

# Index Methodology

The Bloomberg Commodity Index Family

The data and information (the “Information”) presented in this methodology (this “Methodology”) reflect the methodology for determining the composition and calculation of the Bloomberg Commodity Index (“BCOM” or the “Index”) and related sector, ex-sector, forward, roll select and currency-hedged Bloomberg Commodity Indices (the “Subindices”), which is calculated, administered and published by Bloomberg Index Services Limited (“BISL” or the “Index Administrator” and, collectively with its affiliates, “Bloomberg”). This Methodology is the successor document to the Dow Jones-UBS Commodity Index Handbook published in prior years and replaces it in its entirety.

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SEE “CERTAIN RISKS ASSOCIATED WITH THE BLOOMBERG COMMODITY INDEX” BEGINNING ON PAGE 10 FOR IMPORTANT RISKS AND DISCLAIMERS RELATING TO THE INDEX AND THE INFORMATION CONTAINED HEREIN.

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- Bloomberg Commodity Index
- BCOM
- Each of the Subindex names set forth in, or referenced by, Appendix H and Appendix K
- Each of the Currency Converted, Monthly Currency Hedged and Daily Currency Hedged Indices set forth in Appendix I
- Each of the Forward Month BCOM and BCOMTR names set forth in Appendix J
- Each of the index names set forth in Appendix L or Appendix M

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## The Bloomberg Commodity Index

*Certain defined terms used in this Methodology are described in Appendix A.*

### Chapter 1. Overview of the index

#### SECTION 1.1 INTRODUCTION

The Bloomberg Commodity Index (“BCOM” or the “Index”) is designed to be a highly liquid and diversified benchmark for commodity investments. BCOM provides broad-based exposure to commodities and no single commodity or sector dominates the Index.

##### Representativeness

The indices use a consistent, systematic process to represent the commodity markets. A commodity index should fairly represent the importance of a diversified group of commodities to the world economy. To achieve a fair representation, BCOM uses both liquidity data and U.S.-dollar-weighted production data in determining the relative quantities of included commodities. BCOM Index purports to provide diversified exposure to commodities as an asset class. The explicit inclusion of liquidity as a weighting factor helps to ensure that BCOM can accommodate substantial investment flows.

The Index was created by AIG International Inc. in 1998, acquired by UBS in May 2009, administered by Bloomberg starting in 2014, which later acquired the Index in September 2020. BISL calculates and administers BCOM (which is calculated on an excess return basis), a total return index based on BCOM (the “BCOMTR”) and each of the related indices and Subindices described in this Methodology.<sup>2</sup>

This Methodology describes the calculation methodology for the Index and its related indices and Subindices. Material changes or amendments to this Methodology are subject to approval by the Product, Risk & Operations Committee (further described in Section 1.3). Questions and issues relating to the application and interpretation of terms contained in this document generally and calculations during periods of extraordinary circumstances in particular will be resolved or determined by BISL.

Throughout this Methodology, references to “BCOM” and “Index” shall also refer to its related indices and Subindices, except if the context does not so require.

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1. See, e.g., E. Ankrum, and C. Hensel C., “Commodities in Asset Allocation: A Real-Asset Alternative to Real Estate,” *Financial Analysts Journal*, May/June 1993: 20–29; K. Froot, “Hedging Portfolios with Real Assets,” *Journal of Portfolio Management* Summer 1995: 60–77; G. Huberman, “The Desirability of Investment in Commodities via Commodities Futures,” *Derivatives Quarterly*, Fall 1995: 65–67.

2. Values of BCOM, BCOMTR and related indices and Subindices are currently distributed by various major market data vendors.

## SECTION 1.2 CONSTRUCTION PRINCIPLES

The value of the Index is computed on the basis of hypothetical investments in the basket of commodities that make up the Index. The Index embodies four main principles in its design:

- Economic Significance
- Diversification
- Continuity
- Liquidity

### (1) Economic Significance

A commodity index should fairly represent the importance of a diversified group of commodities to the world economy. To achieve a fair representation, BCOM uses both liquidity data and U.S.-dollar-weighted production data in determining the relative quantities of included commodities.

BCOM primarily relies on liquidity data, or the relative amount of trading activity of a particular commodity, as an important indicator of the value placed on that commodity by financial and physical market participants. BCOM also relies on production data as a useful measure of the importance of a commodity to the world economy. Production data alone, however, may underestimate the economic significance of storable commodities (e.g., gold) at the expense of relatively non-storable commodities (e.g., live cattle). Production data alone may also underestimate the investment value that financial market participants place on certain commodities and/or the amount of commercial activity that is centered on various commodities. Accordingly, production statistics alone do not necessarily provide as accurate a reflection of economic importance as the pronouncements of the markets themselves. BCOM thus relies on data that is both endogenous to the futures markets (liquidity) and exogenous to the futures markets (production) in determining relative weightings.

Gold clearly illustrates the potential shortcomings of exclusive reliance on production data and the greater balance provided by reliance on liquidity data. Since time immemorial, gold has played a unique role in the world of commodities that is not effectively captured by current production data. For example, although only 2,340 metric tons of gold were produced in 2007, approximately 29,900 metric tons were held as official government reserves. Of the approximately 155,000 tons of gold that has historically been mined, as of 2007, approximately 85% was still held by central banks and by nongovernmental entities in bullion, coin, and jewelry form.<sup>3</sup>

Based on production data, a production-based ranking of commodities would result in a relatively low weight of approximately 1.6% for gold. Conversely, a relatively non-storable commodity, such as live cattle, would receive an approximate weighting of 6.5% under a production-based ranking.<sup>4</sup> This 4:1 approximate ratio of live cattle to gold may not appropriately reflect the relative economic significance of the two commodities. For example, a 100% increase in the price of gold may be a more significant global economic event than a 25% increase in the price of live cattle, yet the two events would have a nearly identical impact on a production-weighted index. Primary reliance on liquidity data as a weighting measure reduces this type of distortion.

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3. *U.S. Geological Survey 2007 Minerals Yearbook—Gold*, Table 1 & Table 8, 31.2.

4. See Appendix D.

## (2) Diversification

A second major goal of BCOM is to provide diversified exposure to commodities as an asset class. Disproportionate weighting of any particular commodity or sector increases volatility and negates the concept of a broad-based commodity index. Instead of diversified commodities exposure, the investor is unduly subjected to micro-economic shocks in one commodity or sector.

The following diversification rules have been established and are applied annually:

- No single commodity (e.g., natural gas, silver) may constitute more than 15% of the Index;
- No single commodity, together with its derivatives (e.g., WTI crude oil and Brent crude oil, together with ULS diesel, Unleaded gas, and Low Sulfur Gas Oil), may constitute more than 25% of the Index;
- No related group of commodities (e.g., energy, precious metals, livestock or grains) may constitute more than 33% of the Index;
- No single commodity (e.g., natural gas, silver) may constitute less than 2% of the Index as liquidity allows.

The last rule helps to increase the diversification of the Index by giving even the smallest commodity within the basket a reasonably significant weight. Commodities with small weights initially may have their weights increased to higher than 2% by prior steps.

In addition to the above rules, BCOM is rebalanced annually on a price-percentage basis to maintain diversified commodities exposure over time.<sup>5</sup>

## (3) Continuity

A third goal of BCOM is to be responsive to the changing nature of commodity markets in a manner that does not completely reshape the character of the Index from year to year. BCOM is intended to provide a stable benchmark, so that end-users may be reasonably confident that historical performance data (including such diverse measures as correlation, spot yield, roll yield and volatility) is based on a structure that bears some resemblance to both the current and future composition of the Index. Several Index features, including annual rebalancing, five-year averaging<sup>6</sup> of liquidity and production data, and the diversification rules set forth below,<sup>7</sup> should allow for a smooth response to future market developments.

## (4) Liquidity

Another goal of BCOM is to provide a highly liquid index, suitable for institutional investment. The explicit inclusion of liquidity as a weighting factor helps to ensure that BCOM can accommodate substantial investment flows. The liquidity of an index not only affects transaction costs associated with current investments, but may also affect the reliability of historical price performance data. That is, to the extent that market inefficiencies may result from substantial inflows of investment capital, these inefficiencies—and corresponding distortions in index performance—will be minimized by weighting distributions that more closely mirror actual liquidity in the markets.

## (5) Summary

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5. See Section 2.7.

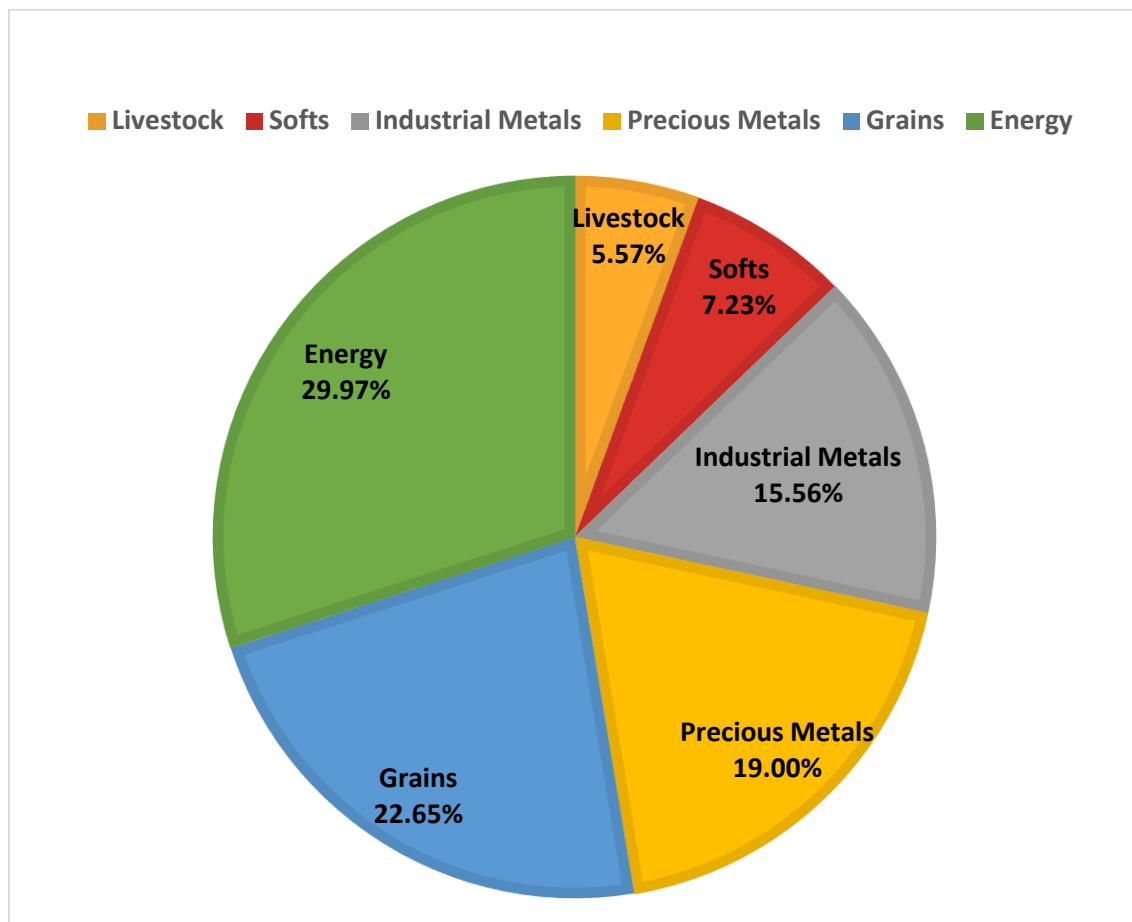
6. See Sections 2.3 and 2.4.

7. See Section 2.6.

Table 1 illustrates the percentage weights for certain commodities and commodity groups in BCOM as of January 2021,<sup>8</sup> based on the principles described above. It should be noted that no single commodity or group dominates the Index, creating a truly diversified commodities benchmark. Additional details in respect to the percentage weights are set forth in Appendix D.

UCITS Compliance—The diversification rules of the Index are structurally compatible with the European Union’s UCITS 35/20 requirements. The history of BCOM is well within the parameters set by the European Union UCITS 35/20 directives.

**Table 1: The Bloomberg Commodity Index—2021 Target Weights**



8. Rounded target weightings as of January 2021. Actual percentages on any Business Day may vary from the target weights due to market price fluctuations. The labeled categories are based on the Subindices described in Appendix H, with Natural Gas and Soybean Meal and Soybean Oil in separate categories



## 1.3 BENCHMARK GOVERNANCE

### Benchmark Governance, Audit and Review Structure

BISL uses two primary committees to provide overall governance and effective oversight of its benchmark administration activities:

- The Product, Risk & Operations Committee (“PROC”) provides direct governance and is responsible for the first line of controls over the creation, design, production and dissemination of benchmark indices, strategy indices and fixings administered by BISL, including the Indices. The PROC is composed of Bloomberg personnel with significant experience or relevant expertise in relation to financial benchmarks. Meetings are attended by Bloomberg Legal & Compliance personnel. Nominations and removals are subject to review by the BOC, discussed below.
- The oversight function is provided by Bloomberg’s Benchmark Oversight Committee (“BOC”). The BOC is independent of the PROC and is responsible for reviewing and challenging the activities carried out by the PROC. In carrying out its oversight duties, the BOC receives reports of management information both from the PROC as well as Bloomberg Legal & Compliance members engaged in second level controls.

On a quarterly basis, the PROC reports to the BOC on governance matters, including but not limited to client complaints, the launch of new benchmarks, operational incidents (including errors & restatements), major announcements and material changes concerning the benchmarks, the results of any reviews of the benchmarks (internal or external) and material stakeholder engagements.

#### Internal and External Reviews

BISL’s Index administration is also subject to Bloomberg’s Compliance function which periodically reviews various aspects of its businesses in order to determine whether it is adhering to applicable policies and procedures, and assess whether applicable controls are functioning properly. In addition, Bloomberg may from time to time appoint an independent external auditor with appropriate experience and capability to review adherence to benchmark regulation. The frequency of such external reviews will depend on the size and complexity of the operations and the breadth and depth of the Index use by stakeholders.

#### Conflicts of Interest

The Index confers on the Index Administrator discretion in making certain determinations, calculations and corrections from time to time. In making those determinations, calculations and corrections, the Index Administrator has no obligation to take the needs of any holders of financial products based on or tracking the Indices (such products, “Index Products” with the holders of such product, “Index Product Investors”) into consideration at any time.

The Index Administrator is committed to avoiding and, where necessary, managing actual or potential conflicts of interest in its decision-making process and has established a Conflicts of Interest Policy to minimize or resolve actual or potential conflicts of interest.

The Index Administrator does not create, trade or market Index Products.

For additional information regarding BCOM's policies and procedures, see Appendix 6.

## **SECTION 1.4. INDEX LIMITATIONS AND RISKS**

Though the Indices are designed to be representative of the markets they measure or otherwise align with their stated objective, they may not be representative in every case or achieve their stated objective in all instances. They are designed and calculated strictly to follow the rules of this Methodology, and any index level or other output is limited in its usefulness to such design and calculation.

Markets can be volatile, including those market interests which the Indices intend to measure or upon which the Indices are dependent in order to achieve their stated objective. For example, illiquidity can have an impact on the quality or amount of data available to the Index Administrator for calculation and may cause the Indices to produce unpredictable or unanticipated results.

In addition, market trends and changes to market structure may render the objective of the Index unachievable or to become impractical to replicate by investors.

The following is a summary of certain risks associated with BCOM but is not meant to be an exhaustive list of all risks associated with the Index or an investment in commodities, commodity futures or commodity-linked or commodity index-linked products generally.

### **Commodity Prices May Change Unpredictably, Affecting the Value of the Index in Unforeseeable Ways**

Trading in futures contracts on physical commodities, including trading in the Index components, is speculative and can be extremely volatile. Market prices of the Index components and the underlying physical commodities may fluctuate rapidly based on numerous factors, including changes in supply and demand relationships (whether actual, perceived, anticipated, unanticipated or unrealized); weather; agriculture; trade; fiscal, monetary and exchange control programs; domestic and foreign political and economic events and policies; disease; pestilence; technological developments; changes in interest rates, whether through government action or market movements; and monetary and other government policies, action and inaction. The current or "spot" prices of the underlying physical commodities may also affect, in a volatile and inconsistent manner, the prices of futures contracts in respect to the relevant commodity. These factors may affect the value of the Index, related indices and Subindices in varying ways, and different factors may cause the prices of the Index components, and the volatilities of their prices, to move in inconsistent directions at inconsistent rates.

### **Suspension or Disruptions of Market Trading in Commodities and Related Futures May Adversely Affect the Value of the Index**

The futures markets occasionally experience disruptions in trading (including temporary distortions or other disruptions due to various factors such as the lack of liquidity in markets, the participation of speculators and government regulation and intervention) referred to in this Methodology as "Market Disruption Events." Market Disruption Events include the cessation, for a material time, of trading in futures contracts included in the Index or the imposition by the futures exchange on which one or more such futures contracts are traded of a "limit price," a range outside of which such futures contracts are not permitted to trade. In addition, a futures exchange may replace or delist a futures contract included in the Index. Procedures have

been established to address such events; such procedures are set forth in this Methodology.<sup>9</sup> There can be no assurance, however, that a Market Disruption Event, the replacement or delisting of a commodity contract or any other force majeure event will not have an adverse or distortive effect on the value of the Index or the manner in which it is calculated.

### **Future Prices of the Index Components That Are Different Relative to Their Current Prices May Affect the Value of the Index**

The Index is composed of commodity futures contracts rather than physical commodities. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, commodity futures contracts normally specify a certain date for delivery of the underlying physical commodity. As the exchange-traded futures contracts that compose the Index approach expiration, they are replaced by similar contracts that have a later expiration. Thus, for example, a futures contract purchased and held in August may specify an October expiration date. As time passes, the contract expiring in October may be replaced by a contract for delivery in December. This process is referred to as “rolling.”

If the market for these contracts is in “backwardation,” which means that the prices are lower in the distant delivery months than in the nearer delivery months, the purchase of the December contract would take place at a price that is lower than the sale price of the October contract. Conversely, if the market for these contracts is in “contango,” which means that the prices are higher in the distant delivery months than in the nearer delivery months, the purchase of the December contract would take place at a price that is higher than the sale price of the October contract. The difference between the prices of the two contracts when they are rolled is sometimes referred to as a “roll yield,” and the change in price that contracts experience while they are components of the Index is sometimes referred to as a “spot return.” An investor in the Index cannot receive either the roll yield or the spot return separately.

The presence of contango in the commodity markets could result in negative roll yields, which could adversely affect the value of the Index. Because of the potential effects of negative roll yields, it is possible for the value of the Index to decrease significantly over time, even when the near-term or spot prices of underlying commodities are stable or increasing. It is also possible, when near-term or spot prices of the underlying commodities are decreasing, for the value of the Index to decrease significantly over time even when some or all of the constituent commodities are experiencing backwardation.

Certain commodities included in the Index, such as gold, have historically traded in contango markets and the Index has experienced periods in which many of the commodities in the Index are in contango. Although certain of the contracts included in the Index have historically experienced periods of backwardation, it is possible that such backwardation will not be experienced in the future.

### **The Index May in the Future Include Contracts That Are Not Traded on Regulated Futures Exchanges**

The Index was originally based solely on futures contracts traded on regulated futures exchanges (referred to in the United States as “designated contract markets”). At present, the Index is comprised exclusively of regulated futures contracts. As described below, however, the Index, related indices or Subindices may in the future include over-the-counter contracts (such as swaps and forward contracts) traded on trading facilities that are subject to lesser degrees of regulation or, in some cases, no substantive regulation. As a result, trading

in such contracts and the manner in which prices and volumes are reported by the relevant trading facilities may not be subject to the provisions of and the protections afforded by the U.S. Commodity Exchange Act or other applicable statutes and related regulations that govern trading on regulated U.S. futures exchanges or similar statutes and regulations that govern trading on regulated U.K. futures exchanges. In addition, many electronic trading facilities have only recently initiated trading and do not have significant trading histories. As a result, the trading of contracts on such facilities and the inclusion of such contracts in the Index, related indices or Subindices may be subject to certain risks not presented by U.S. or U.K. exchange-traded futures contracts, including risks related to the liquidity and price histories of the relevant contracts.

### **Data Sourcing, Data Publication and Calculation Risks Associated with the Index May Adversely Affect the Level of the Index or the Value of an Investment Linked to the Index**

The composition of the Index, related indices or Subindices is recalculated annually relying on historic price, liquidity and production data that are subject to potential errors in data sources or other errors that may affect the weighting of components of the Index, related indices or Subindices. Any discrepancies that require revision are not applied retroactively but will be reflected in the weighting calculations of the Index, related indices or Subindices for the following year. Additionally, BISL may not discover every discrepancy.

Furthermore, the weightings for the Index, related indices or Subindices are determined by BISL, which has a significant degree of discretion with respect to the Index, related indices and Subindices. This discretion would permit, among other things, changes to the composition of the Index, related indices or Subindices or changes to the manner or timing of the publication of the values of such indices at any time during the year if BISL deemed the changes necessary in light of factors that include, but are not limited to: (i) changes in liquidity of the underlying futures contracts that are included in the Index, related indices or Subindices or (ii) changes in legal, regulatory, sourcing or licensing matters relating to publication or replication of the Index, related indices or Subindices. In particular, without limitation, BISL's access to and rights to use data in connection with calculating, publishing and licensing the Index, related indices and Subindices remain subject to the ongoing consent of the sources of such data (including, without limitation, exchanges), which consent can be revoked at any time. Further, the sources of such data reserve the right to revise the terms and conditions of access and use of their data upon notice to BISL. BISL reserves the right to modify the composition of the Index, related indices or Subindices on an as-needed basis to minimize the impact of any loss of access to or revised terms of use with respect to such source data on the indices.

BISL has no obligation to take the needs of any parties to transactions involving the Index, related indices or Subindices into consideration when reweighting or making any other changes to the Index, related indices or Subindices.

### **Other Considerations**

The provisions and procedures set forth in this Methodology grant a significant degree of discretion BISL, as administrator of the Index, in a number of respects. BISL may exercise this discretion as it determines to be most appropriate. Furthermore, this Methodology does not address all possible issues relating to the Index, related indices or Subindices and any omissions or exceptions may be addressed as deemed to be appropriate. In addition, this Methodology and any other provisions or procedures relating to such indices may be amended at any time.

## Chapter 2. Index construction

BCOM is composed of futures contracts on physical commodities. Unlike equities, which typically entitle the holder to a continuing stake in a corporation, commodity futures contracts normally specify a certain date for the delivery of the underlying physical commodity. To avoid the delivery process and maintain a long futures position, nearby contracts must be sold and contracts that have not yet reached the delivery period must be purchased. This process is known as “rolling” a futures position. BCOM is a “rolling index.”

### Section 2.1. INDEX CONSTRUCTION OVERVIEW

**The following overview does not purport to be a complete description of the Index and is qualified in its entirety by reference to the detailed information provided in applicable sections of this Methodology.**

The composition of the Index is rebalanced by BISL each year pursuant to the procedures set forth in this Methodology by index managers operating within the PROC (defined below) governance body under the oversight of the BOC (defined below) oversight function. Any material deviations or changes from established procedures are subject to review by such bodies. In addition, to the extent practicable, BISL may solicit stakeholder feedback, including by means of the Index Advisory Council. Once approved, the new composition of the Index is publicly announced and takes effect in the month of January immediately following the announcement.

The first step in constructing BCOM is to determine the relative liquidity and production percentages. The Commodity Liquidity Percentage (“CLP”) for each futures contract (a “Designated Contract”) selected as a reference contract for commodity designated for potential inclusion in the Index (collectively, “Commodities”) is determined by taking a five-year average of the product of trading volume and the historic U.S. dollar value of such futures contract and dividing the result by the sum of such products for all Designated Contracts. The Commodity Production Percentage (“CPP”) is also determined for each Commodity by taking a five-year average of production figures, adjusted by the historic U.S. dollar value of the applicable Designated Contract, and dividing the result by the sum of such products for all Commodities.

The Commodity Liquidity Percentage and the Commodity Production Percentage are then combined (using a ratio of 2:1) to establish the Commodity Index Percentage (“CIP”) for each Commodity. This Commodity Index Percentage is then adjusted in accordance with the diversification rules described in Section 1.2 above and Section 2.6 below to determine the Commodities that will be included in the Index (“Index Commodities”) and their respective percentage weights.

On the fourth Business Day of the month of January (the “CIM Determination Date”) following the calculation of the CIPs, the CIPs are combined with the Settlement Prices of all Designated Contracts for such day to create the Commodity Index Multiplier (“CIM”) for each Designated Contract. The Commodity Index Multipliers remain in effect throughout the ensuing year.

Once the CIMs are determined, the calculation of BCOM is an arithmetic process whereby the CIMs for the Index Commodities are multiplied by the respective prices in U.S. dollars for the applicable Designated Contracts. The products are then summed. The daily percentage change in this sum is then applied to the prior day’s BCOM value to calculate the then-current BCOM value.<sup>10</sup>

10. See Sections 2.8 and 3.1.

## SECTION 2.2. COMMODITY SELECTION

### (1) Commodities Available for Inclusion in the Index

Commodities have been selected that are believed to be both sufficiently significant to the world economy to merit consideration and that are tradable through a qualifying related futures contract. With the exception of several metals contracts (aluminum, lead, tin, nickel and zinc) that trade on the London Metals Exchange® (“LME”) and the contract for Brent crude oil and Low Sulphur Gas Oil, each of the Commodities is the subject of at least one futures contract that trades on a U.S. exchange.

The following 25 Commodities are eligible for inclusion in the Index:

1. *Aluminum*
2. *Cocoa*
3. *Coffee*
4. *Copper*
5. *Corn*
6. *Cotton*
7. *Crude Oil*
8. *Gold*
9. *Lead*
10. *Lean Hogs*
11. *Live Cattle*
12. *Low Sulphur Gas Oil*
13. *Natural Gas*
14. *Nickel*
15. *Platinum*
16. *RBOB Gasoline*
17. *Silver*
18. *Soybean Meal*
19. *Soybean Oil*
20. *Soybeans*
21. *Sugar*
22. *Tin*
23. *ULS Diesel*
24. *Wheat*
25. *Zinc*

The following 21 Commodities are in the Index for 2021 year following application of the index rules:

1. *Aluminum*
2. *Coffee*
3. *Copper*
4. *Corn*
5. *Cotton*
6. *Crude Oil*
7. *Gold*
8. *Lean Hogs*
9. *Live Cattle*

10. Low Sulphur Gas Oil
11. Natural Gas
12. Nickel
13. RBOB Gasoline
14. Silver
15. Soybean Meal
16. Soybean Oil
17. Soybeans
18. Sugar
19. Wheat
20. ULS Diesel
21. Zinc

## **(2) Designated Contracts**

One or more Designated Contracts is selected by BISL for each of the 25 Commodities eligible for inclusion in the Index. This selection process is subject to review by the Benchmark Oversight Committee and, if practicable, input from the Index Advisory Council.

Historically, through and including the composition of the Index for 2021, BISL has chosen for each Commodity one Designated Contract that is traded in North America and denominated in U.S. dollars (with the exception of several LME contracts, which are traded in London, and with the exception of crude oil, for which two Designated Contracts have been selected starting in 2012, and wheat, for which two Designated Contracts that are traded in North America have been selected starting in 2013).

It is possible that BISL will in the future select more than one Designated Contract for additional commodities or may select Designated Contracts that are traded outside of the United States or in currencies other than the U.S. dollar. For example, in the event that changes in regulations concerning position limits materially affect the ability of market participants to replicate the Index in the underlying futures markets, it may become appropriate to include multiple Designated Contracts for one or more Commodities (in addition to crude oil and wheat) to enhance liquidity.

The termination or replacement of a futures contract on an established exchange occurs infrequently; were a Designated Contract to be terminated or replaced, a comparable futures contract would be selected, if available, to replace that Designated Contract.

The Designated Contracts for the Commodities are listed in Table 2.

**Table 2: Designated Contracts for the Commodities<sup>11</sup>:**

Commodity	Designated Contract	Exchange	Units	Price Quote
Natural Gas	Henry Hub Natural Gas	NYMEX	10,000 mmbtu	USD/mmbtu
WTI Crude Oil	Light, Sweet Crude Oil	NYMEX	1,000 barrels	USD/barrel
Brent Crude Oil	Brent Crude Oil	ICE Futures Europe	1,000 barrels	USD/barrel
Low Sulphur Gas Oil	Gas Oil	ICE Futures Europe	100 tonnes	USD/MT
Unleaded Gasoline	RBOB	NYMEX	42,000 gal	U.S. cents/gallon
ULS Diesel	ULS Diesel	NYMEX	42,000 gallons	U.S. cents/gallon
Live Cattle	Live Cattle	CME	40,000 lbs	U.S. cents/pound
Lean Hogs	Lean Hogs	CME	40,000 lbs	U.S. cents/pound
Wheat (Chicago)	Soft Wheat	CBOT	5,000 bushel	U.S. cents/bushel
Wheat (KC HRW)	Hard Red Winter Wheat	CBOT	5,000 bushel	U.S. cents/bushel
Corn	Corn	CBOT	5,000 bushels	U.S. cents/bushel
Soybeans	Soybeans	CBOT	5000 bu	U.S. cents/bushel
Soybean Meal	Soybean Meal	CBOT	100 short tons	USD/short ton
Soybean Oil	Soybean Oil	CBOT	60,000 lbs	U.S. cents/pound
Aluminum	High Grade Primary Aluminum	LME	25 metric tons	USD/metric ton
Copper	Copper	COMEX	25,000 lbs	U.S. cents/pound
Zinc	Special High Grade Zinc	LME	25 metric tons	USD/metric ton
Nickel	Primary Nickel	LME	6 metric tons	USD/metric ton
Lead	Refined Standard Lead	LME	25 metric tons	USD/metric ton
Tin	Refined Tin	LME	5 metric tons	USD/metric ton
Gold	Gold	COMEX	100 troy oz.	USD/troy oz.
Silver	Silver	COMEX	5000 troy oz.	U.S. cents/troy oz.
Platinum	Platinum	NYMEX	50 troy oz.	USD/troy oz.
Sugar	Sugar No. 11	ICE Futures U.S.	112,000 lbs	U.S. cents/pound
Cotton	Cotton No.2	ICE Futures U.S.	50,000 lbs	U.S. cents/pound
Coffee	Coffee "C"	ICE Futures U.S.	37,500 lbs	U.S. cents/pound
Cocoa	Cocoa	ICE Futures U.S .	10 metric tons	USD/metric ton

BCOM utilizes the Copper contract traded on the COMEX division of the CME Group ("COMEX") as the Designated Contract for copper but utilizes COMEX prices for this Designated Contract and LME copper contract volume data for purposes of Index calculation. The Index incorporates volume data for the LME copper contract as it is more actively traded than the COMEX High Grade Copper contract and provides a better indication of the relative significance of this commodity.

11. Contract specifications for frozen concentrated orange juice (FCOJ) and feeder cattle are included solely for purposes of the single- commodity Subindices described in, or referenced by, Appendix H.



### Price Information

The trading period for the COMEX High Grade Copper contract extends until 1:00 pm ET, whereas the daily settlement price for LME copper is determined at 12:00 p.m. ET<sup>12</sup>. Most of the Designated Contracts that are not LME contracts are actively traded for several hours after 12:00pm ET. The additional one-hour period of daily exchange trading in copper gained from referring to the COMEX contract should enhance the transparency and liquidity of the Index compared with a reference to the prices of LME copper contracts. Furthermore, likely end-users of BCOM have significantly less access to updated information on LME copper monthly spread quotes than that available on a real-time basis for COMEX copper.

### Liquidity

An adjustment is made to the overall U.S. dollar LME copper contract trading volume to compensate for trading volume distribution of the LME contract relative to the COMEX High Grade contract. Although overall U.S. dollar volume figures for the LME copper contract are higher than those for the COMEX High Grade Copper contract, for purposes of the calculation of BCOM, these relative volume numbers may overstate the potential difference in “useful” liquidity. All COMEX trading activity, like that of other U.S. exchanges, is centered on particular monthly contracts. A large percentage of LME copper volume reflects trading for particular dates other than those potentially designated for inclusion in the Index and an adjustment is made to compensate for this when utilizing LME volume numbers for the calculation of the Index.<sup>13</sup>

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12. Generally in respect of LME contracts for the calculation of the BCOM, Final Closing Prices (as defined in the LME rules) are utilized as a proxy for daily settlement prices on U.S. exchanges. These prices are determined by the LME on the basis of trading that concludes during the P.M. Kerb Session, which extends between 11:35am-12:00 ET.

13. For aluminum, lead, nickel, tin and zinc, no liquid U.S.-dollar-denominated futures contracts exist outside of the LME. Should such contracts become available in the future, the BOC may consider them as potential Designated Contracts for BCOM.

### (3) Commodity Groups

For purposes of applying the diversification rules referred to in Section 1.2 above and described in Section 2.6 below, each of the Commodities eligible for inclusion in the Index are assigned to “Commodity Groups.” The Commodity Groups, and the Commodities composing each Commodity Group, are as follows:

Commodity Group	Commodities
Energy	Crude Oil (WTI and Brent) Natural Gas RBOB Gasoline Low Sulphur Gas Oil ULS Diesel
Precious Metals	Gold Platinum Silver
Industrial Metals	Aluminum Copper Lead Nickel Tin Zinc
Livestock	Live Cattle Lean Hogs
Grains	Corn Soybeans Soybean Oil Soybean Meal Wheat (Chicago and KC HRW)
Softs	Cocoa Coffee Cotton Sugar

**(4) Commodity Sectors**

The Index includes both “Primary Commodities” (i.e., base Commodities that are not principally derived or produced from other Commodities) and “Derivative Commodities” (i.e., Commodities that are principally derived or produced from other Commodities). Together with its Derivative Commodities, each Primary Commodity is referred to in this Methodology as a “Commodity Sector.” The Index Commodities that constitute Primary Commodities and their respective Derivative Commodities currently are as follows:

Primary Commodity	Derivative Commodities
Crude Oil (WTI and Brent)	ULS Diesel, RBOB Gasoline, Low Sulphur Gas Oil
Soybeans	Soybean Oil and Soybean Meal

Adjustments are made, as described in Section 2.6 below, to avoid the “double-counting” of Primary Commodities that would result if Primary Commodities and Derivative Commodities were viewed as wholly separate categories. BISL, as Index Administrator, may determine that other Index Commodities qualify as Derivative Commodities, and the adjustments described in Section 2.6 below will then be made with respect to those Derivative Commodities as well.

**SECTION 2.3. CALCULATION OF THE COMMODITY LIQUIDITY PERCENTAGES**

**(1) DESCRIPTION OF CALCULATION**

Each Designated Contract eligible for inclusion in the Index is assigned a liquidity weighting (the “Commodity Liquidity Percentage” or “CLP”) based on the average volume of trading.<sup>14</sup> To ensure that aberrant trading years do not distort the Commodity Liquidity Percentage, the average is computed on the basis of historical annual volume data for the five years (the “Liquidity Averaging Period”) up to and including the year prior to the applicable Calculation Period.<sup>15</sup> Thus, for the Calculation Period for 2021 (i.e., 2019), the Liquidity Averaging Period was the years 2015 to 2019, inclusive. The volume data used in the calculation of the Commodity Liquidity Percentages was obtained from Futures Industry Association (the “FIA”).<sup>16</sup>

In contrast to U.S. futures, which are typically listed on a monthly or bimonthly basis and trade only during specific hours, LME contracts can be traded over-the-counter, 24 hours a day, for value on any Business Day within a three-month window extending out from spot. In addition, LME contracts can be traded for settlement on the third Wednesday of each month extending out 27 months from the date the contract is made. Accordingly, historical data comparable to that of U.S. futures contracts is not available for these LME contracts and certain adjustments to the available data are made for purposes of calculating this component of the Index. In particular, LME contracts that trade on the third Wednesday of each month will serve as a proxy for U.S. futures contracts. The calculation of BCOM will utilize the LME contracts that trade on the third Wednesday of every other month, starting with January.

14. Although BCOM incorporates the prices of the COMEX High Grade Copper contract, the more actively traded LME copper contracts are used for determining the CLP for copper because the LME copper contracts provide a better indication of the relative significance of this commodity. See Section 2.2(2) above.

15. The “Calculation Period” for each year for which the Index is calculated is typically the third or fourth calendar quarter of the year preceding such year of calculation.

16. Volume Data Source: U.S. and International Monthly Volume reports; published by the Futures Industry Association, electronic data used.

Furthermore, because of the greater flexibility of trading times and dates, reported LME volume figures cannot be directly compared with those for traditional futures contracts traded on U.S. exchanges. To equate LME volume data with U.S. exchanges, BCOM will use one-third of reported LME volume in its calculation. This discounting allows a fair comparison of LME volume data with U.S. volume data for purposes of measuring the relative liquidity of various Designated Contracts.

Table 3 sets forth the most recent five years of volume data as reported by the FIA, Bloomberg, and the adjusted LME data.

**Table 3: Contract Volume Data**

Table 4 sets forth the corresponding average Settlement Prices for Lead Futures on the first Business Day of each month, these figures are used in combination with the volume data above to calculate the Commodity Liquidity Percentages. The Lead Future is the contract month set forth under the corresponding WAV month in Table 9. These Settlement Prices have all been converted into U.S. dollars per unit.

Commodity	2015	2016	2017	2018	2019
Natural Gas	86,182,057	105,913,138	109,431,523	106,522,038	124,039,187
Crude Oil	242,504,173	296,643,163	326,020,063	290,661,917	307,735,999
Brent Crude	198,223,611	230,085,976	241,446,398	223,729,369	242,090,359
RBOB Gasoline	42,531,265	48,438,670	49,632,409	51,964,997	47,689,429
ULS Diesel (HO)	38,496,379	41,118,037	46,790,885	42,045,644	47,501,309
Low Sulphur Gas Oil	65,603,461	70,700,870	79,935,447	79,620,359	88,144,330
Live Cattle	13,295,761	15,607,886	16,056,376	16,855,778	16,816,875
Lean Hogs	8,695,761	10,364,029	12,726,042	15,298,152	14,034,376
Wheat (Chicago)	31,101,352	32,848,308	36,362,717	32,887,314	30,559,039
Wheat (KC HRW)	8,554,850	11,724,522	14,898,934	14,849,441	14,318,332
Corn	87,335,044	85,358,965	96,905,996	104,195,035	86,235,398
Soybeans	62,495,645	53,446,445	60,538,732	51,568,751	55,003,639
Soy Meal	26,601,121	24,810,514	30,554,621	28,938,415	30,027,467
Soybean Oil	29,476,283	29,770,226	31,909,666	29,786,816	33,764,008
Aluminum	18,557,539	17,022,664	20,688,308	21,486,427	22,248,858
Copper	12,431,650	11,385,014	12,486,967	12,319,254	11,385,406
Zinc	9,006,891	9,226,461	11,389,303	10,505,236	8,706,220
Nickel	6,705,340	6,579,559	7,941,323	7,769,177	7,304,796
Lead	3,676,762	3,330,633	4,408,275	4,146,388	3,904,813
Tin	466,106	423,493	412,004	435,524	436,530
Gold	50,897,089	61,189,546	86,046,628	74,729,159	89,770,849
Silver	15,909,264	20,852,803	24,670,455	22,268,830	25,128,146
Platinum	3,837,044	4,454,155	5,434,305	5,479,030	5,439,329
Sugar No. 11	34,917,081	31,135,413	34,355,223	37,520,946	41,435,902
Cotton No.2	7,448,905	7,612,476	8,926,821	8,125,074	8,687,138
Coffee "C"	9,374,943	9,263,226	11,493,925	14,813,412	13,785,982
Cocoa	9,285,990	10,447,548	12,172,990	11,448,012	11,696,967

Table 4: Average Lead Futures Price on First Business Day of Each Month

Commodity	2015	2016	2017	2018	2019
Natural Gas	\$2.38	\$3.08	\$2.90	\$2.90	\$2.08
Crude Oil	\$42.62	\$48.95	\$59.60	\$60.44	\$45.79
Brent Crude	\$45.04	\$51.40	\$64.87	\$68.26	\$50.50
Unleaded Gasoline	\$1.42	\$1.53	\$1.85	\$1.78	\$1.36
ULS Diesel (HO)	\$1.37	\$1.54	\$1.95	\$2.02	\$1.54
Low Sulphur Gas Oil	\$411.42	\$455.88	\$582.52	\$617.88	\$468.00
Live Cattle	\$1.31	\$1.13	\$1.14	\$1.16	\$1.08
Lean Hogs	\$0.70	\$0.65	\$0.70	\$0.67	\$0.63
Wheat (Chicago)	\$4.78	\$4.31	\$4.65	\$5.04	\$5.17
Wheat (KC HRW)	\$4.68	\$4.37	\$4.73	\$4.86	\$4.46
Corn	\$3.73	\$3.58	\$3.67	\$3.79	\$3.66
Soybeans	\$9.37	\$9.82	\$9.88	\$8.89	\$8.87
Soy Meal	\$311.22	\$316.84	\$342.12	\$314.11	\$300.17
Soybean Oil	\$0.30	\$0.33	\$0.33	\$0.29	\$0.29
Aluminum	\$1,559.63	\$1,793.79	\$1,787.04	\$1,914.52	\$1,677.27
Copper	\$4,839.61	\$5,478.49	\$6,784.63	\$6,073.74	\$5,635.66
Zinc	\$1,797.42	\$2,595.90	\$3,192.75	\$2,630.52	\$2,171.23
Nickel	\$9,281.04	\$10,094.48	\$12,799.85	\$12,295.67	\$14,058.92
Lead	\$1,732.25	\$2,152.85	\$2,455.75	\$1,996.10	\$1,876.85
Tin	\$15,769.92	\$20,015.58	\$20,585.83	\$19,752.08	\$16,278.69
Gold	\$1,170.78	\$1,255.49	\$1,300.76	\$1,274.80	\$1,582.14
Silver	\$15.36	\$17.83	\$16.71	\$15.00	\$17.18
Platinum	\$954.70	\$984.91	\$934.72	\$831.83	\$882.42
Sugar	\$0.15	\$0.19	\$0.14	\$0.12	\$0.12
Cotton	\$0.62	\$0.73	\$0.77	\$0.76	\$0.61
Coffee	\$1.23	\$1.43	\$1.25	\$1.03	\$1.07
Cocoa	\$3,092.33	\$2,315.92	\$2,238.50	\$2,261.00	\$2,438.92

## (2) Calculating Commodity Liquidity Percentages

Using the data obtained as described above, the Commodity Liquidity Percentage for each Designated Contract is calculated as follows:

1. Determine the total annual volume for each year using the calendar months of August to July; ie August 2019 to July 2020 of the Liquidity Averaging Period.<sup>17</sup>
2. For each such year, using the calendar months of August to July; ie August 2019 to July 2020, calculate the average of the Settlement Prices for the Lead Future on the first Business Day of each month.
3. Determine the number of units for the Designated Contract (e.g., 1,000 Barrels, 60,000 Metric Tons, etc.).
4. Convert the average Settlement Price into U.S. dollars.
5. For each year of the Liquidity Averaging Period, multiply the related annual volume by such average Settlement Price in U.S. dollars, and then multiply that result by the number of units per contract.<sup>18</sup>
6. Take the average of the results of Step 5 for each Designated Contract.

17. Divide the LME Volume by 3 as described in Section 2.3(1).

18. The COMEX price for copper must also be converted into metric tons, which corresponds with the LME volume data; multiply the COMEX price by 2,204.622 and then multiply by the LME volume.

Once the above steps have been completed for each Designated Contract:

7. Take the sum of all Step 6 results.
8. For each Designated Contract, divide the results of Step 6 by the total from Step 7.

The percentages calculated in Step 8 are the Commodity Liquidity Percentages. The total of all the Commodity Liquidity Percentages should be 100%.

## SECTION 2.4. CALCULATION OF COMMODITY PRODUCTION PERCENTAGES

### (1) Description of the Calculation

Each Designated Contract will also be assigned a Commodity Production Percentage based on its average U.S.-dollar-adjusted value of production. As with the calculation of the Commodity Liquidity Percentages, the Commodity Production Percentages are calculated over a five-year period (the “Production Averaging Period”). However, because of the greater time lag in obtaining production data, the Production Averaging Period is the most recent five-year period for which production figures for all Index Commodities are available. For the Calculation Period for 2019 (i.e., 2018), the Production Averaging Period comprises the years 2011 to 2015, inclusive. BISL may in the future use data with a shorter lag period should such data become available and may use data with a longer lag period if necessary due to publication schedules of the relevant sources.

On the following page, Table 5 outlines the sources from which the production data for each Commodity are derived. Note that the sources from which the data are derived may use different terminology than that used in this Methodology.

**Table 5: Sources Used for Production Data**

Commodity	Source	Table
Natural Gas	U.S. EIA Annual Statistical Supplement	Gross Natural Gas Production
Crude Oil	U.S. EIA Annual Statistical Supplement	World Crude Oil Production
Live Cattle	Food and Agriculture Organization of the UN Statistical Data Service (“FAOSTAT”)	Cattle Meat
Lean Hogs	FAOSTAT	Pig Meat
Wheat	FAOSTAT	Wheat Production
Corn	FAOSTAT	Maize
Soybeans	FAOSTAT	Soybeans
Aluminum	U.S. Geological Survey, National Minerals Information Center	Aluminum Primary World Production
Copper	MYDI	Copper, World Refinery Production
Zinc	MYDI	Zinc World Smelter Production
Nickel	MYDI	Nickel World Plant Production
Lead	MYDI	Lead World Refinery Production
Tin	MYDI	Tin World Smelter Production
Gold	MYDI	World Mine Production
Silver	MYDI	World Mine Production
Platinum	MYDI	Platinum—Group Metals, World Production
Sugar	USDA <i>Sugar and Sweeteners Yearbook Tables</i>	Table 1 World Production, supply, and distribution, centrifugal sugar
Cotton	FAOSTAT (2013-2014) & USDA (2015-2017)	Cotton Lint
Coffee	FAOSTAT	Coffee, Green
Cocoa	FAOSTAT	Cocoa Beans

As described more fully below, production weightings are adjusted by the Designated Contract values in U.S. dollars. This adjustment helps ensure that the relative production weightings in the Index more closely approximate the economic value of production over time.

## **(2) Calculating Commodity Production Percentages**

Two procedures are required to determine the Commodity Production Percentage (“CPP”) for each Commodity:

### **Calculate the Commodity Production Weight (“CPW”):**

1. The production data for each year in the Production Averaging Period is determined for all Commodities eligible for inclusion in the Index; however, data for Derivative Commodities is not included to avoid double-counting and, where there are multiple Designated Contracts for a particular Commodity, the production data is allocated at this stage to only one Designated Contract also to avoid double-counting. Data for all Commodities is drawn from the same five-year period.
2. For each Commodity, a conversion factor is determined to convert the production data into the pricing terms of each Designated Contract. For example, crude oil production is reported in metric tons, whereas crude oil futures are denominated in barrels. By multiplying the production data by the crude oil conversion factor, such data is converted into barrels. Next, this product is multiplied by the production-reporting-size factor, if applicable. The result is the Commodity Production Weight, or CPW. See Appendix B for a list of sources used for obtaining these conversion factors.
3. Each CPW is divided by 1,000,000. This reduces all weightings to a manageable size without affecting the relative percentages.

### **For the same five years used in calculating the CPWs:**

1. Calculate the average of the Settlement Prices of the Lead Future on the first Business Day of each month for each year using the calendar months August to July; ie August 2017 to July 2018 in the Production Averaging Period.<sup>19</sup>
2. Convert each average of the Settlement Prices into U.S. dollar terms.
3. Multiply the CPW for each year by such average price in U.S. dollar terms.
4. Take the average of the results of Step 3 for each Commodity.

### **Once the above steps have been completed for each Commodity:**

5. Take the sum of all Step 4 results.
6. For each Commodity, divide the results of Step 4 by the total from Step 5.

The percentages calculated in Step 6 are the Commodity Production Percentages. The total of the Commodity Production Percentages should be 100%. Note that the Derivative Commodities and any Designated Contracts that are additional to the first Designated Contract for a particular Commodity will have Commodity Production Percentages of zero at this point. Values from the Primary Commodities are allocated to the Derivative Commodities and such additional Designated Contracts in a later step, as described in Section 2.5 below.

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19. Note that due to greater lag time, the production data is multiplied by different Settlement Prices than those Settlement Prices used to calculate CLPs. Price data corresponds to the year of observation for both production and liquidity rankings.

20. Prior to 2010, aluminum, gold, cattle and hogs production data was normalized to conform new data sources to data sources for prior years and to adjust for incompleteness of data. This normalization was discontinued in 2010 in respect of the determination of the Commodity Index Percentages for 2011 and thereafter. Concurrently, the data

source for production of cattle meat and pig meat was switched from ICSY to FAOSTAT (see Table 5 above). Table 6 below sets forth the production data for each Commodity used in calculating the Commodity

Production Percentages.<sup>20</sup> World production data is used with the following exception:

For natural gas, only North American production is used. Due to a lack of economically viable transportation systems across continents, and between North America and Eurasia, natural gas is a uniquely regional commodity.

**Table 6: Production Data**

Commodity	Reporting Unit	2013	2014	2015	2016	2017
Natural Gas	Billion Cubic Feet	38,304	40,603	42,003	41,464	41,959
Crude Petroleum	Thous. Barrels	33,467,215	34,415,485	35,448,435	35,625,095	35,834,240
Beef & Fresh Veal	Thous. Met Tons	63,969	64,471	63,924	64,568	65,416
Pork	Thous. Met Tons	115,104	117,055	119,407	118,956	119,930
Wheat	Thous. Met Tons	710,397	728,730	741,643	748,392	773,477
Corn	Thous. Met Tons	1,016,207	1,039,227	1,052,127	1,126,991	1,164,401
Soybeans	Thous. Met Tons	277,673	306,349	323,307	335,614	353,027
Aluminum	Thous. Met Tons	52,100	54,100	57,700	58,600	59,500
Copper	Thous. Met Tons	21,100	22,600	23,000	23,000	23,000
Zinc	Thous. Met Tons	13,200	13,500	13,700	13,800	13,800
Nickel	Metric Tons	1,980,000	2,000,000	2,000,000	1,930,000	1,930,000
Lead	Thous. Met Tons	10,900	10,600	10,600	11,000	11,000
Tin	Metric Tons	346,000	394,000	354,000	341,000	341,000
Gold	Kilograms	2,960,000	3,050,000	3,120,000	3,180,000	3,230,000
Silver	Metric Tons	25,900	26,700	27,000	26,600	26,600
Platinum	Kilograms	192,000	150,000	195,000	191,000	199,000
Sugar	Thous. Met Tons	177,833	175,971	177,582	164,972	174,050
Cotton	Thous. Met Tons	24,804	26,157	20,937	23,226	26,989
Coffee	Thous. Met Tons	8,893	8,762	8,866	9,354	9,162
Cocoa	Thous. Met Tons	4,485	4,757	4,808	4,714	5,278



As an example of the production data conversion process, Table 7 below lists the production data and Commodity Production Weights for 2021 and the conversion factors used to convert the production data into the Commodity Production Weights.

**Table 7: 2021 Production Data Converted into Commodity Production Weights**

Commodity	Production Units	Production	Size Factor	Contract Terms	Conversion Factor	2017 CPW
Natural Gas	Cubic Feet	41,959	1	10000 mmbtu	1,000,000.00	41,959,000,000.00
Crude Petroleum	Barrels	35,834,240	1000	1000 bbl	1	35,834,240.00
Beef & Fresh Veal	Thous Met Tons	65,416	1000	40000 lbs	3,486.43	225,658,199.41
Pork	Thous Met Tons	119,930	1000	40000 lbs	2,204.62	264,399,809.84
Wheat	Thous Met Tons	773,477	1000	5000 bu	36.7437	28,420,389.35
Corn	Thous Met Tons	1,164,401	1000	5000 bu	39.3683	45,840,481.27
Soybeans	Thous Met Tons	353,027	1000	5000 bu	36.7437	12,971,510.68
Aluminum	Thous Met Tons	59,500	1000	25 mtons	1	59,500.00
Copper	Thous Met Tons	23,000	1000	25000 lbs	1	23,000.00
Zinc	Thous Met Tons	13,800	1000	25 mtons	1	13,800.00
Nickel	Metric Tons	1,930,000	1	6 mtons	1	1,930,000.00
Lead	Thous Met Tons	11,000	1000	25 mtons	1	11,000.00
Tin	Metric Tons	341,000	1	5 mtons	1	341,000.00
Gold	Kilograms	3,230,000	1	100 oz	32.1508	103,847,084.00
Silver	Metric Tons	26,600	1	5000 oz	32,150.75	855,209,950.00
Platinum	Kilograms	199,000	1	50 oz	32.1508	6,398,009.20
Sugar	Thous Met Tons	174,050	1000	112000 lbs	2,204.62	383,714,111.00
Cotton	Thous Met Tons	26,989	1000	50000 lbs	2,204.62	59,499,780.23
Coffee	Thous Met Tons	9,162	1000	37500 lbs	2,204.62	20,199,486.83
Cocoa	Thous Met Tons	5,278	1000	10 tons	1	5,277.86

Appendix F contains a table of the Commodity Production Weights and average Settlement Prices used to calculate the Commodity Production Percentages for 2021.

## SECTION 2.5. ALLOCATION OF COMMODITY PRODUCTION TO DERIVATIVE COMMODITIES AND ADDITIONAL DESIGNATED CONTRACTS

As discussed in Section 2.2(4) above, certain Index Commodities are Primary Commodities, whereas others are Derivative Commodities within the same Commodity Sector. The production weightings for Derivative Commodities are not calculated in the manner described in Section 2.4 above. Instead, the Commodity Production Percentages within each Commodity Sector must be reassigned among the Primary Commodities and its Derivative Commodities to eliminate the double-counting of production figures for the Primary Commodity that would otherwise occur if no adjustment were made. The same process is applied when more than one Designated Contract has been selected for a particular Commodity (an “Additional Designated Contract”). To allocate Commodity Production Percentages to any such Derivative Commodity set forth in Section 2.2(4) or Additional Designated Contract, the following steps are taken:

1. Take the sum of the Commodity Liquidity Percentages for all the Primary Commodities, Additional Designated Contracts and Derivative Commodities in each Commodity Sector.
2. Divide the Commodity Liquidity Percentage for each Primary Commodity, Additional Designated Contract and Derivative Commodity in each Commodity Sector by the sum calculated in step 1 above for that Commodity Sector. The result is the “Commodity Sector Allocation Percentage,” or “CSAP,” for that Index Commodity. The Commodity Sector Allocation Percentages should sum to 100%.
3. Set the new Commodity Production Percentage for each Primary Commodity, Additional Designated Contract and Derivative Commodity within that Commodity Sector to equal the Commodity Production Percentage for the Primary Commodity multiplied by the individual Commodity Sector Allocation Percentages. For example:

Once the Primary Commodity’s Commodity Production Percentage has been reallocated to that Primary Commodity, Additional Designated Contracts and Derivative Commodities, all the Commodity Production Percentages should continue to sum to 100%.

WTI Crude Oil CPP	= Crude Oil CPP x WTI Crude Oil CSAP
Brent Crude Oil CPP	= Crude Oil CPP x Brent Crude Oil CSAP
Heating Oil CPP	= Crude Oil CPP x ULS Diesel CSAP
RBOB Gas CPP	= Crude Oil CPP x RBOB Gas CSAP
Low Sulphur Gas Oil	= Crude Oil CPP x Low Sulphur Gas Oil CSAP

These calculations are explained in further detail in Appendix D.

## SECTION 2.6. CALCULATION OF THE COMMODITY INDEX PERCENTAGES

BISL calculates the Commodity Index Percentages for each year in the third or fourth quarter of the year immediately prior to the year the relevant Commodity Index Percentages are effective and publishes the results as promptly as practicable following the calculation. These new Commodity Index Percentages are implemented in January of the effective year. Early publication allows users of the Index ample time to make any necessary adjustments. Continuity of the Commodity Index Percentages is one goal in the design of BCOM.

The Commodity Index Percentage for each Designated Contract included in the Index is calculated as follows:

### *Step A – Allocating 2/3 liquidity, 1/3 production*

For each Designated Contract, calculate the sum of (a) 2/3 multiplied by the Commodity Liquidity Percentage for that Designated Contract plus (b) 1/3 multiplied by the Commodity Production Percentage for that Designated Contract. This sum is the “Interim Commodity Index Percentage,” or “ICIP.” The sum of the ICIPs should be 100%.

### *Step B – Eliminating Commodities Under 0.4%<sup>21</sup>*

1. Once all the ICIPs are calculated, set any ICIPs that are less than 0.4% to zero. The related Commodities are not included in the Index for the related year, and none of the Index calculation procedures that follow are performed with respect to these Commodities. The remaining Designated Contracts are the Index Designated Contracts.
2. Calculate the sum of the ICIPs discarded in procedure 1 of this step B. Allocate this sum equally among the Commodity Sectors. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (Primary Commodities, Derivative Commodities and Commodities with Multiple Designated Contracts receive equal split). The sum of the ICIPs should continue to be 100%.

---

21. The rule set forth as step B of this Section 2.6 used in 2021 a minimum-inclusion threshold of 0.4% to create the composition of BCOM for 2021. It is anticipated that BISL may, from time to time, exercise discretion in setting the threshold for this rule in furtherance of the objectives underlying BCOM. In particular, when considering marginal commodities not currently included in BCOM for potential future inclusion, BISL has the discretion to raise or lower the minimum-inclusion threshold from 0.4% up to a maximum of 3% from year to year.

### *Step C – Reducing Any Commodity Sector over 25% Down to 25%*

Take the sum of the ICIPs for each Commodity Sector. If the ICIPs for any Commodity Sector sum to greater than 25%:

1. Subtract 25% from each Commodity Sector sum that exceeds 25%.
2. Allocate the total difference equally among the other Index Commodities not affected by this rule, while treating sectors as one asset when distributing the excess. For any Index Commodity that has more than one Designated Contract, the allocation for this Index Commodity will be equally split among its Designated Contracts. Do not allocate to any Commodity that was eliminated by the minimum threshold rule (step B of this Section 2.6).
3. Allocate 25% to the Commodity Sectors that exceeded 25% in proportion to the original distribution within this Commodity Sector (i.e., the new ICIP = 25% x original ICIP/sum of Commodity Sector original ICIPs).

The total of all the ICIPs should continue to equal 100%.

#### Step D – Reducing Any Index Commodity ICIP over 15% to 15%

If the ICIP of any Index Commodity is over 15%<sup>22</sup>:

1. Subtract 15% from that Commodity's ICIP.
2. Allocate this difference equally among the other Index Commodities not affected by this rule, while treating sectors as one asset when distributing the excess. For any Commodity Sector that has more than one underlying contract or Commodities with Multiple Designated Contracts, the allocation will be equally split among their underlying contracts. Do not allocate to any Commodity that was eliminated by the minimum rule (Step B of this Section 2.6) or to any Index Commodity if the allocation would cause the 25% Commodity Sector Maximum limit to be exceeded.
3. Set this ICIP to 15%.

The total of all the ICIPs should continue to equal 100%.

#### Step E – Reducing Any Commodity Group ICIP to Under 33%

Take the sum of the ICIPs for each Commodity Group. If any Commodity Group's ICIP sums to greater than 33%:

1. Subtract 33% from the sum of the Commodity Group's ICIP.
2. Allocate this difference equally among the other Index Commodities not affected by this rule, while treating sectors as one asset when distributing the excess. For any Commodity Sector that has more than one underlying contract or Commodities with Multiple Designated Contracts, the allocation will be equally split among their underlying contracts. Do not allocate to any Commodity that was eliminated by the minimum rule (Step B of this Section 2.6) or to any Designated Contract if the allocation would cause the 25% Commodity Sector or the 15% Commodity maximum limits to be exceeded.
3. Allocate 33% to the Designated Contracts in this Commodity Group in proportion to the original distribution within this Commodity Group (i.e., the new ICIP = 33% x original ICIP/sum of Commodity Group original ICIP).

The total of all the ICIPs should continue to equal 100%.

*Step F – Setting Gold and Silver Weights to Equal Their Commodity Liquidity Percentages*

As discussed in Section 1.2(1) above, reliance on production data for gold, and similarly for silver, understates the relative economic significance of these Commodities. Accordingly, the Commodity Index Percentages for gold and silver are adjusted to reflect only the Commodity Liquidity Percentages. The adjustment is made as follows:

1. Take the difference between the ICIPs for gold and silver and their respective Commodity Liquidity Percentages. Sum these differences.
2. Set the gold and silver ICIPs to equal their respective Commodity Liquidity Percentages (the ICIP cannot exceed the 15% Commodity limit or cause the Commodity Sector to exceed 25%).
3. Change the ICIPs of the remaining Designated Contracts by allocating the sum derived in procedure 1 of this Step F equally among them, while treating Sectors as one asset when distributing the excess. For any Commodity Sector that has more than one underlying contract or Commodities with Multiple Designated Contracts, the allocation will be equally split among their underlying contracts. Do not change any ICIPs for Index Commodities eliminated under the minimum threshold rule (Step B of this Section 2.6) or reduced by the 25% Commodity Sector, 15% Commodity or 33% Commodity Group limits.

The sum of the ICIPs should continue to be 100%.

*Step G – Increasing Any Sector ICIP Under 2% to 2%*

If any remaining Commodity Sector has an ICIP under 2%:

1. Take the difference between each of these Index Commodities' ICIPs and 2%. Sum all these differences.
2. Decrease the ICIPs of the remaining Designated Contracts by allocating the sum derived in procedure 1 of this Step G, so that each Designated Contract receives an equal allocation. Do not decrease any ICIPs for Index Commodities eliminated under the minimum threshold rule (Step B of this Section 2.6) or reduced by the 25% Commodity Sector, 15% Commodity or 33% Commodity Group maximum limits.
3. Set the ICIPs that were under 2% to 2%.

The sum of the ICIPs should continue to be 100%.

It is possible that this Step G reduces the ICIPs for some Index Commodities to under 2%. If this occurs, repeat Step G, but do not reduce those ICIPs that were adjusted up to 2% in the prior iteration. If necessary, continue repeating Step G until no ICIP is under 2%.

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22. Note that Brent and WTI are considered together as one Commodity for purposes of applying the 15% limit. Chicago Wheat and KC HRW Wheat are also considered together for the same purposes.

Please note that Step G often does not have an effect on ICIPs, as individual Commodities with small ICIPs may have had their ICIPs

increased to above 2% by previous steps. The minimum allocation of 2% imposed by Step G may be reduced due to liquidity concerns by Step H below.

#### *Step H – Adjusting for the Commodity Liquidity Threshold*

1. Divide (x) - the ICIP resulting from Step G for each Designated Contract by (y) the associated Commodity Liquidity Percentage determined for that Index Commodity.
2. If this result (x/y) is greater than 3.5, then the related ICIP will be reduced such that it will equal 3.5 times the relevant Commodity Liquidity Percentage.
3. The amount of weight reduction for all affected Designated Contracts is aggregated, and the value of this amount is allocated evenly to the ICIPs of the Designated Contracts with such ratio below a number, currently set at 2.0, which is determined from time to time by BISL (excluding any Designated Contract that, were the ICIP so increased, would cause any of the maximum weight rules in Steps C, D or E to be exceeded) by adding such aggregate amount equally to the relevant ICIPs.

The percentages calculated in the final Step H, rounded to 8 decimal places, are the CIPs, which should sum to 100%.

The effect of the above steps is to distribute the weights of the Index into a broader allocation among Commodity Groups while still maintaining a strong relationship to the original Commodity Liquidity Percentages and Commodity Production Percentages. The specific calculations for 2019 are set forth in Appendix D.

## **SECTION 2.7. CALCULATION OF THE COMMODITY INDEX MULTIPLIERS**

On the CIM Determination Date, the CIPs determined during the related Calculation Period, along with the Settlement Prices determined on such CIM Determination Date<sup>23</sup>, are used to determine a “Commodity Index Multiplier” or “CIM” for each Designated Contract. This CIM is used to achieve the percentage weightings of the Designated Contracts, in U.S. dollar terms, indicated by their respective CIPs. The weighted average value, or “WAV,” of the Index is then determined by adding the product of these Settlement Prices and their respective CIMs.

To determine the respective CIMs, first calculate Initial Commodity Index Multipliers (“ICIMs”) as follows: each CIP will be multiplied by 1,000 and then divided by the Settlement Price (converted into U.S. dollars for the Lead Future) for the applicable Designated Contract on the CIM Determination Date. This Settlement Price is referred to in the calculations below as “FPD\_S.”

The ICIMs are then adjusted by the previous year’s WAV1 value (divided by 1,000) to maintain WAV continuity from one year to the next. A summary of the Commodity Index Multiplier calculations is as follows:

#### *Step A – Determine the Initial Commodity Index Multiplier*

$$\text{ICIM} = \text{CIP} * 1,000 / \text{FPD\_S}$$

#### *Step B – Determine an Adjustment Factor (the “Adjustment Factor”) to Maintain Continuity*

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23. See Section 3.3 for the Settlement Prices to be used if a Market Disruption Event has occurred for any Designated Contract used in the calculation of the CIMs on the CIM Determination Date.

“CIM\_last\_year” is defined as the CIM that was in effect for the year immediately prior to the CIM Determination Date.

“CIM\_new\_year” is defined as the new CIM calculated for the year in which the CIM Determination Date falls.

1. Calculate the WAV1 settlement using CIM\_last\_year and FPD\_S for each Designated Contract.
2. The Adjustment Factor equals this WAV1 divided by 1,000.

*Step C – Calculate the New Commodity Index Multiplier*

CIM\_new\_year is then determined by multiplying the ICIM for each Designated Contract by the Adjustment Factor derived in Step B of this Section 2.7.<sup>24</sup> Set the new CIM to equal the CIM\_new\_year. Round the CIMs to 8 decimal places.

The CIM\_last\_year continues to be used for the calculation of WAV1 until the end of the roll period falling in the month of January.

After the CIMs are calculated on the CIM Determination Date in a given year, they remain fixed throughout such year. As a result, the observed price percentage of each Designated Contract will float throughout the year until the CIMs are reset the following year based on new CIPs.

Prior to a CIM Determination Date, users of the Index will be able to estimate the CIMs for the year in which such CIM Determination Date will fall by using then-available prices for the Designated Contracts that will be the Lead Futures for the month of January in which such CIM Determination Date will fall.

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24. The effect of the adjustment to the ICIMs is to set the WAV1 value using the CIM\_last\_year equal to the WAV1 using the CIM\_new\_year as of the CIM Determination Date. The CIM\_new\_year, redesignated the CIM, is then used to calculate the WAV2 value.

Table 8 below illustrates the calculations of the Commodity Index Percentages and Commodity Index Multipliers for 2021 (official CIP and CIM calculations use additional decimal precision than provided in Table 8).

**Table 8: CIM Calculations for the 2021 Bloomberg Commodity Index**

Commodity	2020 CIM	2021 FPD_S January 7th 2021	2021 CIM x FPD_S	2021 Weights	2021 ICIM	2021 CIM
Natural Gas	132.30439	2.691	356.031126	8.07%	329.5688867	122.4707866
WTI Crude Oil	4.5743586	50.87	232.6976205	8.14%	332.5422719	6.5370999
Brent Crude Oil	3.6740581	54.38	199.7952795	6.86%	279.8870674	5.14687509
Unleaded Gas	46.624793	1.4861	69.2891051	2.18%	88.97308114	59.87018447
ULS Diesel	37.216464	1.5393	57.28730331	2.08%	85.00576389	55.22364964
Low Sulphur Gas Oil	0.1504977	442.5	66.59523225	2.64%	107.8495825	0.24372787
Live Cattle	113.69999	1.14975	130.7265644	3.85%	157.0433365	136.5891163
Lean Hogs	91.908343	0.69125	63.53164179	1.73%	70.48632994	101.9693742
Wheat (Chicago)	19.784854	6.4225	127.0682272	2.89%	117.7907804	18.34033171
Wheat (KC HRW)	11.194702	5.985	67.00029267	1.57%	64.15760763	10.71973394
Corn	54.288001	4.94	268.1827236	5.59%	228.0951837	46.17311411
Soybeans	21.367584	13.5525	289.5841797	5.82%	237.5167966	17.52568136
Soybean Meal	0.3913491	432.2	169.1410681	3.60%	146.9325791	0.33996432
Soybean Oil	298.57493	0.4379	130.7459633	3.20%	130.4715381	297.9482488
Aluminum	0.0854342	2033	173.6876676	4.21%	171.823061	0.084517
Copper	89.165068	3.696	329.5540913	5.39%	220.2201181	59.5833653
Zinc	0.052151	2884.5	150.4295883	3.25%	132.5657645	0.04595797
Nickel	0.0070691	18099	127.942736	2.71%	110.8069647	0.00612227
Gold	0.3096452	1913.6	592.5371313	14.65%	597.9742047	0.31248652
Silver	7.3514615	27.261	200.4081922	4.35%	177.7643117	6.52082872
Sugar	792.55537	0.156	123.6386372	2.99%	121.9585662	781.7856807
Cotton	76.4356	0.7976	60.96503459	1.51%	61.69604998	77.35211883
Coffee	79.292201	1.211	96.02285567	2.74%	111.7323844	92.26456184

**WAV1, Close on 4th Business Day 2021** 4082.862261

**Adjustment Factor** 4.082862261



## SECTION 2.8. ONGOING CALCULATION OF WAV1 AND WAV2

WAV1 and WAV2 are calculated on the basis of prices for the Lead Future and the Next Future, respectively. Table 9 below lists the Designated Contract months that are to be used to determine the Lead Future and Next Future for each Index Commodity for this calculation. To illustrate, the Lead Future for natural gas in January is March, as is the Next Future, and in February the Lead Future is March and the Next Future is May. Thus, in February, WAV1 will incorporate the price for the March natural gas contract, and WAV2 will incorporate the price for the May contract. Note that as a new month begins, the Next Future (as indicated in Table 9 below) becomes the Lead Future. Similarly, as a new month begins, the WAV2 from the prior month is redesignated as WAV1.

**Table 9: Bloomberg Commodity Index Contract Calendar<sup>25</sup>**

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	(F)	(G)	(H)	(J)	(K)	(M)	(N)	(Q)	(U)	(V)	(X)	(Z)
Natural Gas	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
WTI Crude Oil	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Brent Crude Oil	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
RBOB Gasoline	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
ULS Diesel	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Live Cattle	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb
Lean Hogs	Feb	Apr	Apr	Jun	Jun	Jul	Aug	Oct	Oct	Dec	Dec	Feb
Wheat (Chicago)	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Wheat (KC HRW)	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Corn	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Soybeans	Mar	Mar	May	May	Jul	Jul	Nov	Nov	Nov	Nov	Jan	Jan
Soybean Oil	Mar	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan
Soybean Meal	Mar	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan
Aluminum	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Copper	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Zinc	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Nickel	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Lead	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Tin	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Gold	Feb	Apr	Apr	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb
Silver	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Platinum	Apr	Apr	Apr	Jul	Jul	Jul	Oct	Oct	Oct	Jan	Jan	Jan
Sugar No.11	Mar	Mar	May	May	Jul	Jul	Oct	Oct	Oct	Mar	Mar	Mar
Cotton No.2	Mar	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Dec	Mar
Coffee "C"	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Cocoa	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar
Low Sulphur Gas Oil	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
FCOJ	Mar	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan
Feeder Cattle	Mar	Mar	May	May	Aug	Aug	Aug	Oct	Oct	Jan	Jan	Jan
Palladium	Mar	Mar	Jun	Jun	Jun	Sep	Sep	Sep	Dec	Dec	Dec	Mar

25. Table 9 includes, Platinum, frozen concentrated orange juice (FCOJ), Cocoa, Palladium, and Feeder Cattle, which are currently not part of the Index, but are used in calculating single-commodity Subindices as described in Appendix H.

Once the applicable futures month is determined, the price for each Designated Contract used to calculate WAV1 and WAV2 for each Business Day is obtained and converted into U.S. dollars. Some quote systems and data sources may report contract prices with decimals omitted or in a format that is not reflective of the actual U.S. dollar value. It is important to correctly convert each reported price into U.S. dollars per unit of the underlying contract. Table 10 below lists the reported Settlement Prices for the Lead Futures converted into U.S. dollars per unit for the 2021 CIM Determination Date.

**Table 10: 2021 CIM Determination Date Futures Settlement Prices Converted into U.S. Dollars**

Commodity	Contract Quotation Terms	Price on January 7th 2021	Price Conversion	Price in dollars
Natural Gas	\$/mmbtu	2.691	1	2.691
WTI Crude Oil	\$/bbl	50.87	1	50.87
Brent Crude Oil	\$/bbl	54.38	1	54.38
Unleaded Gas	¢/100 gallon	148.61	100	1.4861
ULS Diesel	¢/100 gallon	153.93	100	1.5393
Low Sulphur Gas Oil	\$/metric ton	442.5	1	442.5
Live Cattle	¢/lb	114.975	100	1.14975
Lean Hogs	¢/lb	69.125	100	0.69125
Wheat (Chicago)	¢/bu	642.25	100	6.4225
Wheat (KC HRW)	¢/bu	598.5	100	5.985
Corn	¢/bu	494	100	4.94
Soybeans	¢/bu	1355.25	100	13.5525
Soybean Meal	\$/short ton	432.2	1	432.2
Soybean Oil	¢/lb	43.79	100	0.4379
Aluminum	\$/mtons	2033	1	2033
Copper	¢/lb	369.6	100	3.696
Zinc	\$/metric ton	2884.5	1	2884.5
Nickel	\$/metric ton	18099	1	18099
Gold	\$/troy Oz	1913.6	1	1913.6
Silver	\$/troy Oz	27.261	1	27.261
Sugar	¢/lb	15.6	100	0.156
Cotton	¢/lb	79.76	100	0.7976
Coffee	¢/lb	121.1	100	1.211

Once Settlement Prices are obtained for the Lead Future and Next Future for each Index Commodity, the WAVs are calculated in respect of each Business Day as follows: WAV1 is calculated by multiplying each Commodity Index Multiplier by the Settlement Price for the respective Lead Future for that day and summing the results. WAV2 is calculated by multiplying each Commodity Index Multiplier by the Settlement Price for the respective Next Future for that day and summing the results. The WAVs are rounded to 8 decimal places.

## Chapter 3. Computation of the Index, Subindices and related Indices

BISL calculates BCOM (which is calculated on an “excess return” basis), a “total return” index based on BCOM (“BCOMTR”) and the non-U.S. dollar denominated versions of BCOM and BCOMTR identified in Appendix I.

In addition, BISL publishes a “spot price” version of BCOM (“BCOMSP”). BCOMSP provides a general estimate of the trend in commodity prices, without the positive or negative return effects caused by rolling futures or the costs involved in actually holding physical commodities. BCOMSP is not “investable”, in the sense that returns of BCOMSP cannot be actually replicated in the underlying futures markets. See Appendix E for calculation details for BCOMSP.

BISL also calculates Subindices and forward month versions of the Index and selected Subindices on an excess return and total return basis. Additional information in respect of these Subindices and forward month versions of the Indices is set forth in Appendices H and J, respectively.

### SECTION 3.1. CALCULATION OF THE BLOOMBERG COMMODITY INDEX

The BCOM Settlement Price is calculated on each Business Day using the applicable Settlement Prices for WAV1 and WAV2 on the current Business Day and the prior Business Day. The suffix “\_PS” designates the Settlement Price for the previous Business Day, and the suffix “\_S” designates the Settlement Price for the current Business Day. “BCOM\_S” indicates the value of BCOM on the current Business Day. The manner in which BCOM is calculated on a given Business Day depends on which of three periods during the month in which this day falls: the period prior to the Roll Period, the Roll Period, or the period following the Roll Period. The “Roll Period” is used in this Methodology to refer to the sixth through tenth Business Days of the month, during which time the value of BCOM is gradually shifted from the utilization of WAV1 for Index calculation to the utilization of WAV2, at the rate of 20% per Business Day.

#### Prior to the Roll Period

On Business Day 1 of the month, the Index is calculated as follows:

$$\text{BCOM\_S} = \text{BCOM\_PS} * \text{WAV1\_S} / \text{WAV2\_PS}^{26}$$

On Business Days 2 through 5 of the month, BCOM is calculated as follows:

$$\text{BCOM\_S} = \text{BCOM\_PS} * \text{WAV1\_S} / \text{WAV1\_PS}$$

#### During the Roll Period

On each day of the Roll Period, the dependence of BCOM is shifted, at the rate of 20% per day, from WAV1 to WAV2 as follows:

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<sup>26</sup> On the first Business Day of the month, WAV1 is comprised of the same group of Designated Contracts that comprised the WAV2 of the prior month. Therefore, when calculating the change in the WAV1, it is divided by the WAV2 from the last Business Day of the prior month. This does not represent a “roll”, but rather a redesignation of the WAV2 to WAV1.

Day 1 of Roll Period (Business Day 6 of Month):

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV1\_S} * .80 + \text{WAV2\_S} * .20) / (\text{WAV1\_PS} * .80 + \text{WAV2\_PS} * .20)$$

Day 2 of Roll Period (Business Day 7 of Month):

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV1\_S} * .60 + \text{WAV2\_S} * .40) / (\text{WAV1\_PS} * .60 + \text{WAV2\_PS} * .40)$$

Day 3 of Roll Period (Business Day 8 of Month):

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV1\_S} * .40 + \text{WAV2\_S} * .60) / (\text{WAV1\_PS} * .40 + \text{WAV2\_PS} * .60)$$

Day 4 of Roll Period (Business Day 9 of Month):

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV1\_S} * .20 + \text{WAV2\_S} * .80) / (\text{WAV1\_PS} * .20 + \text{WAV2\_PS} * .80)$$

Day 5 of Roll Period (Business Day 10 of Month):

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV2\_S} / \text{WAV2\_PS})$$

*(3) After the Roll Period*

For the remainder of the month, the calculation of BCOM will be

$$\text{BCOM\_S} = \text{BCOM\_PS} * (\text{WAV2\_S} / \text{WAV2\_PS})$$

Following the preceding calculations, BCOM is rounded to 8 decimal places.

See Appendix G for special calculation procedures to be used if a Market Disruption Event occurs.

## **SECTION 3.2. CALCULATION OF BCOM TOTAL RETURN INDEX**

The BCOM Total Return Index reflects the returns on a fully collateralized investment in BCOM. This combines the returns of BCOM with the returns on cash collateral invested in Treasury Bills. These returns are calculated by using the most recent weekly auction high rate for 13 week (3 Month) U.S. Treasury Bills, as reported on the website <http://www.treasurydirect.gov/> published by the Bureau of the Public Debt of the U.S. Treasury, or any successor source, which is generally published once per week on Monday. The auction results are also available on the Bloomberg Terminal using the ticker: USB3MTA Index. To calculate BCOMTR:

**Definitions:**

- Calculation Date = date for which calculation is made.
- BCOM<sub>t</sub> = BCOM value on the Calculation Date.
- BCOM<sub>t-1</sub> = BCOM value on the Business Day prior to the Calculation Date.
- BCOMTR<sub>t</sub> = BCOMTR value on the Calculation Date.
- BCOMTR<sub>t-1</sub> = BCOMTR value on the Business Day prior to the Calculation Date.
- 3MR<sub>t</sub> = With respect to a Business Day d, the most recent weekly auction High Rate for 13 week (3 Month) U.S. Treasury Bills, as reported on the website <http://www.treasurydirect.gov/instit/annceresult/annceresult.htm> published by the Bureau of the Public Debt of the U.S. Treasury, or any successor page, on such Business Day d, provided, that if such auction High Rate is published on such Business Day d, TBill(d-1) shall be the rate published for the most recent previous auction.

This rate is then used for every day until the next rate is released; provided, however, that if a new rate is scheduled to be released on a given day, the prior rate is used for purposes of calculations in respect of such release date. The new rate is generally obtained on Monday and, accordingly, is first used in respect of Tuesday's settlement calculations. In the event of a holiday or other disruption in the Treasury auction schedule, the last available rate is used until the next rate becomes available. Note that the prior day's rate is used in calculating the value of TBD, to reflect the realization of an investment at that rate on day "t".

- TBD = Treasury Bill Daily Return.
- DAYS = Number of calendar days from and including the prior Calculation Date to but excluding the current Calculation Date.
- Suffix\_S = Denotes the Settlement Price for the relevant index for the day indicated.

Step 1 - Calculate the Daily Excess Return ("DER") as follows:

$$DER_t = BCOM_t / BCOM_{S_{t-1}} - 1$$

Step 2 - Calculate the Treasury Bill Daily Return as follows:

$$TBD_t = \left[ \frac{1}{1 - 3MR_{t-1} \times (91 / 360)} \right]^{\frac{DAYS}{91}} - 1$$

Step 3 - Calculate the Total Return as follows:

$$BCOMTR_t = BCOMTR_{S_{t-1}} \times (1 + DER_t + TBD_t)$$

BCOMTR<sub>t</sub> is rounded to 8 decimal places.

### SECTION 3.3. MARKET DISRUPTION EVENTS

BCOM is a futures-based index. From time to time, disruptions can occur in trading futures contracts on various commodity exchanges. The following rules will govern the means by which BCOM accommodates potential market disruptions:

“Market Disruption Event” means (a) the termination or suspension of, or material limitation or disruption in, the trading of any Lead Future or Next Future used in the calculation of the Index on that day, (b) the Settlement Price of any such contract reflects the maximum permitted price change from the previous day’s Settlement Price, (c) the failure of an exchange to publish official Settlement Prices for any such contract, or (d) with respect to any such contract that trades on the LME, a Business Day on which the LME is not open for trading. The existence of a Market Disruption Event shall be determined by BISL.

If a Market Disruption Event occurs during the “Hedge Roll Period” (defined herein as the fifth through the ninth Business Days of each month) in any month other than January affecting any Index Commodity, then the daily roll of the relevant Designated Contract for such Index Commodity will be postponed until the next available Business Day on which a Market Disruption Event does not occur, and the calculation of BCOM will be adjusted to reflect this, as set forth in Appendix G. The Hedge Roll Period will be extended only if a Market Disruption Event affects an Index Commodity on the scheduled final Business Day comprising the Hedge Roll Period.

Note that a Market Disruption Event for any individual Index Commodity in BCOM during the Hedge Roll Period will not postpone the roll for any other Index Commodity for which a Market Disruption Event has not occurred.

If a Market Disruption Event occurs during the “Hedge Roll Period” scheduled for January of each year affecting any Index Commodity, then the rolling or rebalancing of the relevant Designated Contract will occur in all cases over five Business Days on which no Market Disruption Event exists at a rate of 20% per day, using the methodology set forth in Appendix G for the calculation of BCOM for every Business Day following a Market Disruption Event until the extended Hedge Roll Period is complete. The Hedge Roll Period in January, and the resulting rebalancing that is scheduled to occur, will be extended in all cases until the affected Designated Contract finishes rolling over five Business Days not affected by a Market Disruption Event. This means that the amounts of a particular Designated Contract rolled or rebalanced in January will always be distributed over five Business Days and will not, for example, “double up” on the Business Day following a Market Disruption Event.

Table 11 below shows an example of how the Applied Roll Percentage “ARP” that would be used in Appendix G, for two Index Commodities “1” and “2”, if a Market Disruption Event were to affect the Designated Contract for Index Commodity “2” on Business Day 7. During the months of February through and including December, the calculation methodology in Appendix G would be used only on Business Day 8. In January, however, the calculation methodology in Appendix G would be used on Business Days 8, 9 and 10, until Index Commodity “2” had finished rolling.

**Table 11: Example of Applied Roll Percentage if Market Disruption Event**

	February – December				January		
	Business Day “t”	Business ARP 1, t	ARP 2,		Day “t”	ARP 1,	ARP 2, t
	1	100%	100%		1	100%	100%
	2	100%	100%		2	100%	100%
	3	100%	100%		3	100%	100%
	4	100%	100%		4	100%	100%
	5	100%	100%		5	100%	100%
	6	80%	80%		6	80%	80%
<b>MDE</b>	7	60%	60%	<b>MDE-&gt;</b>	7	60%	60%
<b>Use Appendix G</b>	8	40%	60%	<b>Use Appendix G</b>	8	40%	60%
	9	20%	20%	<b>Use Appendix G</b>	9	20%	40%
	10	0%	0%	<b>Use Appendix G</b>	10	0%	20%
	11	0%	0%		11	0%	0%
	12	0%	0%		12	0%	0%

If a Market Disruption Event occurs on a CIM Determination Date in respect of the applicable futures contract for an Index Commodity that is caused by a "limit event" (as defined by the applicable futures exchange), BISL will use the current day's settlement price of such futures contract to determine the new Commodity Index Multipliers (CIM) with respect to such Index Commodity. If a Market Disruption Event occurs due to an exchange's failure to produce a settlement price of such futures contract, BISL will use the first prior Business Day's settlement price on which a Market Disruption Event had not occurred with respect to such Index Commodity.

## Chapter 4. APPENDICES

### APPENDIX A GLOSSARY OF TERMS

“*Adjustment Factor*” or “*AF*” means the factor by which the Commodity Index Multipliers are adjusted to provide continuity in WAV values from one year to the next. The Adjustment Factor is computed in accordance with Section 2.7 of the Methodology.

“*Bloomberg*” means Bloomberg Finance L.P. and its affiliates.

“*BCOM*” means the Bloomberg Commodity Index<sup>SM</sup>.

“*BCOM Total Return Index*” or “*Bloomberg Commodity Index Total Return*” or “*BCOMTR*” means the Index calculated on a total return basis as described in Section 3.2 of the Methodology.

“*BFIX*” or “*Bloomberg FX Fixings*” mean Bloomberg Generic Price (BGN) for currencies used in the index. This FX source is snapped at 30 minute intervals throughout the day and the London 16:00 fixings are used in calculation of the Bloomberg Commodity Indices. If an individual London 16:00 fixing is not available, BISL will use expert judgment in determining the FX rates for the current business day.

“*Bloomberg Commodity Index 1 Month Forward*” or “*BCOMF1*” means a one-month forward version of BCOM calculated as described in Appendix J of the Methodology.

“*Bloomberg Commodity Index 2 Month Forward*” or “*BCOMF2*” means a two-month forward version of BCOM calculated as described in Appendix J of the Methodology.

“*Bloomberg Commodity Index 3 Month Forward*” or “*BCOMF3*” means three-month forward versions of BCOM and Subindices calculated as described in Appendix J of the Methodology.

“*Bloomberg Commodity Index Total Return 1 Month Forward*” or “*BCOMF1T*” means a one month forward version of BCOMTR calculated as described in Appendix J of the Methodology.

“*Bloomberg Commodity Index Total Return 2 Month Forward*” or “*BCOMF2T*” means a two month forward version of BCOMTR calculated as described in Appendix J of the Methodology.

“*Bloomberg Commodity Index Total Return 3 Month Forward*” or “*BCOMF3T*” means a three month forward version of BCOMTR calculated as described in Appendix J of the Methodology.

“*Business Day*” means any day on which the sum of the CIPs for those Index Commodities that are open for trading is greater than 50%. For purposes of this definition, the CIPs used during any calendar year are those calculated in the preceding year and applied on the CIM Determination Date for that year; provided, however, that on any day during such calendar year falling prior to or on the CIM Determination Date, the preceding year’s CIPs will be used for purposes of determining the existence of a Business Day.

“*Calculation Period*” means, for each year for which the Index is calculated, the sixth month of the year preceding such year of calculation.



“CBOT” means the Chicago Board of Trade, a division of the CME Group.

“CIM Determination Date” means the date from which the values used in calculating the Commodity Index Multipliers will be determined for each year that the Index is calculated. This will be the fourth Business Day of that year, or as otherwise determined in accordance with Section 3.3 of the Methodology.

“COMEX” means the Commodities Exchange division of the CME Group

“Commodities” means the commodities listed in Section 2.2 of the Methodology as eligible for inclusion in the Index.

“Commodity Group” means the group of Commodities to which each Commodity is assigned for the purpose of applying the diversification rules discussed in the Methodology. Section 2.2 of the Methodology lists the Commodity Groups and their corresponding Commodities.

“Commodity Index Multiplier” or “CIM” is a factor that is computed annually on the CIM Determination Date for each Index Commodity for purposes of implementing the annual re-weighting of the Index. It is calculated in accordance with Section 2.7 of the Methodology.

“Commodity Index Percentage” or “CIP” is derived by summing (i) 2/3 of the Commodity Liquidity Percentage for each Index Commodity and (ii) 1/3 of the Commodity Production Percentage for that Index Commodity, to determine the percentage weighting of each Index Commodity. The Commodity Index Percentages are adjusted in accordance with Section 2.6 of the Methodology.

“Commodity Liquidity Percentage” or “CLP” is the liquidity weighting assigned to each Index Commodity that is combined with the production weighting, or Commodity Production Percentage, assigned to each Index Commodity to derive the Commodity Index Percentage for that Index Commodity. The Commodity Liquidity Percentages are calculated in accordance with Section 2.3 of the Methodology.

“Commodity Production Percentage” or “CPP” is the production weighting assigned to each Index Commodity that is combined with the liquidity weighting, or the Commodity Liquidation Weighing, assigned to each Index Commodity to derive the Commodity Index Percentage for that Index Commodity. The Commodity Production Percentages are calculated in accordance with Section 2.4 of the Methodology.

“Commodity Production Weight” or “CPW” as set forth in Section 2.4 is the production data, adjusted to the same unit terms as the Designated Contract for that Commodity. This number is then divided by 1,000,000.

“Commodity Sector” refers to a Primary Commodity along with its Derivative Commodities. Commodity Sectors are described in Section 2.2 of the Methodology.

“Commodity Sector Allocation Percentage” or “CSAP” means, for each Index Commodity in a given Commodity Sector, (i) the Commodity Liquidity Percentage for that Index Commodity divided by (ii) the sum of the Commodity Liquidity Percentages for all Index Commodities in that Commodity Sector. The Commodity Sector Allocation Percentage is calculated as described in Section 2.5 of the Methodology.

“Derivative Commodity” means an Index Commodity that is principally produced or derived from another Index Commodity.

*“Designated Contract”* means, with respect to a Commodity, the futures contract selected as the reference contract from which price and trading volume data for the Commodity will be obtained to calculate the Index. The Designated Contracts, and the futures exchanges on which they trade, are identified in Section 2.2 of the Methodology.

*“FIA”* means the Futures Industry Association.

*“Index Oversight Committee”* means the oversight committee created to provide oversight and accountability over all aspects of the Index determination process.

*“Hedge Roll Period”* means the period of five Business Days, beginning with the fifth Business Day through and including the ninth Business Day of each month, subject to adjustment as described in Section 3.3.

*“Index”* means the Bloomberg Commodity Index<sup>SM</sup>.

*“Index Commodity”* means a Commodity included in the Index. The Commodities currently included in the Index are listed in Section 2.2 of the Methodology.

*“Index Administrator”* means Bloomberg Index Services Limited

*“Initial Commodity Index Multiplier”* or *“ICIM”* means for each Index Commodity, the initial Commodity Index Multiplier, which is then adjusted by the Adjustment Factor to determine the Commodity Index Multiplier. The Initial Commodity Index Multipliers are calculated in accordance with Section 2.7 of the Methodology.

*“Interim Commodity Index Percentage”* or *“ICIP”* means the initial percentage weighting assigned to each Commodity, which, when adjusted to reduce, increase, or eliminate a percentage weighting that would otherwise have either a disproportionate or negligible impact on the Index, constitutes the Commodity Index Percentage assigned to each Index Commodity. The Interim Commodity Index Percentages are calculated in accordance with Section 2.6 of the Methodology.

*“ICE”* means the Intercontinental Exchange

*“Index Levels”* means, in respect of the Index and an index Business Day, the value of the Index on such index Business Day, calculated in accordance with the methodology described herein.

*“Lead Future”* means, for each Index Commodity, the futures contract month designated in Table 9 of the Methodology under the current month for each Designated Contract.

*“Liquidity Averaging Period”* means the five years up to and including the year prior to the applicable Calculation Period. For example, the Calculation Period for the determination of the CIPs in respect of the calculation of the Index for 2021 (*i.e.*, 2020), the applicable Liquidity Averaging Period is the years 2015 to 2019, inclusive.

*“LME”* means the London Metals Exchange.

*“Next Future”* means, for each Commodity, the futures contract month designated in Table 9 of the Methodology, set forth in the column next to the current month. In December, the first column, January, designates the column for the Next Future.

“*NYMEX*” means the New York Mercantile Exchange, a division of the CME Group

“*Primary Commodity*” means an Index Commodity from which another Index Commodity is principally produced or derived.

“*Production Averaging Period*” means the most recent five-year period for which world production data for all Index Commodities are available as of the applicable Calculation Period. For example, the Calculation Period for the determination of the CIPs for the calculation of the Index for 2021 (i.e., 2020), the Production Averaging Period comprises the years 2013 to 2017, inclusive.

“*Roll Period*” means the period of five Business Days, beginning with and including the sixth Business Day through and including the tenth Business Day of each month.

“*Settlement Price*” means, for each Designated Contract and a given day, the official settlement price for the relevant contract month as published by the futures exchange on which the Index Commodity trades for such day.

“*UBS*” means UBS Securities LLC and its affiliates.

“*WAV*” means the weighted average values used in calculation of the Index, which can be in the form of “*WAV1*” or “*WAV2*”.

“*WAV1*” means the weighted average value that is calculated by summing the product for each Index Commodity of (i) the price for the applicable Lead Future in U.S. dollars and (ii) the applicable Commodity Index Multiplier. *WAV1* is calculated in accordance with Section 2.8 of the Methodology; additional calculations are described in Appendix E to the Methodology.

“*WAV2*” means the weighted average value calculated by summing the product for each Index Commodity of (i) the price for the applicable Next Future in U.S. dollars and (ii) the applicable Commodity Index Multiplier. *WAV2* is calculated in accordance with Section 2.8 of the Methodology; additional calculations are described in Appendix E to the Methodology.

## APPENDIX B ADDITIONAL NOTES ON INDEX CONSTRUCTION

### Historical Data

All data used in the calculation of the CLPs, CPWs, CPPs and in any historical returns of BCOM (including all related indices and Subindices) prior to the launch of BCOM on July 14, 1998, which are set forth herein or in any other materials produced by UBS, Bloomberg or any of their respective affiliates, are historical estimations using available data. While such data is believed to be accurate, none of UBS, Bloomberg or any of their respective affiliates makes any representation as to its accuracy or completeness.

In general, where settlement prices for certain trading days were unavailable, interpolation was employed.

LME Third Wednesday settlement data from January 1991 through October 1993 was not available. As a result, prices for Aluminum, Zinc, Nickel, Lead and Tin over this time period were estimated using interpolation from available LME settlement price data. For the period covering January 1991 through December 1992, cash and 3 month settlement data was used. For the period January 1993 through October 1993, Cash, 1 month, 2 month, 3 month and 6 month data were used.

All historical index calculations prior to original Index launch on July 14, 1998 apply annually the Commodity Index Percentages that were in effect upon launch of the Index. The 1998 Commodity Index Multipliers were applied in 1998 and 1999, and the first actual reweighting of the Index took effect in January 2000.

## Conversion Factors

Table 12 illustrates the source of the data used to derive the Conversion Factors.

**Table 12: Source of the data used to derive the Conversion Factors**

Commodity	Source	Table	Location
Crude Oil	Basic Petroleum Data Book, Volume XXII, Number 1, February 2006	Gallon, Barrel, Pound and Ton Equivalents for Converting Measures of Crude Petroleum and Refined Petroleum Products	Section XVI Table 3
Wheat, Corn and Soybeans	Agricultural Statistics 2009 United States Department of Agriculture, 2009 (ASUS)	Weights and Measures	Page vii, viii
Cattle	ASUS	Table 7-9 Cattle and calves: Production, disposition, cash receipts and gross income, United States, (2000-2000) and 7-66 Red Meat: Production, by class of slaughter, United States 2000-2009	VII-7, VII-40
Gold	Statistical Yearbook 49 <sup>th</sup> Issue, United Nations 2005 (SYUN)	Annex II A. Equivalents of Metric, British Imperial, and United States Units of Measure	Page 847
Silver	SYUN	Annex II A. Equivalents of Metric, British Imperial, and United States Units of Measure	Page 847
Platinum	SYUN	Annex II A. Equivalents of Metric, British Imperial, and United States Units of Measure	Page 847
Sugar	ASUS	Weights and Measures	Page vii
Cotton	ASUS	Weights and Measures	Page vii
Coffee	ASUS	Weights and Measures	Page vii
Natural Gas	American Society for Testing and Materials	Standard Metric Practice Guide -- (A Guide to the Use of SI -- the International System of Units, 1974)	Page 21

## APPENDIX C EXAMPLE OF ROLL PERIOD CALCULATIONS

Table 13: Example of Roll Period Calculations

Unit Date	Business Day	WAV1	Roll Weight1	WAV2	Roll Weight2	BCOM
2-Jan-97	1	1196.764	1	1195.469	0	122.574
3-Jan-97	2	1196.121	1	1195.107	0	122.509
6-Jan-97	3	1214.668	1	1213.927	0	124.408
7-Jan-97	4	1214.314	1	1214.285	0	124.372
8-Jan-97	5	1220.453	1	1220.608	0	125.001
9-Jan-97	6	1218.382	0.8	1219.878	0.2	124.816
10-Jan-97	7	1216.373	0.6	1220.351	0.4	124.712
13-Jan-97	8	1207.51	0.4	1214.11	0.6	123.966
14-Jan-97	9	1209.179	0.2	1214.664	0.8	124.046
15-Jan-97	10	1226.924	0	1230.74	1	125.687
16-Jan-97	11	1212.804	0	1218.939	1	124.482
17-Jan-97	12	1206.098	0	1213.536	1	123.93
21-Jan-97	13	1194.815	0	1203.879	1	122.944
22-Jan-97	14	1197.584	0	1206.081	1	123.169
23-Jan-97	15	1197.393	0	1206.424	1	123.204

## APPENDIX D CALCULATING THE COMMODITY INDEX PERCENTAGES

Step 1: Allocate Commodity Production Percentages for Derivative Commodities and Additional Designated Contracts by utilizing the Commodity Liquidity Percentages as an allocation weighting. Multiply the Commodity Production Percentage for the Primary Commodity by the percentage that its Commodity Liquidity Percentage comprises of the total Commodity Liquidity Percentages for the Commodity Sector.

**Table 14: Example of Reallocating Commodity Production Percentages**

<b>Petroleum Sector</b>				
<b>Commodity</b>	<b>Commodity Liquidity %</b>	<b>Allocation</b>	<b>World Prod.</b>	<b>Reallocate = CPP</b>
WTI Crude Oil	22.9041%	39.7799%	57.2873%	22.7888%
Brent Crude Oil	19.2751%	33.4771%		19.1781%
Unleaded Gasoline	4.8519%	8.4269%		4.8275%
Low Sulphur Gas Oil	5.9181%	10.2785%		5.8883%
ULS Diesel	4.6279%	8.0377%		4.6046%
<b>Total</b>	<b>57.5770%</b>			<b>57.2873%</b>

<b>Soybean Sector</b>				
<b>Commodity</b>	<b>Commodity Liquidity %</b>	<b>Allocation</b>	<b>World Prod.</b>	<b>Reallocate = CPP</b>
Soybeans	4.0041%	64.4020%	3.1452%	2.0256%
Soybean Meal	1.3480%	21.6807%		0.6819%
Soybean Oil	0.8653%	13.9173%		0.4377%
<b>Total</b>	<b>6.2174%</b>			<b>3.1452%</b>

<b>Wheat Sector</b>				
<b>Commodity</b>	<b>Commodity Liquidity %</b>	<b>Allocation</b>	<b>World Prod.</b>	<b>Reallocate = CPP</b>
Wheat (Chicago)	1.1803%	72.4438%	3.5672%	2.5842%
Wheat (KC HRW)	0.4490%	27.5562%		0.9830%
<b>Total</b>	<b>1.6293%</b>			<b>3.5672%</b>

Step 2: Combine the CLPs and CPPs using 2/3 and 1/3 weighting. The combined weighting is called the Interim Commodity Index Percentage (ICIP).

**Table 15: Example of Determining Interim Commodity Index Percentages**

Commodity	2/3: Commodity Liquidity % CLP	1/3: Commodity Production % CPP	Combined:
Natural Gas	4.2671%	3.3166%	3.9502%
WTI Crude Oil	22.9041%	22.7888%	22.8656%
Brent Crude Oil	19.2751%	19.1781%	19.2428%
Unleaded	4.8519%	4.8275%	4.8438%
Heating Oil	4.6279%	4.6046%	4.6201%
Low Sulphur Gas Oil	5.9181%	5.8883%	5.9081%
Live Cattle	1.0990%	7.4848%	3.2276%
Lean Hogs	0.4933%	5.2590%	2.0818%
Wheat (Chicago)	1.1803%	2.5842%	1.6483%
Wheat (KC HRW)	0.4490%	0.9830%	0.6270%
Corn	2.5595%	4.2207%	3.1132%
Soybeans	4.0041%	2.0256%	3.3446%
Soybean Oil	0.8653%	0.4377%	0.7228%
Soybean Meal	1.3480%	0.6819%	1.1259%
Aluminum	1.3187%	2.5675%	1.7350%
Copper	2.6106%	3.5399%	2.9203%
Zinc	0.9277%	0.8294%	0.8949%
Nickel	0.7754%	0.6370%	0.7293%
Lead	0.3014%	0.5844%	0.3957%
Tin	0.0603%	0.1785%	0.0997%
Gold	14.6460%	3.2194%	10.8371%
Silver	2.7056%	0.3854%	1.9322%
Platinum	0.3391%	0.1695%	0.2826%
Sugar	0.8535%	1.5538%	1.0869%
Cotton	0.4317%	1.0067%	0.6234%
Coffee	0.7819%	0.7156%	0.7598%
Cocoa	0.4058%	0.3321%	0.3813%

Step 3: Eliminate any Commodities that have a combined ICIP of under 0.4%. The remaining Commodities are the Index Commodities.

Take the sum of the total of all ICIPs that fall under the 0.4% threshold. Allocate this sum to all Index Commodities that are at or above this 0.4% threshold. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (primary commodities, derivative commodities, and commodities with multiple designated contracts, receive equal split). Set the ICIP of the Commodities that fall under 0.4% to zero. The sum of all the ICIPs should be 100%. The following table illustrates this step:



**Table 16: Example of Eliminating Commodities under 0.4% and Reallocating ICIPs**

Commodity	Combined	0.4% Cutoff	Reallocated ICIP
Natural Gas	3.9502%	0.0000%	4.0227%
WTI Crude Oil	22.8656%	0.0000%	22.8801%
Brent Crude Oil	19.2428%	0.0000%	19.2573%
RBOB Gasoline	4.8438%	0.0000%	4.8583%
ULS Diesel	4.6201%	0.0000%	4.6346%
Low Sulphur Gas Oil	5.9081%	0.0000%	5.9226%
Live Cattle	3.2276%	0.0000%	3.3000%
Lean Hogs	2.0818%	0.0000%	2.1543%
Wheat (Chicago)	1.6483%	0.0000%	1.6845%
Wheat (KC HRW)	0.6270%	0.0000%	0.6632%
Corn	3.1132%	0.0000%	3.1857%
Soybeans	3.3446%	0.0000%	3.3687%
Soybean Oil	0.7228%	0.0000%	0.7469%
Soybean Meal	1.1259%	0.0000%	1.1501%
Aluminum	1.7350%	0.0000%	1.8074%
Copper	2.9203%	0.0000%	2.9928%
Zinc	0.8949%	0.0000%	0.9674%
Nickel	0.7293%	0.0000%	0.8017%
Lead	0.3957%	0.3957%	0.0000%
Tin	0.0997%	0.0997%	0.0000%
Gold	10.8371%	0.0000%	10.9096%
Silver	1.9322%	0.0000%	2.0046%
Platinum	0.2826%	0.2826%	0.0000%
Sugar	1.0869%	0.0000%	1.1594%
Cotton	0.6234%	0.0000%	0.6959%
Coffee	0.7598%	0.0000%	0.8323%
Cocoa	0.3813%	0.3813%	0.0000%
<b>Total</b>		<b>1.1593%</b>	<b>100.0000%</b>

Step 4: Reduce any Commodity Sector that has a total ICIP greater than 25% down to 25%. Take the difference between the Commodity Sector total and 25%, and equally allocate this difference among the remaining ICIPs, but not to the ICIPs reduced to zero in the preceding step. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (primary commodities, derivative commodities, and commodities with multiple designated contracts, receive equal split).

Once this reallocation is done, allocate 25% back to this Commodity Sector, in proportion to the original distribution of ICIPs within this Commodity Sector. This proportion weighting is calculated by summing the original ICIPs within this Commodity Sector, then dividing each ICIP within this Commodity Sector by that sum. Multiply 25% by this quotient, which then equals the ICIP for each Index Commodity in the Commodity Sector. The following table illustrates this step:

**Table 17: Example of Reducing Sectors over 25% and Reallocating ICIPs**

Step 5: The next step is to reduce any ICIP or ICIPs for a single Commodity over 15% down to 15%, and allocate the difference equally to the other Designated Contracts, except for those eliminated under the 0.4% threshold rule. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (primary commodities, derivative commodities, and commodities with multiple designated contracts, receive equal split).

Commodity	ICIP	Sector Totals	Difference with 25%	Allocation	ICIP
Natural Gas	4.0790%				6.1929%
WTI Crude Oil	22.9881%	59.1763%	34.1763%	9.9387%	9.9387%
Brent Crude Oil	20.1651%			8.3650%	8.3650%
RBOB Gasoline	5.1863%			2.1104%	2.1104%
Heating Oil	4.8440%			2.0132%	2.0132%
Low Sulphur Gas Oil	5.9929%			2.5727%	2.5727%
Live Cattle	3.2493%				5.4702%
Lean Hogs	2.1094%				4.3245%
Wheat (Chicago)	1.7514%	2.3865%			2.7696%
Wheat (KC HRW)	0.6351%				1.7483%
Corn	3.2515%				5.3559%
Soybeans	3.4767%	5.3504%			4.0921%
Soybean Oil	0.7386%				1.4703%
Soybean Meal	1.1351%				1.8735%
Aluminum	1.7450%				3.9776%
Copper	3.0795%				5.1630%
Zinc	0.9526%				3.1376%
Nickel	0.8035%				2.9719%
Lead	0.0000%				0.0000%
Tin	0.0000%				0.0000%
Gold	9.2990%				13.0798%
Silver	1.8592%				4.1748%
Platinum	0.0000%				0.0000%
Sugar	1.1673%				3.3296%
Cotton	0.6727%				2.8661%
Coffee	0.8188%				3.0024%
Cocoa	0.0000%				0.0000%
Total			34.1763%		100.0000%

**Table 18: Example of Reducing Single Commodities over 15% and Reallocating ICIPs**

Commodity	ICIP	> 15%?	New ICIP
Natural Gas	6.1929%		6.3994%
WTI Crude Oil	9.9387%	3.3038%	8.1448%
Brent Crude Oil	8.3650%		6.8552%
RBOB Gasoline	2.1104%		2.1792%
Heating Oil	2.0132%		2.0820%
Low Sulphur Gas Oil	2.5727%		2.6415%
Live Cattle	5.4702%		5.6767%
Lean Hogs	4.3245%		4.5310%
Wheat (Chicago)	2.7696%		2.8729%
Wheat (KC HRW)	1.7483%		1.8515%
Corn	5.3559%		5.5623%
Soybeans	4.0921%		4.1610%
Soybean Oil	1.4703%		1.5391%
Soybean Meal	1.8735%		1.9423%
Aluminum	3.9776%		4.1841%
Copper	5.1630%		5.3695%
Zinc	3.1376%		3.3441%
Nickel	2.9719%		3.1784%
Lead	0.0000%		0.0000%
Tin	0.0000%		0.0000%
Gold	13.0798%		13.2862%
Silver	4.1748%		4.3813%
Platinum	0.0000%		0.0000%
Sugar	3.3296%		3.5360%
Cotton	2.8661%		3.0725%
Coffee	3.0024%		3.2089%
Cocoa	0.0000%		0.0000%
Total		3.3038%	100.0000%

Step 6: The next step is to reduce any Commodity Group ICIP sum over 33% down to 33%. Once this reallocation is done, allocate 33% back to this Commodity Group, in proportion to the previous distribution of ICIPs within this Commodity Group. Then reallocate the difference of this group above 33% to the other commodities, except for those which were eliminated by the 0.4% threshold rule. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (primary commodities, derivative commodities, and commodities with multiple designated contracts, receive equal split).

**Table 19: Example of Reducing Commodity Groups over 33% and Reallocating ICIPs**

Commodity	ICIP	> 33%?	Allocation	New ICIP
Natural Gas	6.3994%	28.3021%	0.0000%	6.3994%
WTI Crude Oil	8.1448%		0.0000%	8.1448%
Brent Crude Oil	6.8552%		0.0000%	6.8552%
RBOB Gasoline	2.1792%		0.0000%	2.1792%
Heating Oil	2.0820%		0.0000%	2.0820%
Low Sulphur Gas Oil	2.6415%		0.0000%	2.6415%
Live Cattle	5.6767%	10.2077%	0.0000%	5.6767%
Lean Hogs	4.5310%		0.0000%	4.5310%
Wheat (Chicago)	2.8729%	17.9292%	0.0000%	2.8729%
Wheat (KC HRW)	1.8515%		0.0000%	1.8515%
Corn	5.5623%		0.0000%	5.5623%
Soybeans	4.1610%		0.0000%	4.1610%
Soybean Oil	1.5391%		0.0000%	1.5391%
Soybean Meal	1.9423%		0.0000%	1.9423%
Aluminum	4.1841%	16.0760%	0.0000%	4.1841%
Copper	5.3695%		0.0000%	5.3695%
Zinc	3.3441%		0.0000%	3.3441%
Nickel	3.1784%		0.0000%	3.1784%
Lead	0.0000%		0.0000%	0.0000%
Tin	0.0000%		0.0000%	0.0000%
Gold	13.2862%	17.6676%	0.0000%	13.2862%
Silver	4.3813%		0.0000%	4.3813%
Platinum	0.0000%		0.0000%	0.0000%
Sugar	3.5360%	9.8175%	0.0000%	3.5360%
Cotton	3.0725%		0.0000%	3.0725%
Coffee	3.2089%		0.0000%	3.2089%
Cocoa	0.0000%		0.0000%	0.0000%
Total		100.0000%		100.0000%

Step 7: Set the ICIPs for gold and silver to equal their Commodity Liquidity Percentages. Take the difference of the ICIP and the CLP for gold and silver, and take the sum of these differences. Equally allocate this difference by adjusting all the other ICIPs except for those affected by the 0.4% cutoff, the 25% sector, the 15% commodity, or 33% group maximums. For any Commodity Sector that has more than one contract, the allocation will be equally split among these contracts (primary commodities, derivative commodities, and commodities with multiple designated contracts, receive equal split).

**Table 20: Example of Gold and Silver ICIP adjustments**

Commodity	ICIP	Precious CLP	Difference	New ICIP
Natural Gas	6.3994%			6.4237%
WTI Crude Oil	8.1448%			8.1448%
Brent Crude Oil	6.8552%			6.8552%
RBOB Gasoline	2.1792%			2.1792%
Heating Oil	2.0820%			2.0820%
Low Sulphur Gas Oil	2.6415%			2.6415%
Live Cattle	5.6767%			5.7010%
Lean Hogs	4.5310%			4.5553%
Wheat (Chicago)	2.8729%			2.8850%
Wheat (KC HRW)	1.8515%			1.8637%
Corn	5.5623%			5.5866%
Soybeans	4.1610%			4.1691%
Soybean Oil	1.5391%			1.5472%
Soybean Meal	1.9423%			1.9504%
Aluminum	4.1841%			4.2084%
Copper	5.3695%			5.3938%
Zinc	3.3441%			3.3684%
Nickel	3.1784%			3.2027%
Lead	0.0000%			0.0000%
Tin	0.0000%			0.0000%
Gold	13.2862%	14.6460%	-1.3597%	14.6460%
Silver	4.3813%	2.7056%	1.6757%	2.7056%
Platinum	0.0000%			0.0000%
Sugar	3.5360%			3.5604%
Cotton	3.0725%			3.0969%
Coffee	3.2089%			3.2332%
Cocoa	0.0000%			0.0000%
Total			0.3160%	100.0000%

Step 8: The next step is to increase any ICIP that falls below the 2% minimum up to 2%. Calculate the difference between each of these Commodities' ICIPs and 2%. Decrease the ICIPs of the remaining Index Commodities by allocating the sum of all these differences so that each such Index Commodity receives an equal allocation. Do not reduce those ICIPs affected by the 25%, 33%, 15%, 0.5%, gold and silver, or 2% rules. Repeat this step if necessary so that no ICIP falls below 2%.

Step 9: The next step is to adjust the weight of any Index Commodity if the ratio of the ICIP compared to its liquidity percentage is greater than a threshold currently set at 3.5, though this threshold is subject to revision by BISL from time to time. The weight that is taken from any such Index Commodity is allocated to the Index Commodities that have such ratio below a threshold to be determined each year by BISL (excluding any Index Commodity that, were the ICIP so increased, would cause any of the maximum weight rules in Steps C, D or E of Section 2.6 to be exceeded) by adding such aggregate amount to the relevant ICIPs in equal amounts.

**Table 21: Example CIP Adjustment if the ICIP to Liquidity Percentage is Greater than 3.5**

Commodity	Ratio	> 3.5?	Ranked By Ratio < 2.0?	ICIP	Final CIP
Natural Gas	1.505408		TRUE	6.4237%	8.0720%
WTI Crude Oil	0.355607				8.1448%
Brent Crude Oil	0.355649				6.8552%
RBOB Gasoline	0.449138				2.1792%
Heating Oil	0.449887				2.0820%
Low Sulphur Gas Oil	0.446348				2.6415%
Live Cattle	5.187607	TRUE		3.8464%	3.8464%
Lean Hogs	9.2351	TRUE		1.7264%	1.7264%
Wheat (Chicago)	2.444273				2.8850%
Wheat (KC HRW)	4.151067	TRUE		1.5714%	1.5714%
Corn	2.182743				5.5866%
Soybeans	1.0412		TRUE	4.1691%	5.8174%
Soybean Oil	1.788129		TRUE	1.5472%	3.1956%
Soybean Meal	1.44694		TRUE	1.9504%	3.5988%
Aluminum	3.191328				4.2084%
Copper	2.066139		TRUE	5.3938%	5.3938%
Zinc	3.630948	TRUE		3.2469%	3.2469%
Nickel	4.130328	TRUE		2.7140%	2.7140%
Lead	0				0.0000%
Tin	0				0.0000%
Gold	1			14.6460%	14.6460%
Silver	1		TRUE	2.7056%	4.3539%
Platinum	0				0.0000%
Sugar	4.171708	TRUE		2.9871%	2.9871%
Cotton	7.172917	TRUE		1.5111%	1.5111%
Coffee	4.135158	TRUE		2.7366%	2.7366%
Cocoa	0				0.0000%
Total					100.0000%

## APPENDIX E SUMMARY OF CALCULATIONS

### Definitions:

Lead Futures	Futures contracts included in the WAV1 calculation, as shown in Tables 25, 26 and 27.
Next Futures	Futures contracts included in the WAV2 calculation, as shown in Tables 25, 26 and 27.
Array	Indexed list of values. Variables defined in <b>Bold</b> type are Arrays. When the Array variable is followed by a subscript $i$ , this indicates the $i^{\text{th}}$ value of that array.

Other non-array variables may be followed by the subscript  $t$ , or  $t - 1$ . This denotes the Business Day of the month, with  $t - 1$  denoting the prior Business Day's values. When  $t$  is the first Business Day of the month,  $t - 1$  is the last Business Day of the prior month.

$Af^y$	Adjustment Factor used to normalize the CIMs for that year. This is calculated on the fourth Business Day of the year.
$CIP^y$	The CIPs to be implemented for the new year.
<b>CIM1</b>	Commodity Index Multiplier Array applied to the Lead Futures.
<b>CIM2</b>	Commodity Index Multiplier Array applied to the Next Futures.
<b>ICIM</b>	Interim Commodity Index Multiplier Array used in calculating the final CIM.
<b>FPD1</b>	Lead Futures contract price Array in U.S. dollars.
<b>FPD2</b>	Next Futures contract price Array in U.S. dollars.
WAV1	Weighted Average Value of $FPD1 \times CIM1$ .
TWAV	Value of WAV1 as of the CIM Determination Date.
WAV2	Weighted Average Value of $FPD2 \times CIM2$ .
$N$	Total number of Index Commodities.
BCOM	Bloomberg Commodity Index.
BCOMTR	BCOM Total Return Index.
$_S$	Denotes Settlement Price.
DER	Daily Excess Return.
TBD	Treasury Bill Daily Return.
<b>RW</b>	Roll Weights Array, $\{1, 1, 1, 1, 1, .80, .60, .40, .20, 0, 0, 0, \dots, 0\}$ . This designates the percentage weightings applied to the WAV1 and WAV2 during the Roll. For WAV2, $(1 - RW_t)$ is used as described below.
BCOM SP	A "spot price" version of BCOM, based on the futures contract prices used to calculate BCOM. This index is not "investable", but provides a general estimate of the trend in commodity prices without the positive or negative return effects which may be caused by the rolling process, or the costs involved in actually holding physical commodities.

### Note on Array Size:

The **CIM1**, **CIM2**, **ICIM**, **FPD1** and **FPD2** array sizes are the number of commodity futures contracts. For the 2021 BCOM, this number is 23. The **RW**, Roll Weights Array size is 31, which is the maximum possible Business Days per month.

### Note on Rounding:

The CIM1, CIM2, WAV1, WAV2, BCOM, BCOMTR and BCOM SP values are rounded to 8 decimal places following calculation.

**Formulas:**

$$ICIM_i = CIP^{yr}_i \times 1000 / FPD1\_S_i, i = 1 \text{ to } N.$$

This calculation is done on the fourth Business Day of the year, using prices from the CIM Determination Date, once all Designated Contracts have published Settlement Prices for that day.

$$WAV1 = \sum_{i=1}^N CIM1_i \times FPD1_i$$

$$WAV2 = \sum_{i=1}^N CIM2_i \times FPD2_i$$

$$AF^{yr} = TWAV / 1000$$

$$CIM2_i = ICIM_i \times AF^{yr}, i = 1 \text{ to } N$$

**CIM1 = CIM2** on day after last day of Roll Period in January

$BCOM_t = BCOM\_S_{t-1} \times (WAV1_t / WAV2_{S_{t-1}})$  on Business Day 1 of the month

$$BCOM_t = BCOM\_S_{t-1} \times \frac{[WAV1_t \times RW_t + WAV2_t \times (1-RW_t)]}{[WAV1_{S_{t-1}} \times RW_t + WAV2_{S_{t-1}} \times (1-RW_t)]}$$

{where t = 2<sup>nd</sup> Business Day to the last Business Day of month}

$BCOMTR_t = BCOMTR_{S_{t-1}} \times (1 + DER_t + TBD_t)$  {Complete calculations in Section 3.2}

$BCOM = 100$  on January 2, 1991

$BCOMTR = 100$  on January 2, 1991

**Calculation of Spot Price Version of BCOM**

$$BCOM\ SP_t = [WAV1_t \times RW_t + WAV2_t \times (1-RW_t)] / 10$$

**Calculation of Spot Price Versions of BCOM Subindices**

For each year “t”, on the CIM Determination Date, the fourth business day of the year, calculate a Subindex Adjustment Factor “SAF” as follows:

$$SAF_t = (SAF_{t-1} \times \sum (FPD\_S_{it} \times CIM\_Old_i)) / (\sum FPD\_S_{it} \times CIM\_New_i)$$

SAF<sub>t</sub> is then rounded to 8 decimal places.

FPD<sub>S</sub> is the front month futures price in U.S. dollars.

To calculate the Spot Subindices:

On January 2, 1991 the value equals 100.000



On each Business Day “v”

$$\text{SpotSub}_v = \text{SpotSub}_{v-1} \times \frac{[\text{SubWAV1}_v \times (\text{RW}_v) + \text{SubWAV2}_v \times (1 - \text{RW}_v)]}{[\text{SubWAV1}_{v-1} \times (\text{RW}_{v-1}) + \text{SubWAV2}_{v-1} \times (1 - \text{RW}_{v-1})]}$$

SpotSub<sub>v</sub> is then rounded to 8 decimal places

Additional note regarding SubWAV1 and SubWAV2:

SubWav1 and SubWav2 are calculated using the CIM for each Index Commodity multiplied by the SAF<sub>t</sub> for that year:

$$\text{SubWAV}_j = \sum_{i=1}^N \text{CIM}_{j,i} \times \text{FPD}_{j,i} \times \text{SAF}_t$$

where j = 1 and 2

where i corresponds to the specific commodity in the Subindex, and t corresponds to the same year as that in which the CIM was calculated.

SubWAV<sub>j</sub> is rounded to 8 decimal places

## APPENDIX F CPWS AND LEAD FUTURES PRICES FOR 2021 BCOM

Table 22: CPWs for 2021 BCOM

Commodity	2013	2014	2015	2016	2017
Natural Gas	38,304,000.000	40,603,000.000	42,003,000.000	41,464,000.000	41,959,000.000
Crude Petroleum	33,467.215	34,415.485	35,448.435	35,625.095	35,834.240
Beef and Fresh Veal	220,667.575	222,400.949	220,511.591	222,734.482	225,658.199
Pork	253,761.170	258,062.264	263,247.539	262,253.736	264,400.050
Wheat	26,102.618	26,776.241	27,250.717	27,498.697	28,420.389
Corn	40,006.298	40,912.535	41,420.414	44,367.647	45,840.423
Soybeans	10,202.719	11,256.378	11,879.484	12,331.693	12,971.511
Aluminum	52.100	54.100	57.700	58.600	59.500
Copper	21.100	22.600	23.000	23.000	23.000
Zinc	13.200	13.500	13.700	13.800	13.800
Nickel	1,980.000	2,000.000	2,000.000	1,930.000	1,930.000
Lead	10.900	10.600	10.600	11.000	11.000
Tin	346.000	394.000	354.000	341.000	341.000
Gold	95,166.220	98,059.788	100,310.340	102,239.385	103,846.923
Silver	832,704.425	858,425.025	868,070.250	855,209.950	855,209.950
Platinum	6,172.944	4,822.613	6,269.396	6,140.793	6,397.999
Sugar No.11	392,054.544	387,949.538	391,501.184	363,700.901	383,714.459
Cotton No.2	54,683.052	57,665.581	46,157.863	51,204.542	59,499.834
Coffee "C"	19,606.671	19,316.226	19,545.632	20,621.895	20,199.505
Cocoa	4.485	4.757	4.808	4.714	5.278

Table 23: Lead Futures Prices for 2021 BCOM

Commodity	2013	2014	2015	2016	2017
Natural Gas	\$4.17	\$3.27	\$2.38	\$3.08	\$2.90
Crude Petroleum	\$100.71	\$67.56	\$42.62	\$48.95	\$59.60
Beef & Fresh Veal	\$1.36	\$1.57	\$1.31	\$1.13	\$1.14
Pork	\$1.02	\$0.84	\$0.70	\$0.65	\$0.70
Wheat	\$6.41	\$5.31	\$4.78	\$4.31	\$4.65
Corn	\$4.56	\$3.73	\$3.73	\$3.58	\$3.67
Soybeans	\$13.32	\$9.95	\$9.37	\$9.82	\$9.88
Aluminum	\$1,784.05	\$1,894.06	\$1,559.63	\$1,793.79	\$1,787.04
Copper	\$7,053.51	\$6,320.29	\$4,839.61	\$5,478.49	\$6,784.63
Zinc	\$1,980.13	\$2,211.69	\$1,797.42	\$2,595.90	\$3,192.75
Nickel	\$15,386.38	\$15,029.25	\$9,281.04	\$10,094.48	\$12,799.85
Lead	\$2,113.10	\$1,980.50	\$1,732.25	\$2,152.85	\$2,455.75
Tin	\$22,502.83	\$18,595.00	\$15,769.92	\$20,015.58	\$20,585.83
Gold	\$1,292.82	\$1,214.60	\$1,170.78	\$1,255.49	\$1,300.76
Silver	\$20.50	\$17.05	\$15.36	\$17.83	\$16.71
Platinum	\$1,435.56	\$1,229.69	\$954.70	\$984.91	\$934.72
Sugar	\$0.17	\$0.14	\$0.15	\$0.19	\$0.14
Cotton	\$0.84	\$0.63	\$0.62	\$0.73	\$0.77
Coffee	\$1.44	\$1.64	\$1.23	\$1.43	\$1.25
Cocoa	\$2,778.17	\$2,988.33	\$3,092.33	\$2,315.92	\$2,238.50

## APPENDIX G MARKET DISRUPTION EVENT INDEX CALCULATIONS

If there is a Market Disruption Event during the Hedge Roll Period, a change is made to the calculation of BCOM to reflect the fact that the “roll” of certain Designated Contracts may need to be postponed.

For a Market Disruption Event occurring in the Hedge Roll Period falling in the months February through December, inclusive, this special calculation is applied on the Business Day following such Market Disruption Event.

For a Market Disruption Event occurring in the Hedge Roll Period falling in the month of January, this special calculation is applied on every remaining Business Day during such Hedge Roll Period, starting on the Business Day following such Market Disruption Event, and ending on the last day of the extended Hedge Roll Period.

For purposes of the calculations in this Appendix G, the clause “an Index Commodity is involved in a Market Disruption Event” means that there was a Market Disruption Event affecting that Index Commodity on the previous Business Day.

(This same procedure is used to calculate any affected subindex, by applying the following formulas only to those commodities included in such Subindex, and substituting the appropriate Subindex designation for BCOM.)

### Definitions:

AC	Adjusted Change, which is the factor that will be applied to the prior BCOM value to calculate the current BCOM value.
Subscript i	i designates the Index Commodity.
Subscript t	t designates the Business Day of the month.
N	Total number of Index Commodities.
RW	Roll Weights, defined as{1, 1, 1, 1, 1, .80, .60, .40, .20, 0,0, 0,...0} This array is indexed by the Business Day of the month t.
FPD1_S <sub>i, t</sub>	Lead Futures Settlement Price in U.S. dollars for Index Commodity i, on day t.
FPD2_S <sub>i, t</sub>	Next Futures Settlement Price in U.S. dollars for Index Commodity i, on day t.
ARP <sub>i, t</sub>	Actual Roll Percentage for Index Commodity i on day t.
CIM1 <sub>i</sub>	Commodity Index Multipliers used to calculate WAV1.
CIM2 <sub>i</sub>	Commodity Index Multipliers used to calculate WAV2.
Suffix _S	Denotes Settlement Price.

(1) Determine the Actual Roll Percentage applied to each Index Commodity. For any Index Commodity not involved in a Market Disruption Event, this ARP is equal to the  $RW_t$ .

For any Index Commodity that is involved in a Market Disruption Event, the ARP is equal to the prior Business Day's ARP.

For all Index Commodities 1 through N:

$$ARP_{i,t} = RW_t \quad \text{if NOT involved in a Market Disruption Event, otherwise}$$

$$ARP_{i,t} = ARP_{i,t-1} \quad \text{if involved in a Market Disruption Event}$$

During the month of January the following special rule is applied for all Index Commodities 1 through N:

For Business Days 1 through 5,  $ARP_{i,t}$  equals 1 for all Index Commodities. For Business Days 6 through the end of the Hedge Roll Period, the following rule will apply:

$$ARP_{i,t} = \text{The maximum of 0 (Zero) or } (ARP_{i,t-1} - 20\%), \text{ if NOT involved in a Market Disruption Event, otherwise}$$

$$ARP_{i,t} = ARP_{i,t-1} \quad \text{if involved in a Market Disruption Event}$$

(2) Calculate the Adjusted Change ("AC") as follows. For each Lead Future in BCOM, calculate the Settlement Price in U.S. dollars for day t, multiplied by the Actual Roll Percentage for this Index Commodity, multiplied by the CIM1 for that commodity.

For each Next Future in BCOM, calculate the Settlement Price in U.S. dollars for day t, multiplied by the (1-Actual Roll Percentage for this commodity), multiplied by the CIM2 for that commodity.

Sum these products for all Index Commodities. This sum is the numerator.

The denominator is calculated in the same fashion, substituting the prior day's Settlement Prices for all Index Commodities. (Continue to use the current day's ARPs and (1-ARP)s.)

The formula is expressed as follows:

$$AC = \frac{\sum_{i=1}^N \{ FPD1\_S_{i,t} \times CIM1_i \times ARP_{i,t} + FPD2\_S_{i,t} \times CIM2_i \times (1 - ARP_{i,t}) \}}{\sum_{i=1}^N \{ FPD1\_S_{i,t-1} \times CIM1_i \times ARP_{i,t} + FPD2\_S_{i,t-1} \times CIM2_i \times (1 - ARP_{i,t}) \}}$$

(3) Calculate the Settlement Price for  $BCOM_t$ :

$$BCOM\_S_t = AC \times BCOM\_S_{t-1}$$

$BCOM\_S_t$  value is rounded to 8 decimal places.

## APPENDIX H INDIVIDUAL SUBINDEX CALCULATIONS

Launched in July 1998, the Bloomberg Commodity Index family includes eight sector Subindices, multiple forward month indices, indices for each individual commodity, indices excluding an individual commodity or sector, currency hedged versions, a Roll Select index series, 2-4-6 Forward Blend, and other specialty indices. Also available are total return versions of each of the excess return indices and sub-indices as well as Spot indices for the benchmark and sector indices. For an up-to-date comprehensive list of Bloomberg Commodity Indices, please refer to the link below.

<https://www.bloomberg.com/professional/product/indices/>

In addition, BISL calculates a Subindex in respect of every individual Index Commodity. The individual commodity Subindex utilizes the CIM that applies to that commodity. In addition, although Cocoa was deleted from the composite index as of the January 2005 reweighting period, an individual Subindex is calculated for Cocoa, as well as for Platinum, Lead, Tin, Frozen Concentrated Orange Juice (FCOJ), Feeder Cattle, and Palladium in order to facilitate historical and future data analysis. Individual Subindices will continue, subject to BISL's discretion as Index Administrator, to be calculated for each of the Index Commodities comprising the 2021 BCOM even if in the future a commodity is deleted from the Index. When Brent Crude Oil was added to the Index in 2012, UBS launched the Bloomberg Composite Crude Oil Subindex. The Bloomberg Composite Crude Oil Subindex tracks the performance of the historical crude components of the index: i.e. WTI only prior to the January 2012 rebalance and Brent Crude Oil and WTI Crude Oil in their respective relative weights from and after the January 2012 rebalancing. This means that the Bloomberg WTI Crude Oil Subindex and the Bloomberg Composite Crude Oil Subindex are identical in their reported data prior to January 2012. Similarly, in 2013, UBS launched the Bloomberg Composite Wheat Subindex. The Bloomberg Composite Wheat Subindex tracks the performance of the historical Wheat components of the index: i.e. Chicago Wheat (CBOT) only prior to the January 2013 rebalance and KC HRW Wheat (CBOT) and Chicago Wheat (CBOT) in their respective relative weights from and after the January 2013 rebalancing. This means that the Bloomberg Wheat Subindex and the Bloomberg Composite Wheat Subindex are identical in their reported data prior to January 2013.

### **Calculation Method:**

The calculation of the Subindices will follow the same rules, including rounding conventions, as the calculation of BCOM, with the following difference:

A Sub-WAV1 and Sub-WAV2 for each Subindex is calculated on a daily basis using the Lead Future and Next Future for each Index Commodity included in that Subindex. These Sub-WAVs are the sum of the product of the prices of the Index Commodities included in that Subindex and their respective CIMs, as determined for BCOM on the CIM Determination Date<sup>27</sup>. In the event that a CIM is zero for an Index Commodity, the individual Subindex calculated in respect of that particular commodity will continue to use the most recent non-zero CIM for all future calculations or, 1.00, in respect of commodities that have never been included in the Index.

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<sup>27</sup> There will be no modifications or additional normalizations to the CIMs for use in the Sub-Indices.

Subindex	Sub-WAVs	Excess Return	Total Return
Energy	EnWAV1, EnWAV2	BCOMEN	BCOMENTR
Petroleum	PeWAV1, PeWAV2	BCOMPE	BCOMPETR
Livestock	LiWAV1, LiWAV2	BCOMLI	BCOMLITR
Grains	GrWAV1, GrWAV2	BCOMGR	BCOMGRTR
Industrial Metals	InWAV1, InWAV2	BCOMIN	BCOMINTR
Precious Metals	PrWAV1, PrWAV2	BCOMPR	BCOMPRTTR
Softs	SoWAV1, SoWAV2	BCOMSO	BCOMOTR
Ex-Energy	ExWAV1, ExWAV2	BCOMXE	BCOMXETR
Ex-Ag & Livestock	XvWAV1, XvWAV2	BCOMXAL	BCOMXALT
Ex-Industrial Metals	XiWAV1, XiWAV2	BCOMXIM	BCOMXIMT
Ex-Precious	XbWAV1, XbWAV2	BCOMXPM	BCOMXPMT
Ex-Agriculture	XaWAV1, XaWAV2	BCOMXAG	BCOMXAGT
Ex-Livestock	XIWAV1, XIWAV2	BCOMXLI	BCOMXLIT
Ex-Softs	XsWAV1, XsWAV2	BCOMXSO	BCOMXSOT
Ex-Grains	XgWAV1, XgWAV2	BCOMXGR	BCOMXGRT
Ex-Petroleum	XpWAV1, XpWAV2	BCOMXPE	BCOMXPET
Agriculture	AgWAV1, AgWAV2	BCOMAG	BCOMAGTR
Composite Crude	CrWAV1, CrWAV2	BCOMCR	BCOMCRT
Composite Wheat	WhWAV1, CrWAV2	BCOMCW	BCOMCWT
Natural Gas	NgWAV1, NgWAV2	BCOMNG	BCOMNGTR
WTI Crude Oil	CIWAV1, CIWAV2	BCOMCL	BCOMCLTR
Brent Crude Oil	CoWAV1, CoWAV2	BCOMCO	BCOMCOT
Unleaded Gasoline	RBWAV1, RBWAV2	BCOMRB	BCOMRBTR
ULS Diesel	HoWAV1, HoWAV2	BCOMHO	BCOMHOTR
Live Cattle	LcWAV1, LcWAV2	BCOMLC	BCOMLCTR
Lean Hogs	LhWAV1, LhWAV2	BCOMLH	BCOMLHTR
Wheat (Chicago)	W_WAV1, W_WAV2	BCOMWH	BCOMWHTR
Wheat (KC HRW)	KW_WAV1, W_WAV2	BCOMKW	BCOMKWT
Corn	C_WAV1, C_WAV2	BCOMCN	BCOMCNTR
Soybeans	S_WAV1, S_WAV2	BCOMSY	BCOMYSTR
Aluminum	AlWAV1, AlWAV2	BCOMAL	BCOMALTR
Copper	HgWAV1, HgWAV2	BCOMHG	BCOMHGTR
Zinc	ZnWAV1, ZnWAV2	BCOMZS	BCOMZSTR
Nickel	NiWAV1, NiWAV2	BCOMNI	BCOMNITR
Gold	GcWAV1, GcWAV2	BCOMGC	BCOMGCTR
Silver	SiWAV1, SiWAV2	BCOMSI	BCOMITR
Sugar	SbWAV1, SbWAV2	BCOMSB	BCOMBSTR
Cotton	CtWAV1, CtWAV2	BCOMCT	BCOMCTTR
Coffee	KcWAV1, KcWAV2	BCOMKC	BCOMKCTR
Cocoa	CcWAV1, CcWAV2	BCOMCC	BCOMCCTR
Soybean Meal	SmWAV1, SmWAV2	BCOMSM	BCOMSMT
Soybean Oil	BoWAV1, BoWAV2	BCOMBO	BCOMBOTR
Lead	PbWAV1, PbWAV2	BCOMPb	BCOMPbTR
Platinum	PIWAV1, PIWAV2	BCOMPL	BCOMPLTR
Tin	SnWAV1, SnWAV2	BCOMSN	BCOMNTR
Gas Oil	GoWAV1, GoWAV2	BCOMGO	BCOMGOT
Orange Juice	OjWAV1, OjWAV2	BCOMOJ	BCOMOJT
Feeder Cattle	FcWAV1, FcWAV2	BCOMFC	BCOMFCT

The following are the full names for each Subindex (“Bloomberg” may be substituted for “BCOM”, except in the acronyms for the spot Subindices):

Subindex Excess Return	Subindex Total Return
BCOM Energy Subindex	BCOM Energy Total Return Subindex
BCOM Petroleum Subindex	BCOM Petroleum Total Return Subindex
BCOM Livestock Subindex	BCOM Livestock Total Return Subindex
BCOM Grains Subindex	BCOM Grains Total Return Subindex
BCOM Industrial Metals Subindex	BCOM Industrial Metals Total Return Subindex
BCOM Precious Metals Subindex	BCOM Precious Metals Total Return Subindex
BCOM Softs Subindex	BCOM Softs Total Return Subindex
BCOM ex-Energy Subindex	BCOM ex-Energy Total Return Subindex
BCOM ex-Ag & Livestock Subindex	BCOM ex-Ag & Livestock Total Return Subindex
BCOM ex-Industrial Metals Subindex	BCOM ex-Industrial Metals Total Return Subindex
BCOM ex-Precious Subindex	BCOM ex-Precious Total Return Subindex
BCOM ex-Agriculture Subindex	BCOM ex-Agriculture Total Return Subindex
BCOM ex-Livestock Subindex	BCOM ex-Livestock Total Return Subindex
BCOM ex-Softs Subindex	BCOM ex-Softs Total Return Subindex
BCOM ex-Grains Subindex	BCOM ex-Grains Total Return Subindex
BCOM ex-Petroleum Subindex	BCOM ex-Petroleum Total Return Subindex
BCOM Agriculture Subindex	BCOM Agriculture Total Return Subindex
BCOM Composite Crude Oil Subindex	BCOM Composite Crude Oil Total Return Subindex
BCOM Composite Wheat Subindex	BCOM Composite Wheat Total Return Subindex
BCOM Natural Gas Subindex	BCOM Natural Gas Total Return Subindex
BCOM WTI Crude Oil Subindex	BCOM WTI Crude Oil Total Return Subindex
BCOM Brent Crude Oil Subindex	BCOM Brent Crude Oil Total Return Subindex
BCOM Unleaded Gasoline Subindex	BCOM Unleaded Gasoline Total Return Subindex
BCOM Heating Oil Subindex	BCOM Heating Oil Total Return Subindex
BCOM Live Cattle Subindex	BCOM Live Cattle Total Return Subindex
BCOM Lean Hogs Subindex	BCOM Lean Hogs Total Return Subindex
BCOM Chicago Wheat Subindex	BCOM Chicago Wheat Total Return Subindex
BCOM Kansas Wheat Subindex	BCOM Kansas Wheat Total Return Subindex
BCOM Corn Subindex	BCOM Corn Total Return Subindex
BCOM Soybeans Subindex	BCOM Soybeans Total Return Subindex
BCOM Soybean Meal Subindex	BCOM Soybean Meal Total Return Subindex
BCOM Soybean Oil Subindex	BCOM Soybean Oil Total Return Subindex
BCOM Aluminum Subindex	BCOM Aluminum Total Return Subindex
BCOM Copper Subindex	BCOM Copper Total Return Subindex
BCOM Nickel Subindex	BCOM Nickel Total Return Subindex
BCOM Zinc Subindex	BCOM Zinc Total Return Subindex
BCOM Gold Subindex	BCOM Gold Total Return Subindex
BCOM Silver Subindex	BCOM Silver Total Return Subindex
BCOM Sugar Subindex	BCOM Sugar Total Return Subindex
BCOM Cotton Subindex	BCOM Cotton Total Return Subindex
BCOM Coffee Subindex	BCOM Coffee Total Return Subindex
BCOM Cocoa Subindex	BCOM Cocoa Total Return Subindex
BCOM Platinum Subindex	BCOM Platinum Total Return Subindex
BCOM Lead Subindex	BCOM Lead Total Return Subindex
BCOM Tin Subindex	BCOM Tin Total Return Subindex
BCOM Gas Oil Subindex	BCOM Gas Oil Total Return Subindex
BCOM Orange Juice Subindex	BCOM Orange Juice Total Return Subindex
BCOM Feeder Cattle Subindex	BCOM Feeder Cattle Total Return Subindex



Spot Subindex Name	Spot Subindex Ticker
BCOM Energy Spot Subindex	BCOMXESP
BCOM Petroleum Spot Subindex	BCOMPESP
BCOM Livestock Spot Subindex	BCOMLISP
BCOM Grains Spot Subindex	BCOMGRSP
BCOM Industrial Metals Spot Subindex	BCOMINSP
BCOM Precious Metals Spot Subindex	BCOMPRSP
BCOM Softs Spot Subindex	BCOMOSP
BCOM ExEnergy Spot Subindex	BCOMXESP
BCOM Agriculture Spot Subindex	BCOMAGSP

Please note that while the specifications for the HO contract were changed by the CME group in 2013 from heating oil to ultra-low sulfur diesel, the index names including “Heating Oil” will be retained in their original form, and future indices using the HO contract will be specified as “Heating Oil” indices.

## APPENDIX I CALCULATION OF NON-U.S.-DOLLAR-DENOMINATED BCOM AND BCOMTR

BISL calculates (i) several non-US Dollar denominated (or currency converted) versions of BCOM and BCOMTR, (ii) several non-US Dollar currency daily hedged versions of BCOM and BCOMTR and (iii) several non-US Dollar currency monthly hedged versions of BCOM and BCOMTR.

The currency converted versions of the Indices reflect the performance that an investor who measures his investments in the foreign currency would receive by making a US Dollar denominated investment in the Indices. For example, consider a EUR-based investor who starts with 100 EUR to invest, converts the EUR into USD at the prevailing spot rate and invests the proceeds in an investment that tracks BCOMTR. At the end of the investment period, the investor sells the investment and converts the USD proceeds back into EUR at the prevailing spot rate. If, during the investment period, BCOM has increased by 5%, but the USD has weakened by 2% against the EUR, the investor would expect to have received an investment return of approximately 3% in EUR terms. The Bloomberg Commodity Index Euro Total Return could be expected to have increased by approximately 3% over the same investment period.

BCOM currency hedged versions aim to measure the performance of the Bloomberg Commodity Index (calculated in US Dollars), where currency exposures affecting index principal are hedged against the currencies indicated by the index names. Two variations of currency hedged versions are provided: monthly hedged and daily hedged. The different variations may be appropriate for different uses, depending on the nature of the needed benchmark or index-linked product.

### I. Names and Acronyms for Non-US Dollar Denominated Indices

Currency Converted Index Name	Currency Converted Index Ticker
Bloomberg Commodity Index Euro	BCOMEU
Bloomberg Commodity Index Euro Total Return	BCOMEUTR
Bloomberg Commodity Index Yen	BCOMJY
Bloomberg Commodity Index Yen Total Return	BCOMJYTR
Bloomberg Commodity Index Pound Sterling	BCOMGB
Bloomberg Commodity Index Pound Sterling Total Return	BCOMGBT
Bloomberg Commodity Index Swiss Franc	BCOMCH
Bloomberg Commodity Index Swiss Franc Total Return	BCOMCHT
Bloomberg Commodity Index Australian Dollar	BCOMAU
Bloomberg Commodity Index Australian Dollar Total Return	BCOMAUTR

Monthly Currency Hedged Index Name	Currency Hedged Index Ticker
Bloomberg Commodity Index Euro Hedged	BCOMHE
Bloomberg Commodity Index Euro Hedged Total Return	BCOMHET
Bloomberg Commodity Index Yen Hedged	BCOMHY
Bloomberg Commodity Index Yen Hedged Total Return	BCOMHYT
Bloomberg Commodity Index Pound Sterling Hedged	BCOMHP
Bloomberg Commodity Index Pound Sterling Hedged Total	BCOMHPT
Bloomberg Commodity Index Swiss Franc Hedged	BCOMHF
Bloomberg Commodity Index Swiss Franc Hedged Total Return	BCOMHFT

Daily Currency Hedged Index Name	Currency Hedged Index Ticker
Bloomberg Commodity Index Australian Dollar Hedged Daily	BCOMDA
Bloomberg Commodity Index Australian Dollar Hedged Daily Total Return	BCOMDAT
Bloomberg Commodity Index Canadian Dollar Hedged Daily	BCOMDC
Bloomberg Commodity Index Canadian Dollar Hedged Daily Total Return	BCOMDCT
Bloomberg Commodity Index Swiss Franc Hedged Daily	BCOMDF
Bloomberg Commodity Index Swiss Franc Hedged Daily Total Return	BCOMDFT
Bloomberg Commodity Index Euro Hedged Daily	BCOMDE
Bloomberg Commodity Index Euro Hedged Daily Total Return	BCOMDET
Bloomberg Commodity Index Pound Sterling Hedged Daily	BCOMDP
Bloomberg Commodity Index Pound Sterling Hedged Daily Total Return	BCOMDPT
Bloomberg Commodity Index Yen Hedged Daily	BCOMDY
Bloomberg Commodity Index Yen Hedged Daily Total Return	BCOMDYT

## II. Calculation of Currency Converted Indices

The calculation of the currency converted versions of the Indices will be accomplished by multiplying BCOM and BCOMTR values by the FX Reference Rate, divided by a fixed FX Starting Rate.

The FX Reference Rates are sourced from BFIX using the daily 16:00 London fix rate.

The calculation of the Daily Settlement values for the non-USD currency converted Indices will be as follows:

BCOM FX = the applicable currency converted version of BCOM Excess Return  
 BCOM FXTR = the applicable currency converted version of BCOM Total Return

FXRR = The applicable FX Reference Rate, expressed as FX units per US Dollar, rounded to 8 decimal places

FX Reference Rate Fallback: In the event that the FXRR is not available from the Bloomberg FX Fixings (BFIX), then Bloomberg will use expert judgment in determining the fx rates for the current business day.

$$BCOM\ FX = BCOM\ FX_{(t-1)} \times (BCOM / BCOM_{(t-1)}) \times (FXRR / FXRR_{(t-1)})$$

$$BCOM\ FXTR = BCOMTR\ FX_{(t-1)} \times (BCOMTR / BCOMTR_{(t-1)}) \times (FXRR / FXRR_{(t-1)})$$

Both the BCOM FX and the BCOM FXTR are rounded to 8 decimal places.

### III. Calculation of Monthly Currency Hedged Indices

The three components used to calculate the hedged return of each currency hedged Index are as follows:

1. Performance of the unhedged Index in the hedge currency
2. Impact on return from the cost of the hedge
3. Return of the spot exchange rate

Impact on return due to the cost of the currency  $i$  hedge:

$$\left( 1 + \frac{FXRate_{i1}}{FFRate_{i1}} \right)$$

Where:

$FXRate_{i1}$  = Spot exchange rate of currency  $i$  at the close of the previous month

$FFRate_{i1}$  = One month forward rate of currency  $i$  at the close of the previous month

The return due to changes in the spot exchange rate of currency  $i$ :

$$\left( 1 + \frac{FXRate_{i1}}{FXRate_{i2}} \right)$$

Where:

$FXRate_{i2}$  = Spot exchange rate of currency  $i$  at the close of the current month

Combining the above two formulas, the total return of the hedge can be calculated as:

$$HI = \left( \frac{FXRate_{i1}}{FFRate_{i1}} - \frac{FXRate_{i1}}{FXRate_{i2}} \right) \text{ Where}$$

$FXRate_{i1}$  = Spot exchange rate of currency  $i$  at the close of the previous month

$FXRate_{i2}$  = Spot exchange rate of currency  $i$  at the close of the current month

$FFRate_{i1}$  = One month forward rate for currency  $i$  at the close of the previous month

The performance of the hedged index is the sum of the performance of the unhedged index and the hedge impact. The simplified formula is as follows:

$$\text{Performance of Hedged Index} = \left( \frac{UnhedgedIndex_2}{UnhedgedIndex_1} - 1 \right) + HI$$

Where

$Unhedged Index_1$  = Unhedged index at the close of the previous month in the hedge currency

$Unhedged Index_2$  = Unhedged index at the close of the current month in the hedge currency

To calculate the hedged index, the formula can be simplified as follows:

$$HedgedIndex_2 = HedgedIndex_1 \times \left( \frac{UnhedgedIndex_2}{UnhedgedIndex_1} + HI \right)$$

Where

Hedged Index<sub>1</sub> = Hedged index at the close of the previous month

Hedged Index<sub>2</sub> = Hedged index at the close of the current month

To calculate a daily currency hedged index, the value of the forward contract for the remaining period needs to be estimated. This can be expressed as follows:

$$FXRate_d + \left( \frac{D-d}{D} \right) \times (FFRate_d - FXRate_d)$$

Where

D = Total calendar days in the current month

d = Current day of the current month

FXRate<sub>d</sub> = Spot exchange rate as of the current day

FFRate<sub>d</sub> = Forward exchange rate as of the current day

Combining the above formula with the previously discussed formulas, the daily currency hedge index is calculated as follows:

$$HI_d = \left[ \frac{FXRate_{i0}}{FFRate_{i0}} - \frac{FXRate_{i0}}{FXRate_{id} + \left( \frac{D-d}{D} \right) * (FFRate_{id} - FXRate_{id})} \right]$$

$$HedgedIndex_d = HedgedIndex_0 \times \left( \frac{UnhedgedIndex_d}{UnhedgedIndex_0} + HI_d \right)$$

Where

D = Total calendar days in the current month

d = Current day of the current month

FXRate<sub>i0</sub> = Spot exchange rate of currency i at the close of the previous month

FXRate<sub>id</sub> = Spot exchange rate of currency i as of the current day

FFRate<sub>i0</sub> = One month forward rate for currency i at the close of the previous month

FFRate<sub>id</sub> = One month forward rate for currency i as of the current day

Hedged Index<sub>0</sub> = Hedged index at the close of the previous month

Hedged Index<sub>d</sub> = Hedged index at the current day

Unhedged Index<sub>0</sub> = Unhedge index at the close of the previous month in the hedge currency

Unhedged Index<sub>d</sub> = Unhedge index at the close of the current month in the hedge currency

#### IV. Calculation of Daily Currency Hedged Indices

The purpose of the Daily Currency Hedged Bloomberg Indices is to provide a benchmark for non-US investors with respect to investments in BCOM for which the effects of foreign exchange risk are hedged. The daily hedged indices may provide a more easily replicable (and thus more readily investable) hedging structure than a transaction (sometimes called a “quanto”) in which an investor receives the performance payable in one currency in respect of an index or asset that is denominated in another currency.

There are 3 versions of this index, an excess return, total return, and modified total return version. The excess return currency hedged index is calculated from the excess return USD version of the Index. The total return currency hedged version of the Index is calculated from the excess return currency hedged Index by adding the local interest of the currency which is hedged. Also available is a modified version of the total return currency hedged which is calculated from the excess return currency hedged Index by adding the US 3-Month T-Bill return adjusted by the 1-Week FX Carry return of the currency which is hedged. For all of these, the notional hedging position is rebalanced daily.

In the unlikely event that a market disruption or publication failure affects the FX rates used to calculate the Daily Hedged Currency Indices, then the Index Sponsors will determine the rates in a commercially reasonable manner, which could include averaging prices obtained from one or more foreign exchange dealers. As Index Administrator, BISL retains the flexibility to apply different methodologies or to make other changes to the calculations of the Daily Hedged Currency Indices in the event that a currency control mechanism is implemented or other material disruptions occur in the relevant foreign exchange markets.

The Applicable Reference Rates are defined based on the most recently published values, so a disruption to the publication of the values would normally result in the rates remaining unchanged during the disruption period. However, BISL retains the flexibility to make changes to the Applicable Reference Rate or substitute alternate rates in the event of an extended or material disruption.

The daily currency hedged versions are available for the following currencies: AUD, CAD, CHF, EUR, JPY, and GBP.

#### Excess return index calculation

The general formula for calculating Daily Currency Hedged Excess Return Indices is:

$$HI_{ER,t} = HI_{ER,t-1} \times \left( 1 + \frac{FX_{t-1}^A}{FX_t^A} \times \left( \frac{I_{USD,ER,t}}{I_{USD,ER,t-1}} - 1 \right) \right)$$

Where:

- $HI_{ER,t}$  is the value of the Daily Currency Hedged Excess Return Index on index business day t.
- $FX_t$  FX Spot price as obtained from the source and time summarized in the table below.
- $I_{USD,ER,t}$  is the value of the USD Excess Return Index on Business Day t.
- A Quotation Exponent as defined in the table below:

Currency	A	FX Fixing Source	FX Fixing Time
EUR	1	Bloomberg BFIX	16:00 London
GBP	1	Bloomberg BFIX	16:00 London
CHF	-1	Bloomberg BFIX	16:00 London
AUD	1	Bloomberg BFIX	16:00 London
JPY	-1	Bloomberg BFIX	16:00 London
CAD	-1	Bloomberg BFIX	16:00 London

### Total return index calculations

The general formula for calculating Daily Currency Hedged Total Return Indices using local interest rates is:

$$HI_{TR,t} = HI_{TR,t-1} \times \left( \frac{HI_{ER,t}}{HI_{ER,t-1}} + IRR_t \right)$$

Where:

- $HI_{TR,t}$  is the value of the Daily Currency Hedged Total Return Index on Business Day **t**.
- $HI_{ER,t}$  is the value of the Daily Currency Hedged Excess Return Index on Business Day **t**.
- $IRR_t$  is the Interest Rate Return index business day **t**, generally defined as:

$$IRR_t = \left( 1 - \frac{N \times (ARR_t - \text{Spread})}{D} \right)^{\frac{d_{t-1}-d_t}{N}} - 1$$

- $ARR_t$  is the Applicable Reference Rate on Business Day **t** defined as the latest reference rate published as of a previous day prior to such Business Day **t**.
- $N$  is the currency market convention Numerator as defined in the table below.
- $D$  is the currency market convention Denominator as defined in the table below.
- $d_{t-1}-d_t$  is the number of calendar days from index business day t-1 to index business day **t**
- $\text{Spread}$  is the Spread as defined in the table below:

Currency	N	D	Reference Rate	Spread <sup>28*</sup>
EUR	1	360	euro short-term rate €STR + 8.5 bps – ESTRON Index	0
GBP	1	365	SONIA O/N Deposit rate	0
CHF	1	360	Swiss Average Rate Overnight	0
AUD	1	365	RBA Cash Overnight Rate	0
JPY	1	360	Japan Overnight Call Rate	0
CAD	1	365	Canadian Overnight Repo Rate Average - CORRA	0
USD		360	91-Day US Treasury Bill Rate	0

Market data codes are summarized in the table below:

Reference Rate	Bloomberg Code
euro short-term rate €STR + 8.5 bps	ESTRON Index
SONIA O/N Deposit rate	SONIO/N Index
Swiss Average Rate Overnight	SRFXON3 Index
RBA Cash Overnight Rate	RBACOR Index
Japan Overnight Call Rate	MUTKCALM Index

Effective January 2, 2018, the TOIS fixing was replaced with the SARON (Swiss Average Rate Overnight) fixing. Effective October 29, 2020, the EONIA was replaced with the euro short-term rate €STR + 8.5 bps.

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<sup>28</sup> The Spreads applicable to each ARR have initially been set to zero, though they may periodically be adjusted where the BOC determines that there have been material changes to the funding cost or rate differential applicable to a hypothetical investment grade issuer of Index-linked products and that changes are therefore warranted to maintain the applicable Index as a benchmark for a currency hedged investment in commodities.



The general formula for calculating Daily Currency Hedged Modified Total Return Indices is:

$$HI_{TR,t} = HI_{TR,t-1} \times \left( \frac{HI_{ER,t}}{HI_{ER,t-1}} + IRR_t \right)$$

Where:

- $HI_{TR,t}$  is the value of the Daily Currency Hedged Total Return Index on Business Day  $t$ .
- $HI_{ER,t}$  is the value of the Daily Currency Hedged Excess Return Index on Business Day  $t$ .
- $IRR_t$  is the Interest Rate Return index business day  $t$ , generally defined as:

$$IRR_t = \left( 1 - \frac{91 * 3MR_{t-1}}{360} \right)^{\frac{d_{t-1}-d_t}{91}} * \left( \frac{FX_t^A}{1WF_t^A} \right)^{\frac{d_{t-1}-d_t}{7}} - 1$$

- $3MR_t$  = the most recent weekly auction High Rate for 13 week (3 Month) U.S. Treasury Bills, as reported on the website <http://www.treasurydirect.gov/instiit/annceresult/annceresult.htm> published by the Bureau of the Public Debt of the U.S. Treasury, or any successor page, on such Business Day, provided, that if such auction High Rate is published on such Business Day  $d$ , TBill( $d-1$ ) shall be the rate published for the most recent previous auction.

This rate is then used for every day until the next rate is released; provided, however, that if a new rate is scheduled to be released on a given day, the prior rate is used for purposes of calculations in respect of such release date. The new rate is generally obtained on Monday and, accordingly, is first used in respect of Tuesday's settlement calculations. In the event of a holiday or other disruption in the Treasury auction schedule, the last available rate is used until the next rate becomes available. Note that the prior day's rate is used in calculating the value of TBD, to reflect the realization of an investment at that rate on day "t".

- $FX_t$  = Spot Exchange Rate on Business Day  $t$ .
- $1WF_t$  = 1-Week Forward Rate on Business Day  $t$  as obtained from the source and time summarized in the table below.
- $A$  = Quotation Exponent as defined in the table below.

Currency	A	1 Week Forward FX Fixing Source	1 Week Forward FX Fixing Time
EUR	-1	Bloomberg BFIX	16:00 London
GBP	-1	Bloomberg BFIX	16:00 London
CHF	1	Bloomberg BFIX	16:00 London
AUD	-1	Bloomberg BFIX	16:00 London
JPY	1	Bloomberg BFIX	16:00 London
CAD	1	Bloomberg BFIX	16:00 London

## APPENDIX J CALCULATION OF THE FORWARD MONTH BCOM

BISL calculates, or may in the future calculate, forward month versions of BCOM and certain Subindices.<sup>29</sup>

These indices are calculated on an excess return and total return basis. Following are the names of the forward month Indices:

Bloomberg Commodity Index 1 Month Forward	(BCOMF1)
Bloomberg Commodity Index 2 Month Forward	(BCOMF2)
Bloomberg Commodity Index 3 Month Forward	(BCOMF3)
Bloomberg Commodity Index 4 Month Forward	(BCOMF4)
Bloomberg Commodity Index 5 Month Forward	(BCOMF5)
Bloomberg Commodity Index 6 Month Forward	(BCOMF6)
Bloomberg Commodity Index Total Return 1 Month Forward	(BCOMF1T)
Bloomberg Commodity Index Total Return 2 Month Forward	(BCOMF2T)
Bloomberg Commodity Index Total Return 3 Month Forward	(BCOMF3T)
Bloomberg Commodity Index Total Return 4 Month Forward	(BCOMF4T)
Bloomberg Commodity Index Total Return 5 Month Forward	(BCOMF5T)
Bloomberg Commodity Index Total Return 6 Month Forward	(BCOMF6T)

These indices follow all the rules of BCOM as contained in this Methodology with the following modification: the contracts defined as Lead Future and Next Future, as designated in Table 9, are advanced, such that

- For BCOMF1, the contracts that would be the Lead Future and Next Future in the next calendar month are instead the Lead Future and Next Future in the current calendar month.
- For BCOMF2, the contracts that would be the Lead Future and Next Future in two calendar months are instead the Lead Future and Next Future in the current calendar month.
- For BCOMF3, the contracts that would be the Lead Future and Next Future in three calendar months are instead the Lead Future and Next Future in the current calendar month.
- For the other forward month Indices, a similar pattern is followed, except that, for liquidity reasons, Live Cattle, Lean Hogs and Unleaded Gasoline will never follow a schedule advanced by more than 5 months. So, for example, in BCOMF6, (i) for each Index Commodity (other than Live Cattle, Lean Hogs and Unleaded Gasoline), the contracts that would be the Lead Future and the Next Future in six calendar months are instead the Lead Future and the Next Future in the current calendar month and (ii) for Live Cattle, Lean Hogs and Unleaded Gasoline, the contracts that would be the Lead Future and the Next Future in five calendar months are instead the Lead Future and the Next Future in the current calendar month.

The Commodity Index Multipliers used in the calculation of the forward month versions of BCOM are unchanged from that used for the calculation of the standard BCOM.

BISL calculates Subindex versions of BCOMF2, BCOMF3 and BCOMF6. The calculation methodology for the Subindex versions of these indices is the same as for the Subindex versions of BCOM, but references

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<sup>29</sup> As of the date of this Methodology, forward indices beyond 6-months have not been launched but may be in the future.

only the futures contracts relevant to the applicable Subindex. These Subindices are calculated on an excess return and total return basis. A list of Indices and Subindices is available at the following URL:

<https://www.bloomberg.com/professional/product/indices/>

**Table 24: Roll schedule for the Lead Future for Natural Gas**

Lead Future				
Calendar Month	BCOM	BCOMF1	BCOMF2	BCOMF3
Jan	M	M	M	M
Feb	M	M	M	J
Mar	M	M	J	J
Apr	M	J	J	Se
May	J	J	Se	Se
Jun	J	Se	Se	N
Jul	Se	Se	N	N
Aug	Se	N	N	Ja
Sep	N	N	Ja	Ja
Oct	N	Ja	Ja	M
Nov	Ja	Ja	M	M
Dec	Ja	M	M	M

For additional clarity, refer to the following Tables 25, 26 and 27 (Contract Months Included in WAV Calculations) modified for the first three forward Indices:

**Table 25 – Table 9 as modified for BCOMF1**

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	(F)	(G)	(H)	(J)	(K)	(M)	(N)	(Q)	(U)	(V)	(X)	(Z)
Natural Gas	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
WTI Crude Oil	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Brent Crude Oil	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Unleaded Gas	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
ULS Diesel	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Live Cattle	Apr	Apr	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb	Feb
Lean Hogs	Apr	Apr	Jun	Jun	Jul	Aug	Oct	Oct	Dec	Dec	Feb	Feb
Wheat (Chicago)	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Wheat (KC HRW)	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Corn	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Soybeans	Mar	May	May	Jul	Jul	Nov	Nov	Nov	Nov	Jan	Jan	Mar
Soybean Oil	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar
Soybean Meal	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar
Aluminum	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Copper	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Zinc	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Nickel	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Lead	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Tin	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar
Gold	Apr	Apr	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb	Feb
Silver	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Platinum	Apr	Apr	Jul	Jul	Jul	Oct	Oct	Oct	Jan	Jan	Jan	Apr
Sugar No.11	Mar	May	May	Jul	Jul	Oct	Oct	Oct	Mar	Mar	Mar	Mar
Cotton No.2	Mar	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Dec	Mar	Mar
Coffee "C"	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Cocoa	Mar	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar
Low Sulphur Gas Oil	Mar	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar

Table 26 – Table 9 as modified for BCOMF2

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	(F)	(G)	(H)	(J)	(K)	(M)	(N)	(Q)	(U)	(V)	(X)	(Z)
Natural Gas	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
WTI Crude Oil	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Brent Crude Oil	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Unleaded Gas	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
ULS Diesel	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Live Cattle	Apr	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb	Feb	Apr
Lean Hogs	Apr	Jun	Jun	Jul	Aug	Oct	Oct	Dec	Dec	Feb	Feb	Apr
Wheat (Chicago)	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Wheat (KC HRW)	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Corn	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Soybeans	May	May	Jul	Jul	Nov	Nov	Nov	Nov	Jan	Jan	Mar	Mar
Soybean Oil	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar	Mar
Soybean Meal	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar	Mar
Aluminum	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Copper	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Zinc	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Nickel	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Lead	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Tin	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar
Gold	Apr	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb	Feb	Apr
Silver	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Platinum	Apr	Jul	Jul	Jul	Oct	Oct	Oct	Jan	Jan	Jan	Apr	Apr
Sugar No.11	May	May	Jul	Jul	Oct	Oct	Oct	Mar	Mar	Mar	Mar	Mar
Cotton No.2	May	May	Jul	Jul	Dec	Dec	Dec	Dec	Dec	Mar	Mar	Mar
Coffee "C"	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Cocoa	May	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar
Low Sulphur Gas Oil	May	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar

Table 27 – Table 9 as modified for BCOMF3

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	(F)	(G)	(H)	(J)	(K)	(M)	(N)	(Q)	(U)	(V)	(X)	(Z)
Natural Gas	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
WTI Crude Oil	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Brent Crude Oil	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May	May
Unleaded Gas	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
ULS Diesel	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Live Cattle	Jun	Jun	Aug	Aug	Oct	Oct	Dec	Dec	Feb	Feb	Apr	Apr
Lean Hogs	Jun	Jun	Jul	Aug	Oct	Oct	Dec	Dec	Feb	Feb	Apr	Apr
Wheat (Chicago)	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Wheat (KC HRW)	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Corn	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Soybeans	May	Jul	Jul	Nov	Nov	Nov	Nov	Jan	Jan	Mar	Mar	May
Soybean Oil	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar	Mar	May
Soybean Meal	May	Jul	Jul	Dec	Dec	Dec	Dec	Jan	Jan	Mar	Mar	May
Aluminum	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Copper	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Zinc	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Nickel	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Lead	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Tin	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May
Gold	Jun	Jun	Aug	Aug	Dec	Dec	Dec	Dec	Feb	Feb	Apr	Apr
Silver	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Platinum	Jul	Jul	Jul	Oct	Oct	Oct	Jan	Jan	Jan	Apr	Apr	Apr
Sugar No.11	May	Jul	Jul	Oct	Oct	Oct	Mar	Mar	Mar	Mar	Mar	May
Cotton No.2	May	Jul	Jul	Dec	Dec	Dec	Dec	Dec	Mar	Mar	Mar	May
Coffee "C"	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Cocoa	May	Jul	Jul	Sep	Sep	Dec	Dec	Dec	Mar	Mar	Mar	May
Low Sulphur Gas Oil	May	Jul	Jul	Sep	Sep	Nov	Nov	Jan	Jan	Mar	Mar	May

## APPENDIX K CALCULATION OF THE BLOOMBERG 50:50 AGRICULTURE AND ENERGY SUBINDEX

BISL calculates a Subindex of BCOM that consists of 50% Agricultural commodities, and 50% Energy commodities. The calculation rules are as follows:

- (1) Each year BISL will define a set of “Commodity Index Percentages” (“CIPs”), which are the standard BCOM CIPs, and are adjusted such that the CIPS for Energy commodities and for Agriculture commodities each sum up to 50%. In order to calculate the adjusted CIPs, each included CIP within the Agriculture or Energy group as applicable will be divided by the sum of all the CIPs for commodities included within the group, then multiplied by 0.50, in order to pro-rate each CIP to a proportion within the subgroup based on its CIP. In addition, the adjusted CIP for Natural Gas will be divided by 2, and half of the weight that would otherwise go into Natural Gas will instead be split equally and allocated to ULS Diesel, RBOB Gasoline, and Low Sulphur Gas Oil.
- (2) All other rules will adhere to the rules of the standard BCOM as defined in this Methodology, including using these “CIPs” on the “CIM Determination Date” to determine the special “Commodity Index Multipliers” to be applied for calculating this special Subindex. As a result, the effective weights of this Subindex will vary from the target CIPs as prices move.
- (3) BISL will publish only a daily settlement value of this custom Subindex.
- (4) The initial value of this Subindex was set to 100 as of January 2, 1991.
- (5) The following commodities comprise the Energy group: Natural Gas, Crude Oil, RBOB Gasoline, ULS Diesel (HO), and Low Sulphur Gas Oil.
- (6) The following commodities comprise the Agriculture group for the purposes of this Subindex: Chicago Wheat, KC HRW Wheat, Corn, Soybeans, Soybean Oil, Soybean Meal, Live Cattle, Lean Hogs, Sugar No.11, Cotton No.2, Coffee "C" and Cocoa (Cocoa is included the historical index when it was in the standard BCOM, and has zero weight after the 2005 January roll/rebalancing period).

## APPENDIX L CALCULATION OF THE BLOOMBERG ROLL SELECT COMMODITY INDEX

The Bloomberg Roll Select Commodity Index is a version of the Bloomberg Commodity Index that aims to mitigate the effects of contango market structure on index performance. For each commodity, the index rolls into the futures contract showing the most backwardation or least amount of contango, selecting from those eligible contracts with 9 months or fewer until expiration.

On the fourth business day of each month (each a “contract selection date”) the contract selection process is performed as follows:

- Using Table 9 of the Methodology, for each index commodity “j” represented in the index in the current year, the expiration date of each futures contract listed on Table 9 is determined for such index commodity beginning with the next future and with 9 months or fewer until expiration as of the contract selection date (using a period of 273 calendar days) (a “potential contract”) as well as the expiration date of the futures contract immediately preceding each such contract as specified in Table 28 below (a “prior period contract”), which may be a contract not included in Table 9, it being understood, however, that no contract shall be selected if there is no prior period contract.

The potential contract with the latest expiration date for the index commodity j is termed the “maximum potential contract j” or “MPC j.”

**Table 28 Prior Period Contracts**

Commodity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	(F)	(G)	(H)	(J)	(K)	(M)	(N)	(Q)	(U)	(V)	(X)	(Z)
Natural Gas	Dec		Feb		Apr		Jun		Aug		Oct	
WTI Crude Oil	Dec		Feb		Apr		Jun		Aug		Oct	
Brent Crude Oil	Dec		Feb		Apr		Jun		Aug		Oct	
Unleaded Gas	Dec		Feb		Apr		Jun		Aug		Oct	
ULS Diesel	Dec		Feb		Apr		Jun		Aug		Oct	
Low Sulphur Gas Oil	Dec		Feb		Apr		Jun		Aug		Oct	
Live Cattle		Dec		Feb		Apr		Jun		Aug		Oct
Lean Hogs		Dec		Feb		Apr	Jun	Jul		Aug		Oct
Wheat (Chicago)			Dec		Mar		May		Jul			Sep
Wheat (KC HRW)			Dec		Mar		May		Jul			Sep
Corn			Dec		Mar		May		Jul			Sep
Soybeans	Nov		Jan		Mar		May				Jul	
Soybean Oil	Dec		Jan		Mar		May					Jul
Soybean Meal	Dec		Jan		Mar		May					Jul
Aluminum	Dec		Feb		Apr		Jun		Aug		Oct	
Copper			Feb		Apr		Jun		Aug			Nov
Zinc	Dec		Feb		Apr		Jun		Aug		Oct	
Nickel	Dec		Feb		Apr		Jun		Aug		Oct	
Gold		Dec		Feb		Apr		Jun				Oct
Silver			Dec		Mar		May		Jul			Sep
Sugar No.11			Oct		Mar		May			Jul		
Cotton No.2			Dec		Mar		May					Jul
Coffee "C"			Dec		Mar		May		Jul			Sep



Note: Prior Period Contracts are shown under headings representing Potential Contracts

- The annualized percentage spread is calculated between each potential contract and the prior period contract for all index commodities “j” (using all potential contracts listed in Table 9 out to MPC<sub>j</sub>):

$N_j$  = the number of listed contracts for Index Commodity  $j$  out to and including the MPC<sub>j</sub>.

$C_{i,j}$  = the “ith” numbered contract for Index Commodity  $j$ . The highest value of “i” is  $N_j$ .

$P_{i,j}$  = the Settlement Price on the CSD for  $C_{i,j}$ .

$S_{i,j}$  = the curve spread between  $C_{i-1,j}$  and  $C_{i,j}$  as calculated below:

Days<sub>i</sub> = Calendar days from expiration date of  $C_{i-1,j}$  to expiration date of  $C_{i,j}$

For each “i” for which  $C_{i,j}$  is a Potential Contract,  $S_{i,j} = ([P_{i-1,j}/P_{i,j}]-1) \times [365/\text{Days}_i]$

- For each index commodity  $j$ , the contract to be defined as the “next” contract to be rolled into and used in the calculation of the Bloomberg Roll Select Commodity Index (i.e., the contract which will be used to determine the relevant index commodity  $j$ ’s component of WAV2 during the current calendar month and WAV1 during the following calendar month), is the potential contract which corresponds to the highest value of  $S_{i,j}$ . In the event that two values of  $S_{i,j}$  for index commodity  $j$  are equal, the “next” contract will be the potential contract of shorter maturity.

The Bloomberg Roll Select Indices, together with their Bloomberg tickers, are set out below.

Index Name	Index Ticker
Bloomberg Roll Select Commodity Index	BCOMRS
Bloomberg Roll Select Commodity Total Return Index	BCOMRST
Bloomberg Roll Select Agriculture Subindex	BCOMRAG
Bloomberg Roll Select Agriculture Subindex Total Return	BCOMRAGT
Bloomberg Roll Select Energy Subindex	BCOMREN
Bloomberg Roll Select Energy Subindex Total Return	BCOMRENT
Bloomberg Roll Select Grains Subindex	BCOMRGR
Bloomberg Roll Select Grains Subindex Total Return	BCOMRGRT
Bloomberg Roll Select Industrial Metals Subindex	BCOMRIN
Bloomberg Roll Select Industrial Metals Subindex Total Return	BCOMRINT
Bloomberg Roll Select Livestock Subindex	BCOMRLI
Bloomberg Roll Select Livestock Subindex Total Return	BCOMRLIT
Bloomberg Roll Select Petroleum Subindex	BCOMRPE
Bloomberg Roll Select Petroleum Subindex Total Return	BCOMRPET
Bloomberg Roll Select Precious Metals Subindex	BCOMRPR
Bloomberg Roll Select Precious Metals Subindex Total Return	BCOMRPRT
Bloomberg Roll Select Softs Subindex	BCOMRSO
Bloomberg Roll Select Softs Subindex Total Return	BCOMRSOT
Bloomberg Roll Select ExEnergy Subindex	BCOMRXE

## The Bloomberg Commodity Index Methodology

Bloomberg Roll Select ExEnergy Subindex Total Return	BCOMRXET
Bloomberg Roll Select Aluminum Subindex	BCOMRAL
Bloomberg Roll Select Aluminum Subindex Total Return	BCOMRALT
Bloomberg Roll Select Coffee Subindex	BCOMRKC
Bloomberg Roll Select Coffee Subindex Total Return	BCOMRKCT
Bloomberg Roll Select Copper Subindex	BCOMRHG
Bloomberg Roll Select Copper Subindex Total Return	BCOMRHGT
Bloomberg Roll Select Corn Subindex	BCOMRCN
Bloomberg Roll Select Corn Subindex Total Return	BCOMRCNT
Bloomberg Roll Select Cotton Subindex	BCOMRCT
Bloomberg Roll Select Cotton Subindex Total Return	BCOMRCTT
Bloomberg Roll Select Gold Subindex	BCOMRGC
Bloomberg Roll Select Gold Subindex Total Return	BCOMRGCT
Bloomberg Roll Select ULS Diesel (HO) Subindex	BCOMRHO
Bloomberg Roll Select ULS Diesel (HO) Subindex Total Return	BCOMRHOT
Bloomberg Roll Select Lean Hogs Subindex	BCOMRLH
Bloomberg Roll Select Lean Hogs Subindex Total Return	BCOMRLHT
Bloomberg Roll Select Live Cattle Subindex	BCOMRLC
Bloomberg Roll Select Live Cattle Subindex Total Return	BCOMRLCT
Bloomberg Roll Select Natural Gas Subindex	BCOMRNG
Bloomberg Roll Select Natural Gas Subindex Total Return	BCOMRNGT
Bloomberg Roll Select Nickel Subindex	BCOMRNI
Bloomberg Roll Select Nickel Subindex Total Return	BCOMRNIT
Bloomberg Roll Select Silver Subindex	BCOMRSI
Bloomberg Roll Select Silver Subindex Total Return	BCOMRSIT
Bloomberg Roll Select Soybeans Subindex	BCOMRSY
Bloomberg Roll Select Soybeans Subindex Total Return	BCOMRSYT
Bloomberg Roll Select Soybean Meal Subindex	BCOMRSM
Bloomberg Roll Select Soybean Meal Subindex Total Return	BCOMRSMT
Bloomberg Roll Select Soybean Oil Subindex	BCOMRBO
Bloomberg Roll Select Soybean Oil Subindex Total Return	BCOMRBOT
Bloomberg Roll Select Sugar Subindex	BCOMRSB
Bloomberg Roll Select Sugar Subindex Total Return	BCOMRSBT
Bloomberg Roll Select Unleaded Gasoline Subindex	BCOMRRB
Bloomberg Roll Select Unleaded Gasoline Subindex Total Return	BCOMRRBT
Bloomberg Roll Select Wheat Subindex	BCOMRWH
Bloomberg Roll Select Wheat Subindex Total Return	BCOMRWHT
Bloomberg Roll Select Kansas Wheat Subindex	BCOMRKW
Bloomberg Roll Select Kansas Wheat Subindex Total Return	BCOMRKWT
Bloomberg Roll Select WTI Crude Oil Subindex	BCOMRCL
Bloomberg Roll Select WTI Crude Oil Subindex Total Return	BCOMRCLT
Bloomberg Roll Select Zinc Subindex	BCOMRZS
Bloomberg Roll Select Zinc Subindex Total Return	BCOMRZST
Bloomberg Roll Select Commodity ex-Agriculture and Livestock Subindex	BBURXAL
Bloomberg Roll Select Commodity ex-Agriculture and Livestock Subindex Total Return	BBURXALT
Bloomberg Roll Select Brent Crude Oil Subindex	BCOMRCO
Bloomberg Roll Select Brent Crude Oil Subindex Total Return	BCOMRCOT

## APPENDIX M CALCULATION OF THE BLOOMBERG COMMODITY INDEX 2-4-6 FORWARD BLEND<sup>SM</sup>

Bloomberg Commodity Index 2–4–6 Forward Blend<sup>SM</sup> (“2–4–6 Blend”) is an equally weighted basket of positions in the Bloomberg Commodity Index 2 Month Forward<sup>SM</sup> (“F2”), Bloomberg Commodity Index 4 Month Forward<sup>SM</sup> (“F4”) and Bloomberg Commodity Index 6 Month Forward<sup>SM</sup> (“F6”).

Exposure to each component index is rebalanced monthly on the Rebalancing Day *i*, which is the last BCOM business day of every month.

The level of the Bloomberg Commodity Index 2–4–6 Forward Blend is determined by reference to (i) the performance of the Bloomberg Commodity Index 2 Month Forward<sup>SM</sup>, (ii) the performance of the Bloomberg Commodity Index 4 Month Forward<sup>SM</sup> and (iii) the performance of the Bloomberg Commodity Index 6 Month Forward<sup>SM</sup>.

On any BCOM Business Day *t*:

$$2-4-6Blend_t = 2-4-6Blend_i \times \left( 1 + \left( \frac{1}{3} \times \left( \frac{F2_t}{F2_i} - 1 \right) + \frac{1}{3} \times \left( \frac{F4_t}{F4_i} - 1 \right) + \frac{1}{3} \times \left( \frac{F6_t}{F6_i} - 1 \right) \right) \right)$$

Where:

2–4–6Blend<sub>*i*</sub> is the closing level on the most recent Rebalancing Day *i* prior to BCOM Business Day *t*.

F<sub>*t*</sub> is the closing level in USD of the Bloomberg Commodity Index 2 Month Forward<sup>SM</sup> on BCOM Business Day *t*.

F<sub>*i*</sub> is the closing level in USD of the Bloomberg Commodity Index 2 Month Forward<sup>SM</sup> on the most recent Rebalancing Day *i* prior to BCOM Business Day *t*.

F<sub>*t*</sub> is the closing level in USD of the Bloomberg Commodity Index 4 Month Forward<sup>SM</sup> on BCOM Business Day *t*.

F<sub>*i*</sub> is the closing level in USD of the Bloomberg Commodity Index 4 Month Forward<sup>SM</sup> on the most recent Rebalancing Day *i* prior to BCOM Business Day *t*.

F<sub>*t*</sub> is the closing level in USD of the Bloomberg Commodity Index 6 Month Forward<sup>SM</sup> on BCOM Business Day *t*.

F<sub>*i*</sub> is the closing level in USD of the Bloomberg Commodity Index 6 Month Forward<sup>SM</sup> on the most recent Rebalancing Day *i* prior to BCOM Business Day *t*.

Input prices for the F2, F4 and F6 are rounded to eight decimals.

Bloomberg Commodity Index 2–4–6 Forward Blend Total Return<sup>SM</sup> is calculated according to the following formula:

On any BCOM Business Day t:

$$2-4-6BlendTR_t = 2-4-6BlendTR_i \times \left( 1 + \left( \frac{2-4-6Blend_t}{2-4-6Blend_i} - 1 \right) + a_t \right)$$

$$a_t = \prod_{j=i+1}^t TBD_j - 1$$

$$TBD_j = \frac{1}{\left( 1 - 3MR_{j-1} \times \left( \frac{91}{360} \right) \right)^{\frac{DAYS}{91}}}$$

Where:

2-4-6 BlendTR<sub>i</sub> is the closing level on the most recent Rebalancing Day i prior to BCOM Business Day t.

3MR is the most recent weekly auction High Rate for 13 week (3 Month) U.S. Treasury Bills, as reported on the website <http://www.treasurydirect.gov/instit/annceresult/annceresult.htm> published by the Bureau of the Public Debt of the U.S. Treasury, or any successor page, on such Business Day d, provided, that if such auction High Rate is published on such Business Day d, TBill(d-1) shall be the rate published for the most recent previous auction.

TBD = Treasury Bill Daily Return.

DAYS = Number of calendar days from and including the prior Calculation Date to but excluding the current Calculation Date.

Calculation Date = date for which calculation is made.

## APPENDIX N CALCULATION OF THE BLOOMBERG COMMODITY INDEX SETTLEMENT INDICES

The Bloomberg Commodity Index Settlement Indices are variations of the Bloomberg Commodity Indices for which an exchange settlement price on each Business Day is adjusted in the event of a Market Disruption Event. The indices are not official settlement prices for financial instruments but can be used as a guideline for pricing a BCOM Index Level when a market disruption event occurs.

To determine the BCOM Settlement Index Levels, BISL shall utilize (i) the final settlement prices for those futures included in the applicable Settlement Indices that are not subject to a Market Disruption Event on such Business Day, and (ii) for a futures contract that is subject to a Market Disruption Event on such Business Day, the final settlement price on the next available relevant Business Day on which a Market Disruption Event is no longer continuing for such futures contract. If a Market Disruption Event does not occur the BCOM Settlement Index level will equal the Bloomberg Commodity Index level.

In addition to the adjustments above, the Bloomberg Settlement Indices are subject to the other adjustments set forth in Section 3.3 in respect of Market Disruption Events.

The current names and Bloomberg tickers of the published Settlement Indices are set out below.

Index Name	Index Ticker
Bloomberg Settlement Index	BCOMTL
Bloomberg Settlement TR Index	BCOMTLT
Bloomberg Agriculture Settlement Index	BCOMTAG
Bloomberg Agriculture Settlement TR Index	BCOMTAT
Bloomberg Energy Settlement Index	BCOMTEN
Bloomberg Energy Settlement TR Index	BCOMTET
Bloomberg Grains Settlement Index	BCOMTGR
Bloomberg Grains Settlement TR Index	BCOMTGT
Bloomberg Livestock Settlement Index	BCOMTLI
Bloomberg Livestock Settlement TR Index	BCOMTLR
Bloomberg Softs Settlement Index	BCOMTSO
Bloomberg Softs Settlement TR Index	BCOMTST
Bloomberg ex-Energy Settlement Index	BCOMTXE
Bloomberg ex-Energy Settlement TR Index	BCOMTXT
Bloomberg Industrial Metals Settlement Index	BCOMTIN
Bloomberg Industrial Metals Settlement TR Index	BCOMTNT
Bloomberg Petroleum Settlement Index	BCOMTPE
Bloomberg Petroleum Settlement TR Index	BCOMTPT
Bloomberg Precious Metals Settlement Index	BCOMTPM
Bloomberg Precious Metals Settlement TR Index	BCOMTPR
Bloomberg ex-Agriculture and Livestock Settlement Index	BCOMTXAL
Bloomberg ex-Agriculture and Livestock Settlement TR Index	BBUTXALT
Bloomberg ex-Agriculture Settlement Index	BCOMTXAG
Bloomberg ex-Agriculture Settlement TR Index	BBUTXAGT
Bloomberg ex-Grains Settlement Index	BCOMTXGR
Bloomberg ex-Grains TR Settlement Index	BBUTXGRT
Bloomberg ex-Industrial Metals Settlement Index	BCOMTXIM
Bloomberg ex-Industrial Metals Settlement TR Index	BBUTXIMT
Bloomberg ex-Livestock Settlement Index	BCOMTXLI
Bloomberg ex-Livestock Settlement TR Index	BBUTXLIT
Bloomberg ex-Petroleum Settlement Index	BCOMTXPE
Bloomberg ex-Petroleum Settlement TR Index	BBUTXPET
Bloomberg ex-Precious Metals Settlement Index	BCOMTXPM
Bloomberg ex-Precious Metals Settlement TR Index	BBUTXPMT
Bloomberg ex-Softs Settlement Index	BCOMTXSO
Bloomberg ex-Softs Settlement TR Index	BBUTXSOT

## APPENDIX O CALCULATION OF THE BLOOMBERG EX-AG & LIVESTOCK CAPPED INDICES

The Bloomberg Commodity Capped Index families are UCITS compliant while maintaining continuity and proportion to the Bloomberg Commodity Index component weights. The Capped ex-Agriculture and Livestock Indices, defined below, are versions of the Bloomberg Commodity ex-Agriculture and Livestock Index and Bloomberg Commodity ex-Agriculture and Livestock Total Return Index (BCOMXAL and BCOMXALT). The composition is derived from BCOM excluding the commodities within the “Grains”, “Softs” (i.e. agriculture) and “Livestock” commodity groups defined in section 2.2(3) (“*Commodity Groups*”). The aim of the Capped ex-Agriculture and Livestock Indices is to cap the weight of the larger components within the index based on the rules described below. Historically, and currently, the largest component has been Petroleum. BISL maintains two weighting variations of capping for the Capped ex-Agriculture and Livestock Indices:

- Bloomberg ex-Agriculture and Livestock 15/30 Capped Index Family (the “15/30 Index Family”)
- Bloomberg ex-Agriculture and Livestock 20/30 Capped Index Family (the “20/30 Index Family”)

(collectively, the “**Capped ex-Agriculture and Livestock Indices**”)

The capping is done on the 4th business day of each month. Prior to the launch of the Bloomberg ex-Agriculture and Livestock 20/30 Capped Index (BBUXALC) in July of 2013, the CIMs were calculated on the last business day of each month. All other BCOM ex-Agriculture and Livestock Capped Indices developed by Bloomberg CIMs were calculated on the 4<sup>th</sup> business day of each month.

The forward (longer dated) versions of the Capped ex-Agriculture and Livestock Indices refer to the longer dated commodity futures contracts described in Appendix J: Calculation of the Forward Month BCOM.

The capping procedures follow three steps:

**Step 1: Initial weights are extracted from the Bloomberg Commodity Index excluding the commodities within the “Grains”, “Softs” (i.e. agriculture) and “Livestock” commodity groups defined in section 2.2(3) (“Commodity Groups”).**

On the fourth business day of each month, the index weights are derived from taking the relevant commodity futures contracts using the BCOM (CIMs) and settlement prices. This is the same process as is followed for the non-capped Bloomberg Commodity ex-Agriculture and Livestock Index and Bloomberg Commodity ex-Agriculture and Livestock Total Return Index (BCOMXAL and BCOMXALT).

**Step 2: Only one component can reach a maximum weight of 30%.**

The weight of the largest component from Step 1 is reviewed. If its weight exceeds 30%, the weight is capped at 30%. The excess weight is redistributed on a relative basis among the remaining constituents. If its weight is less than or equal to 30%, no capping is performed and it maintains its natural weight.

**Step 3: No remaining component’s weight can exceed 15% or 20%.**

If the weight of any component not reviewed in Step 2 is above 15% for the 15/30 Index or 20% for the 20/30 Index, it is capped at 15% or 20%, respectively, with excess weight redistributed on a relative basis among remaining components not already capped at 15% or 20%, respectively. This process is iterative until the weights of all remaining components are less than or equal to the respective 15% or 20% caps.

**Implementation:** The target weights determined above are used to calculate modified CIMs using the Next Contract prices. The modified CIMs are implemented during the monthly roll based on the standard practice for BCOM (see section 2.7).

**Components:** In the Bloomberg Commodity Index (BCOM), there are 17 components, with three containing

more than one commodity based on their similarity (see table below). The 3 components with multiple commodities are as follows:

- **Petroleum:** WTI Crude Oil, Brent Crude Oil, RBOB Gasoline, Low Sulphur Gasoil and ULS Diesel
- **Wheat:** Soft Red Winter Wheat (Chicago) and Hard Red Winter Wheat (KC HRW)
- **Soybean Complex:** Soybeans, and Soybean Meal

Annual correlation testing among commodities is performed prior to the annual rebalance. The index is rebalanced each year pursuant to any changes to BCOM, and commodities are added or excluded accordingly.

**Commodities available for inclusion in the Bloomberg Commodity Capped Index:**

Symbol	Commodity	Group	Component
CL	WTI Crude Oil	Energy	Petroleum
HO	ULS Diesel	Energy	Petroleum
CO	Brent Crude Oil	Energy	Petroleum
XB	RBOB Gasoline	Energy	Petroleum
QS	Low Sulphur Gasoil	Energy	Petroleum
W	Chicago Wheat	Agriculture	Wheat
KW	KC HRW Wheat	Agriculture	Wheat
BO	Soybean Meal	Agriculture	Soybean Complex
SM	Soybeans	Agriculture	Soybean Complex
S	Soybean Oil	Agriculture	Soybean Oil
C	Corn	Agriculture	Corn
CT	Cotton No.2	Agriculture	Cotton
SB	Sugar No.11	Agriculture	Sugar
KC	Coffee "C"	Agriculture	Coffee
LC	Live Cattle	Livestock	Live Cattle
LH	Lean Hogs	Livestock	Lean Hogs
NG	Natural Gas	Energy	Natural Gas
HG	Copper	Industrial Metals	Copper
LA	Aluminum	Industrial Metals	Aluminum
LN	Nickel	Industrial Metals	Nickel
LX	Zinc	Industrial Metals	Zinc
SI	Silver	Precious Metals	Silver
GC	Gold	Precious Metals	Gold

*Effective January 7, 2021, Low Sulphur Gas Oil became part of the Petroleum complex, and Soybean Oil will become its own component*

**Commodities available for inclusion in the Bloomberg Commodity ex-Agriculture and Livestock Capped Index:**

Symbol	Commodity	Group	Component
CL	WTI Crude Oil	Energy	Petroleum
HO	ULS Diesel	Energy	Petroleum
CO	Brent Crude Oil	Energy	Petroleum
XB	RBOB Gasoline	Energy	Petroleum
QS	Low Sulphur Gasoil	Energy	Petroleum
NG	Natural Gas	Energy	Natural Gas
HG	Copper	Industrial Metals	Copper
LA	Aluminum	Industrial Metals	Aluminum
LN	Nickel	Industrial Metals	Nickel
LX	Zinc	Industrial Metals	Zinc
SI	Silver	Precious Metals	Silver
GC	Gold	Precious Metals	Gold

*Effective January 7, 2021, Low Sulphur Gas Oil became part of the Petroleum complex, and Soybean Oil will become its own component*

**20/30 Index Family names and codes are as follows:**

Index Name	Bloomberg Ticker
Bloomberg ex-Agriculture and Livestock 20/30 Capped Index	BBUXALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped Total Return	BBUXALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 1 Month Forward Index	BB1XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 1 Month Forward Total Return	BB1XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 2 Month Forward Index	BB2XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 2 Month Forward Total Return	BB2XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 3 Month Forward Index	BB3XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 3 Month Forward Total Return	BB3XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 4 Month Forward Index	BB4XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 4 Month Forward Total Return	BB4XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 5 Month Forward Index	BB5XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 5 Month Forward Total Return	BB5XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped 6 Month Forward Index	BB6XALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped 6 Month Forward Total Return	BB6XALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped CHF Excess Return Index	BBCXALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped CHF Total Return Index	BBCXALCT
Bloomberg ex-Agriculture and Livestock 20/30 Capped EUR Excess Return Index	BBEXALC
Bloomberg ex-Agriculture and Livestock 20/30 Capped EUR Total Return Index	BBEXALCT



**15/30 Index Family names and codes are as follows:**

Index Name	Bloomberg Ticker
Bloomberg ex-Agriculture and Livestock 15/30 Capped Index	BUUXALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped Total Return	BUUXALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 1 Month Forward Index	BU1XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 1 Month Forward Index	BU1XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 2 Month Forward Index	BU2XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 2 Month Forward Total Return	BU2XALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward Index	BU3XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward Total Return	BU3XALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 4 Month Forward Index	BU4XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 4 Month Forward Total Return	BU4XALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 5 Month Forward Index	BU5XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 5 Month Forward Total Return	BU5XALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 6 Month Forward Index	BU6XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 6 Month Forward Total Return	BU6XALCT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward EUR Daily Hedged	BUE3XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward EUR Daily Hedged Total Return	BUE3XALT
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward GBP Daily Hedged	BUG3XALC
Bloomberg ex-Agriculture and Livestock 15/30 Capped 3 Month Forward GBP Daily Hedged Total Return	BUG3XALT

## APPENDIX P CALCULATION OF THE BLOOMBERG SINGLE COMMODITY CAPPED SUBINDICES

The Bloomberg Single Commodity Capped Subindices of the Bloomberg Commodity Index intend to be compliant with ESMA/UCITS guidelines while maintaining the diversification of the Bloomberg Commodity Index component weights.

The methodology supplement for the Bloomberg Single Commodity Capped Subindices uses various terms and definitions from the Bloomberg Commodity Index Methodology. Where not specifically noted otherwise in this document, the rules of the Bloomberg Commodity Index Methodology prevail.

The namesake commodity is the commodity bearing the name of the Bloomberg Single Commodity Subindex Capped. For example, Gold is the namesake commodity for the Bloomberg Gold Subindex Capped. In general, any Bloomberg Single Commodity Subindex Capped consists of the namesake commodity as well as most of the rest of the Bloomberg Commodity Index commodities, subject to the Rule of Exclusion regarding commodities that belong to a given component.

The Rule of Exclusion states that when any commodity that belongs to a component is the namesake commodity of the index, all other commodities of that same component are excluded in that particular single commodity index. For instance, for the Bloomberg WTI Crude Oil Subindex Capped, the four remaining commodities (Brent Crude Oil, Ultra-low Sulfur Diesel, Low Sulphur Diesel and Unleaded Gasoline) of the Petroleum Component are not included in the index.

The weighting scheme of the Bloomberg Single Commodity Subindex Capped is as follows: in every Bloomberg Single Commodity Subindex Capped, each namesake commodity is allocated 35% at each rebalance, with the remaining 65% distributed among the eligible BCOM commodities according to the weights derived from the CIMs of BCOM, subject to the Rule of Exclusion. During the January rebalance the new CIMs are applied to calculate the weights for BCOM. In addition to the 35% cap on the namesake commodity, the weights of the remaining components are reviewed. If the weight of any remaining component exceeds 20%, its weight is reduced to 20% and any excess weight is distributed pro-rata across all commodities with a weight under 20%. This step is repeated until the weight of each remaining component does not exceed 20%. The effective weights are the weights for each commodity on the determination date with the exception of the January rebalance where the weights are based on the new Commodity Index Percentages.

The design of the Bloomberg Single Commodity Subindex Capped family intends to comply with the current ESMA/UCITS guidelines, as the weights are balanced on a quarterly basis. In essence, each single commodity subindex consists of a basket of individual Bloomberg Single Commodity Subindices, not just one single individual commodity.

- **Rebalancing Frequency:** Quarterly
- **Determination date:** Fourth business day of January, April, July and October.
- **Components:** There are 17 components, with three containing more than one commodity based on their similarity. The multiple commodity components are as follows:
  - **Petroleum:** WTI Crude Oil, Brent Crude Oil, Unleaded Gasoline, Low Sulphur Gasoil and Ultra-low Sulfur Diesel
  - **Wheat:** Chicago and KC HRW Wheat
  - **Soybean:** Soybeans, and Soybean Meal

APPENDIX Q BLOOMBERG COMMODITY INDEX FILES

Table 29: Overview of changes in Bloomberg Commodity Index files

File Types	Description
_CIR	<b><u>Commodity Index Report</u></b> This file provides official 8 decimal place Index Levels and additional analytics
_CCR	<b><u>Commodity Components Report</u></b> This file provides information on the index constituents
_HDA	<b><u>Hedging Daily Analysis</u></b> Hedged Index Level files
_FDA	<b><u>FX Daily Analysis</u></b> BFIX FX rates and overnight rates used for daily and monthly hedging
_XDA	<b><u>Currency rates</u></b> BFIX FX rates used for daily and monthly hedging
Change_file	<b><u>Change Files</u></b> Constituent and Index Level information
_IDA	<b><u>Index Daily Analysis</u></b> Bloomberg Commodity 2-4-6 Index levels
ROLL SEL LEAD CONTRACTS	<b><u>Roll Select Lead Contract File</u></b> Monthly file with the new selected contracts for the upcoming roll period (available 4 <sup>th</sup> business day of each month)

## APPENDIX R CALCULATION OF BLOOMBERG COMMODITY LEVERAGED AND INVERSE INDICES

BISL offers leveraged and inverse indices on select Bloomberg Commodity Indices (BCOM). The indices are calculated using a defined leverage or inverse factor. The Leveraged Indices aim to capture two times the daily return of underlying BCOM Indices and the Inverse indices aim to capture the inverse daily return.

The level of the *Index*  $t$  will be determined in accordance with the following formula each BCOM Index Business Day;

$$Index_t = Index_r \times \left[ 1 + (Factor \times \left( \frac{BCOM\_UnderlyingIndex_t}{BCOM\_UnderlyingIndex_r} - 1 \right)) \right]$$

Where:

$r$  is the Rebalancing Date, if BCOM Index Business Day  $t$ , then  $r$  is the Rebalancing Date immediately prior to Index Business Day  $t$ .

*Factor* is the leveraged or inverse ratio

- *Factor* = 2; leveraged is two times the return or 200%
- *Factor* = -1; inverse daily return or -100%

*Underlying Index* is the Index Level of the Bloomberg Commodity namesake index

Total Return Leveraged and Inverse calculations refer to Section 3.2 using steps 1 through 3.

BCOM Leveraged and Inverse indices are rounded to 8 decimal places.

BCOM headline Leveraged and Inverse indices start with a base Index Level of 100, BCOM single commodity leveraged and inverse indices start with a base Index Level of 10,000.

Leveraged and Inverse index family names and codes as follows:

Index Name	Bloomberg Ticker
Bloomberg Commodity 3 Month Forward 2X Leveraged	BCOMF3L
Bloomberg Commodity 3 Month Forward 2X Leveraged Total Return	BCOMF3LT
Bloomberg Copper 2X Leveraged Index	BCOMHGL
Bloomberg Copper 2X Leveraged Total Return Index	BCOMHGLT
Bloomberg Silver 2X Leveraged Index	BCOMSIL
Bloomberg Silver 2X Leveraged Total Return Index	BCOMSILT
Bloomberg Copper Inverse Index	BCOMHGI
Bloomberg Copper Inverse Total Return Index	BCOMHGIT
Bloomberg Silver Inverse Index	BCOMSII
Bloomberg Silver Inverse Total Return Index	BCOMSIIT
Bloomberg WTI Crude Oil 2X Leveraged Index	BCOMCLL
Bloomberg WTI Crude Oil 2X Leveraged Total Return Index	BCOMCLLT
Bloomberg WTI Crude Oil Inverse Index	BCOMCLI
Bloomberg WTI Crude Oil Inverse Total Return Index	BCOMCLIT
Bloomberg Gold 2X Leveraged Index	BCOMGCL
Bloomberg Gold 2X Leveraged Total Return Index	BCOMGCLT
Bloomberg Gold Inverse Index	BCOMGCI
Bloomberg Gold Inverse Total Return Index	BCOMGCIT

## **APPENDIX S: BLOOMBERG COMMODITY INDEX POLICIES & PROCEDURES**

### **Data Providers and Data Extrapolation**

The Bloomberg Commodity Index Family is rules-based, and its construction is designed to consistently produce index levels without the exercise of discretion. BCOM Indices are produced without the interpolation or extrapolation of input data.

In addition, the Index Administrator seeks to avoid contributions of input data that may be subject to the discretion of the source of such data and instead uses input data from regulated exchanges. Accordingly, the Indices require no 'contributors' to produce and no codes of conduct with any such sources are required.

### **Index and Data Reviews**

The Index Administrator will review the Indices (both the rules of construction and data inputs) on a periodic basis, not less frequently than annually, to determine whether they continue to reasonably measure the intended underlying market interest, the economic reality or otherwise align with their stated objective. More frequent reviews may result from extreme market events and/or material changes to the applicable underlying market interests.

Criteria for data inputs include reliable delivery and active underlying markets. Whether an applicable market is active depends on whether there are sufficient numbers of transactions (or other indications of price, such as indicative quotes) in the applicable constituents (or similar underlying constituent elements) that a price (or other value, as applicable) may be supplied for such constituent(s). Except as otherwise described herein, there are no minimum liquidity requirements for Index constituents and/or minimum requirements or standards for the quantity or quality of the input data.

The review will be conducted by product managers of the Indices in connection with the periodic rebalancing of the Indices or as otherwise appropriate.

Any resulting change to the Methodology deemed to be material (discussed below) will be subject to the review of the PROC under the oversight of the BOC, each of which committees shall be provided all relevant information and materials it requests relating to the change. Details regarding the PROC and BOC are described in Section 1.3 - Benchmark Governance.

Material changes will be reflected and tracked in updated versions of this Methodology.

BISL's Index administration is also subject to Bloomberg's Compliance function which periodically reviews various aspects of its businesses in order to determine whether it is adhering to applicable policies and procedures, and assess whether applicable controls are functioning properly.

Material changes related to the Indices will be made available in advance to affected stakeholders whose input will be solicited. The stakeholder engagement will set forth the rationale for any proposed changes as well as the timeframe and process for responses. The Index Administrator will endeavour to provide at least two weeks for review prior to any material change going into effect. In the event of exigent market circumstances, this period may be shorter. Subject to obligations of confidentiality, stakeholder feedback and the Index Administrator's responses will be made accessible upon request.

In determining whether a change to an Index is material, the following factors shall be taken into account:

- The economic and financial impact of the change;
- Whether the change affects the original purpose of the Index; and/or
- Whether the change is consistent with the overall objective of the Index and the underlying market interest it seeks to measure

### **Bloomberg Commodity Index Announcements**

BISL has developed various announcement types to notify clients of special occasions that apply to BCOM.

<b>Announcement Type</b>	<b>Notification Date/Period</b>	<b>Frequency</b>
BCOM Target Weights	End of October	Annual
BCOM Multipliers (CIMs)	4th Business Day of January	Annual
BCOM ex Agriculture & Livestock Capped Index CIMs	4th Business Day each Month	Monthly
BCOM Roll Select Contact Selection	4th Business Day each Month via FTP	Monthly
BCOM Methodology Changes	4 Weeks Advance Notice	As needed
BCOM File Format Changes	4 Weeks Advance Notice	As needed
BCOM File Changes (adding indices)	5 Days	As needed
BCOM Level & File Restatements (amendments)	Within 30 Minutes of Discovery	As needed
BCOM File Delays	Prior to 5PM EST	As needed

### **BCOM Error Corrections/Restatement Policy**

BISL strives to provide accurate calculation of its indices. However, to the extent a material error in index values is uncovered following publication and dissemination, a notification will be sent to index users alerting them of such error and the expected date of a revised publication, if warranted.

BISL considers the following factors to determine whether to restate. Not all conditions need to be present to warrant a restatement, and certain factors may be more determinative than others depending on the circumstances of the given error.

The relative importance of the data field impacted by the error;

- When the error occurred and when it was discovered;
- The number of indices and sub-indices affected;
- Whether the impacted indices are linked to tradable products;
- The magnitude of the error;
- The burden of restatement on client re-processing relative to the impact of the error;
- The impact of the restatement on analytical tools.

### **BCOM Exchange Settlement Price Delays**

In the event an Exchange delays the pricing of future settlements pertaining to the Bloomberg Commodity Index Family, BISL will delay the posting of BCOM Index Levels to vendors and the delivery of end-of-day ftp files. BISL will notify clients via an index announcement if the files will be delayed after 5PM EST.

### **BCOM Exchange Settlement Price Amendments**

On the occasion when an Exchange amends the settlement price of a contract used in the Bloomberg Commodity Index family prior to 7 PM EST, BISL will send an index announcement within 30 minutes of the discovery to inform all clients of the correction. BISL will then recalculate, republish, and redistribute the daily BCOM end-of day files along with a follow-up index announcement.

### **Reinvestment of Dividends and Coupons**

Dividends and coupon payments play no role in this Methodology, and are therefore not accounted for by the Index.

### **Expert Judgment**

BISL may use expert judgment with regards to the following:

- Index restatements
- Extraordinary circumstances during a market emergency
- Data interruptions, issues, and closures

When expert judgment is required, BISL undertakes to be consistent in its application, with recourse to written procedures outlined in this Methodology and internal procedures manuals. In certain circumstances exercises of expert judgment are reviewed by senior members of BISL management and Bloomberg Compliance teams, and are reported to the PROC. BISL also maintains and enforces a code of ethics to prevent conflicts of interest from inappropriately influencing index construction, production, and distribution, including the use of expert judgment.

### **Stress Events**

In the event of an unforeseen market event whereby the commodity market is unexpectedly closed, the prior day's values will be used for underlying futures contracts.

### **Index Compliance**

To request a copy of the Bloomberg Indices complaints policy or to submit a complaint regarding a Bloomberg index or index determination, please send a correspondence to [idxcomplaint@bloomberg.net](mailto:idxcomplaint@bloomberg.net) or to the following postal address:

Bloomberg Index Services Limited  
c/o Bloomberg L.P.  
3 Queen Victoria Street  
London EC4N 4TQ  
United Kingdom  
Attn: Index Compliance

All such correspondence will be monitored by a member of the Bloomberg, L.P. compliance team.

### **BMR & IOSCO**



BISL is a 'benchmark administrator' for purposes of IOSCO's Principles for Financial Benchmarks (the "IOSCO Principles") and an 'administrator' under the European Union (EU) benchmark regulation (the "BMR").

Bloomberg has historically embraced the IOSCO Principles and has conducted several external reviews of its adherence with the IOSCO Principles.

Like the IOSCO Principles, the BMR aims to establish a framework to ensure benchmarks are robust and reliable, and to minimize conflicts of interest in benchmark-setting processes. In BISL's view, compliance with the BMR meets (and in some respects may exceed) the standards and best practices set forth in the IOSCO Principles.

BISL was authorized by the UK's Financial Conduct Authority to conduct benchmark administration under the BMR.

## Notable changes in the index methodology

This list is not intended to be an exhaustive list of changes.

Date	Summary of Updates
Oct 2021	Appendix I: Effective October 29, 2021, the EONIA was replaced with the euro short-term rate €STR + 8.5 bps for the calculation of all BCOM EUR daily-hedged total return indices.
Jan 2020	Tables were updated to reflect the announcement of the 2021 Target Weights and Commodity Index Multipliers (CIMs).
Nov 2020	Appendix O & P: Effective January 2, 2021, Low Sulphur Gas Oil become part of the petroleum complex for capped indices.
Jan 2020	Tables were updated to reflect the announcement of the 2020 Target Weights and Commodity Index Multipliers (CIMs).
Jan 2019	Tables were updated to reflect the announcement of the 2019 Target Weights and Commodity Index Multipliers (CIMs).
Dec 2018	The index methodology and tables were updated to reflect the announcement of the 2019 Target Weights with the inclusion of Low Sulphur Gas Oil. Appendix S (Bloomberg Commodity Index Policies and Procedures) was updated to include additional language pertaining to index data and reviews, limitations of the index, and administrator transparency.
Jan 2018	Appendix I: Effective January 2, 2018, the TOIS fixing was replaced with the SARON (Swiss Average Rate Overnight) fixing for the calculation of all BCOM Swiss franc daily-hedged total return indices. Tables were updated to reflect the announcement of the 2018 Target Weights and Commodity Index Multipliers (CIMs).
Oct 2017	Section 2.3 & Section 2.4: The calendar year cycle for price and volume used to calculate the Commodity Liquidity Percentages (CLP) and Commodity Production Percentages (CPP) will change to August-July from January-December. Section 2.4: The source for world sugar production changed to the USDA Sugar and Sweeteners Yearbook from the ISO Sugar Yearbook.
Jul 2017	Appendix R ('Bloomberg Commodity Index Policies and Procedures') became Appendix S. The new Appendix R ('Calculation of the Bloomberg Commodity Leveraged and Inverse Indices') was added to reflect the 22 June 2017 launch of the Bloomberg Leveraged and Inverse Indices. Appendix O ('Calculation of the Bloomberg ex-Ag & Livestock Capped Indices') 15/30 Index Family names and codes were updated to reflect the 6 July 2017 launch of the Bloomberg ex-Agriculture & Livestock 15/30 Capped Forward Indices.
May 2017	Appendix O ('Calculation of the Bloomberg ex-Ag & Livestock Capped Indices') was updated to reflect the 28 April 2017 launch of the Bloomberg ex-Agriculture & Livestock 15/30 Capped 3 Month Forward Index. On 12 May 2017, the name of the 'Bloomberg Commodity ex-Agriculture & Livestock Capped Index' was changed to 'Bloomberg ex-Agriculture and Livestock 20/30 Capped Index'.
Apr 2017	Appendix H ('Individual Subindex Calculations') and Table 9 ('Bloomberg Commodity Index Contract Calendar') were updated to include Palladium and reflect the 31 March 2017 launch of the Palladium Subindex. Appendix O ('Calculation of the Bloomberg ex-Ag & Livestock Capped Indices') was updated with new index family names and tickers to reflect the 3 April 2017 launch of the BCOM ex-Agriculture & Livestock Capped Forward Indices.

For additional information and licensing opportunities, please contact:  
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## **The Bloomberg Commodity Index Methodology**

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