Index Methodology



# MSCI WORLD IMI SELECT TREND ACCELERATORS INDEX

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## 1 Introduction

The MSCI World IMI Select Trend Accelerators Index aims to represent the performance of a quarterly rebalanced portfolio of 50 stocks that have higher exposure to business activities such as Disruptive Technology, Millennials, Genomic Innovation, Next Generation Internet Innovation, Smart Cities and Ageing Society Opportunities. The strategy also seeks high exposure to Dividend Yield and Growth factors within the relevant Barra Equity Model combined with control over ex-ante total risk. The MSCI World IMI Select Trend Accelerators Index aims to achieve diversification with country, sector and thematic exposure constraints.

The index is a Non-Market Capitalization Weighted Index, providing an alternative weighting construct using optimization.



## 2 ESG Research Framework

The MSCI World IMI Select Trend Accelerators Index uses research provided by MSCI ESG Research LLC. The index uses the following MSCI ESG Research product: MSCI ESG Controversies.

For details on MSCI ESG Research's full suite of ESG products, please refer to: <u>https://www.msci.com/esg-investing</u>

### 2.1 MSCI ESG CONTROVERSIES

MSCI ESG Controversies (formerly known as MSCI Impact Monitor) provides assessments of controversies concerning the negative environmental, social, and/or governance impact of company operations, products and services. The evaluation framework used in MSCI ESG Controversies is designed to be consistent with international norms represented by the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Global Compact. MSCI ESG Controversies Score falls on a 0-10 scale, with "0" being the most severe controversy.

For more details on MSCI ESG Controversies, please refer to <u>https://www.msci.com/documents/10199/acbe7c8a-a4e4-49de-9cf8-5e957245b86b</u>

### 2.2 MSCI CLIMATE CHANGE METRICS

MSCI Climate Change Metrics provides climate data & tools to support investors integrating climate risk & opportunities into their investment strategy and processes. It supports investors seeking to achieve a range of objectives, including measuring and reporting on climate risk exposure, implementing low carbon and fossil fuel-free strategies, align with temperature pathways and factoring climate change research into their risk management processes, in particular through climate scenario analysis for both transition and physical risks.

The dataset spans across the four dimensions of a climate strategy: transition risks, green opportunities, physical risks and 1.5° alignment.

For more details on MSCI Climate Change Metrics, please refer to <u>https://www.msci.com/climate-solutions</u>



## 2.3 MSCI ESG BUSINESS INVOLVEMENT SCREENING RESEARCH

MSCI ESG Business Involvement Screening Research (BISR) aims to enable institutional investors to manage environmental, social and governance (ESG) standards and restrictions reliably and efficiently.

For more details on MSCI ESG Business Involvement Screening Research, please refer to <u>http://www.msci.com/resources/factsheets/MSCI\_ESG\_BISR.pdf</u>



## 3 Index Construction

The MSCI World IMI Select Trend Accelerators Index is constructed from MSCI World IMI (the "Parent Index"). The following steps are applied at initial construction of the Index.

- Defining the Parent Index, Eligible Universe and the base currency for optimization
- Eligible Universe Screening
- Defining the Optimization objective and constraints
- Determining the Optimized Index
- Rebalancing the Optimized Index
- Staggering the Optimized Index Rebalancing Results

### 3.1 DEFINING THE PARENT INDEX, ELIGIBLE UNIVERSE AND THE BASE CURRENCY FOR OPTIMIZATION

Constructing the MSCI World IMI Select Trend Accelerators Index (herein, "the Index") begins with the Parent Index and then applies screens to arrive at the eligible universe to perform the optimization. The optimization is performed from a base currency perspective and does not allow short selling of securities. The optimization base currency is EUR.

The optimization relies on factor exposures for all the securities in the Parent Index and the factor co-variance matrix of the relevant Barra Equity Model<sup>1</sup>.

### 3.2 ELIGIBLE UNIVERSE SCREENING

#### 3.2.1 LIQUIDITY CRITERIA

Securities with 3-month ADTV greater than or equal to EUR 10 Million are eligible for inclusion in the Index.

ADTV is defined as Average Daily Traded Volume and is calculated as:

<sup>&</sup>lt;sup>1</sup> Please refer to Appendix 1 for the detailed information on model usage



$$ADTV_{3M} = \frac{ATV_{3M}^2}{252}$$

Where  $ATV_{3M}$  is annualized 3-month Average Traded Volume of the security.

To avoid multiple securities of the same company in the final index, only the most liquid security for each issuer per its 3-month ADTV is eligible for inclusion in the Index. For any issuer, should two securities have the same 3-month ADTV, the one with the higher free float-adjusted market capitalization is included.

#### 3.2.2 ESG CONTROVERSIES SCORE ELIGIBILITY

The MSCI World IMI Select Trend Accelerators Index uses MSCI ESG Controversies Scores to identify those companies that are involved in very serious controversies involving the environmental, social, or governance impact of their operations and/or products and services. Companies are required to have an MSCI ESG Controversies Score of 1 or higher to be eligible for inclusion in the MSCI World IMI Select Trend Accelerators Index<sup>3</sup>.

#### 3.2.3 VALUES-BASED EXCLUSIONS

The MSCI World IMI Select Trend Accelerators Index uses MSCI ESG Business Involvement Screening Research to identify companies that are involved in the following business activities. Companies that meet the business involvement criteria are excluded from the MSCI World IMI Select Trend Accelerators Index. Please refer to Appendix 2 for details on these criteria.

- Compliance with all the UN Global Compact Principles
- Controversial Weapons
- Civilian Firearms
- Conventional Weapons
- Tobacco

<sup>2</sup> MSCI Index Calculation Methodology at

https://www.msci.com/index-methodology

MSCI Global Investable Market Indexes Methodology at

https://www.msci.com/index-methodology

<sup>3</sup> Unrated companies (Companies not assessed by MSCI ESG Research on MSCI ESG Controversies Score) are excluded from the eligible universe. For more details refer to the MSCI ESG Universal Index: <u>https://www.msci.com/egb/methodology/meth\_docs/ESG\_Universal\_Index\_Methodology.pdf</u>



- Alcohol
- Adult Entertainment
- Gambling
- Nuclear Power
- Thermal Coal

### 3.3 DEFINING THE OPTIMIZATION OBJECTIVE AND CONSTRAINTS

#### 3.3.1 OPTIMIZATION OBJECTIVE

The Optimization objective is to maximize the alpha score (representative of the exposures to the set of target factors) under the "risk upper bound" constraint where the risk upper bound is equal to or lower than a fixed proportion of the (predicted) total risk of the Risk Reference Index<sup>4</sup> at the time of rebalancing, along with various other optimization constraints as specified in 3.3.2.

#### **CALCULATION OF THE ALPHA SCORE**

The composite alpha has a combination of the target factor exposure of each security multiplied by the weights given to each target factor.

 $\alpha(i) = 75\% * DYF(i) + 25\% * GF(i)$ 

Where,

 $\alpha(i)$  = Alpha score for each security i

DYF(i) = Factor exposure of each security i to the Dividend Yield <sup>5</sup>factor

GF(i) = Factor exposure of each security i to the Growth <sup>6</sup>factor

### 3.3.2 OPTIMIZATION CONSTRAINTS

The MSCI World IMI Select Trend Accelerators Index is constructed using the Barra Open Optimizer in combination with the relevant Barra Equity Model. The

<sup>&</sup>lt;sup>4</sup> Please refer to Appendix 3 for definition of Risk Reference Index

<sup>&</sup>lt;sup>5</sup> Please refer to Appendix 4

<sup>&</sup>lt;sup>6</sup> Please refer to Appendix 4



optimization uses the above selected securities as the universe of eligible securities and the specified optimization objective and constraints to determine the Index.

At each quarterly rebalance, the following optimization constraints are applied which aim to ensure investability while achieve relatively high exposure to dividend yield and growth factors with control over ex-ante total risk.

No.	Parameter	Constraint
1	Number of Constituents	50
2	Maximum weight of a single security	5%
3	Minimum weight of a single security	0.50%
4	Maximum Exposure to each of the 6 themes <sup>7</sup> : Disruptive Technology, Millennials, Genomic Innovation, Next Generation Internet Innovation, Smart Cities and Ageing Societies Opportunities	40%
5	Minimum Exposure to each of the 6 themes: Disruptive Technology, Millennials, Genomic Innovation, Next Generation Internet Innovation, Smart Cities and Ageing Societies Opportunities	10%
6	Maximum Weight to a region <sup>8</sup>	50%
7	Total Risk Upper Bound	70% * Total Risk of Risk Reference Index <sup>9</sup>
8	Active Exposure to Quality and Momentum Barra style factors	(0,0.75)
9	Active exposure to other Barra style factors (Value, Size and Liquidity)	(-0.75,0.75)
10	Maximum Weight to each sector	35%
11	One Way Turnover	100%
12	The portfolio risk currency	EUR

<sup>9</sup> Please refer to Appendix 3 for definition of Risk Reference Index

 $<sup>^{7}</sup>$  For further details on how each theme is defined please refer Appendix 6

<sup>&</sup>lt;sup>8</sup> Please Refer to Appendix 5



## 3.4 DETERMINING THE OPTIMIZED INDEX

The weights of the securities are an outcome of the optimization process. The optimization uses the eligible universe as the universe of eligible securities and the specified optimization objective and constraints to determine the Optimized Index.

### 3.5 REBALANCING THE OPTIMIZED INDEX

The Optimized Index is reviewed on a quarterly basis as per the steps described in Section 3, coinciding with the May and November Semi-Annual Index Reviews and the February and August Quarterly Index Reviews of the Parent Index.

For each rebalance, the Barra Equity Model data as of the end of the month preceding the Index Review are used. This approach aims to capture timely updates to the risk characteristics of the companies and coincide with the rebalancing frequency of the relevant Parent Index.

In general, MSCI uses MSCI ESG Research data (including MSCI ESG Controversies Scores, MSCI Business Involvement Screening Research and MSCI Climate-change metrics) as of the end of the month preceding the Index Reviews for the rebalancing of the Index. For some securities, such data may not be published by MSCI ESG Research by the end of the month preceding the Index Review. For such securities, MSCI will use ESG data published after the end of month, when available, for the rebalancing of the Index.

The pro forma index is in general announced nine business days before the effective date.

### 3.6 STAGGERING THE OPTIMIZED INDEX REBALANCING RESULTS

The rebalance changes of the Optimized Index are then staggered for implementation by spreading the change in Index Number of Shares (NOS) for each security over five days leading into the rebalancing effective date (T). The change is distributed equally among T-4, T-3, T-2, T-1 and T as compared to the Optimized Index, where all the changes are effective on the rebalancing date (T). For each  $t \in$  {T-4, T-3, T-2, T- 1, T}, number of shares for each security included in the MSCI World IMI Select Trend Accelerators Index (*Staggered Index NOS* (*t*)) are calculated as below:

Staggered Index NOS (t) = Optimized Index NOS (t) + [Adjusted Optimized Index NOS (T) – Optimized Index NOS (t)] \* (N/5)

Where:

t: Effective date of the staggering



T: Rebalancing effective date of the Optimized Index

Optimized Index NOS (t):It is the number of shares of a security in the Optimized Index effective on t (as of close t – 1).It is calculated as a product of the end of day security number of shares on t – 1 and Full Market Cap Adjustment Factor<sup>10</sup> in the Optimized Index on t

Adjusted Optimized Index NOS (T) : Optimized Index NOS (T) adjusted for change in number of shares due to events like Rights Issues, Split, Consolidation, Stock Dividend, effective between t and T

N = nth day of staggering, e. g. t - 4 is 1st day of staggerring

## 4 Maintenance of the MSCI World IMI Select Trend Accelerators Index

### 4.1 QUARTERLY INDEX REVIEWS

The MSCI World IMI Select Trend Accelerators Index follows the rebalancing schedule of the Optimized Index. The MSCI World IMI Select Trend Accelerators Index is reviewed on a quarterly basis, coinciding with the May and November Semi-Annual Index Reviews and the February and August Quarterly Index Reviews of the Parent Index. The MSCI World IMI Select Trend Accelerators Index is rebalanced over five days T-4,T-3, T-2, T-1 and T, where T Is the effective date of the May and November Semi-Annual Index Review (SAIR) and the February and August Quarterly Index Reviews of the Parent Index.

The pro forma MSCI World IMI Select Trend Accelerators Index in general is announced nine business days before T (T-9).

### 4.2 ONGOING EVENT RELATED CHANGES

Corporate event treatment for the MSCI World IMI Select Trend Accelerators Index depends on whether the effective date of the event falls within the staggering period (T-4, T-3, T-2, T-1, T), or outside the staggering period.

<sup>&</sup>lt;sup>10</sup> Full Market Cap Adjustment Factor (FMCAF): A factor that is used in index constituent weighting calculation defined as (Inclusion Factor (i.e. FIF)) \*(Constraint Factor) \* (Variable Weighting Factor). For more details, please refer to section 2.7 of the MSCI corporate Events Methodology book at <u>http://www.msci.com/index-methodology</u>



#### 4.2.1 EVENTS EFFECTIVE OUTSIDE THE STAGGERING PERIOD

EVENT TYPE

The general treatment of corporate events effective outside the staggering period in the MSCI World IMI Select Trend Accelerators 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 MSCI World IMI Select Trend Accelerators Index.

No new securities will be added (except where noted below) to the Index outside the Staggering Period. Parent Index deletions outside the staggering period will be reflected simultaneously.

**EVENT DETAILS** 

New additions to the Index	A new security added to the Parent Index (such as IPO and other early inclusions) will not be added to the MSCI World IMI Select Trend Accelerators 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 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-MSCI 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 book under the sections detailing the treatment of events in Capped Weighted and Non-Market Capitalization Weighted Indexes.

The MSCI Corporate Events methodology book is available at: <a href="https://www.msci.com/Index-methodology">https://www.msci.com/Index-methodology</a>

#### 4.2.2 EVENTS EFFECTIVE DURING THE STAGGERING PERIOD

The impact of event on the MSCI World IMI Select Trend Accelerators Index depends on the type of event and calculation date of the Index as elaborated below.

### 4.2.2.1 CALCULATION ON T-9

a) Before effective date

The pro forma MSCI World IMI Select Trend Accelerators Index in general is announced nine business days before T (T-9). If there is an event already confirmed on T-9 with an effective date in the staggering period, the change in numbers of shares for the security due to the rebalancing will not be staggered for such security until the event effective date. In case of multiple events, the staggering will be postponed till the effective date of the earliest event.

#### b) On and after effective date

In case of Rights Issues and market neutral events (like Split, Consolidation, Stock Dividend etc.) which involve change in security number of shares but does not involve change in the full market cap adjustment factor, staggering (as explained in the Section 3.6) will start from the next day of the event effective date.



For all other events, staggering (as explained in the Section 3.6) will start from the effective date of the event.

#### 4.2.2.2 CALCULATION AFTER T-9

#### a) Before Effective Date

In case of an event effective in the staggering period, the numbers of shares for the security involved in the event as announced on T-9 will hold until a day before the effective date. In case of multiple events, the effective date of the earliest event will be taken into account.

#### b) On and after the Effective Date

In case of Rights Issues and market neutral events (like Split, Consolidation, Stock Dividend etc.) which involve change in security number of shares but does not involve a change in inclusion factor, staggering (as explained in the Section 3.6) will be applied again from the next day of the event effective date, taking into account the new post event number of shares in the Optimized Index.

For all other events, staggering (as explained in the Section 3.6) will be applied from the effective date of the event incorporating the post event number of shares.

#### 4.2.3 TREATMENT OF SUSPENDED SECURITIES

A suspension treatment will be applied to any security suspended on any day starting from T-6 until T-2. On the day of suspension (t), the pro-forma Full Market Cap Adjustment Factor in MSCI World IMI Select Trend Accelerators Index announced for the security for the next day (t+1) will be held constant until T. However, in case, on T-2, if a new addition to the Parent Index is reverted due to suspension and the security is no longer a part of the Parent Index on T, the security will also be deleted from the MSCI World IMI Select Trend Accelerators Index effective on T.



## Appendix 1: New Release of BARRA® EQUITY MODEL or BARRA® OPTIMIZER

The methodology presently uses MSCI Barra Global Equity Model for Long-Term Investors ("GEMLTL") for the optimization. A new release of the relevant Barra Equity Model or Barra Optimizer may replace the former version within a suitable timeframe.

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## **Appendix 2: VALUES-BASED EXCLUSION CRITERIA**

MSCI ESG Research has developed a framework designed to define significant involvement in controversial activities. According to this framework, there are four levels of restrictiveness: Most Restrictive, Highly Restrictive, Moderately Restrictive, Least Restrictive.

Each controversial activity screened by the MSCI World IMI Select Trend Accelerators Index (except Thermal Coal and UN Global Principles) is assigned to one of these restrictiveness levels.

#### "Most Restrictive" screen applied

- Controversial Weapons
  - All companies with any tie to Controversial Weapons (cluster munitions, landmines, depleted uranium weapons, biological/chemical weapons, blinding lasers, nondetectable fragments and incendiary weapons), as defined by the methodology of the MSCI Ex-Controversial Weapons indexes available at:

#### https://www.msci.com/index-methodology

#### "Moderately Restrictive" screen applied

- Civilian Firearms
  - All companies classified as "Producer" of firearms and small arms ammunitions for civilian markets. It does not include companies that cater to the military, government, and law enforcement markets.
  - All companies deriving 10% or more revenue from the distribution of firearms.
- Tobacco
  - All companies classified as a "Producer".
  - All companies deriving 10% or more aggregate revenue from the production, distribution, retail and supply of tobacco-related products.

#### "Least Restrictive" screen applied

• Conventional Weapons



- All companies that manufacture conventional weapons components or conventional weapons and weapons systems and earn 10% or more in revenue from these activities.
- Gambling
  - All companies classified as gambling "Operations" or "Support" that earn 10% or more revenue from gambling-related products.
- Alcohol
  - All companies classified as alcohol "Producer" that earn either 10% or more revenue from alcohol-related products.
- Adult Entertainment
  - All companies classified as a "Producer" that earn either 10% or more in revenue from adult entertainment materials.
- Nuclear Power
  - All companies with 10% or more of installed capacity attributed to nuclear sources.
  - All companies involved in nuclear fuel enrichment for nuclear power generation.
  - All companies involved in uranium mining for nuclear power generation.
  - All companies involved in nuclear reactor design or construction for nuclear power generation.

#### No specific restrictiveness level applied

- Compliance with all the UN Global Compact Principles
  - All companies that fail to comply with the United Nations Global Compact principles are excluded.
- Thermal Coal Mining
  - All companies deriving 10% or more revenue from the mining of thermal coal are excluded.
- Thermal Coal-based Power Generation
  - All companies deriving 10% or more revenue from the thermal coal-based power generation are excluded.



## **Appendix 3: Definition of Risk Reference Index**

At each rebalance, the Risk Reference Index is constructed by selecting top 50 securities from the MSCI EMU Index based on their free float market capitalization.



## Appendix 4: Definition of Barra GEMLT Dividend Yield and Growth Factor

The Dividend Yield factor is described using MSCI's Barra Global Equity Model for Long-Term Investors (GEMLTL). The precise choice of component factors used to represent each broad factor group is governed by the current model used for the optimization, which may change with a new release of the Barra Equity Model.

#### **Dividend Yield**

Definition = 0.5\*DTOP + 0.5\*DTOPF

Where,

DTOP = <u>Dividend Yield</u>

Computed by dividing the trailing 12-month dividend per share by the price at the last month end.

#### DTOPF = <u>Analyst-Predicted Dividend-to-Price</u>

Computed by dividing the 12-month forward-looking dividend per share (DPS) by the current price. Forward-looking DPS are defined as a weighted average between the average analyst-predicted DPS for the current and next fiscal years.

The Growth factor is described using MSCI's Barra Global Equity Model for Long-Term Investors (GEMLTL). The precise choice of component factors used to represent each broad factor group is governed by the current model used for the optimization, which may change with a new release of the Barra Equity Model.

#### Growth

Definition = 0.7\*EGRLF + 0.1\*EGRO + 0.2\*SGRO

Where

EGRLF = <u>Analyst-Predicted Earnings Long-term Growth</u>

Long-term (3-5 years) earnings growth forecasted by analysts.

EGRO = Earnings per Share Growth Rate



Annual reported earnings per share are regressed against time over the past five fiscal years. The slope coefficient is then divided by the average annual earnings per share.

SGRO = <u>Sales per Share Growth Rate</u>

Annual reported sales per share are regressed against time over the past five fiscal years. The slope coefficient is then divided by the average annual sales per share.

For more detailed information on individual factors in GEMLTL, please refer to <u>https://www.msci.com/portfolio-management</u>



## **Appendix 5: Definition of Regions**

For the MSCI World IMI Select Trend Accelerators Index, we define the following 3 custom regions:

No.	Region	Countries
1	USA	USA
2	Europe	Denmark, Netherlands, Austria, Sweden, Portugal, Ireland, United Kingdom, Spain, Norway, Finland, Belgium, Italy, France, Germany, Switzerland, Israel
3	Asia	Australia, Singapore, New Zealand, Hong Kong, Japan



## **Appendix 6: Definition of Relevance Scores**

The exposure of each security to any theme is defined using relevance scores. The relevance score for each theme is defined as follows:

#### 1) Disruptive Technology Relevance Score

Please refer to the methodology document for the MSCI ACWI IMI Disruptive Technology Index for details on calculation of relevance score at

MSCI ACWI IMI Disruptive Technology Index

#### 2) Millennials Relevance Score

Please refer to the methodology document for the MSCI ACWI IMI Millennials Index for details on calculation of relevance score at

MSCI ACWI IMI Millennials Index

#### 3) Genomic Innovation Relevance Score

Please refer to the methodology document for the MSCI ACWI IMI Genomic Innovation Index for details on calculation of relevance score at

MSCI ACWI IMI Genomic Innovation Index

#### 4) Next Generation Internet Innovation Relevance Score

Please refer to the methodology document for the MSCI ACWI IMI Next Generation Internet Innovation Index for details on calculation of relevance score at

MSCI ACWI IMI Next Generation Internet Innovation Index

#### 5) Smart Cities Relevance Score

Please refer to the methodology document for the MSCI ACWI IMI Smart Cities Index for details on calculation of relevance score at

MSCI ACWI IMI Smart Cities Index



#### 6) Ageing Society Opportunities Relevance Score

Please refer to the methodology document for the MSCI Ageing Society Opportunities Index for details on calculation of relevance score at

MSCI Ageing Society Opportunities Index Methodology



## **Appendix 7: Handling Infeasible Optimizations**

During the quarterly Index review, in the event that there is no optimal solution that satisfies all the optimization constraints defined in Section 3.3.2, the number of constituents, minimum weight of a single security and total risk upper bound constraints are relaxed automatically by setting both thematic exposure and market cap exposure as a Soft Constraint in the Barra Optimizer, to find an optimal solution.

In the event that there is no optimal solution after the above constraints have been relaxed, the MSCI World IMI Select Trend Accelerators Index will not be rebalanced for that Index review.



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