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any nuclear weapons programme inside of the Non-Proliferation Treaty (NPT). The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	N/A
Controversial Weapons	WhitePhosphorusOverallFlag	White Phosphorus Weapons - Overall Flag: This factor assigns an overall Red, Amber, or Green flag to an issuer based on the issuer's involvement in any white phosphorus weapons programme. The Overall Flag is determined by the lowest individual assessment signal within the issue area. For example, if the issuer is assigned both a Red signal and an Amber signal for different assessments in this issue area, the issuer's Overall Flag will be Red.	NOT 'RED'
Sector Screening	CivFAAmmunitionInvolvement	Civilian Firearms - Ammunition: This factor identifies issuers engaged in the production, distribution, or provision of services related to ammunition for civilian firearms. This factor covers any type of ammunition sold to the civilian market, including ammunition originally designed for military and law enforcement firearms.	N/A
Sector Screening	CivFAAssaultWeaponsInvolvement	Civilian Firearms - Assault Weapons: This factor identifies issuers engaged in the production, distribution, or provision of services related to assault weapons, which includes semi-automatic firearms that possess certain technical features as defined under the 1994 US Public Safety and Recreational Firearms Use Protection Act	N/A
Sector Screening	CivFAAutomaticInvolvement	Civilian Firearms - Automatic Firearms: This factor identifies issuers engaged in the production, distribution, or provision of services related to automatic firearms, which includes firearms that allow the user to fire more than one round of ammunition for every pull of the trigger	N/A
Sector Screening	CivFAHighCapMagazinesInvolvement	Civilian Firearms - High-Capacity Magazines: This factor identifies issuers engaged in the production, distribution, or provision of services related to high-capacity magazines, defined as magazines and other ammunition feeding devices such as ammunition belts or clips which have the capacity to hold more than ten rounds of ammunition	N/A
Sector Screening	CivFAInvolvement	Civilian Firearms - Any Tie: This factor identifies issuers engaged in the production, distribution, or provision of services related to civilian firearms. The 'Production' value identifies issuers engaged in manufacturing and producing civilian firearms, 'Distribution' includes issuers engaged in the reselling of civilian firearms, and 'Services' refers to issuers engaged in providing services for civilian firearms such as maintenance, repair, testing, transport, and similar activities.	N/A
Sector Screening	CivFARepeatingInvolvement	Civilian Firearms - Repeating Firearms: This factor identifies issuers engaged in the production, distribution, or provision of services related to repeating firearms, which includes firearms that fire only a single shot when the trigger is pulled and require manipulation of a manual reloading mechanism prior to repeated firing	N/A
Sector Screening	TobaccoRevShareMax	Tobacco - Revenue Share: This factor identifies the max percentage value of revenue derived from involvement in tobacco.	N/A
Energy Extractives	CoalMiningRevShareMaxThermal	Thermal Coal Mining - Total Maximum Percentage of Revenues: This factor provides the maximum percentage of recent-year revenues for the issuer's total involvement in thermal coal mining, including any exposure in Production or Services. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.	N/A
Sector Screening	GamblingRevShareMax	Gambling - Revenue Share: This factor identifies the max percentage value of revenue derived from involvement in gambling.	N/A
Energy Extractives	FossilFuelRevShareMax	Fossil Fuel - Total Maximum Percentage of Revenues: This factor provides the maximum percentage of recent-year revenues for the issuer's total involvement in fossil fuel, including any exposure in Production, Exploration, Distribution, and Services. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.	N/A
Energy Extractives	OilSandsRevShareMax	Oil Sands - Total Maximum Percentage of Revenues: This factor identifies the issuer's max percentage value of revenue derived from oil sands	N/A

| Sector Screening | MilitaryEqmtRevShareMax | Military Equipment and Services - Revenue Share: This factor identifies the max percentage value of revenue derived from involvement in military equipment and services. | N/A |
| Energy Extrac-tives | NuclearPowerUraniumRevShareMax | Nuclear Power - Uranium Mining Max Percentage of Revenues (%): This factor provides the maximum percentage of recent-year revenues for the company's involvement in uranium exploration, extraction, and processing. | N/A |

8 Disclaimer