

FTSE/CoreCommodity CRB[®] Single Commodity Indices Methodology

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Section 1

Introduction

1. Introduction

1.1 FTSE/CoreCommodity CRB® Single Commodity Indices

This Methodology contains the rules for calculating the FTSE/CoreCommodity CRB Single Commodity Indices. This Methodology and all information contained herein is the exclusive property of FTSE International Limited, or its affiliates, and CoreCommodity Indexes, LLC, or its affiliates (“CoreCommodity”), as applicable. FTSE International Limited and CoreCommodity shall have no liability to any person or entity for the accuracy or completeness of the information contained herein.

1.1.1 FTSE/CoreCommodity CRB Single Commodity Indices are calculated for the following indices:

- an excess return index based on the front futures expiration month for each single commodity,
- an excess return index based on the futures expiration months for each commodity that are 3 months behind the front expiration months (the “Forward” excess return index),
- a total return index derived from the excess return index and based on 3-Month US Treasury Bill,
- a total return index derived from the excess return index and based on US Fed published overnight rate,
- a total return index derived from the Forward excess return index and based on 3-Month US Treasury Bill, and
 - a total return index derived from the Forward excess return index and based on US Fed published overnight rate.

1.1.2 The FTSE CoreCommodity CRB Single Indices does not take account of ESG factors in its index design.

1.2 FTSE Russell

FTSE Russell is a trading name of FTSE International Limited, Frank Russell Company, FTSE Global Debt Capital Markets Limited (and its subsidiaries FTSE Global Debt Capital Markets Inc. and FTSE Fixed Income Europe Limited), FTSE Fixed Income LLC, FTSE (Beijing) Consulting Limited, Refinitiv Benchmark Services (UK) Limited, Refinitiv Limited and Beyond Ratings.

1.3 FTSE Russell hereby notifies users of the index series that it is possible that circumstances, including external events beyond the control of FTSE Russell, may necessitate changes to, or the cessation of, the index series and therefore, any financial contracts or other financial instruments that reference the index series or investment funds which use the index series to measure their performance should be able to withstand, or otherwise address the possibility of changes to, or cessation of, the index series.

1.4 Index users who choose to follow this index series or to buy products that claim to follow this index series should assess the merits of the index series rules-based methodology and take independent investment advice before investing their own or client funds. No liability whether as a result of negligence or otherwise is accepted by FTSE Russell or CoreCommodity for any losses, damages, claims and expenses suffered by any person as a result of:

- any reliance on these Ground Rules, and/or
- any inaccuracies in these Ground Rules, and/or
- any non-application or misapplication of the policies or procedures described in these Ground Rules, and/or
- any inaccuracies in the compilation of the index series or any constituent data.

Section 2

Management responsibilities

2.1 FTSE International Limited (FTSE)

2.1.1 FTSE is the benchmark administrator of the index series¹.

2.1.2 As Administrator, FTSE International Limited is responsible for collecting input data, determining and publishing the Benchmark, and for all aspects of governance, oversight, compliance and integrity of the Benchmark.

2.2 CC/CRB Oversight Committee

2.2.1 The CC/CRB Oversight Committee is responsible for overseeing the provision of the FTSE/CoreCommodity Single Commodity CRB Indices, including reviewing the benchmark definition and methodology at least annually, overseeing any changes to the benchmark methodology or cessation of the benchmark, and overseeing the administrator's control framework, management and operation of the benchmark.

2.3 Benchmark Manager

2.3.1 A Benchmark Manager is appointed by FTSE from time to time. The Benchmark Manager is a subject matter expert and is responsible for the integrity and quality of the Index which includes the following specific responsibilities:

- Interpreting the Index Methodology and implement the change procedure (if any)
- Reviewing feedback received from the Index stakeholders and the CC/CRB Oversight Committee.
- Developing and implementing changes to the index methodology pursuant to feedback from stakeholders or in response to market events in accordance with the FTSE benchmark change and cessation policy.
- Managing interaction with the index stakeholders.

2.4 Identification of potential limitations of the Benchmark

The design of the Benchmark is resilient against disruptions and periods of high volatility. However, technical problems or extreme market events may lead to re-publish the most recent Benchmark end of day close until the disruption has ended, or changes have been implemented. The administrator 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 FTSE/CoreCommodity CRB[®] Single Commodity Indices or the manner in which they are calculated.

2.5 Amendments to these Ground Rules

The FTSE/CoreCommodity CRB Single Commodity Indices Methodology is reviewed once per year and, if required by market events, more frequently. Any potential changes to the Methodology are reviewed by the CC/CRB Oversight Committee and are subject to the FTSE Russell's policy for benchmark methodology changes. All reasonable efforts will be made to provide at least one month's notice of any changes to the Methodology prior to their implementation.

¹ The term administrator is used in this document in the same sense as it is defined in [Regulation \(EU\) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds](#) (the European Benchmark Regulation) and [The Benchmarks \(Amendment and Transitional Provision\) \(EU Exit\) Regulations 2019](#) (the UK Benchmark Regulation)

Section 3

FTSE Russell index policies

3. FTSE Russell index policies

This Methodology should be read in conjunction with the following policy documents, which can be accessed using the links below:

3.1 Policy for Benchmark Methodology changes

Details of FTSE Russell's policy for making benchmark methodology changes can be accessed using the following link:

[Policy for Benchmark Methodology Changes.pdf](#)

3.2 FTSE Russell Governance Framework

To oversee its indices, FTSE Russell employs a governance framework that encompasses product, service and technology governance. The framework incorporates the London Stock Exchange Group's three lines of defence risk management framework and is designed to meet the requirements of the IOSCO Principles for Financial Benchmarks², the European benchmark regulation³ and the UK benchmark regulation⁴. The FTSE Russell Governance Framework can be accessed using the following link:

[FTSE Russell Governance Framework.pdf](#)

3.3 Real Time Status Definitions

For indices that are calculated in real time, please refer to the following guide for details of real time status definitions:

[Real Time Status Definitions.pdf](#)

3.4 Refix Policy

A retrospective recalculation will only be made when a manifest and material error has been identified. Any retrospective recalculation will be notified to users via the alert system on LSEG Workspace.

3.5 Complaints, Operational Enquiries and Proce Challenges

FTSE Russell's complaints procedure can be accessed using the following link: [FTSE Russell Benchmark Determination Complaints Handling Policy](#)

A Price Challenge is a request from a user or a stakeholder to verify and confirm the accuracy of one or more of the published Benchmark rates, inputs to those rates (if publicly available), or whether a specific benchmark determination is representative of market value.

Operational enquiries do not meet the definition of a compliant and include Benchmark Price Challenges. However, FTSE Russell may decide to treat an operational enquiry or a series of operational enquiries as a formal complaint.

² IOSCO Principles for Financial Benchmarks Final Report, FR07/13 July 2013

³ Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds

⁴ The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019

Operational enquires must be submitted to FTSE Russell by e-mail and should contain as much information as possible, including your name, your title, the institution you represent, your e-mail address and telephone number, to enable the operational enquiry to be investigated in a timely manner.

The e-mail address to raise Core Commodity benchmark related price challenge and operational enquiries is: index_queries@lseg.com

Section 4

Input data

4. Input data

4.1 Data source

- 4.1.1 All commodity prices used in the FTSE/CoreCommodity CRB single commodity indices are taken from commodity futures contract prices published by the CME Group (COMEX, NYMEX, CBOT and CME). CME Group of exchanges are regulated global marketplace and a well-established platform for commodity futures price discovery. 3-month US Treasury bill rates are based on previous day high value. US Fed published overnight rates are based upon previous day's rate.

4.2 Futures contract expiration months by calculation month

The calendar below shows the relevant futures contract expiration months used during each calendar month prior to the roll over period.

Commodity	Exchange	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude Oil	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Heating Oil	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Unleaded Gas	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Natural Gas	NYMEX	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
Gold	COMEX	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb
Copper	COMEX	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Silver	COMEX	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar

The 3 Month Forward index expiration months used during each calendar month are as follows.

Commodity	Exchange	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WTI Crude Oil	NYMEX	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Heating Oil	NYMEX	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Unleaded Gas	NYMEX	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Natural Gas	NYMEX	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Gold	COMEX	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb	Feb	Apr	Apr
Copper	COMEX	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Silver	COMEX	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May

Section 5

Determination of the Benchmark

5. Determination of the Benchmark

5.1 Single commodity excess return indices

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

Each Percent Return on business day t , SER_t , is calculated with reference to the previous business day $t - 1$ as

$$SER_t = SER_{t-1} * \frac{CSR_t}{CSR_{t-1}} \quad (1)$$

where CSR is the price of the front expiration month of the relevant futures contract or, if day t falls within the four day roll period then CSR shall be the weighted average price of the front and immediate back expiration months (see 4.2).

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 expiration month to the immediate back expiration month of the relevant futures contract takes place over the first four business day period of each calendar month. Exposure is rolled in equal amounts of 25% on each day during the roll period such that by the fourth day of the roll period, 100% of the weight is in the immediate back expiration 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 expiration month of the relevant futures contract ($i = 1$) and the immediate back month ($i = 2$). DW_t^i is the daily roll weight for expiration month ' i ' on day t and FP_t^i is the futures price of expiration 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 expiration month ' i ' on day $t - 1$

Once the four 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.

All values throughout this Methodology are rounded to six decimal places.

5.2 Single commodity total return indices based on 3 Month US Treasury Bill

Total return indices are calculated for each Commodity Segment Main and Forward index. Each total return index, STR_t , replicates the total return of a portfolio of futures and a cash investment. It is calculated using the futures daily returns plus the daily interest from the cash investment as follows

$$STR_t = STR_{t-1} \times \left(\frac{SER_t}{SER_{t-1}} + TBR_t \right) \times (1 + TBR_t)^{d-1} \quad (7)$$

where d is the number of calendar days between the current and previous business days, and TBR_t is the daily interest from the cash investment calculated as

$$TBR_t = \left(\frac{1}{1 - \frac{91}{360} \times TB_{t-1}^{3mo}} \right)^{\frac{1}{91}} - 1 \quad (8)$$

Each Total Return Index, STR_t , is calculated in USD and TB_{t-1}^{3mo} is the 3 month US Treasury Bill high rate for the previous day.

5.3 Single commodity total return (overnight rate) indices based on US Fed published Overnight Rate

Additional Total return indices are calculated for each Commodity Segment Main and Forward index. Each total return (Overnight Rate) index, $STRs_t$, replicates the total return of a portfolio of futures and a cash investment. It is calculated using the futures daily returns plus the daily interest from the cash investment as follows

$$STRs_t = STRs_{t-1} \cdot \left[\frac{SER_t}{SER_{t-1}} \cdot \left(1 + (d - 1) \cdot \frac{SOFr_{t-1}}{360} \right) + \left(\frac{SOFr_{t-1}}{360} \right) \right] \quad (9)$$

where d is the number of calendar days between the current and previous business days, and $SOFr_{t-1}$ is overnight rate published by US Fed on next morning.

Single total return (Overnight Rate) index version published on beginning of January 2020 with index calculation start date from 2nd January 2020.

5.4 Insufficient data and market disruptions

The administrator endeavours to develop and publish indices only where FTSE 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 liquidity in the markets used to source input data is interrupted (such as an event resulting in the unscheduled closing of futures exchanges). Should a Market Emergency occur, FTSE reserves the right to take such action with respect to the FTSE/CoreCommodity CRB Single Commodity Indices as it deems appropriate given the circumstances and after consulting with the Index Oversight Committee as appropriate (see section 2).

The administrator 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 FTSE/CoreCommodity CRB Single Commodity Indices or the manner in which they are calculated.

5.4.1 Monthly rollover disruptions

A “Rollover Disruption Event” is defined as any day on which a commodity is scheduled to roll, on which either: a) the front month or back month contracts for the commodity settle at the daily maximum or minimum price as determined by the rules for the relevant exchange, or b) the exchange fails to publish an official settlement price for the commodity, or c) 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.

Section 6

Publication

6. Publication

6.1 Index publication

The FTSE/CoreCommodity CRB Single Commodity Indices are published on LSEG Workspace with the following RICs:

FTSE/CoreCommodity CRB® Gold Excess Return Index	.CRBGC
FTSE/CoreCommodity CRB® Gold Total Return Index	.CRBGCT
FTSE/CoreCommodity CRB® Gold Total Return (Overnight Rate) Index	.CRBGCTS
FTSE/CoreCommodity CRB® Gold 3-Month Forward Excess Return Index	.CRBGC3
FTSE/CoreCommodity CRB® Gold 3-Month Forward Total Return Index	.CRBGCT3
FTSE/CoreCommodity CRB® Gold 3-Month Forward Total Return (Overnight Rate) Index	.CRBGCS3
FTSE/CoreCommodity CRB® Silver Excess Return Index	.CRBSI
FTSE/CoreCommodity CRB® Silver Total Return Index	.CRBSIT
FTSE/CoreCommodity CRB® Silver Total Return (Overnight Rate) Index	.CRBSITS
FTSE/CoreCommodity CRB® Silver 3-Month Forward Excess Return Index	.CRBSI3
FTSE/CoreCommodity CRB® Silver 3-Month Forward Total Return Index	.CRBSIT3
FTSE/CoreCommodity CRB® Silver 3-Month Forward Total Return (Overnight Rate) Index	.CRBSIS3
FTSE/CoreCommodity CRB® Copper Excess Return Index	.CRBHG
FTSE/CoreCommodity CRB® Copper Total Return Index	.CRBHGT
FTSE/CoreCommodity CRB® Copper Total Return (Overnight Rate) Index	.CRBHGTS
FTSE/CoreCommodity CRB® Copper 3-Month Forward Excess Return Index	.CRBHG3
FTSE/CoreCommodity CRB® Copper 3-Month Forward Total Return Index	.CRBHGT3
FTSE/CoreCommodity CRB® Copper 3-Month Forward Total Return (Overnight Rate) Index	.CRBHGS3
FTSE/CoreCommodity CRB® Crude Oil Excess Return Index	.CRBCL
FTSE/CoreCommodity CRB® Crude Oil Total Return Index	.CRBCLT
FTSE/CoreCommodity CRB® Crude Oil Total Return (Overnight Rate) Index	.CRBCLTS
FTSE/CoreCommodity CRB® Crude Oil 3-Month Forward Excess Return Index	.CRBCL3
FTSE/CoreCommodity CRB® Crude Oil 3-Month Forward Total Return Index	.CRBCLT3
FTSE/CoreCommodity CRB® Crude Oil 3-Month Forward Total Return (Overnight Rate) Index	.CRBCLS3

FTSE/CoreCommodity CRB® Heating Oil Excess Return Index	.CRBHO
FTSE/CoreCommodity CRB® Heating Oil Total Return Index	.CRBHOT
FTSE/CoreCommodity CRB® Heating Oil Total Return (Overnight Rate) Index	.CRBHOTS
FTSE/CoreCommodity CRB® Heating Oil 3-Month Forward Excess Return Index	.CRBHO3
FTSE/CoreCommodity CRB® Heating Oil 3-Month Forward Total Return Index	.CRBHOT3
FTSE/CoreCommodity CRB® Heating Oil 3-Month Forward Total Return (Overnight Rate) Index	.CRBHOS3
FTSE/CoreCommodity CRB® Natural Gas Excess Return Index	.CRBNG
FTSE/CoreCommodity CRB® Natural Gas Total Return Index	.CRBNGT
FTSE/CoreCommodity CRB® Natural Gas Total Return (Overnight Rate) Index	.CRBNGTS
FTSE/CoreCommodity CRB® Natural Gas 3-Month Forward Excess Return Index	.CRBNG3
FTSE/CoreCommodity CRB® Natural Gas 3-Month Forward Total Return Index	.CRBNGT3
FTSE/CoreCommodity CRB® Natural Gas 3-Month Forward Total Return (Overnight Rate) Index	.CRBNGS3
FTSE CRB® CoreCommodity Unleaded Gasoline Excess Return Index	.CRBRB
FTSE/CoreCommodity CRB® Unleaded Gasoline Total Return Index	.CRBRBT
FTSE/CoreCommodity CRB® Unleaded Gasoline Total Return (Overnight Rate) Index	.CRBRBTS
FTSE/CoreCommodity CRB® Unleaded Gasoline 3-Month Forward Excess Return Index	.CRBRB3
FTSE/CoreCommodity CRB® Unleaded Gasoline 3-Month Forward Total Return Index	.CRBRBT3
FTSE/CoreCommodity CRB® Unleaded Gasoline 3-Month Forward Total Return (Overnight Rate) Index	.CRBRBS3

6.2 Index dissemination

6.2.1 Each of the FTSE/CoreCommodity CRB Single Commodity Indices is published at the close of business day on which US futures market NYMEX is open for business.

6.3 Delayed publication

6.3.1 The Administrator, FTSE International Limited, may at its discretion delay publication of the FTSE/Core Commodity CRB Single Commodity Index in the event that technical difficulties are preventing receipt of input data or if FTSE International Limited has reason to believe that either the input data or the determination of the Benchmark includes a potential error. In such cases, all reasonable efforts will be made to publish the Benchmark at the earliest opportunity.

Section 7

Definition of key terms

Capitalised terms used in this document but not otherwise defined are defined in the following table.

Key Term	Definition
Administrator	A natural or legal person that has control over the provision of a benchmark (see Benchmark Regulation)
Authorised Benchmark Administrator	An Administrator that is authorised pursuant to Article 34 of the Benchmarks Regulation
Benchmarks Regulation	Regulation (EU) 2016/1011 of the European Parliament and of the Council of 8 June 2016 on indices used as benchmarks in financial instruments and financial contracts or to measure the performance of investment funds (the European Benchmark Regulation) and The Benchmarks (Amendment and Transitional Provision) (EU Exit) Regulations 2019 (the UK Benchmark Regulation)
Business Day	Any business day on which US CME NYMEX are open for trade
Methodology	The written rules and procedures according to which information is collected and the Benchmark is determined
CC	CoreCommodity Indexes, LLC, CRB index partner.

Appendix 1

Climate related disclosures

Explanation of how ESG factors are reflected in the key elements of the benchmark methodology

Item 1. Name of the benchmark administrator.	FTSE International Limited
Item 2. Type of benchmark or family of benchmarks.	Other
Item 3. Name of the benchmark or family of benchmarks.	FTSE/CoreCommodity Single Commodity CRB Indices
Item 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Date on which information has been last updated and reason for the update:	30 September 2024 Methodology review date

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