MSCI ACWI IMI Virology Index

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Contents

1 Introduction

The MSCI ACWI IMI Virology Index (the 'Index') aims to represent the performance of a set of companies that are associated with research and development into, as well as the commercialization of anti-viral and vaccine products, which are used to treat a range of infectious diseases.

2 Constructing the Index

The Index is constructed by selecting securities from the MSCI ACWI Investable Market Index (IMI) (the 'Parent Index'[1]) based on the rules outlined below.

The Index selects companies which are assessed to have strong association with products from following two Therapy Sub-categories[2]. Such products are currently used to treat or are, based on consensus forecasts, expected to treat infectious diseases by means of anti-infectives[3]:

- Anti-Virals
- Vaccines

MSCI may seek input from outside market experts on the ongoing evolution of the themes underlying the Index. However, such input is advisory only in nature. MSCI alone decides whether to use such input at all or to what extent. Receipt of such input, like any other feedback on MSCI indexes, may or may not lead to a change to the index or index methodology.

2.1 Company Level Data

The Index uses the following company level data to determine the scores that are subsequently used in the index construction.

- Clinical Trials Information[4] – Clinical Trials where a company is either a lead sponsor, or alternatively, a collaborator with another commercial entity.
- Product Revenue Information[5]
    - Actual Product-level Revenue from company financial filings.
    - Forecast Product Revenue both from currently marketed products as well as from products which are still under development.

[1] Use of some indexes as Parent Indexes may result in a low number of constituents, which may affect replicability or investability.

[2] See Appendix 1 for definitions and more detail about Therapy Category

[3] See Appendix 1 for more detail on the use of Evaluate Pharma data and product classification.

[4] Clinical trials listed on following global registries are in scope : https://clinicaltrials.gov/, EUDRA - https://www.clinicaltrialsregister.eu/ctr-search/search and JAPIC - https://www.clinicaltrials.jp/cti-user/common/Top.jsp.

[5] See Appendix 1 for more detail.

- Mappings of Product to Therapy Category and/or to Indication levels[4]
- Mappings of Clinical Trials to Products.[4]

2.2 Eligible Universe

All securities from the Parent Index which belong to GICS® Sector[6] 'Health Care' are selected for the Eligible Universe.

2.3 Construction of the Anti-Viral Universe

2.3.1 Calculation of Security-level Scores

For the purpose of calculating security level scores, the *Category* is defined as all products and trials mapped to the Anti-Viral Therapy Sub-Category[7].

Security-level scores are calculated for each security in the Eligible Universe as per the procedure described in Appendix II.

2.3.2 Anti-Viral Universe

Securities from Eligible Universe which meet following conditions are then included in the Anti-Viral Universe.

- Category Score[8] >= 25% *or*
  Max (Category Share of Revenue, Category Share of Enrollments)[9] >= 1%.

2.3.3 Weighting of securities in Anti-Viral Universe

Securities in the Anti-Viral Universe are weighted by the product of their 'Category Score' and their float-adjusted market capitalization. The weights are then normalized to 100%.

2.4 Construction of Vaccine Universe

2.4.1 Calculation of Security-level Scores

For the calculation of Vaccine Universe, the *Category* is defined as all trials and products mapped to the Vaccine Therapy Sub-Category.

[6] For further information regarding GICS®, please refer to https://www.msci.com/gics

[7] See Appendix 1 for more details

[8] See Appendix 2 for more details

[9] See Appendix 2 for detailed definition of the scores

Security level scores are calculated for each security in the Eligible Universe as per the rules described in Appendix II.

2.4.2 Vaccine Universe

Securities from Eligible Universe which meet following conditions are then included in the Vaccine Universe.

- Category Score[10] >= 25% *or*
  Max (Category Share of Revenue, Category Share of Enrollments)[11] >= 1%.

2.4.3 Weighting of securities in Vaccine Universe

Securities in the Vaccines Universe are weighted by the product of their 'Category Score' and their float-adjusted market capitalization. The weights are then normalized to 100%.

2.5 Constructing the Index

2.5.1 Selected Universe

The Selected Universe is constructed by combining securities from 'Anti-viral' and 'Vaccine' Universes.

2.5.2 Determining the weights of the constituents of the Index

Securities in the Selected Universe are weighted as follows:

$$w_i^{Index} = 0.5 * w_i^{Anti-Viral} + 0.5 * w_i^{Vaccine}$$

where:

- w_i^{Index} *is the weight of stock i in the Virology Index*
- $w_i^{Anti-Viral}$ *is the weight of stock i in the Anti − Viral Universe*
- $w_i^{Vaccine}$ *is the weight of stock i in the Vaccine Universe*

2.5.3 Capping

Additionally, constituent weights are capped at the security level to mitigate concentration risk in the Index. The security weight in the Index is capped at 5% at each rebalance.

[10] See Appendix 2 for more details

[11] See Appendix 2 for detailed definition of the scores

3 Maintaining the Index

3.1 Semi-Annual Index Review

The Index is reviewed on a Semi-Annual basis in May and November and the changes are implemented at the end of May and November. In general, the pro forma Index is announced nine business days before the effective date.

During the Semi-Annual Index Review, the Eligible Universe, Anti-viral Universe, Vaccine Universe and the Selected Universe are updated.

In general, MSCI uses the latest available company data as of the previous end of the month date before rebalancing date of the semi-annual index review.

3.2 Ongoing event-related maintenance

The general treatment of corporate events in the Index aims to minimize turnover outside of Index Reviews. The methodology aims to appropriately represent an investor's participation in an event based on relevant deal terms and pre-event weighting of the Index constituents that are involved. Further, changes in Index market capitalization that occur as a result of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

The following section briefly describes the treatment of common corporate events within the Index.

No new securities will be added (except noted below) to the Index between Index Reviews. Parent Index deletions will be reflected simultaneously.

3.3 Missing Data Treatment

The data as of the previous month end is used for calculating the index. In case of unavailability of previous month-end data on a particular rebalance date, the latest available data is used.

EVENT TYPE	EVENT DETAILS
New additions to the Parent Index	A new security added to the Parent Index (such as IPO and other early inclusions) will not be added to the Index.
Spin-Offs	All securities created as a result of the spin-off of an existing Index constituent will be added to the Index at the time of event implementation. Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.
Merger/Acquisition	For Mergers and Acquisitions, the acquirer's post event weight will account for the proportionate amount of shares involved in deal consideration, while cash proceeds will be invested across the Index. If an existing Index constituent is acquired by a non-Index constituent, the existing constituent will be deleted from the Index and the acquiring non-constituent will not be added to the Index.
Changes in Security Characteristics	A security will continue to be an Index constituent if there are changes in characteristics (country, sector, size segment, etc.) Reevaluation for continued inclusion in the Index will occur at the subsequent Index Review.

Further detail and illustration regarding specific treatment of corporate events relevant to this Index can be found in the MSCI Corporate Events Methodology.

The MSCI Corporate Events methodology book is available at: https://www.msci.com/index-methodology.

Appendix I Data sources and data definitions

Data sources used in index construction

The Index uses company-level pharmaceutical product and clinical trials data provided by Evaluate via the data services: Omnium Risk, Evaluate Omnium and Omnium Return.

Evaluate[12] is a leading provider of commercial intelligence and analytics about the global pharmaceutical industry through its Evaluate Pharma and Evaluate Omnium services. Evaluate Pharma offers a perspective on the pharmaceutical market's historic and potential future development by providing five-year consensus forecasts, company financials, pipeline estimates and deals data. Evaluate Omnium provides a gauge of the development risk and potential commercial opportunity across the phases of the clinical lifecycle.

Definition of company level product and trials data items

Product Classification by 'Therapy Category' and 'Therapy Sub-Category'

Evaluate Pharma (EP) classifies products into a 'Therapy Category' based on scientific standards, industry consultations and feedback from EP customers. A 'Therapy Category' is further divided into a set of smaller 'Therapy Sub-Categories'. This mapping is based on the primary indication and therapeutic activity of the product. There is a one-to-one relation between a product and the therapeutic category. For example, 'Anti-Infectives' is a 'Therapy Category'. 'Anti-Virals' and 'Vaccines' are two 'Therapy Sub-Categories' under 'Anti-Infectives'.

'Product to Indication' mapping

This is based on a comprehensive analysis by EP of different sources such as company disclosed data, government agency data (for example, clinicaltrials.gov) and broker reports. Each product can be mapped to multiple indications.

Product/Clinical Trial mapping

EP maps a product to a clinical trial using analysis of each product mentioned in the clinical trial description, triangulated with company and indication information.

Product Revenue Information

EP provides company/product level historical reported, and consensus forecast sales at the product, or product group level. Forecasts may be up to 5 years forward.

[12] https://www.evaluate.com/

Appendix II Calculating Security-Level Scores

Security level Scores are calculated by means of the following steps

1. Category – A Category is defined as a collection of one or more Therapy Categories (or Therapy sub-categories) and/or an Indication (the standardized indication description maybe be at Level 1, 2 or 3)[13].
2. Selection of In-Scope Clinical Trials – Potentially relevant Clinical Trials are filtered to select only such trials which meet following conditions:
    I. **Start Date:** Trials which have been started in the 36 months preceding the rebalance date.
    II. **Study Type:** Interventional
    III. **Lead Sponsor:** Industry
    IV. **Status of Study:** Trial status should not be Terminated, Suspended or Withdrawn
3. Selection of Clinical Trials[14] - All in-scope clinical trials resulting from Step 2 and which are mapped to the Category defined in step 1 are selected.
4. Selection of Products – All products which are mapped to the Category defined in Step 1 are selected.
5. Product-level Cumulative Revenue[15] – The cumulative sum of revenue linked to a security that the issuer is expected to derive from a product between 1 year before the rebalance year and 5 years after the rebalance year (including the rebalance year) , based on consensus forecasts and financial filings.

    Rebalance Year is defined as the year of the rebalance date. Only world-wide annual sales are considered for calculation of Product-level Cumulative Revenue.
6. Security-level score calculation:
    I. Category Trial Score =
    Number of Selected Clinical Trials / Number of In Scope company Trials

[13] https://en.wikipedia.org/wiki/Anatomical_Therapeutic_Chemical_Classification_System

[14] For securities having no trials in-scope, the number of eligible trials used for scoring is taken as zero.

[15] For securities having no projected or reported revenue for the period in scope, the sum of cumulative revenue is considered as zero for scoring.

II. Category Financial Relevance Score = (Cumulative Revenue from Selected Products)/(Cumulative Revenue from all company products).

III. Category Score = 0, if Category Financial Relevance Score=0, otherwise, Max (Category Trials Score, Category Financial Relevance)

IV. Category Share of Enrollments Score =
(Total number of participants enrolled in security issuer's Selected Clinical Trials)/
Total number of participants enrolled in all Selected Trials

In the denominator, the Selected Trials are those linked to any security in MSCI Global Equity Data Universe (Data Universe).

V. Category Share of Financial Relevance =
(Cumulative Revenue from Selected Products)/
(Sum of Cumulative Revenue from Selected Products from All companies in the Data Universe).

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