Munich RE

INDEX HANDBOOK

FIVE
Pension Strategy Index

FIVE

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1. Overview

The FIVE PENSION STRATEGY INDEX (the "**Index**") is a risk controlled total return index denominated in EUR. The Index is comprised of 2 sub-indices (the "**Sub-Indices**"). The first sub-index (the "**FIVE Pension Strategy Beta Index**" or the "**BETA Index**") represents an equity beta investment strategy by implementing a long-only fixed-proportion investment strategy in a variety of global equity index markets. The second sub-index (the "**FIVE Liquid Alternative Beta Index**" or the "**LAB Index**") represents a liquid alternative beta investment strategy by combining two momentum-based and two carry-based dynamic investment strategies.

"**Index Calculation Days**" are all weekdays except Munich[1] holidays. In case of a holiday on a relevant 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 indicative. "Index Business Days" are all Index Calculation Days, on which all underlying instrument markets are fully open for business. ***In the case a contract payoff is linked to the Index, the related contract is only tradable on Index Business Days. On all remaining Index Calculation Days, the index level is published for information purposes only*.**

The value of the Index is calculated on each Index Calculation Day t and shall reflect constituent futures prices as of APAC market close. Hence, for non-APAC listed index constituents, the futures price as of Index Calculation Day t is actually the settlement price of the relevant futures exchange as of the respective previous Futures Trading Day.

The Index is administered, calculated and published by the Index Administrator, as defined below, under the Regulation (EU) 2016/1011 (the "Benchmark Regulation" or "BMR").

The "**Index Live Date**", which is the date the Index Administrator began calculating the Index and will be recorded in accordance with Article 8 of the BMR, is 1 February 2019. The Index time series starts on 4 January 1999; the calculation of the Top-Level Index has been initiated on 2 February 1998 and the Sub-Index time series began as of 2 January 1998 (each of these date the "**Index Start Date**"). The Index starts with an initial value of 100 EUR on its Index Live Date.

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

2. Index Calculation

This sections explains how the FIVE Pension Strategy Index and all included sub-indices are calculated.

2.1 Index Structure

The FIVE Pension Strategy Index combines its two Sub-Indices into one portfolio. Furthermore, the Index applies a target volatility risk management strategy to this portfolio and transforms excess returns into total returns by using a EUR money market yield (€STR plus 0.085%).

[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.

While the BETA Index consists of a portfolio of global equity index futures, the LAB Index is an aggregation of different alternative risk premia investment strategies.

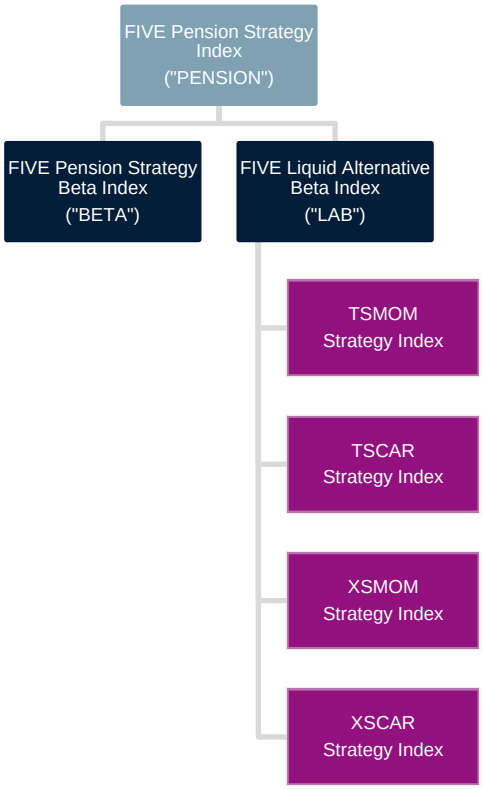

Figure 1: Index-structure PENSION

The Index Handbook starts with the description of FIVE Pension Strategy Index. Afterwards, the FIVE Pension Strategy Beta Index and the FIVE Liquid Alternative Beta Index (including its four strategy indices: TSMOM = time-series momentum, TSCAR = time-series carry, XSMOM = cross-sectional carry, XSCAR = cross-sectional carry) are explained.

2.2 Index Composition

The table below lists all individual markets used in the Index and its Strategy Indices. The last five columns express which markets are used in each Strategy Index (Y: yes, N: no).

# MARKET	ASSET CLASS	FUTURES MARKET	TICKER PREFIX[ii]	TICKER EXTENSION[2]	FX RATE	TC IN NB TICKS	BETA	TSMOM	XSMOM	TSCAR	XSCAR
#1	CO	NYMEX WTI Light Sweet Crude Oil	CL	Comdty	USD/EUR	1	N	Y	Y	Y	Y
#2	CO	ICE Brent Crude	CO	Comdty	USD/EUR	1	N	Y	Y	Y	Y

[2] Ticker as currently available on the market information service by Bloomberg L.P.

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#3	CO	COMEX Gold	GC	Comdty	USD/EUR	1	N	Y	Y	Y	Y
#4	CO	COMEX Copper	HG	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#5	CO	NYMEX NY Harbor ULSD	HO	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#6	CO	NYMEX Natural Gas	NG	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#7	CO	NYMEX Platinum	PL	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#8	CO	ICE Low Sulphur Gasoil	QS	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#9	CO	COMEX Silver	SI	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#10	CO	NYMEX RBOB Gasoline	XB	Comdty	USD/EUR	2	N	Y	Y	Y	Y
#11	EQ	Euronext CAC 40	CF	Index	1	2	N	Y	Y	Y	Y
#12	EQ	CME E-mini DJIA	DM	Index	USD/EUR	1	N	Y	Y	N	N
#13	EQ	CME E-mini S&P 500	ES	Index	USD/EUR	1	Y	Y	Y	Y	Y
#14	EQ	CME E-mini S&P MidCap 400	FA	Index	USD/EUR	2	Y	Y	Y	Y	Y
#15	EQ	Eurex DAX	GX	Index	1	1	N	Y	Y	Y	Y
#16	EQ	HKFE Hang Seng	HI	Index	HKD/EUR	1	N	Y	Y	Y	Y
#17	EQ	OSE Nikkei 225	NK	Index	JPY/EUR	1	Y	N	N	N	N
#18	EQ	OSE Topix	TP	Index	JPY/EUR	1	N	Y	Y	Y	Y
#19	EQ	CME E-mini NASDAQ-100	NQ	Index	USD/EUR	1	N	Y	Y	N	N
#20	EQ	CME E-mini Russell 2000	RTY	Index	USD/EUR	2	N	Y	Y	Y	Y

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#21	EQ	Eurex SMI	SM	Index	CHF/EUR	2	N	Y	Y	Y	Y
#22	EQ	Eurex STOXX Europe 600	SXO	Index	1	1	Y	N	N	N	N
#23	EQ	Eurex EURO STOXX 50	VG	Index	1	1	N	Y	Y	Y	Y
#24	EQ	ASX SPI 200	XP	Index	AUD/EUR	2	N	Y	Y	Y	Y
#25	EQ	ICE FTSE 100	Z	Index	GBP/EUR	1	N	Y	Y	Y	Y
#26	FI	MX 10Y CGB	CN	Comdty	CAD/EUR	2	N	Y	Y	Y	Y
#27	FI	ICE Long Gilt	G	Comdty	GBP/EUR	1	N	Y	Y	Y	Y
#28	FI	OSE 10Y JGB	JB	Comdty	JPY/EUR	1	N	Y	Y	Y	Y
#29	FI	Eurex Euro-OAT	OAT	Comdty	1	1	N	Y	Y	Y	Y
#30	FI	Eurex Euro-Bund	RX	Comdty	1	1	N	Y	Y	Y	Y
#31	FI	CBOT 10Y US T-Note	TY	Comdty	USD/EUR	1	N	Y	Y	Y	Y
#32	FI	Eurex Euro-Buxl	UB	Comdty	1	2	N	Y	Y	N	N
#33	FI	CBOT 30Y US T-Bond	US	Comdty	USD/EUR	1	N	Y	Y	N	N
#34	FI	ASX 10Y Australian T-Bonds	XM	Comdty	AUD/EUR	1	N	Y	Y	N	N
#35	FX	CME AUD/USD	AD	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#36	FX	CME GBP/USD	BP	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#37	FX	CME CAD/USD	CD	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#38	FX	CME EUR/USD	EC	Curncy	USD/EUR	1	N	Y	Y	Y	Y

#39	FX	CME JPY/USD	JY	Curncy	USD/EUR	1	N	Y	Y	Y	Y
#40	FX	CME NOK/USD	NO	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#41	FX	CME NZD/USD	NV	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#42	FX	CME SEK/USD	SE	Curncy	USD/EUR	2	N	Y	Y	Y	Y
#43	FX	CME CHF/USD	SF	Curncy	USD/EUR	2	N	Y	Y	Y	Y

Table 1: Investment universe

Futures Roll Indices

All Index Components are 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 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 FIVE Pension Strategy Index

The FIVE Pension Strategy Index (the "**PENSION Index**") aggregates the two Sub-Indices, the FIVE Pension Strategy Beta Index and the FIVE Liquid Alternative Beta Index, using notional weights of 60% and 40%. The portfolio is rebalanced and reweighted on a monthly basis. On top, there is a risk control overlay which is updated on a daily basis.

# SUB-INDEX	SUB-INDEX NAME	CURRENCY	INDEX TYPE	WEIGHT
#1	FIVE Pension Strategy Beta Index ("BETA")	EUR	Excess Return Index (without Fee and without TCs)	60%
#2	FIVE Liquid Alternative Beta Index ("LAB")	EUR	Excess Return Index (without Fee and without TCs)	40%

Table 2: PENSION Sub-Indices

While the BETA Index is a fixed proportion portfolio comprised of global blue chip equity index markets, the LAB Index is a portfolio of four different liquid alternative beta investment strategies. For all these indices, the rebalancing process is carried out at the beginning of each calendar month. All non-EUR components are hedged into EUR on a daily basis. Market-consistent transaction costs are taken into account for each individual market on a per-trade basis, i.e. each weight change triggers transaction costs.

The FIVE Pension Strategy Index is aiming at realizing a target volatility of 5% per annum. The theoretical leverage is capped at a factor of 5. An EWMA based volatility estimator is used to realize the aforementioned volatility level, where lambda equals 0.98 and either uses 19 or 89 return observations, whichever measures the higher volatility.

2.4 Sub-Index 1: FIVE Pension Strategy Equity Beta Index

The FIVE Pension Strategy Equity Beta Index aims at tracking global developed equity markets while aiming at keeping a constant volatility level over time. It combines several blue chip equity index markets into one portfolio. The portfolio is long-only and has a fixed allocation. The target weights are provided in Table 1. Rebalancing and reweighting events occur on a monthly basis. The rebalancing process is carried out at the beginning of each calendar month. All non-EUR components are hedged into EUR on a daily basis.

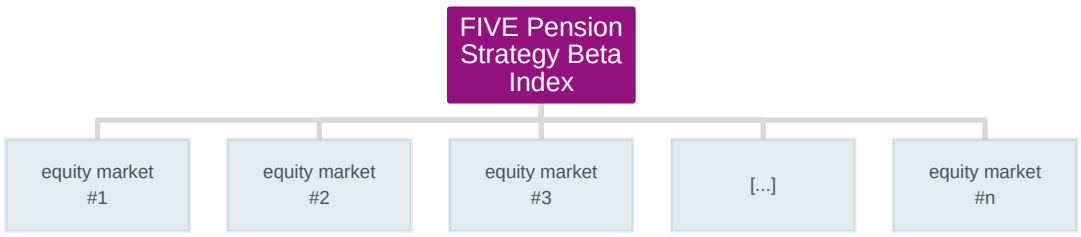

Figure 2: Index-structure BETA

The FIVE Pension Strategy Equity Beta Index is risk-controlled and aiming at realizing a target volatility of 5% per annum using a theoretical maximum leverage of 1 (i.e. no leverage). An EWMA based volatility estimator is used to realize the aforementioned volatility level, where lambda equals 0.98 and either uses 19 or 89 return observations, whichever measures the higher volatility.

# MARKET[3]	FUTURES MARKET	TICKER PREFIX[ii]	TICKER EXTENSION[4]	% NOTIONAL WEIGHT
#13	CME E-mini S&P 500	ES	Index	25%
#14	CME E-mini S&P MidCap 400	FA	Index	25%
#17	OSE Nikkei 225	NK	Index	10%
#21	Eurex STOXX Europe 600	SXO	Index	35%

[3] See Table 1.

[4] Ticker as currently available on the market information service by Bloomberg L.P.

#23	ASX SPI 200	XP	Index	5%

Table 3: BETA Sub-Index allocation

2.5 Sub-Index 2: FIVE Liquid Alternative Beta Index

The FIVE Liquid Alternative Beta Index (the "LAB Index") is tracking a basket of four long/short liquid alternative beta investment strategies (each a "**LAB Sub-Index**") while aiming at keeping a constant volatility level over time.

# SUB-INDEX	LAB SUB-INDEX NAME	RETURN TYPE	CURRENCY
#1	TSMOMS Sub-Index	Excess Return	USD
#2	TSCARS Sub-Index	Excess Return	USD
#3	XSMOMS Sub-Index	Excess Return	USD
#4	XSCARS Sub-Index	Excess Return	USD

Table 4: LAB Sub-Indices

The four LAB Sub-Indices are all long/short portfolios, of which two are driven by momentum- and two by carry-signals. The momentum and carry strategies are both implemented on a cross-sectional and a time-series basis. The four LAB Sub-Indices are:

- Time-series momentum ("TSMOM"),
- Time-series carry ("TSCAR"),
- Cross-sectional momentum ("XSMOM"),
- Cross-sectional carry ("XSCAR").

The LAB Sub-Indices are weighted inversely proportional to their volatility and the weightings are implemented in the course of the monthly rebalancing process. Portfolio rebalancings (i.e. portfolio reweightings and repositionings) occur on the first Index Business Day of each calendar month, assuming all Index Components are open for business. If this is not the case, the prior Index Business Day fulfilling this condition is used. Rebalancings induced by the overlaid risk control mechanism may occur on a daily basis. All non-EUR components are hedged into EUR on a daily basis.

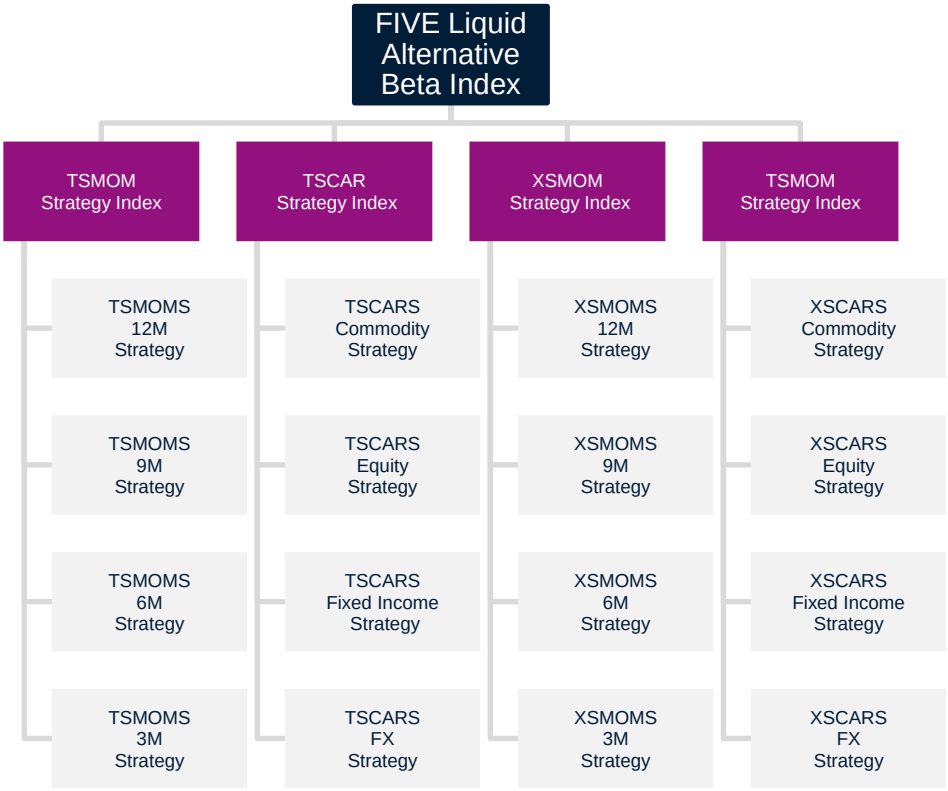

Figure 3: Index-structure LAB

The FIVE Liquid Alternative Beta Index Index is risk-controlled and aiming at realizing a target volatility of 5% per annum. The theoretical leverage is capped at a factor of 5. An EWMA based volatility estimator is used to realize the aforementioned volatility level, where lambda equals 0.98 and either uses 19 or 89 return observations, whichever measures the higher volatility.

2.5.1 Metric Definitions

The following sections describe the momentum and carry metric used to derive investment signals in the cross-asset investment universe. As momentum is based on past performance it can be applied identically to all assets and asset-classes. While carry is also defined universally across asset classes, it needs data input specific to the individual asset classes.

2.5.1.1 Momentum

Definition

Price momentum is defined the past excess performance of a market over a certain period of time. The applied lookback lengths are 3, 6, 9 and 12 months. Local Exchange Futures Roll Indices (“LEFRIs”) are used to calculate price momentum. The risk-adjusted momentum is defined as the ratio of price momentum divided by the asset’s annualized volatility (measured as standard deviation) over the respective lookback period.

Local Exchange Futures Roll Indices

A Local Exchange Futures Roll Index (“LEFRI”) is a futures position continuously rolled in the Active Contract using the holiday calendar of the relevant futures exchange. Local Exchange Futures Roll Indices are calculated for all covered futures markets.

2.5.1.2 Carry

Definition

The carry, or Carry Yield is defined as the expected return of an asset assuming its price does not change. Using the term structure of futures curves it is possible to derive a universal definition of carry across different asset classes. Depending on the major (spot and futures) price determinants in each asset class, simplified proxies for the Carry Yield can be derived.

A generalized, cross-asset approach to calculating the Carry Yield for futures markets can be applied, provided the markets being sufficiently liquid over several different maturity dates. If this liquidity condition is fulfilled, the carry signals can be derived by analysing the shape of the futures market's term structure.

A negative term structure slope translates into a positive Carry Yield, a positive slope means the Carry Yield is negative. The actual input variables to calculate the Carry Yield vary from asset class to asset class.

Commodities

In order to be able to calculate a standardized set of carry signals for commodity futures, Constant Maturity Futures Indices ("CMFI") are introduced. Commodity futures term structures are typically sufficiently liquid to be able to perform this task. For the purpose of deriving a carry value for a commodities futures market, a longer-term CMFI with a constant maturity of 13 months and a shorter-term CMFI with a constant maturity of 1 month is calculated using the two nearest neighboring live futures contract (listed on the respective derivatives exchange) around the respective CMFI maturity date on the considered day.

The standardization is achieved by fitting the weight of the futures contract having nearest shorter maturity date and the weight of the futures contract having the nearest longer maturity date such that the combined time to maturity is identical to the CMFI term, and the combined weighted price yields the CMFI level.

In the next step, the Carry Yield for the respective commodities market can be determined by using the ratio of the 13 months CMFI and the 1 month CMFI.

Equity Indices

Equity index carry is proxied by using equity index (12 month forward) dividend estimates and (12 month) interest rates. This step is necessary, as equity index futures markets are typically only liquid in their front contract. Thus a Carry Yield cannot directly be obtained using the futures curve. To arrive at a proxy Carry Yield for an individual equity index, an appropriate 1 year funding rate in the respective equity index currency is deducted from the aggregated analyst dividend yield estimates for a 1 year forward looking time window, assuming these are the main factors responsible for the shape of the equity index futures curve.

Fixed Income

Fixed income carry is proxied by using the slope of the considered yield curve plus its roll-down effect. This step is necessary, as government bond futures markets are typically only liquid in their front contract. Thus a Carry Yield cannot directly be obtained using the futures curve. To determine the slope of the yield curve, the duration-adjusted difference of a longer-term (10 years) government bond and a shorter-term (3 months) yield is used.

Roll-down is defined as the duration-adjusted difference of a longer-term (10 years) government bond and a medium-term (5 years) government bond yield is used.

The fixed income carry value is derived summing up the slope and the roll-down term, assuming these are the main factors responsible for the shape of the equity index futures curve.

Foreign Exchange

For FX carry, FX spot and forward levels are necessary for below mentioned currency pairs. After standardizing all FX inputs (FX spot and FX forward points) to reflect a uniform quotation (American terms, USD as base currency), comparable carry levels can be derived.

The proxy used for FX carry is defined as the ratio of FX spot to FX forward level (3 months forwards).

2.5.2 TSMOMS Sub-Index

The TSMOMS ("Time-Series Momentum Strategy") Sub-Index is comprised of 4 strategy Sub-Indices, implementing an investment strategy based on time-series momentum ("TSMOM").

The strategy sub-indices are named Asset Class Sub-Indices ("ACSI"), as these are using different investment universes depending on their asset class membership; there is a Commodity, an Equity, a Fixed Income and an FX Sub-Index.

Each of the four ACSIs is comprised of four different **Trend Strategy Sub-Indices ("TSSI")**. The trend strategies implemented in this index are based on time-series momentum, considering the univariate trend behaviour of the respective assets. TSSIs are using the same asset class universe, but a different lookback period in the momentum metric.

Trend Strategy Sub-Indices ("TSSIs")

There are four TSSIs in one ACSI, whose asset universe is determined by its asset class.

Step 1: Classification into Long or Short Positions
Inside each TSSI, in order to determine the position of each individual market, on each Rebalancing Day the price momentum is checked. In case of a positive momentum value, a long position is established in the respective futures market. In case of a negative momentum value, a short position is established in the respective futures market. Otherwise it is given a zero weight.

Step 2: Weight Determination
On a Rebalancing Day the Index Components' notional percentage weights are reset so that all positions in the respective ACSI contribute the same amount of risk, expressed as standard deviation of daily log-returns over 90 Index Business Days, to the ACSI. The weights are rounded to four decimal places. These weights are transformed into number of futures, which are fixed until the next monthly Rebalancing Day.

Asset Class Sub-Indices ("ACSIs")

Each ACSI aggregates its four TSSIs into one portfolio. The TSSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. Each ACSI consists of a certain number of units of each TSSI, which are calculated using the TSSIs notional percentage weights.

Each ACSI is the sum of the daily USD profit/loss numbers of the four TSSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios. Futures Roll Index daily profit/loss is transferred into USD, in case these are not denominated in USD.

Calculation of the TSMOMS Sub-Index

The TSMOMS Sub-Index aggregates its four ACSIs into one portfolio. The ACSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. The XSCARS Sub-Index consists of a certain number of units of each ACSI, which are calculated using the ACSIs notional percentage weights.

The TSMOMS Sub-Index is the sum of the daily USD profit/loss numbers of the four ACSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios.

2.5.3 TSCARS Sub-Index

The TSCARS ("Time-Series Carry Strategy") Sub-Index is comprised of 4 strategy Sub-Indices, implementing an investment strategy based on time-series carry ("TSCAR") in the respective asset class.

The strategy sub-indices are named **Asset Class Sub-Indices** ("**ACSI**"), as these are using different investment universes depending on their asset class membership; there is a Commodity, an Equity, a Fixed Income and an FX Sub-Index.

Asset Class Sub-Indices ("ACSIs")

All relevant Carry Yields are determined on each Rebalancing Day of the Index. Afterwards, these results are translated into long, short or flat positions for each ACSI and its components.

Step 1: Classification into Long or Short Positions

Inside each ACSI, in order to determine the position of each individual market, on each Rebalancing Day the Carry Yield is checked. In case of a positive Carry Yield, a long position is established in the respective futures market. In case of a negative Carry Yield, a short position is established in the respective futures market. Otherwise it is given a zero weight.

Step 2: Weight Determination

On a Rebalancing Day the Index Components' notional percentage weights are reset so that all positions in the respective ACSI contribute the same amount of risk, expressed as standard deviation of daily log-returns over 90 Index Business Days, to the ACSI. The weights are rounded to four decimal places. These weights are transformed into number of futures, which are fixed until the next monthly Rebalancing Day.

Calculation of the TSCARS Sub-Index

The TSCARS Sub-Index aggregates its four ACSIs into one portfolio. The ACSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. The TSCARS Sub-Index consists of a certain number of units of each ACSI, which are calculated using the ACSIs notional percentage weights.

The TSCARS Sub-Index is the sum of the daily USD profit/loss numbers of the four ACSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios.

2.5.4 XSMOMS Sub-Index

The XSMOMS ("Cross-Sectional Momentum Strategy") Sub-Index is comprised of 4 strategy Sub-Indices, implementing an investment strategy based on cross-sectional momentum ("XSMOM").

The strategy sub-indices are named Asset Class Sub-Indices ("ACSI"), as these are using different investment universes depending on their asset class membership; there is a Commodity, an Equity, a Fixed Income and an FX Sub-Index.

Each of the four ACSIs is comprised of four different **Trend Strategy Sub-Indices** ("**TSSI**"). The trend strategies implemented in this index are based on time-series momentum, considering the univariate trend behaviour of the respective assets. TSSIs are using the same asset class universe, but a different lookback period in the momentum metric.

Trend Strategy Sub-Indices ("TSSIs")

There are four TSSIs in one ACSI, whose asset universe is determined by its asset class. All relevant risk-adjusted momentum metrics are determined on each Rebalancing Day of the Index. Afterwards, these results are translated into long, short or flat positions for each TSSI and its components.

Step 1: Ranking and Classification into Long or Short Positions

This is done by ranking the assets in each TSSI by their price momentum. The highest momentum asset is assigned the top-rank, the lowest carry asset is assigned the bottom-rank, and all other assets accordingly using their carry rank in between these two. The asset class universe is then divided into two parts (median split) with the same number of assets. If the TSSI is comprised of an uneven number of assets, this leads to one asset being left out. All assets of the top half are going to be long positions until the next Rebalancing Day, all assets of the bottom half are going be short positions until the next Rebalancing Day.

Step 2: Weight Determination

On a Rebalancing Day the Index Components' notional percentage weights are reset so that all positions in the respective TSSI contribute the same amount of risk, expressed as standard deviation of daily log-returns over 90 Index Business Days, to the TSSI. The weights are rounded to four decimal places. These weights are transformed into number of futures, which are fixed until the next monthly Rebalancing Day.

Asset Class Sub-Indices ("ACSIs")

Each ACSI aggregates its four TSSIs into one portfolio. The TSSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. Each ACSI consists of a certain number of units of each TSSI, which are calculated using the TSSIs notional percentage weights.

Each ACSI is the sum of the daily USD profit/loss numbers of the four TSSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios. Futures Roll Index daily profit/loss is transferred into USD, in case these are not denominated in USD.

Calculation of the XSMOMS Sub-Index

The XSMOMS Sub-Index aggregates its four ACSIs into one portfolio. The ACSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. The XSMOMS Sub-Index consists of a certain number of units of each ACSI, which are calculated using the ACSIs notional percentage weights.

The XSMOMS Sub-Index is the sum of the daily USD profit/loss numbers of the four ACSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios.

2.5.5 XSCARS Sub-Index

The XSCARS ("Cross-Sectional Carry Strategy") Sub-Index is comprised of 4 strategy Sub-Indices, implementing an investment strategy based on cross-sectional carry ("XSCAR") in the respective asset classes.

The strategy Sub-Indices are named **Asset Class Sub-Indices** ("**ACSI**"), as these are using different investment universes depending on their asset class membership; there is a Commodity, an Equity, a Fixed Income and an FX Sub-Index.

Asset Class Sub-Indices ("ACSIs")

All relevant Carry Yields are determined on each Rebalancing Day of the Index. Afterwards, these results are translated into long, short or flat positions for each ACSI and its components.

Step 1: Ranking and Classification into Long or Short Positions
This is done by ranking the assets in each ACSI by their Carry Yield. The highest carry asset is assigned the top-rank, the lowest carry asset is assigned the bottom-rank, and all other assets accordingly using their carry rank in between these two. The asset class universe is then divided into two parts with the same number of assets. If the ACSI is comprised of an uneven number of assets, this leads to one asset being left out. All assets of the top half are going to be long positions until the next Rebalancing Day, all assets of the bottom half are going be short positions until the next Rebalancing Day.

Step 2: Weight Determination
On a Rebalancing Day the Index Components' notional percentage weights are reset so that all positions in the respective ACSI contribute the same amount of risk, expressed as standard deviation of daily log-returns over 90 Index Business Days, to the ACSI. The weights are rounded to four decimal places. These weights are transformed into number of futures, which are fixed until the next monthly Rebalancing Day.

Calculation of the XSCARS Sub-Index

The XSCARS Sub-Index aggregates its four ACSIs into one portfolio. The ACSIs are weighted inversely proportional to their volatility and the weightings are also implemented in the course of the monthly rebalancing process. The XSCARS Sub-Index consists of a certain number of units of each ACSI, which are calculated using the ACSIs notional percentage weights.

The XSCARS Sub-Index is the sum of the daily USD profit/loss numbers of the four ACSIs, which can be derived using the daily USD profit/loss numbers for all relevant Futures Roll Indices inside the asset class portfolios.

2.6 Accuracy

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

3. Index Principles

The Index is intended to reflect the performance of the investment strategy as defined in this handbook. The Index is denominated in EUR and calculated on a total return basis. The investment universe comprises of initially 42 diverse futures markets from the following asset classes: bonds, commodities, equities and foreign exchange. The Index implements a mix of global developed equity index markets with a basket of four dynamic alternative beta investment strategies. Allocation rebalancings and/or repositionings of the portfolio, as well as its sub-components, occur on a monthly basis. The Index is risk controlled on a daily basis. The Index 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 Calculation Agent to maintain and calculate the Index. The Index Owner may in the future terminate the appointment of the Index Calculation Agent and appoint a replacement index calculation agent.

5. Index Administrator and Index Calculation Agent

The Index Owner has entrusted the day-to-day management and maintenance of the Index, the Top-Level Index and its Sub-Indices to an index administrator, who will also fulfil the function of index calculation agent (the "**Index Administrator**").

The Index Administrator is currently Solactive AG.

The Index Administrator will maintain and employ the rules, procedures and methodology described in this document. This includes the implementation of changes to the Index, the Top-Level Index and its Sub-Indices and/or to the methodology under the instruction of the Index Committee (as defined below). The Index Administrator 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 Administrator 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 Administrator 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 Oversight Committee

The "**Oversight Committee**" is composed of staff from the Index Administrator. The Oversight 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 Oversight 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 a 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 incorporated by reference and available on the Index Administrator's website: 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 contactedbe at the following address:

Munich Reinsurance Company
MARKETS
Königinstr. 107
80802 München
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 the following section 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, the Index Administrator (including where it acts through the Index Committee) nor the Index Calculation Agent 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, the Index Administrator nor the Index Calculation Agent 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, THE INDEX ADMINISTRATOR AND THE INDEX CALCULATION AGENT 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, THE INDEX CALCULATION AGENT AND THE INDEX ADMINISTRATOR SHALL USE THEIR REASONABLE ENDEAVOURS TO RESOLVE SUCH CONFLICTS OF INTEREST FAIRLY (HAVING REGARD TO THEIR RESPECTIVE OBLIGATIONS AND DUTIES).

ALTHOUGH THE INDEX OWNER, THE INDEX ADMINISTRATOR AND THE INDEX CALCULATION AGENT, AS APPLICABLE, WILL EACH OBTAIN INFORMATION FOR INCLUSION IN OR FOR USE IN THE PROVISION OF THE INDEX FROM SOURCES WHICH THE INDEX OWNER OR THE INDEX ADMINISTRATOR CONSIDERS RELIABLE, NEITHER THE INDEX OWNER NOR THE INDEX ADMINISTRATOR NOR THE INDEX CALCULATION AGENT WILL INDEPENDENTLY VERIFY SUCH INFORMATION AND OR GUARANTEE THE ACCURACY AND/OR THE COMPLETENESS OF THE INDEX OR ANY DATA INCLUDED THEREIN. THE INDEX IS COMPILED BY THE INDEX ADMINISTRATOR AND CALCULATED BY THE INDEX CALCULATION AGENT. POTENTIAL INVESTORS SHOULD BE AWARE THAT THE INDEX ADMINISTRATOR HAS A NUMBER OF SIGNIFICANT DISCRETIONS IN RELATION TO THE PROVISION OF THE INDEX.

THE INDEX OWNER, ANY OF ITS AFFILIATES, THE INDEX ADMINISTRATOR OR THE INDEX CALCULATION AGENT DO NOT MAKE ANY EXPRESS OR IMPLIED WARRANTY OR REPRESENTATION WHATSOEVER AS TO (A) THE ADVISABILITY OF PURCHASING OR ASSUMING ANY RISK IN CONNECTION WITH ANY TRANSACTIONS ANY INVESTMENTS OR TRADING PRODUCTS OR STRATEGIES BASED ON, INDEXED TO OR OTHERWISE RELATED TO THE INDEX, (B) THE RESULTS TO BE OBTAINED FROM THE USE OF THE INDEX OR ANY DATA INCLUDED THEREIN IN CONNECTION WITH ANY LICENSED RIGHTS OR FOR ANY OTHER USE, (C) THE LEVEL AT WHICH THE INDEX STANDS OR WILL STAND, ANY INDEX COMPONENT, OR THE WEIGHT OF ANY INDEX COMPONENT AT ANY PARTICULAR TIME ON ANY PARTICULAR DAY OR (D) ANY OTHER MATTER. NEITHER THE INDEX OWNER NOR ANY OF ITS AFFILIATES MAKES ANY EXPRESS OR IMPLIED REPRESENTATIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INDEX OR ANY DATA INCLUDED THEREIN. A POTENTIAL INVESTOR IN, OR COUNTERPARTY TO, PRODUCTS BASED ON THE INDEX HAS NO DIRECT RECOURSE TO EITHER THE INDEX OWNER OR ANY OF ITS AFFILIATES AND THE CHARACTERISTICS AND RISKS ASSOCIATED WITH SUCH PRODUCTS ARE AVAILABLE IN THE PRODUCT RELATED DOCUMENTS.

THE INDEX CALCULATION AGENT AND THE INDEX ADMINISTRATOR SHALL NOT BE LIABLE (IN NEGLIGENCE OR OTHERWISE) TO ANY PERSON FOR ANY ERROR IN THIS INDEX, OR ANY DELAY OR OMISSION OR FOR THE QUALITY, ACCURACY, TIMELINESS AND/OR COMPLETENESS OF THIS DOCUMENT AND IT SHALL NOT BE UNDER ANY OBLIGATION TO ADVISE ANY PERSON OF THE FOREGOING. WITHOUT LIMITING ANY OF THE FOREGOING, NEITHER THE INDEX CALCULATION AGENT NOR THE INDEX ADMINISTRATOR SHALL HAVE IN ANY EVENT ANY LIABILITY (WHETHER IN NEGLIGENCE OR OTHERWISE) TO ANY PERSON FOR ANY INDIRECT, SPECIAL, PUNITIVE OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS) EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

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