

**METHODOLOGY BOOK FOR:
- MSCI WORLD THEMATIC
ROTATION SELECT INDEX
-MSCI WORLD THEMATIC
ROTATION SELECT 10% RISK
CONTROL INDEX**

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1 Introduction

The MSCI World Thematic Rotation Select Index (the ‘Index’) aims to represent the performance of the four highest ranked MSCI Thematic Indexes, selected monthly from a set of twenty-two MSCI Thematic Indexes, based on a theme specific media sentiment (MediaStats Megatrend Scores) score calculated for each of the respective themes by MKT MediaStats¹.

The MSCI World Thematic Rotation Select Index 10% Risk Control Index aims to represent the performance of MSCI World Thematic Rotation Select Index while targeting an annualized volatility of 10%.

¹ MKT MediaStats is a big-data information technology company specializing in financial markets which generates theme level Megatrend Scores on a monthly basis <https://www.mktmediastats.com/>. Please refer to Appendix 1 for details.

2 Index Construction

The Index is constructed from MSCI ACWI IMI Index (the ‘Parent Index’). The following steps are applied at initial construction and at each Index Review (as described in Section 5) of the Index:

- Determine the Applicable Universe
- Eligible Universe Screening
- Security Weighting

2.1 APPLICABLE UNIVERSE

The Applicable Universe for the Index is constructed from the twenty-two MSCI Thematic Indexes² (the ‘Component Indexes’).

At each Monthly Index Review and at initial construction, the Component Indexes are ranked in the descending order of the MediaStats Megatrend Scores for each corresponding theme. The top four Component Indexes are selected and combined with the following weights based on their rankings:

- Rank 1 – 25%
- Rank 2 – 25%
- Rank 3 – 25%
- Rank 4 – 25%

The weight of each security after combining the four selected Component Indexes can be calculated as follows:

$$W_{Sec_i}^{CI} = \sum_j W_{C_j} W_{Sec_i}^{C_j}$$

Where:

$W_{Sec_i}^{CI}$ is the weight of security Sec_i in the combined index CI

W_{C_j} is the target weight of the Component Index C_j

$W_{Sec_i}^{C_j}$ is the weight of security Sec_i in the Component Index C_j

² Please refer to Appendix 2 for details.

MSCI may consider adding new Component Thematic Indexes to the list in the Appendix 2.

C_j is the selected Component Index

2.2 ELIGIBLE UNIVERSE SCREENING

2.2.1 SECURITY SELECTION

From the Applicable Universe the securities from the MSCI World index are selected for inclusion in the Index.

2.2.2 LIQUIDITY CRITERIA

Securities with 3-month ADTV (Average Daily Traded Value) greater than or equal to USD 10 Million are eligible for inclusion in the Index.

ADTV is calculated as:

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

Where ATV_{3M} is annualized 3-month Average Traded Value 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.

2.3 SECURITY WEIGHTING

At each Index Review and at initial construction, the securities selected for inclusion in the Index are assigned the weights $W_{Sec_i}^{CI}$ from the Section 2.1 and are normalized to sum to 100%.

Additionally, constituent weights are capped to mitigate concentration risk in the Index. The individual security weights in the Index are capped at 5%.

Subsequently, the minimum values are selected as adjusted weights as follows:

$$W_i^{adj} = \text{Min}(W_i, 0.25 \times a)$$

where:

W_i is the weight after applying the capping at 5%

³ MSCI Index Calculation Methodology at <https://www.msci.com/index-methodology>

MSCI Global Investable Market Indexes Methodology at <https://www.msci.com/index-methodology>

$$a = \frac{ADTV_i^{1M}}{USD\ 1\ bn}$$

where:

$ADTV_i^{1M}$ is the 1-month Average Daily Traded Value of the security

Finally, the weights W_i^{adj} are normalized to sum to 100%.

3 **Constructing the MSCI World Thematic Rotation Select 10% Risk Control Index**

The MSCI World Thematic Rotation Select 10% Risk Control Index is constructed by applying the following steps to the MSCI World Thematic Rotation Select Index:

- Applying the MSCI Excess Return Indexes methodology
- Constructing the Volatility Target Index

3.1 **APPLYING THE MSCI EXCESS RETURN INDEXES METHODOLOGY**

The MSCI Excess Return Indexes Methodology⁴ is applied on the Standard Daily Net Return variant of the MSCI World Thematic Rotation Select Index in USD currency to construct the Excess Return Variant Index⁵.

3.2 **CONSTRUCTING THE VOLATILITY TARGET INDEX**

The objective of the Volatility Target Index is to replicate the performance of a strategy that targets 10% of volatility by adjusting the weight of the Excess Return Variant Index calculated in 3.1

The Volatility Target Index is calculated in accordance with the below formula:

$$IL_t = IL_{t-1} \times (1 + IR_t)$$

Where:

IL_t is the Volatility Target Index levels on calculation day⁶ t

IR_t is the Volatility Target Index return on calculation day t , calculated in accordance with the following formula:

$$IR_t = (W_t \times E_t) - IndexFee \times \frac{ACT(t-1, t)}{360}$$

Where:

⁴ Please refer to the MSCI Excess Return Indexes methodology at www.msci.com/index-methodology

⁵ The short-term rate used for the application of the Excess Return Indexes methodology is Fed Fund overnight until December 31st 2018, and SOFR overnight from January 1st 2019.

⁶ All trading days except full holidays in New York Stock Exchange, London Stock Exchange, Deutsche Börse Xetra, Tokyo Stock Exchange, SIX Swiss Exchange, Toronto Stock Exchange, or Euronext Amsterdam.

$$E_t = \frac{\text{Excess Return Variant Index}_t}{\text{Excess Return Variant Index}_{t-1}} - 1$$

$$\text{IndexFee} = 0.75\%$$

$ACT(t - 1, t)$ = number of actual calendar days between calculation day $t - 1$ and t

$$W_t = \begin{cases} W_{t-1}, & \text{ABS}\left(\frac{W_{t^*} - W_{t-1}}{W_{t-1}}\right) \leq 5\% \\ W_{t^*}, & \text{ABS}\left(\frac{W_{t^*} - W_{t-1}}{W_{t-1}}\right) > 5\% \end{cases}$$

Where:

$$W_{t^*} = \text{Minimum}\left(1.5, \frac{\text{TargetRiskLevel}}{\sigma_t}\right)$$

Where:

$$\text{TargetRiskLevel} = 10\%$$

σ_t = Volatility⁷ of the Excess Return Variant Index

⁷ Please refer to the Appendix 3 for details

4 Input Data Fallback Mechanism

If, at an Index Review, the MediaStats Megatrend Scores required for the Index rebalance are not available from MKT MediaStats dated as of the month-end prior to the Index Review, then the latest available MediaStats Megatrend Scores prior to the Index Review date will be used.

If, at an Index Review, MSCI determines that the primary source data from MKT is stale for last 4 or more months or is not reflective of current market conditions, the Component Indexes then will be ranked in descending order of their 3-month momentum score and the four highest ranked Component Indexes would be selected. In the case that two Component Indexes have same 3-month momentum score, the Component Index with higher 6-month momentum score will be selected.

The 3-month momentum score and 6-month momentum score will be calculated as follows:

At each index review date, the 3-month momentum score will be calculated by dividing the last 3-month return of the individual Component Index as of Index review date by standard deviation of the daily returns of the Component Index over the same period. The 6-month momentum score will be calculated by dividing the last 6-month return of the individual Component Index as of Index review date by standard deviation of the daily returns of the Component Index over the same period.

Subsequently, a review of alternative data for the MediaStats Megatrend Scores would be conducted. The adoption of an alternative data source and any amendments to the methodology to reflect this will be announced by the MSCI Equity Index Committee (EIC) to all clients simultaneously. MSCI may consult with clients to gather their feedback on the choice of alternative sources in line with MSCI Index Consultation Policy⁸

⁸ Please refer to MSCI Index Policies document at: <https://www.msci.com/index-methodology>

5 Maintenance of the Index

5.1 INDEX REVIEWS

The MSCI World Thematic Rotation Select Index is reviewed on a monthly basis and rebalanced at the beginning of each month. The pro forma Index is announced nine business days before the effective date.

The MSCI World Thematic Rotation Select 10% Risk Control Index is reviewed on a daily basis as per steps described in Section 3.

5.2 ONGOING EVENT RELATED CHANGES

The following section briefly describes the treatment of common corporate events within the Index. Changes in index market capitalization that occur because of corporate event implementation will be offset by a corresponding change in the Variable Weighting Factor (VWF) of the constituent.

No new securities will be added (except where noted below) to the Index between Index Reviews. For cases where additions are noted below, securities will be added to the Index only if added to the Parent Index. Parent Index deletions will be reflected simultaneously.

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

Appendix 1: MediaStats Megatrend Scores

The MediaStats Megatrend Score is calculated by MKT MediaStats for each thematic Index at the end of every calendar month.

For each thematic index, MKT MediaStats uses business descriptions from each of the indexes methodology document to capture time series and cross-sectional shifts of investor attention and sentiment towards megatrends by analyzing media articles sourced from approximately 100 thousand individual sources.

For further details on the calculation methodology, please refer to <https://www.mktmediastats.com/post/dynamic-megatrend-rotation>.

Appendix 2: Component Indexes

The Applicable Universe for the Index is constructed from the following twenty-two MSCI Thematic Indexes⁹ (the 'Component Indexes'):

1. MSCI ACWI IMI Ageing Society Opportunities Index
2. MSCI ACWI IMI Autonomous Technology & Industrial Innovation Index
3. MSCI ACWI IMI Digital Health Index
4. MSCI ACWI IMI Efficient Energy Index
5. MSCI ACWI IMI Fintech Innovation Index
6. MSCI ACWI IMI Future Education Index
7. MSCI ACWI IMI Future Mobility Index
8. MSCI ACWI IMI Genomic Innovation Index
9. MSCI ACWI IMI Millennials Index
10. MSCI ACWI IMI Next Generation Internet Innovation Index
11. MSCI ACWI IMI Robotics Index
12. MSCI ACWI IMI Smart Cities Index
13. MSCI ACWI IMI Blockchain Economy Index
14. MSCI ACWI IMI Clean Energy Infrastructure Index
15. MSCI ACWI IMI Cybersecurity Index
16. MSCI ACWI IMI Food Revolution Index
17. MSCI ACWI IMI Natural Resources Stewardship Index
18. MSCI ACWI IMI Plastics Transition Index
19. MSCI ACWI IMI Renewables and Energy Efficiency Index
20. MSCI ACWI IMI Sharing Economy Index
21. MSCI ACWI IMI Space Exploration Index
22. MSCI ACWI IMI Sustainable Water Transition Index

⁹ Prior to March 2017, due to lack of relevant data, the first twelve MSCI Thematic Indexes were used. Please refer to <https://www.msci.com/index-methodology> for the methodology of the Component Indexes.

Appendix 3: Volatility Calculation

The volatility of the Excess Return Variant Index σ_t , on date t is the maximum of the long-term and short-term volatilities of the Excess Return Variant Index on date t determined using the exponentially weighted volatility calculation methodology as follows:

$$\sigma_t = \text{Max}(\sqrt{252} \sigma_{ST,t}, \sqrt{252} \sigma_{LT,t})$$

where:

$$\sigma_{ST,t} = \sqrt{\lambda_{ST} \times (\sigma_{ST,t-1})^2 + (1 - \lambda_{ST}) \times (r_{t-i})^2}$$

$$\sigma_{LT,t} = \sqrt{\lambda_{LT} \times (\sigma_{LT,t-1})^2 + (1 - \lambda_{LT}) \times (r_{t-i})^2}$$

where:

$\sigma_{ST,t}$ and $\sigma_{LT,t}$ are the short-term and long-term realized volatilities respectively for day t

$\sigma_{ST,t-1}$ and $\sigma_{LT,t-1}$ are short-term and long-term realized volatilities respectively for day $t - 1$

λ_{ST} and λ_{LT} are the short-term and long-term decay factors respectively, 0.94 and 0.97

i is the number of “days lag” in the return calculation used for computing volatility (i.e., the lag between the return date and the volatility calculation date), 3 days.

r_{t-i} is the logarithmic daily return of the index component on $t - i$ day

The volatility on day t is dependent on the initial estimate of volatility, the initial estimate of the short-term volatility is 11.23% and the long-term volatility is 11.66%.

Changes to the Methodology Book

The following sections have been modified as of March 2023:

Index name

- The Index name has been changed, prior to the change the Index was named the MSCI World Thematic Sentiment Choice Index Methodology

Section 3: Constructing the MSCI World Thematic Rotation Select 10% Risk Control Index

- Added new section

The following sections have been modified as of May 2023:

Section 4: Input Data Fallback Mechanism

- Added new section

Appendix 2: Component Indexes

- Added new section

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