

# THOMSON REUTERS - MCX INDIA COMMODITY INDICES (iCOMDEX)

## METHODOLOGY

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## 1. Introduction

### 1.1 Thomson Reuters - MCX India Commodity Indices (iCOMDEX)

This Methodology contains the rules for calculating the Thomson Reuters - MCX India Commodity Indices (iCOMDEX). This Methodology and all information contained herein is the exclusive property of Thomson Reuters India Private Limited or its affiliates Thomson Reuters (Markets) LLC (“Thomson Reuters”) and/or Multi Commodity Exchange of India Ltd. or its affiliates (“MCX”) as applicable. Thomson Reuters and MCX shall have no liability to any person or entity for the accuracy or completeness of the information contained herein.

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) comprise excess return indices for individual, sector and composite commodities and use futures contracts traded on MCX for the prices.

## 2. Calculation Methodology

### 2.1 Individual Commodity Excess Return Indices

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

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

$$TRMER_t = TRMER_{t-1} * \frac{CSR_t}{CSR_{t-1}} \quad (1)$$

where  $CSR$  is the price of the front expiry month of the relevant futures contract or, if day  $t$  falls within the five day roll period then  $CSR$  shall be the weighted average price of the front and immediate back expiry months (see below).

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 back expiry month of the relevant futures contract takes place over the five business day period prior to the two last business days of each calendar month. Exposure is rolled in equal amounts of 20% on each day during the roll period such that by the fifth day of the roll period, 100% of the weight is in the immediate back expiry month.

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 back 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  $t - 1$  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  $t - 1$

Once the five day roll period is complete, the immediate back month during the roll becomes the relevant futures contract and equations 2 and 3 are then used until the start of the next roll period.

## 2.2 Sector Commodity and Composite Commodity Excess Return Indices

Sector commodity excess return and a final composite commodity excess return indices (which include all individual commodity returns) are calculated using the individual commodity excess returns defined by equation 1.

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

$$TRMCMP_t = TRMCMP_{t-1} * \frac{\sum_{i=1}^n TRMER_t^i * W^i}{\sum_{i=1}^n TRMER_{t-1}^i * W^i} \quad (6)$$

where  $W_i$  is the weight of each individual commodity within the sector commodity or the composite commodity and the summation is over all  $n$  individual commodities belonging to that sector or the composite.

## 3. Weights, Futures Expiries and Rebalances

### 3.1 Rebalance Methodology

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are rebalanced annually before the start of the January roll period for all individual commodities within both the sector and composite commodity indices. Commodity selections and weights are first published no later than December of the preceding year and will be published in an update to this Methodology document.

The rebalance is performed by the Index Manager with reference to the Index Advisory Group and uses an assessment of both the significance of each constituent commodity to the Indian economy and the liquidity of the futures contract for each commodity listed on MCX.

Economic significance is assessed using the market size in India, determined using a three year average of recent production and imports in quantity terms. For example, for the indices published during 2018, data for Financial Years 2014-15, 2015-16 and 2016-17 have been used. This quantity is multiplied by average daily futures prices of the given three years. The value arrived at is defined as the physical market size.

Liquidity is assessed using a three year average of daily turnover of the respective commodity futures contract on MCX (April 2014 to March 2017 MCX trading value considered for 2018 calculation). For ascertaining liquidity, turnover in both main and mini contracts are only considered. Initial weights are then a weighted average of these two factors, with the market size factor weighted at  $1/3^{\text{rd}}$  and the liquidity factor at  $2/3^{\text{rds}}$ .

Weights for individual commodities within the composite commodity index are then determined using the following steps:

1. Any individual commodity with a weight less than or equal to 0.75% is deleted
2. Total weight of any individual commodity within the sector commodity index with more than 2 commodities is capped at 40%
3. Total weight of any commodity sector within the composite commodity index is capped at 40%
4. Any individual commodity within the composite commodity index has a minimum weight of 2%

Weights for individual commodities within each sector commodity index are then derived from the weights within the composite commodity index on a pro rated basis.

To be eligible for inclusion as a new selection, commodities must have a minimum average daily notional turnover threshold of INR 10 crore<sup>1</sup> in traded futures and a traded history of at least one year. Commodities traded on MCX will be eligible for inclusion as new selections.

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<sup>1</sup> One crore is 10 million

An existing commodity selection must continue to have at least 50% of the relevant new inclusion threshold described above in order to continue as a selection at a rebalance.

### 3.2 Physical Market Quantity Data Sources

#### Base Metals

- Production Data: <http://www.mines.gov.in/ViewData/index?mid=1438>
- India Import: <http://commerce.gov.in/eidb/Default.asp>

#### Crude Oil

- Production and Import Data: <http://petroleum.nic.in/sites/default/files/AR16-17.pdf>

#### Natural Gas

- Production Data: [http://ppac.org.in/content/151\\_1\\_ProductionNaturalGas.aspx](http://ppac.org.in/content/151_1_ProductionNaturalGas.aspx)
- India Import: [http://ppac.org.in/content/153\\_1\\_ImportNAaturalgas.aspx](http://ppac.org.in/content/153_1_ImportNAaturalgas.aspx)

#### Cotton

- Production Data: <http://cotcorp.gov.in/statistics.aspx#area>
- India Import: <http://cotcorp.gov.in/statistics.aspx?pageid=7#cotton2>

#### Crude Palm Oil

- Production and Import Data: <https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery>

#### Gold and Silver Bullion

- World Gold Council and GFMS:  
<https://www.gold.org>  
<https://www.silverinstitute.org>

### 3.3 Commodities and Weights

Commodities have been selected that are significant to the Indian economy and tradable through a qualifying related futures contract on MCX.

Commodity	Units	Average Physical Market Quantity FY 2014-17 (A)	Average Futures Prices in INR FY 2014-17 (B)	Average Physical Market Values in INR Crore (A*B)	Average executed MCX futures contracts FY 2014-17 (Values INR Crore)	Weights (Physical Market Quantity + Average Futures Prices)	Qualified Commodity
Gold	Kg	790,091.64	2,784,934.20	220,035.32	4,703.63	21.020712%	✓
Silver	Kg	5,863,357.16	39,379.19	23,089.43	3,153.85	10.511768%	✓
Crude Palm Oil	Tonnes	9,049,860.00	48,671.58	44,047.10	186.69	1.851028%	✓
Cotton	bales (170 kg)	37,546,333.33	17,720.36	66,533.46	158.63	2.410804%	✓
Cardamom	Tonnes	22,123.33	959,625.39	2,123.01	14.83	0.107413%	*
Mentha Oil	Tonnes	33,333.33	869,704.02	2,899.01	118.59	0.453743%	*
Crude Oil	BBLs	1,757,961,230.00	3,693.84	649,362.19	5,842.09	36.935775%	✓
Natural Gas	MMBtu	1,932,826,045.89	193.94	37,485.53	1,302.12	5.144746%	✓
Aluminium	Tonnes	3,391,631.44	111,394.37	37,780.86	586.27	2.918180%	✓
Copper	Tonnes	1,229,515.27	364,569.49	44,824.38	1,633.63	6.391065%	✓
Lead	Tonnes	426,690.05	124,922.28	5,330.31	1,085.42	3.542376%	✓
Nickel	Tonnes	128,393.81	794,554.92	10,201.59	888.75	3.068576%	✓
Zinc	Tonnes	1,023,363.04	137,542.55	14,075.60	1,677.84	5.643815%	✓

Figures may not tally due to rounding

The commodities used to produce individual, sector and composite commodity excess returns, together with their respective weights, are

Commodity	Weights on Commodity Qualification*	Composite Index weights after 40% sector Capping	Composite Index weights after single commodity floor of 2%	Bullion Index Weights	Base Metals Index Weights (40% individual commodity capping)
Gold	21.139336%	21.988835%	21.974547%	66.663683%	-
Silver	10.571088%	10.995895%	10.988749%	33.336317%	-
Crude Palm Oil	1.861474%	1.936278%	2.000000%	-	-
Cotton	2.424409%	2.521835%	2.520197%	-	-
Crude Oil	37.144212%	35.109618%	35.086803%	-	-
Natural Gas	5.173779%	4.890382%	4.887205%	-	-
Aluminium	2.934648%	3.052579%	3.050595%	-	13.532638%
Copper	6.427131%	6.685410%	6.681066%	-	29.637644%
Lead	3.562366%	3.705522%	3.703115%	-	16.427260%
Nickel	3.085893%	3.209901%	3.207816%	-	14.230081%
Zinc	5.675664%	5.903745%	5.899908%	-	26.172377%

\* After removal of excluded commodities and redistribution to 100%



Prices for all commodities are taken from futures contracts traded on MCX and weights are rounded to 8 decimal precision.

### 3.4 Futures Contract Front Expiry Month by Calculation Month

The calendar below shows the relevant futures contract for the calendar days prior to the roll over period.

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	Sept	Sept	Dec	Dec	Dec	Mar
Crude Oil	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Natural Gas	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Crude Palm Oil	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cotton	Feb	Mar	Apr	May	Jun	Jul	Oct	Oct	Oct	Nov	Dec	Jan
Aluminium	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Copper	Feb	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Nov	Nov	Nov	Feb
Lead	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Nickel	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

## 4. Data Sources and Index Publication

### 4.1 Data Source

All commodity prices used in the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are taken from commodity futures contract prices published by the Multi Commodity Exchange of India (MCX). MCX is a SEBI (Securities and Exchange Board of India) regulated Indian market place and a well established platform for commodity futures price discovery.

### 4.2 Index Dissemination

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are disseminated in real time from 10:00 IST (04:30 GMT) to 01:30 IST (20:00 GMT) on each business day on which MCX is open for business. (Weekend trading is excluded from the index history calculation.)

### 4.3 Index Publication

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are published on Thomson Reuters Eikon with the following RICs:

Thomson Reuters - MCX iCOMDEX Composite:	.TRMCXCMP
Thomson Reuters - MCX iCOMDEX Base Metals:	.TRMCXBSM
Thomson Reuters - MCX iCOMDEX India Bullion:	.TRMCXPRM
Thomson Reuters - MCX iCOMDEX Gold:	.TRMCXGOLD
Thomson Reuters - MCX iCOMDEX Copper:	.TRMCXCOPP
Thomson Reuters - MCX iCOMDEX Crude Oil:	.TRMCXCROL

## 5. Quality Control

### 5.1 Quality Control

Thomson Reuters has quality control procedures in place to monitor any prices, whether they are obtained from a regulated exchange or other market, prior to calculation of indices as well as prior to publication. The Thomson Reuters Indices Operations document describes the quality control procedures in further detail.

Data used to assess commodity liquidity and economic significance during the rebalance procedure (see section 3.3) is taken on an 'as is' basis from sources selected by the Index Manager and is used at the discretion of the Index Manager.

### 5.2 Error Reporting

The Index Manager 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 only be made when there has been a manifest and material error. The Index Manager may only determine that a retrospective calculation is required following feedback from the Index Action Committee on the proposed retrospective recalculation. The Index Manager may also seek feedback from the Index Advisory Group and/or stakeholders on proposed changes.

Any retrospective recalculation will be notified to users via the alert system on Thomson Reuters Eikon.

### 5.3 Insufficient Data and Market Disruptions

Thomson Reuters endeavours to develop and publish indices only where Thomson Reuters has a high level of confidence of long-term availability and access to the necessary data to administer the indices.

A "Market Emergency" is herein defined as any unscheduled and extraordinary condition in which market liquidity is interrupted (such as an event resulting in the unscheduled closing of MCX exchange). Should a Market Emergency occur, the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) Index Manager reserves the right to take such action with respect to the Thomson Reuters - MCX India Commodity Index, as it deems appropriate given the circumstances

and after consulting with the Index Advisory Group and the Index Action Committee where appropriate (see section 5).

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) Index Manager will attempt to notify interested parties of any such actions as well in advance as is practicable. 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 Thomson Reuters - MCX India Commodity Indices (iCOMDEX) or the manner in which they are calculated.

A Rollover Disruption Event is defined as any day, on which a commodity is scheduled to roll, in which either: a) the exchange fails to publish an official settlement price for the commodity, or b) the exchange on which the commodity trades is not scheduled to be open. If a Rollover Disruption Event occurs for any commodity, that portion of the rollover for that commodity only which was scheduled to occur on that day will be deferred until the next business day upon which no Rollover Disruption Event occurs for that commodity.

If, on any date the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are scheduled to rebalance (defined in section 3.3 as the beginning of each year), an official settlement price for any one or more of the commodities in the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are unavailable, then the price used in rebalancing the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) for those commodities will be the price on the previous business day upon which a price is available. In the event any one or more individual commodities settle at the daily maximum price or the daily minimum price, that price will be used for the purpose of rebalancing the Index.

#### **5.4 Cessation Of An Index**

Thomson Reuters aims not to stop the publication of any index that is used as a benchmark.

For those cases where Thomson Reuters does decide to stop the publication of an index, Thomson Reuters will look to finding a suitable successor to its role as Administrator of the index. Should no successor be found, Thomson Reuters will conduct a consultation with any relevant Index Advisory Group, the Index Action Committee, the Thomson Reuters Independent Oversight Committee and all other known stakeholders. Thomson Reuters will publish a notice on its website about the possibility of stopping the publication of an index and inviting anyone to provide feedback.

Such notice will be posted at least 6 months where possible prior to cessation of publication of the index, or on a best efforts basis for circumstances beyond the control of Thomson Reuters. After the consultation period, Thomson Reuters will publish externally the timeline for cessation. Internally, detailed operating procedures will be drafted to ensure a managed cessation.

## 6. Thomson Reuters - MCX India Commodity Indices (iCOMDEX) Governance

### 6.1 Overview

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are administered by Thomson Reuters which makes all decisions regarding index calculations and changes to the Index Methodology.

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) are subject to the Thomson Reuters governance policy for all index methodologies:

- The Thomson Reuters Benchmark Governance Framework sets the policies governing each aspect of the index business, including oversight, conflicts of interest, materials retention and remuneration.
- The Thomson Reuters Index Methodology Policy describes the requirements that Thomson Reuters - MCX India Commodity index methodologies need to satisfy.

The governance of the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) follows the Governance framework described in the relevant documents except where this Methodology provides for specific exceptions.

### 6.2 Index Team

The Index Team is responsible for the maintenance, calculation and distribution of the Thomson Reuters - MCX India Commodity Indices (iCOMDEX) as set out in this Methodology.

### 6.3 Index Manager

The Index Manager is responsible for the integrity and quality of the Index and has specific responsibilities as follows:

- 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 IAC, the Index Advisory Group (IAG) (see below), other stakeholders, or by market events

- Manage interaction with stakeholders, the Index Action Committee and the IAG in respect of rebalances and Index Methodology changes

Following interaction with the Index Action Committee and, where required, the IAG or stakeholders, the Index Manager is responsible for determining any changes to the Methodology.

#### **6.4 Index Action Committee**

The Index Action Committee (“IAC”) is an internal Thomson Reuters group of subject matter experts (indices as well as asset classes) that support the Index Manager with additional advice related to Methodology interpretation or changes to the Methodology. Specifically, the Index Manager may communicate the feedback obtained from Index stakeholders to solicit advice from the IAC.

#### **6.5 Stakeholder Consultation**

An Index Advisory Group (IAG) of market participants provides advice and expertise on proposed Methodology changes and responses to market events on a bilateral basis. The Index Manager may consult the IAG at its discretion and retains all responsibility for deciding any issues under review. The Index Manager may seek the views from the wider market when considering an issue.

Issues on which the Index Manager would typically consult the IAG include changes to the index calculation methodology, the constituents of index baskets, the weight calculation algorithm and exceptional market events.

The IAG shall include a representative from the Multi Commodity Exchange of India (MCX), who is involved with the calculation or maintenance of the Thomson Reuters - MCX India Commodity Indices (iCOMDEX). Other members of the IAG shall be at the invitation of Thomson Reuters.

#### **6.6 Methodology Review**

The Thomson Reuters - MCX India Commodity Indices (iCOMDEX) Methodology is reviewed once per year and, if required by market events, 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 algorithm in producing weights that reflect liquidity and economic significance

Any changes to the Methodology are approved by the Index Manager in consultation with the Index Advisory Group and the Index Action Committee as appropriate and will be announced by Thomson Reuters. All reasonable efforts will be made to provide at least one month's notice of any such changes prior to their implementation.

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