MCX INDIA COMMODITY INDICES

METHODOLOGY

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1. INTRODUCTION

1.1 MCX India Commodity Indices (MCX iCOMDEX®)

This Methodology document contains the rules for calculating the various indices that are a part of the MCX India Commodity Indices (MCX iCOMDEX®) family, collectively referred to as MCX India Commodity Indices. This Methodology and all information contained herein is the exclusive property of Multi Commodity Exchange of India Ltd. or its affiliates ("MCX") as applicable. MCX shall have no liability to any person or entity for the accuracy or completeness of the information contained herein.

MCX India Commodity Indices (MCX iCOMDEX®) are excess return indices which consist of Single Commodity Indices, Sectoral Indices and Composite Indices. MCX iCOMDEX® indices derive values from prices of futures contracts traded on MCX. These indices have a base value of 10,000 at market close as on December 31, 2015.

The indices disseminated under the MCX iCOMDEX® family of indices include the following Composite, Sectoral and Single Commodity Indices (Codes are indicated in parentheses):

1. MCX iCOMDEX COMPOSITE INDEX (MCXCOMPDEX)
2. MCX iCOMDEX BULLION INDEX (MCXBULLDEX)
3. MCX iCOMDEX BASE METAL INDEX (MCXMETLDEX)
4. MCX iCOMDEX ENERGY INDEX (MCXENRGDEX)
5. MCX iCOMDEX GOLD INDEX (MCXGOLDEX)
6. MCX iCOMDEX SILVER INDEX (MCXSILVDEX)
7. MCX iCOMDEX ALUMINIUM INDEX (MCXALUMDEX)
8. MCX iCOMDEX COPPER INDEX (MCXCOPRDEX)
9. MCX iCOMDEX LEAD INDEX (MCXLEADEX)
10. MCX iCOMDEX ZINC INDEX (MCXZINCDEX)
11. MCX iCOMDEX CRUDE OIL INDEX (MCXCRUDEX)
12. MCX iCOMDEX NATURAL GAS INDEX (MCXNGASDEX)

1.2 Rationale for the Methodology

Excess return index is considered to be ideal for benchmarking and trading as along with price returns, it also shows the return attributed to rolling of constituent contracts to a new expiry, reflecting true market conditions. The Composite Index provides broad-based exposure to the commodities traded at MCX.

1.3 Definitions

- **Excess Return Index**: The Index is an excess return index means that it measures the returns accrued from investing in uncollateralized commodity futures or, in other words, the sum of the price return and the roll return associated with an investment in and the roll of commodity futures.

- **Rebalancing**: Periodic index rebalancing leading to redistribution of weights based on an assessment of the economic significance and the liquidity of each of the constituent futures contract.

- **Market Emergency**: Market emergency is any unscheduled and extraordinary condition that impacts the normal, regular functioning of the markets, such as interruptions to market liquidity or any other extra-ordinary market situation deemed as a Market Emergency by Index Administrator.

- **Rollover Days**: Rollover days or roll period refers to the period during which commodity futures contract prices using which the indices are computed are shifted to the prices of immediate next expiry contract in a gradual manner.

- **Rollover Disruption Event**: A Rollover Disruption Event is defined as any day, on which a commodity is scheduled to roll, in which either the clearing corporation does not publish an official settlement price for the commodity, or the exchange declares a holiday.

- **Single Commodity Index:** A single commodity index is designed to reflect the performance of an individual commodity using listed commodity futures contracts with a well-defined roll-over period.

- **Sectoral Index:** A sectoral index reflects the performance of commodities representing a particular segment like Bullion, Base Metal, Energy, Agriculture etc.

- **Composite Index:** A composite index reflects the performance of commodities representing more than one sector.

- **Business day**: A day when MCX is open for trading. Special trading days, e.g. *Muhurat* Trading Day, is not considered a 'business day' for the purpose of index rollover.

- **MCX / 'The Exchange':** Unless otherwise indicated, shall mean Multi Commodity Exchange of India or its affiliates or its subsidiaries.

2. INDEX CONSTRUCTION

The Index composition is rebalanced by MCX each year as set forth in this Methodology by the Index Administration team under the oversight of the Index Administrator and Index Action Committee. Any significant deviations from established procedures set forth in this methodology shall be reviewed by the Index Action Committee.

2.1 Frequency of Rebalancing of Weights

Constituents of MCX India Commodity Indices (MCX iCOMDEX) are selected annually and rebalanced by the Index Administration team before the start of the January roll period for all individual commodities within both the Sectoral and Composite commodity indices. Commodity selections and weights are first published no later than three months before the rebalance date and are published through notifications on MCX website. If necessary, an unscheduled rebalancing of MCX iCOMDEX indices, may also be undertaken.

2.2 Selection of Index Constituents (Eligibility Criteria)

Commodities that are significant to the Indian economy and represented by a liquid futures contract listed on MCX are selected as constituents of the MCX iCOMDEX indices. To be eligible as a constituent during the time of rebalancing of the Composite Index, the individual index constituents must meet the following criteria:

1. Constituent futures contracts should be in existence on MCX for at least previous twelve months.

2. Constituent futures contracts must have a traded history for at least 90% of the trading days during preceding twelve months.

3. Average daily turnover of the constituent futures contracts during the previous twelve months should be at least:
    a. INR 75 Crore for agriculture and agri-processed commodities
    b. INR 500 Crore for all other commodities

Constituents having at least 80% combined weightages in the composite index shall meet this turnover criterion and no single constituent not meeting this criterion shall have a weightage of more than 15% in the Composite Index.

Such a constituent, not meeting above criteria (from both agri and agri-processed commodity segment as well other commodities segment) shall have an average daily turnover of at least INR 75 Crore during previous twelve months for inclusion as a new constituent in the index. Further,

such an existing index constituent (from both agri and agri-processed commodity segment as well other commodities segment), shall have an average daily turnover of at least INR 25 Crore during previous twelve months, for continuing to remain eligible.

For commodities with futures trading in more than one constituent futures contracts differing only on lot size, the constituent futures contract with highest turnover in previous twelve month will be eligible for inclusion as constituent in index, subject to meeting other criteria stated above.

The Average Daily Turnover of each commodity shall be estimated by dividing the total turnover during the estimation period (previous twelve months) by the total number of trading days of the respective commodity at MCX. The Average Daily Turnover in previous twelve months for eligible commodity constituent futures contract is provided in Table 1.

Constituent found eligible for inclusion as a new constituent or continuing as the constituent at the time of rebalancing in the Composite Index as per criteria listed above, will also be deemed to be eligible for inclusion as a new constituent or a continuing constituent at the time of rebalancing of the sectoral indices. Commodities shall belong to Bullion, Base Metal, Agriculture and Energy sectors.

2.3 Computation of Production Value

Economic significance of each Index constituent is assessed using their physical market size in India, determined as the average of the value of deliverable supply (production and imports) of the commodity for past five financial years, prior to the announcement of new weights. For example, for the indices published during 2025, data for Financial Years 2019-20, 2020-21, 2021-22, 2022-23 and 2023-24 are used. In case of certain commodities, the data for calendar / marketing years are considered as representatives of the respective Indian financial years.

The deliverable supply in quantity of each year is multiplied by average daily spot prices of the given year to obtain deliverable supply in value terms for each year. Spot prices are sourced internally from MCXCCL. The spot prices provided by MCXCCL, are averaged for the financial year and rounded to the price tick mentioned in the futures contract specifications of the respective commodity, to obtain the average daily spot price for the financial year.

The average of deliverable supply in value terms for five years is considered as the Production Value. Production value so arrived is rounded to 8 decimal places.

2.4 Computation of Liquidity Value

Liquidity Value is assessed as the total traded value in the preceding twelve months of the respective commodity futures contract on MCX. For example, the weights announced in October of a year for

rebalancing of the index effective from January next year, are estimated from the total traded value of the index constituents during October of the previous year to September of the current year. Liquidity value so arrived is rounded to 8 decimal places.

2.5 Computation of Weights of Composite Index

Initial weights are arrived at based on weighted average of Production Value and Liquidity Value, with the Production Value weighted at 1/4th and the Liquidity Value at 3/4th.

The final weights of individual commodities within the Composite commodity index are then determined following below steps, in the order provided:

1. Any individual constituent with a weight less than or equal to 1% for new index constituents or 0.33% for existing index constituents is excluded from weight determination process. The excluded constituent weight is proportionately distributed amongst other index constituents.
2. Any individual constituent within the Composite Commodity Index shall have a maximum weight of 30% and the excess weight above 30% of this constituent shall be distributed amongst the other index constituents.
3. Any individual commodity within the Composite Commodity Index shall have a minimum weightage of 2% and the shortfall in weight below 2% of this constituent shall be reduced proportionately from the weightages of other constituents. However, this reduction will not be applicable to constituents whose weight has been capped at 30%.
4. Total weight of any commodity sector within the Composite commodity index is capped at 40% and the excess weight if any, is redistributed amongst the remaining sectors without adding weights to constituents whose weights have been capped at 30% or increased to 2%. The excess weight of the commodity sector is removed from all its constituents, including from the constituent (s), whose weight may have been capped at 30%, to maintain the proportion of the weights, arrived after step 3.
5. Commodity weight calculations are rounded to 8 decimal precisions.

2.6 Computation of Weights of Sectoral Index

Constituent found eligible for inclusion as a new constituent or continuing as the constituent at the time of rebalancing in the Composite Index as per criteria listed in Section 2.2, will also be deemed to be eligible for inclusion as a new constituent or a continuing constituent at the time of rebalancing of the Bullion, Base Metal and Energy sectoral indices. Initial weights are arrived at based on weighted average of same Production Value and Liquidity Value of the respective commodities used for Composite index, The Production Value is weighted at 1/4th and the Liquidity Value at 3/4th.

The final weights of individual commodities within the sectoral indices are then determined following below steps:

1. Total weight of any individual commodity within the Sectoral commodity index with more than 2 commodities is capped at 40%.
2. Total weight of any individual commodity within the Sectoral commodity index with 2 commodities is capped at 75%.
3. Commodity weight calculations are rounded to 8 decimal precisions.

Thus, through annual rebalancing, the final computed weights get reflected on the index numbers calculated from the first day of rollover of January month every year.

2.7 Index Constituents and Weights – 2025

Table 1 provides the list of qualified commodities with their Production Value and Liquidity Value for the MCX iCOMDEX indices.

Table 1: Qualified commodities with their Average Daily Turnover, Production Value and Liquidity Value for MCX iCOMDEX Composite and Sectoral Indices

Commodity	Unit	Average Daily Turnover of Futures Contract (October 2023 to September 2024) INR Crore	Average Annual Physical Market Quantity (FY 2019-20 to FY 2023-24) Unit	Production Value - Average Annual Physical Market Value (FY 2019-20 to FY 2023-24) INR Crore	Liquidity Value - Total Turnover of Futures Contract (October 2023 to September 2024) INR Crore	Weights (1/4 Production Value & 3/4 Liquidity Value)	Qualified as Constituent
Crude Oil	BBLs	1,664	1,83,61,68,075	9,79,885	4,27,662	21.824106%	✓
Natural Gas	MMBtu	3,056	2,50,18,21,947	66,577	7,85,347	14.317959%	✓
Aluminium	Tonnes	241	62,61,756	1,21,005	61,950	2.850117%	✓
Copper	Tonnes	1,454	9,19,173	59,552	3,73,764	7.228463%	✓
Lead	Tonnes	59	5,65,860	9,870	15,218	0.404980%	✓
Zinc	Tonnes	505	10,11,407	24,265	1,29,880	2.564920%	✓
Gold	Kg	5,065	7,75,888	3,85,900	13,01,633	27.826742%	✓
Silver	Kg	5,151	58,14,800	34,730	13,23,799	22.982714%	✓

Notes

1. *Weights may not aggregate to 100 percent at the entire 8 decimal level, due to rounding off.*
2. *Commodities not meeting eligibility criteria (section 2.2) are not included in the weight calculation exercise.*
3. *Physical market quantity pertains to Calendar Year for Gold, Silver.*

The derivation of weights for the Composite and Sectoral indices are provided in following Table 2 & 3

Table 2: Commodities constituting Composite Index and their respective weights, for year 2025

Commodity	Weights on Commodity Qualification	Weights after 30% Capping	Weights after Single Commodity Floor of 2%	Final Composite Index Weights after 40% Sector Capping
Crude Oil	21.824106%	21.824106%	21.474592%	24.153690%
Natural Gas	14.317959%	14.317959%	14.088656%	15.846310%
Aluminium	2.850117%	2.850117%	2.804472%	4.057587%
Copper	7.228463%	7.228463%	7.112699%	10.290847%
Lead	0.404980%	0.404980%	2.000000%	2.000000%
Zinc	2.564920%	2.564920%	2.523843%	3.651566%
Gold	27.826742%	27.826742%	27.381095%	21.906742%
Silver	22.982714%	22.982714%	22.614645%	18.093258%
Note: To achieve 100.000000% final weights, either 0.000001% or its multiple is added to the lowest weighted commodity or is deducted from the highest weighted commodity. However, the weight of any commodity / sector that has been adjusted to the highest / lowest weightage shall not be subjected to such deduction / addition.				

Table 3: Commodities constituting sectoral indices and their respective weights, for year 2025

Commodity	Production Value - Average Annual Physical Market Value (FY 2019-20 to FY 2023-24) INR Crore	Liquidity Value - Total Turnover of Futures Contract (October 2023 to September 2024) INR Crore	Weights - Cumulative Production & Liquidity Value	Final Sectoral Index Weights After Respective Sectoral Capping*
MCX iCOMDEX BULLION INDEX				
Gold	3,85,900	13,01,633	60.119249%	60.119248%
Silver	34,730	13,23,799	39.880752%	39.880752%
MCX iCOMDEX BASE METAL INDEX				
Aluminium	1,21,005	61,950	22.090096%	29.584030%
Copper	59,552	3,73,764	55.198609%	40.000000%
Lead	9,870	15,218	3.114367%	4.170898%
Zinc	24,265	1,29,880	19.596929%	26.245072%
MCX iCOMDEX ENERGY INDEX				
Crude Oil	9,79,885	4,27,662	49.851710%	49.851710%
Natural Gas	66,577	7,85,347	50.148290%	50.148290%
Note: To achieve 100.000000% final weights for sectoral indices, either 0.000001% or its multiple is added to the lowest weighted commodity or is deducted from the highest weighted commodity, from the respective sector. However, the weight of any commodity that has been adjusted to the highest weightage shall not be subjected to such deduction.				

3. CALCULATION METHODOLOGY

3.1 Single Commodity Excess Return Indices

Individual commodity excess returns are calculated using front and immediate next expiry months for the relevant futures contract.

Each excess return index MER_t, on business day t, calculated with reference to the previous business day $t-1$ as

$$MER_t = MER_{t-1} * \frac{CSR_t}{CSR_{t-1}} \quad (1)$$

where CSR is the price of the front expiry month of the relevant futures contract or, if day t falls within the roll period then CSR shall be the weighted average price of the front and immediate next expiry months.

If day t falls outside the roll period, CSR is calculated on day t as

$$CSR_t = FP_t \quad (2)$$

Similarly, CSR is calculated on day $t-1$ as

$$CSR_{t-1} = FP_{t-1} \quad (3)$$

Where FP_t is the futures price of relevant futures contract on day t.

The roll from the front expiry month to the immediate next expiry month of the relevant futures contract takes place over a two business day period. Exposure is rolled in equal amounts of 50% on each day during the roll period such that by the second day of the roll period, 100% of the weight is in the immediate next expiry month. The logic for determining rollover days for different indices are provided in Section 3.3

If day t falls during a roll period, CSR is calculated on day t as

$$CSR_t = \sum_{i=1}^{2} DW_t^i * FP_t^i \quad (4)$$

where the summation is over the front expiry month of the relevant futures contract ($i = 1$) and the immediate next month ($i = 2$). DW_t^i is the daily roll weight for expiry month 'i' on day t and FP_t^i is the futures price of expiry month 'i' on day t. Similarly, CSR is calculated on day $\mathrm{t} - 1$ as

$$CSR_{t-1} = \sum_{i=1}^{2} DW_t^i * FP_{t-1}^i \quad (5)$$

where FP_{t-1}^i is the futures settlement price of expiry month 'i' on day $\mathrm{t} - 1$

Once the roll period is complete, the immediate next month during the roll becomes the relevant futures contract and equations 1, 2 and 3 are then used until the start of the next roll period. The Single Commodity Excess Return Indices are rounded upto 6 decimal places.

3.2 Sectoral Commodity and Composite Commodity Excess Return Indices

Sectoral excess return and Composite excess return indices are calculated using the Single commodity excess returns defined by equation 1.

Each sector excess return and the composite excess return on day t, both denoted as $MCMP_t$, is calculated as

$$MCMP_t = \frac{\sum_{i=1}^{n} MER_t^i * W^i}{Divisor} \quad (6)$$

where W^i is the weight of i-th individual commodity within the Sectoral or the Composite index and the summation is over all n individual commodities belonging to that Sectoral or the Composite index.

Each sector excess return and the composite excess return are rounded upto 6 decimal places.

The Divisor is used to maintain continuity during rebalancing. The Divisor is calculated prior to every rebalance exercise, based on the Close price of the index constituents and sectoral/composite index value on the day preceding the day from which the new weights become applicable.

The Divisor for each sector excess return and composite excess return on day t, is calculated as follows

$$Divisor = \frac{\sum_{i=1}^{n} MER_{t-1}^i * NW^i}{MCMP_{t-1}} \quad (7)$$

The Divisor for each Sectoral excess return index and the Composite excess return index are rounded upto 6 decimal places; where NW^i is the new weight of i-th individual commodity within the Sectoral or the Composite index and the summation is over all n individual commodities belonging to that Sectoral or the Composite index; $MCMP_{t-1}$ denotes each Sectoral or Composite index values on day $t-1$.

The NW^i in (7) becomes the W^i in (6) from the day the new weights become applicable.

3.3 Rollover Days

Rollover period is the period when index computation shifts from one set of contract expiry months to the next set of contract expiry months. This is necessary as each futures contract has an expiry date. The rollover period for MCX iCOMDEX indices is of two business days, wherein index computation shifts from the front expiry months to the immediate next expiry months.

It must be noted that special trading days, e.g. *Muhurat* Trading Day, are not included in rollover period. If *Muhurat* Trading Day falls during the roll period, then it continues the status of the previous roll day.

The rollover days for each Sectoral index and the Composite index have been fixed in such a manner to ensure that the index value is ordinarily computed using the nearest expiry futures prices of the index constituents so that prices of liquid contracts are used for index construction.

- **MCX iCOMDEX Sectoral Indices -** The roll from the front expiry month to the immediate next expiry month of the relevant futures contract of the underlying constituents (if applicable (ref. Section 3.4)) for Sectoral indices such as MCX iCOMDEX BULLION INDEX and MCX iCOMDEX BASE METAL INDEX, takes place over a period of two business days just prior to the first day of staggered delivery tender period of the underlying constituents for Sectoral Indices. In case of MCX iCOMDEX ENERGY INDEX, the roll from the front expiry month to the immediate next expiry month of the relevant futures contract of the underlying constituents, takes place over a period of two business days, just prior to five business days prior to the expiry date (including expiry day) of the underlying Crude Oil futures contract.

- **MCX iCOMDEX Composite Index** - The roll from the front expiry month to the immediate next expiry month of the relevant futures contract of the underlying constituents, if applicable (ref. Section 3.4), takes place over a period of two business days, just prior to five business days prior to the expiry date (including expiry day) of the underlying Crude Oil futures contract.

- **MCX iCOMDEX Single Commodity Indices:** The Single Commodity Indices have the same roll-over logic as the sectoral index, which represents them, i.e. MCX iCOMDEX Gold Index and MCX iCOMDEX Silver Index have the same roll-over logic as the MCX iCOMDEX Bullion Index. Likewise, all single MCX iCOMDEX indices of Base metals segment (i.e. Aluminium, Copper, Lead and Zinc) and Energy segment (i.e. Crude Oil and Natural Gas) follow the rollover logic of MCX iCOMDEX Base Metal Index and MCX iCOMDEX Energy Index respectively.

3.4 Futures Contract Front Expiry Month used for Index Calculation

Only those near-month expiry contracts, which have not entered tender/delivery period, and whose tender/delivery period or expiry date is not before or during the immediate rollover period are considered for computing the Index values before the monthly rollover period (Refer Table 4). Such near-month expiry contracts are referred to as 'front expiry month' contracts. The roll from the front expiry month to the immediate next expiry month of the relevant futures contract takes place during the rollover period.

For illustration, the following may be considered for the Gold Index forming part of Bullion Index:

- On 10th November 2023, Gold (1 kg) December 2023, February 2024, April 2024 and further contracts are available for trading on MCX platform.
- The Gold (1 kg) 5-Dec-2023 contract is the front-month expiry contract that has tender/delivery period from 29th November 2023 to 5th December 2023.
- Hence, the rollover days of Gold Index for the November month are 27 and 28 of November.

Gold Index will be rolled over from the 5-Dec-2023 contract to 5-Feb-2024 contract during rollover days of November, as the 5-Dec-2023 contract will expire before the next rollover days i.e. 25 and 29 January 2024 (just before the start of Staggered Delivery Tender Period of 5 February 2024 contract).

In contrast, the following may be observed for the Silver Index forming part of Bullion Index for the July 2024 rollover period:

- In case of Gold (1 kg), front-month expiry i.e. August 2024, the tender period starts from 30 Jul 2024 and this contract will be rolled over to October 2024 contract during the July 2024 rollover period which falls on 26 and 29 July 2024.
- However, the Silver front-month expiry (5 September 2024) month will not be rolled over in July 2024 rollover period, as the tender period of Silver September 2024 doesn't commence before the start of the August rollover period (i.e. 28 and 29 August 2024).

- Hence, the 5-Sep-2024 Silver 30KG contract is still the front-month expiry contract in all of July and the Silver Index will not need to be rolled-over to the 5-Dec-2024 contract in July rollover period.
- The Silver Index will be rolled over from the Sep 2024 to Dec 2024 contracts during the August rollover period, as the 5-Sep-2024 contract will expire before the September 2024 rollover days (25, 26 September 2024).

The calendar (Table 4) below illustrates the relevant futures contract on the business days prior to the roll over period for each index constituent.

Table 4: Relevant futures contract on the business days prior to the respective roll over period of the sectoral / composite indices

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gold	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb
Silver	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Crude Oil	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Natural Gas	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Aluminium	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Copper	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Lead	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Zinc	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

3.5 Index computation in exceptional situations

In exceptional situations, such as emergence of a scenario where an index constituent(s) has the potential to turn zero/negative, the Index Administrator, with appropriate notification, adopts strategies to ensure the index values remain positive. These strategies include, but are not restricted to, pre-rolling the index constituent(s) from the front month expiry contract (that may have the potential to take negative values) to farther month expiry contracts (that may stay positive).

Trigger Points and Conditions for Unscheduled Pre-Roll to a farther contract expiry to avoid exposing the single-commodity index to a negative / zero price scenario:
The index constituent(s) shall be pre-rolled to a farther contract expiry to avoid exposing the single-commodity index to a negative / zero price scenario. This will be undertaken in case the Closing Price of the single commodity index's constituent futures contract comes down to the level equal to or lower than the 'Threshold Price' announced by MCXCCL, below which the Alternate Risk Management Framework (ARMF) shall be activated.

Even in case above is triggered, the pre-roll will be undertaken, subject to the following conditions:
• Price criteria: The closing price of the farther month contract to which the unscheduled pre-roll is to be done should be greater than 'Threshold Price' level announced by MCXCCL

• Liquidity criteria: The futures contract expiry to which the unscheduled pre-roll is to be done should have witnessed trading on the trading day prior to the day of unscheduled pre-roll.

The unscheduled pre-roll to the farther month contract shall be done only after the close of market hours. This rollover will be effective from next working day and the roll period will ordinarily be over only one day.

Notwithstanding the above Trigger Points, in line with the standard practices of index administration, the Index Administrator of MCX iCOMDEX indices retains their rights to exercise judgment on contracts and roll schedules to avoid exposing the indices to negative constituent prices and index levels.

These strategies shall be on best-effort basis and there is no guarantee that these measures shall necessarily prevent index constituent prices/ index values from going into zero/negative territory.

Additional formula for negative / zero scenario

When either the previous day's index close or current day's index constituent prices or previous day's index constituent close price has become negative or zero, then the following additional formula (8) is used to compute single commodity excess return index MER_t, instead of formula given in (1) in section 3.1.

$$MER_t = MER_{t-1} + |MER_{t-1}| * \frac{(CSR_t - CSR_{t-1})}{|CSR_{t-1}|} \quad (8)$$

Whenever all variables are positive or turn positive, the existing formula (1) is used for computing index values, even on intraday basis. Further, only the particular single commodity index whose price / index value is negative or zero, is computed using additional formula (8). The other single commodity indices that constitute a sectoral /composite index shall continue to be computed using the formula (1). There is no change in computation formula for sectoral or composite index.

Further, in situations where index value or price/roll-weighted price of index constituents closes at 'zero' on previous day 't-1', an adjustment is undertaken to continue computation on current day 't'. The adjustment involves internally revising the previous day's close of either / both the index constituent and/ or the index after increasing the previous day's close price of the index constituent by one positive tick, which is then used for index computation on the current day 't'.

4. DATA SOURCES & INDEX PUBLICATION

4.1 Physical Market Quantity Data Sources

The sources from which the production and imports data for each Index constituent used to assess economic significance (see section 2.3) are derived are provided below. These sources have been selected keeping in mind their credibility such as government sources and a long publication history along with larger market following. However, the sources from which the data are derived may use different terminology or units of measurement other than those used in this Methodology Document. Such units of measurement are converted as per acceptable market conventions. In certain commodities, calendar / marketing years are considered as a representative of Financial Year. If data for a particular year is not available, it is derived from the data available for the previous year. The spot prices sourced internally from MCXCCL are used to obtain deliverable supply in value terms, without any adjustment for holidays. In case MCXCCL spot prices are not available for a desired period, spot prices from a credible public source or futures prices are used, as deemed appropriate by the Index Administrator. All data are taken on an 'as is' basis from sources mentioned.

Base Metals

- Production: Monthly Summary on Non-Ferrous Minerals and Metals, Ministry of Mines, Government of India
  (https://mines.gov.in/admin/storage/ckeditor/_March_2024_1715065840.pdf
  https://mines.gov.in/admin/storage/ckeditor/_for_the_Month_of_March_2023_1685539855.pdf
  https://mines.gov.in/admin/storage/ckeditor/March_2022_Summary_1693818769.pdf
  https://mines.gov.in/admin/storage/ckeditor/march_2021_1693806570.pdf)
- Imports: Ministry of Commerce, Govt. of India
  (https://tradestat.commerce.gov.in/eidb/icomq.asp),
  (Data downloaded for 'All commodities'; HS codes 76, 78, and 79 at 2-digit level are used for sourcing import data of Aluminium, Lead, and Zinc respectively; HS codes 740311, 7407, 7408, 7409, 7410 and 7411 are used for sourcing Copper imports.)

Crude Oil

- Production: Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas, Government of India (https://ppac.gov.in/production/indigenous-crude-oil)
- Imports: Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas, Government of India (https://ppac.gov.in/import-export)
- Conversion factor (https://ppac.gov.in/#redyreckonr)

Natural Gas

- Production: Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas, Govt. of India (https://ppac.gov.in/natural-gas/production)
- Imports: Petroleum Planning and Analysis Cell, Ministry of Petroleum & Natural Gas, Government of India (https://ppac.gov.in/natural-gas/import)
- Conversion factor (https://ppac.gov.in/#redyreckonr)

Gold

- Production & Imports: World Gold Council (https://www.gold.org/download/file/18996/Gold-Demand-Trends-Q2-2024.pdf)

Silver

- Production & Imports: The Silver Institute (https://www.silverinstitute.org/wp-content/uploads/2024/04/World-Silver-Survey-2024.pdf https://www.silverinstitute.org/wp-content/uploads/2022/04/World-Silver-Survey-2022.pdf https://www.silverinstitute.org/wp-content/uploads/2021/04/World-Silver-Survey-2021.pdf https://www.silverinstitute.org/wp-content/uploads/2020/04/World-Silver-Survey-2020.pdf)

4.2 Futures Market Data Source

All commodity prices used in MCX India Commodity Indices (MCX iCOMDEX) are taken from commodity futures contract prices published by the Multi Commodity Exchange of India (MCX). MCX operates under the regulatory supervision of the Securities and Exchange Board of India (SEBI). Trades that results in price change of any of the index constituents, lead to an index value computation in the relevant Single Commodity Index, Sectoral Index and Composite Index.

The other MCX related data used for determining weights such as turnover of futures contracts, spot prices from MCX CCL are taken from internal databases maintained by MCX / MCX CCL on an ‘as is’ basis.

4.3 Index Dissemination

MCX India Commodity Indices (MCX iCOMDEX) are disseminated, rounded to two decimal places, in real time on each business day during MCX trading hours.

4.4 Index Publication

MCX iCOMDEX are published on the MCX website, trade terminals and also made available to data vendors and other subscribers.

This Methodology Document, as well as a concise version of the methodology, i.e. 'Factsheets', containing additional useful information such as risk and return parameters related to MCX iCOMDEX are published on a quarterly basis and made available on the MCX website.

5. QUALITY CONTROL

5.1 Quality Control

MCX has quality control procedures in place to ensure the integrity of the data used in computation of the indices, prior to their calculation as well as prior to publication, as discussed in this section.

Data used to assess commodity liquidity and economic significance during the rebalance procedure is taken on an 'as is' basis from sources mentioned. Every effort is taken to obtain the data from sources which are known to be unbiased and authentic, so as to minimise the scope of discretion to be exercised by the Index Administrator. MCX trade data is used to determine the liquidity and data from government/ reputed sources used to determine the physical market size for determining economic significance at the time of rebalancing.

5.2 Error Reporting

The Index Administrator may determine that a retrospective recalculation is required and if so will then determine the indices that are to be amended for that calculation.

A retrospective recalculation will be made when there has been a manifest and material error. The Index Administrator may only determine that a retrospective calculation is required following feedback from the Index Action Committee on the proposed retrospective recalculation.

Any retrospective recalculation is notified to the stakeholders.

5.3 Insufficient Data and Market Disruptions

MCX publishes the MCX iCOMDEX indices where MCX has a high level of confidence of long-term availability and access to the necessary data to administer them. As such, the sourcing of data and their application in computation is without any manual intervention. However, there can be situations when appropriate interventions become necessary. For example, in case of a revision in Previous Close (Base Price revision) by the Exchange during the first trading day of a contract expiry that is part of index computation, the Close Value of associated indices would be revised, as early as possible not exceeding two business days from the occurrence.

A 'Market Emergency' is herein defined as any unscheduled and extraordinary condition that impacts the normal, regular functioning of the markets, such as interruptions to market liquidity, non-availability of an index constituent, disruptions (like an event resulting in the unscheduled closing of MCX exchange or the Index computation system) or any other extra-ordinary market situation deemed as a Market Emergency by Index Administrator. Should a Market Emergency occur, the Index Administrator reserves the right to take such action (e.g. retrospective calculation

of index values, temporarily stopping publishing the index values, publishing only close value, replacing/dropping index constituent(s), pre-rolling the constituent(s) to farther month contracts of the commodity/ commodities, etc.) with respect to the indices as deemed appropriate given the circumstances, as early as possible in a reasonable timeframe. Further, market will be notified within two business days of taking any such action taken due to occurrence of the market emergency. The actions taken shall be after consulting the Index Action Committee, or its post-facto ratification where appropriate.

The Index Administrator attempts to notify of any such actions in advance, as far as practicable, and definitely after the action. There is no assurance, however, that following a Market Emergency, the actions taken in response to such Market Emergency, or any other *force majeure* event, will not have an adverse effect on the value of the MCX iCOMDEX indices or the manner in which they are calculated.

If a Rollover Disruption Event occurs for any Index constituent, the index computation will be allowed to miss the Event day's roll computation of the respective index constituent. The computation on the next day will continue as per scheduled roll computation logic.

If on a date, when MCX iCOMDEX indices are scheduled to rebalance, an official settlement price for any one or more of the Index constituents in the MCX iCOMDEX series are unavailable, the price used in rebalancing for those commodities will be the price of the previous business day upon which a price is available.

5.4 Cessation of an Index

In rare cases where MCX decides to stop the publication of an index, sufficient notice will be posted on the MCX website. Internally, a detailed operating procedure ensures a managed cessation.

6. MCX INDIA COMMODITY INDICES (MCX iCOMDEX) GOVERNANCE

6.1 Overview

The MCX iCOMDEX series of indices are administered by MCX which makes all decisions regarding index calculations and changes to the Index Methodology. The policies governing each aspect of the index business, including oversight, conflicts of interest, materials retention and remuneration are adequately taken care of and are in conformity with IOSCO principles for benchmarks (July 2013).

6.2 Index Administration Department

The Index Administration Department is responsible for the maintenance and calculation of the MCX iCOMDEX indices as set out in this Methodology document.

The Head of the Index Administration Team (Index Administrator) is responsible for the integrity and quality of the Index and has specific responsibilities, which includes, *inter alia*, the following:

- To interpret the Index Methodology and implement the annual rebalance procedure
- To review feedback received from the Index stakeholders
- Develop and implement changes to the Index Methodology if desired by feedback from the Index Action Committee (IAC) or the Index Advisory Committee (IAdC), through Index Administration Team. (Refer to Section 6.3 and 6.4 for functions of IAC and IAdC)
- Manage interaction with stakeholders, the IAC and IAdC in respect of rebalances and Index Methodology changes.

Following interaction with the IAC and, where required, the IAdC or stakeholders, the Index Administrator is responsible for determining any changes to the Methodology. All rights with respect to applying of the Methodology for computation of MCX iCOMDEX rest with the Index Administrator including the right to make exceptions when applying the methodology in exceptional situation. The decision of the existence of the exceptional situation will solely rest with Index Administrator. In case of any instance where the treatment differs from the general rules stated in the methodology, the same will be announced through a Notification prior to implementation. If for reasons beyond control, a change in methodology is to be taken in a very short time, the changes are notified through website display within 2 business days of making the change.

6.3 Index Action Committee

The Index Action Committee (IAC) is an internal MCX group of subject matter experts that support the Index Administrator by providing opinions, recommendations and approvals related to index Methodology, Methodology interpretations and changes to the existing Methodology. The Index

Administrator may solicit advice / feedback and approvals from the IAC in situations of market emergency or similar events.

6.4 Stakeholder Consultation

An Index Advisory Committee (IAdC) of market experts and representatives from MCX provides advice and expertise on proposed Methodology changes and responses to market events. The Index Administrator may consult the IAdC at its discretion, but retains the responsibility for deciding any issue under review.

Issues on which the Index Administrator would typically consult the IAdC include changes to the index calculation methodology, the constituents of index baskets, the weight calculation methodology etc.

The IAdC shall include external experts apart from representatives from MCX.

6.5 Methodology Review

The MCX iCOMDEX Methodology is reviewed once per year before the annual rebalancing exercise. If required by market events, the Methodology is reviewed more frequently.
In reviewing the methodology, attention is paid to:

- the suitability of the index calculation methodology
- the constituent commodities with respect to their liquidity and their economic significance in India
- the fitness of the weight calculation methodology in producing weights that reflect liquidity and economic significance

Any change to the Methodology are approved by the Index Administrator in consultation with the IAC and/ or the IAdC, as deemed appropriate, and is notified. If for reasons beyond control, a change in methodology is to be taken in a very short time, the changes are notified through website display within 2 business days of making the change.

Disclaimers

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This is not an offer or solicitation of an offer to buy or sell any security or investment. Past performance of the MCX iCOMDEX® is not necessarily indicative of future results. For a more complete description of the MCX India Commodity Indices (MCX iCOMDEX®), reference is made to the MCX iCOMDEX® Methodology Document. For more information, please contact MCX (indices@mcxindia.com)

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