

FIVE Robust Multi Asset Index

HANDBOOK



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1. Overview

The FIVE ROBUST MULTI ASSET INDEX (the "Index") is a risk controlled version of the FIVE ROBUST MULTI ASSET NON-RC INDEX (the "Top-Level Index"). This Index is a long-only multi asset portfolio using the Hierarchical Risk Parity ("HRP") allocation concept. The Index is denominated in USD.

"Index Business Days", for the calculation of the Index, the Top-Level Index and its Sub-Indices, are all weekdays except Munich¹ holidays. Throughout the document, if "t" is an Index Business Day, then "t-b" refers to the preceding Index Business Day. In case of a holiday on the relevant futures exchange which is not a Munich holiday, the stale price from the prior available Index Business Day is used for the respective constituent and the price of the Index is called "indicative". In the case a financial product is linked to the Index, the financial product shall not be traded on such a day and the index level is published for information purposes only.

The Index is available in different formats, i.e. performance types. Please see section 2.8 for the available definitions. The values of the Index, the Top-Level Index and its Sub-Indices are calculated on each Index Business Day t, and shall reflect constituent futures prices as of market close in Asia.

The Index Live Date (the "Index Live Date"), which is the date the Index Calculation Agent began calculating the Index and will be recorded in accordance with Article 8 of the EU Benchmark Regulation ("EU-BMR"), is 20 May 2020. The Index time series starts on 02 January 1990. The Top-Level Index time series starts as of 02 January 1989 (each of these dates an "Index Start Date"). On this date, the Index is initialized with a starting value of 100 USD.

The level of the Index, as determined by the Index Calculation Agent (as defined below), will be reported on Bloomberg via the page VROBUST <Index> or any successor financial information service as defined by the Index Administrator (as defined below) in its sole and absolute discretion.

2. Index Calculation

2.1. Index Components

The Index is initially starting with 20 "Index Components", which are the futures markets (each a "Futures Contract Series") listed in Table 1. The components on this list and the number of components may change in the future in accordance with chapter 3. of this document.

¹ New Year's Day, Epiphany, Shrove Tuesday, Good Friday, Easter Monday, Labour Day, Ascension Day, Whit Monday, Corpus Christi Day, Assumption Day, Day of German Unity, All Saints' Day, Christmas Eve, Christmas Day, Christmas Holiday (St. Stephen's Day), New Year's Eve.



#i	ASSET CLASS	INDEX MEMBER	TICKER PREFIX ^{II}	TICKER EXTENSION ²	FX RATE	TC IN NB TICKS
i=1	СО	COMEX Gold	GC	Comdty	USD	1
i=2	СО	COMEX Silver	SI	Comdty	USD	2
i=3	EQ	ASX SPI 200	XP	Index	AUD	2
i=4	EQ	CME E-mini Russell 2000	RTY	Index	USD	2
i=5	EQ	CME E-mini S&P 500	ES	Index	USD	1
i=6	EQ	CME Nasdaq-100	NQ	Index	USD	1
i=7	EQ	Eurex DAX	GX	Index	EUR	1
i=8	EQ	Eurex EURO STOXX 600	SXO	Index	EUR	1
i=9	EQ	Eurex SMI	SM	Index	CHF	2
i=10	EQ	HKFE Hang Seng	НІ	Index	HKD	1
i=11	EQ	ICE FTSE 100	Z	Index	GBP	1
i=12	EQ	MX S&P/TSX 60	PT	Index	CAD	2
i=13	EQ	OSE Topix	TP	Index	JPY	1
i=14	FI	ASX 10Y Australian T-Bonds	XM	Comdty	AUD	1
i=15	FI	CBOT 10Y US T-Note	TY	Comdty	USD	1
i=16	FI	Eurex Euro-BTP	IK	Comdty	EUR	1
i=17	FI	Eurex Euro-Bund	RX	Comdty	EUR	1
I=18	FI	Eurex Euro-OAT	OAT	Comdty	EUR	1
i=19	FI	ICE Long Gilt	G	Comdty	GBP	1
i=20	FI	MX 10Y CGB	CN	Comdty	CAD	2

Table 1: Index components and contract specifications

 $^{^{2}}$ Ticker as currently available on the market information service by Bloomberg L.P.



2.2. Futures Roll Indices

A Futures Roll Index is a futures position continuously rolled in the active contract. A standard futures roll from the front contract into the next contract is performed two index business days before the futures contract's last trade or first notice date, respectively.

Each Futures Roll Index #i starts with a value of 100 and is denominated in the underlying futures currency. Currently daily settlement prices of the corresponding futures contracts are used to calculate the daily levels of the Futures Roll Indices.

2.3. Top-Level Index

Description

The Top-Level Index combines the individual assets into one portfolio. The assets are weighted according to the HRP allocation approach. The resulting weights are implemented in the course of the monthly rebalancing process. The Top-Level Index started on its Index Start Date with a value of 100 USD.

Rebalancing

Case a) Index Business Day t is an Actual Rebalancing Day

On each Rebalancing Day, the percentage Index Member weights in the Top-Level Index are determined. The allocation is performed applying the hierarchical risk parity method which follows the following three steps:

Step 1: Hierarchical clustering

In a first step, fx-adjusted 2-day log-returns for each of the k active Index Members are calculated. The latest 125 fx-adjusted 2-day log-returns are used to calculate the realised covariance matrix and the Pearson correlation matrix. The Pearson correlation matrix is used to calculate the distance matrix. Next, the Ward clustering algorithm using the pairwise Euclidian distance of the distance matrix is applied to obtain a hierarchical clustering tree.

Step 2: Quasi-diagonalization of the covariance matrix

The order of the hierarchical clustering tree is used to re-order the assets and quasi-diagonalize their covariance matrix.

Step 3: Recursive bi-sectioning

The weights of each asset #i is derived by a top-down allocation algorithm. The final weights are rounded to four decimal places. Then these percentage weights are translated into units of FRIs for each Index Member #i to calculate the value of the Top-Level Index.

Case b) Index Business Day t is not an Actual Rebalancing Day

The weights for each Sub-Index k and consequently also the units in each Sub-Index k are always kept constant until the next Actual Rebalancing Day.

Calculation of the Top-Level Index

Using these weights the holdings in each of the individual index components are determined, and the Top-Level Index value can be calculated.



2.4. FIVE ROBUST Multi Asset Index (the "Index")

Description

The Index is a risk controlled version of the Top-Level Index aiming at realizing a target volatility of 5% using a theoretical maximum leverage of 500%. The time series starts on the Index Start Date. The EWMA based volatility estimator using a lambda of 0.98 choses between the estimation results of a short-term (20 days) and a medium term (90 days) time window, whichever has the higher volatility level.

The Index starts with a value of 100 USD on the Index Start Date. Its performance results from a) the excess performance stemming from the Index Components, b) the transaction costs stemming from portfolio adjustments and c) the negative drift of 25 bps per annum (act/360).

Transaction Costs

Transaction costs in the context of this index are defined as the sum of explicit (e.g. order execution fees, stamp taxes etc.) and implicit transaction costs (result of comparing the transacted price with a benchmark price; e.g. the necessity to cross bid-ask spreads, slippage costs, etc.). In the case of the Index, the transacted price is always identical to the officially published exchange settlement price for the respective contract. Settlement prices can often not be traded and need to be targeted by using an order execution strategy.

Trades need to be executed for the purpose of implementing the investment strategy. The costs of this trading activity are reflected in the performance of the Index - whenever the risk controlled strategy trades an underlying futures contract, a transaction fee of NT ("number of ticks") ticks is charged for trading instrument #i. See columns 9 ("TICK VALUE") and 10 ("TC IN NB TICKS") of Table 1.

Index Calculation

On the Index Start Date of the Index, the Index is initialized with 100 USD. On all other Index Business Days, it is updated by summing up the profit or loss realized by each individual Index Component, taking into account its weighting and considering transaction costs.

2.5. Accuracy

The daily closing price of the Index will be rounded to two decimal places.

2.6. Publication

The level of the Index, as determined by the Index Calculation Agent (as defined below), will be reported on the financial information services (or any successor financial information service as defined by the Index Administrator in its sole and absolute discretion) listed in subchapter 6.3.

Index Type	Performance Type	Reuters	Bloomberg
Index	Excess Return Index (including fee and TCs)	.VROBUST	VROBUST <index></index>

Table 2: Currently available index and performance types with tickers



3. Index Principles

The Index is intended to reflect the performance of the investment strategy as defined in this handbook. The investment universe comprises of 11 global equity, 7 government bond markets, Gold and Silver. The strategy follows a long-only strategy using hierarchical risk parity for the determination of the weights. The portfolio is rebalanced and risk managed on a daily basis. It is aiming at realizing a volatility of 5% per annum.

4. Index Owner

The index owner is Munich Reinsurance Company ("Munich Re" or "Index Owner"). The Index Owner will retain all ownership rights, expressed or otherwise, with respect to the Index, including the ability to license, sell or transfer any or all of its ownership rights with respect to the Index.

The Index Owner has appointed an independent Index Administrator and an independent Index Calculation Agent to maintain and calculate the Index. The Index Owner may in the future terminate the appointment of the Index Calculation Agent and/or the Index Administrator and appoint a replacement Index Calculation Agent or Index Administrator.

5. Index Administrator and Index Calculation Agent

The Index Owner has entrusted the day-to-day management and maintenance of the Index to an independent Index Administrator and independent Index Calculation Agent.

The Index Administrator and the Index Calculation Agent is currently Solactive AG.

The Index Administrator and the Index Calculation Agent will maintain and employ the rules, procedures and methodology described in this document. This includes the implementation of changes to the Index and/or to the methodology under the instruction of the Index Committee (as defined below). The Index Calculation Agent is responsible for the publication of the values of the Index determined by it as well as any further publication in relation to the Index.

Subject to the terms set out in this document, any determination by the Index Calculation Agent will be made in its sole and absolute discretion by reference to such factors as it deems appropriate at such time. Any such determination by the Index Calculation Agent will, in the absence of manifest error, be final, conclusive and binding.

No assurance can be given that market, regulatory, juridical or fiscal circumstances will not arise that would, in the view of the Index Committee, make a modification or change of the methodology necessary, which then would have to be implemented by the Index Administrator.

6. Calculation during Market Disruption Events and Index Adjustments

The Index Administrator (acting as applicable through the Index Committee) may in accordance with the terms of this document, adjust the calculation of, delay or suspend the Index. Any such calculation adjustment, delay, suspension or non-publication may have a negative impact on any instruments linked to the Index.

6.1. Index Committee

The "Index Committee" is composed of staff from the Index Administrator. The Index Committee is responsible for decisions regarding any amendments to the rules of the Index.



Any such amendment, which may result in an amendment of the Handbook, must be submitted to the Index Committee for prior approval and will be made in compliance with the Methodology Policy, which is available on the Index Administrator's website: https://www.solactive.com/documents/methodology-policy/.

6.2. Market Disruption Event

In periods of market stress the Index Administrator calculates its Indices following predefined and exhaustive arrangements as described in the Index Administrator's Disruption Policy, which is incorporated by reference and available on the Index Administrator's website: https://www.solactive.com/documents/disruption-policy/.

Such market stress can arise due to a variety of reasons, but generally results in inaccurate or delayed prices for one or more Index Components. The determination of the Index may be limited or impaired at times of illiquid or fragmented markets and market stress.

6.3. Index Adjustments

Index Modification

The methodology of the Index is subject to regular review, at least annually. In this context, the Index Owner may make suggestions to the Index Administrator, which are then reviewed by the Index Administrator. In case a need of an Index Modification has been identified within such review (e.g., if the underlying market or economic reality has changed since the launch of the Index, i.e. if the present methodology is based on obsolete assumptions and factors and no longer reflects the reality as accurately, reliably and appropriately as before), such change will be made in accordance with the Index Administrator's Methodology Policy, which is reference and available on the Index Administrator's website: incorporated by https://www.solactive.com/documents/methodology-policy/.

Index Correction

The Index Administrator makes the greatest possible efforts to accurately calculate and maintain its indices. However, errors in the determination process may occur from time to time for variety reasons (internal or external) and therefore, cannot be completely ruled out.

The Index Administrator endeavors to correct all errors that have been identified within a reasonable period of time. The understanding of "a reasonable period of time" as well as the general measures to be taken are generally depending on the underlying and is specified in the Index Administrator's Correction Policy, which is incorporated by reference and available on the Index Administrator's website: https://www.solactive.com/documents/correction-policy/.

Publication of Index Adjustments

Any Index Adjustments, including changes to the Index Components, changes to the methodology or a cancellation of the Index, as decided by the Index Committee and implemented by the Index Administrator, will be publicly announced by the Index Administrator as promptly as is reasonably practicable and normally at least 60 Index Business Days prior to the effective date of such change(s).

All public announcements and changes in the Index will be announced on the Index Administrator's website under the Section "Announcement", which is available at: https://www.solactive.com/documents/methodology-policy/.

Cancelation of the Index

The Index Administrator has established and maintains clear guidelines on how to identify situations in which the cessation of the Index is unavoidable, how stakeholders are to be informed and consulted and the procedures to be followed for a termination or the transition to an alternative index. Details are specified in the



Index Administrator's Termination Policy, which is incorporated by reference and available on the Index Administrator's website: https://www.solactive.com/documents/termination-policy/.

7. Historical Data

The values of the Index between the Index Start Date and the Index Live Date have been determined by reference to historical data and must be considered as simulated and thus purely hypothetical. It is provided as an illustration of how the Index would have performed during the period had the Index Calculation Agent began calculating the Index on the Index Start Date using the methodology described in this document. This data does not reflect actual performance, nor was a contemporaneous investment model run of the Index. Whilst any such methodology or assumption is, in the view of the Index Owner, reasonable, the use of historical data may result in material differences between the simulated performance of the Index, prior to the Index Live Date, and any subsequent actual performance. The Index history before the Index Live Date has been determined by the Index Owner and has only partially been verified by the Index Calculation Agent.

Historical levels of the Index for the period from and after the Index Live Date are calculated with reference to the official closing levels of the Index Components determined based on the latest available data published by the relevant futures exchanges and/or benchmark administrators and/or as delivered via the employed information systems.

Past performance of the Index is not a reliable guide to future performance and the past performance of the Index may have been determined on terms different to those described in this Index Handbook. No assurance, representation or warranty is given of the future performance of the Index or that it will achieve its objective. Instruments linked to the Index can fluctuate in price or value and prices, values or income may fall against the interests of any investor exposed to the performance of the Index. Changes in rates of exchange, rates of interest and prices of any Index Components, among other things, may have an adverse effect on the value of the Index.



8. Contact

8.1. Index Owner

The Index Owner can be contacted at the following address:

Munich Reinsurance Company Markets Königinstrasse 107 80802 Munich Germany

Internet: http://www.munichre.com

8.2. Index Administrator

The Index Administrator can be contacted at the following address:

Solactive AG Platz der Einheit 1 60327 Frankfurt am Main Germany

Internet: http://www.solactive.com

8.3. Index Calculation Agent

The Index Calculation Agent can be contacted at the following address:

Solactive AG Platz der Einheit 1 60327 Frankfurt am Main Germany

Internet: http://www.solactive.com



9. Risk Provisions

Without prejudice to the Disclaimer in Section 9, regard should be had to the non-exhaustive risk factors below which describe events or circumstances that may affect the calculation and/or the performance of the Index and may be material for the purposes of assessing the risks associated with any investment related to the Index.

9.1 Nature of the Index

The Index is a rules-based formula that enables the value of the Index to be calculated from time to time. Although instruments may be issued or entered into whose return is linked to the performance of the Index, the Index is not itself an investment or instrument and does not give any person any entitlement to, or ownership interest in, any Index Components or any other obligation or asset referenced (directly or indirectly) by the Index.

9.2. Potential Conflicts of Interest

Potential conflicts of interest may exist in the internal teams, divisions or entities of the Munich Re Group. For example, one team may make determinations and take actions in relation to the Index in its capacity as Index Owner, while another team within the organisation may issue or promote/sell products linked to the Index.

In addition, a further team within the organisation may have trading positions in or relation to instruments and assets to which the performance of the Index is directly or indirectly linked (including any Index Component). No entity within the Munich Re Group shall have any duty or obligation to take into account any impact in the performance of the Index when effecting transactions in such instruments and assets.

9.3. Risks associated with an investment in instruments linked to the Index

Counterparty Risk

Instruments linked to the Index may be exposed to counterparty credit risk. If an entity trades, enters into or issues any such instruments and becomes insolvent it may not be able to meet all of its payment obligations.

Interaction Risk

The value of the Index is based on the performance of different investment types. Different types of financial risk may interact unpredictably on these investments, particularly in times of market stress.

Tax

The value of the Index may be reduced to account for certain taxes and other deductions and therefore, may impact the performance of the Index and returns on any instruments linked to the Index.

Duty of Care

Subject always to their regulatory obligations and except as may be required by applicable law, neither the Index Owner (including where it acts through the Index Committee) nor the Index Administrator shall have a duty of care or any fiduciary duty to any person in respect of the Index including any investor in any instrument linked to the Index. Neither the Index Owner nor the Index Administrator is acting as an investment adviser or manager or providing advice of any nature in relation to the Index or any instrument linked to the Index.

Other Risks

There is no guarantee, warranty or assurance that this document discloses all possible factors that may affect the performance of the Index and the risks of investing in any instrument that is linked to the Index.

Before investing in any such instrument, you must satisfy yourself that you fully understand the risks of such investment and you are solely responsible for making an independent appraisal of and investigation into the Index and should not rely on this document as constituting investment advice.



10. DISCLAIMER

THE INDEX OWNER AND THE INDEX ADMINISTRATOR MAY EACH BE SUBJECT TO A NUMBER OF CONFLICTS OF INTEREST IN CONNECTION WITH THEIR ROLE AND SERVICES PERFORMED WITH RESPECT TO THE INDEX. IN THE EVENT THAT SUCH CONFLICTS ARISE, THE INDEX OWNER AND THE INDEX ADMINISTRATOR SHALL USE THEIR REASONABLE ENDEAVOURS TO RESOLVE SUCH CONFLICTS OF INTEREST FAIRLY (HAVING REGARD TO THEIR RESPECTIVE OBLIGATIONS AND DUTIES).

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