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# Bloomberg Corrugated Box Cost Index Methodology

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Table of contents Introduction	2
	3
Objectives and Key Features	3
Section 1: Calculation of the Bloomberg Corrugated Box Cost Index	3
Indicator Value	3
Index Components and Yearly Target Weights	4
Index Component Prices	4
Rounding	4
Section 4: Backtest Assumptions	5
Section 5: Stakeholder engagement, risk, and limitations	5
Limitations of the index	5
Section 6: Benchmark oversight and governance	5
Benchmark governance, audit, and review structure	5
Index and Methodology Changes	5
Expert judgement and Discretion	5
Conflicts of interest	5
Restatement policy	5
Cessation Policy	5
Appendix I: Glossary	6
Appendix II: Annual Index Components and Yearly Target Weights	7
Appendix III: Market Disruptions	8
Appendix IV: ESG Disclosures	9

### Introduction

This methodology (the "Methodology") has been made available by Bloomberg Index Services Limited ("BISL") and sets out the rules, criteria, risk factors and other information applicable to the Bloomberg Corrugated Box Cost Index (the "Index"). Capitalized terms used in this Methodology but not otherwise defined have the meanings set forth in Appendix I (Glossary).

### **Objectives and Key Features**

The Bloomberg Corrugated Box Cost Index is designed to measure the monthly fluctuations in the cost of producing corrugated packaging. It serves as a benchmark for industry participants to track cost trends, adjust pricing strategies, and make informed business decisions. The Index tracks the smoothed value of a yearly fixed basket of key inputs to the production of corrugated boxes, these inputs focus on transportation, raw materials, maintenance, and labor, per Table 2. The Index refers to the Indicator Value and is calculated on each Indicator Calculation Day and following that is published as of the associated Indicator Reference Day, which is the final weekday of the previous calendar month.

### **Section 1: Calculation of the Bloomberg Corrugated Box Cost Index**

### **Indicator Value**

The Indicator Value with respect to each subsequent Indicator Reference Day, t, shall be calculated in accordance with the following formulae. All Indicator Values are subject to Section 1 ("Rounding").

$$I_{t} = \begin{cases} I_{0} & \text{if } t = Indicator \ Base \ Date \\ B_{t} & \text{if } t = Indicator \ Base \ Date + 2 \\ \frac{\sum_{i=1}^{i=3} B_{t-i}}{3} & \text{otherwise} \end{cases}$$
 (1)

Where:

 $I_t$  means the Indicator Value on Indicator Reference Day t;

 $I_0$  means the Base Value;

Indicator Base Date means the Base Date;

Indicator Base Date + 2 means the second following Indicator Reference Day t after the Base Date;

t - i means the *i*th Indicator Reference Day immediately preceding t;

 $B_{t-i}$  means the Indicator Base Value on the *i*th Indicator Reference Day preceding t, calculated in accordance with the following formula:

$$B_t = \sum_{i \in IndexConstituents} W_y^i \times B_y \times \frac{P_t}{P_y}$$
 (2)

Where:

i means a Component;

 $W_v^i$  means the Yearly Target Weight for Component i on the previous Annual Reconstitution Day y;

 $B_y$  means the Indicator Base Value on the previous Annual Reconstitution Day y. For the avoidance of doubt if the previous Annual Reconstitution Day y is the Base Day then the Indicator Base Value is the Base Value;

 $P_t$  means the Price of Component i on the Indicator Reference Day t as of the following Indicator Calculation Day. If there is no such Price available for the Indicator Reference Day t then the most recently available Price is used;

 $P_y$  means the Price of Component i as of the previous Annual Reconstitution Day y. If there is no such Price available for the Indicator Reference Day t then the most recently available Price is used;

### **Index Components and Yearly Target Weights**

The Index Components and respective Yearly Target Weights are determined by BISL in consultation with Green Markets, a Bloomberg Company, based on the industry's relative impact of each input utilized in the production of corrugated boxes. The Index Components and respective Yearly Target Weights will be reviewed and come into effect after the first Indicator Reference Day of each year. If BISL is unable to determine the Index Components and respective Yearly Target Weights in consultation with Green Markets, a Bloomberg Company, for the upcoming annual reconstitution, BISL will use the previously available Index Components and respective Yearly Target Weights.

The initial Index Components and respective Yearly Target Weights effective from the Indicator Publication Base Day are given in Table 2.

### **Index Component Prices**

Each Component Price is taken from the PX\_LAST field from the respective Ticker. All data needed to perform the indicator calculation for an Indicator Reference Day is acquired each respective Indicator Calculation Day for the last 12 months and used as indicative on that Indicator Calculation Day. Any restatements of the data will not influence the historical calculation of the indicator.

If a Component Price is stated on a calendar weekend date after the Indicator Reference Day but in the same month then it is backward filled to the Indicator Reference Day.

### Rounding

The Index Values shall be calculated without rounding and published to 4 decimal places.

**Table 1: Index Information** 

Index	Index Base Day	Index Commencement Day	Ticker
Bloomberg Corrugated Box Cost Index	30 January 2015	TBD	BCBCI Index

**Table 2: Initial Index Components and Yearly Target Weights** 

Index Component	Ticker	Yearly Target Weight
EIA Weekly Retail On-Highway Diesel Price	HWYDUSTL	7%
Caustic Soda Price Index	PUSACASO	7%
Natural Gas Price Index	BCOMNG	7%
US Recycled Fiber Price	RWISOCCI	37%
Corn Price Index	BCOMCN	7%
Repair and Maintenance	PPIDCMR1	15%
Average Truck Rate	TRUCARNE	5%
US Average Hourly Earnings	AHE TOTL	15%

### **Section 4: Backtest Assumptions**

The rules outlined above are applied historically, however the following assumptions have been made:

Unless otherwise specified, the calendars and pricing used at the time of calculating the backtest are assumed to reflect those available at the time. Also, where a price is not available for a historic Indicator Reference Day, the price from the immediately preceding Indicator Reference Day is used.

The prices of RWISOCCI Index at the time of the Index Commencement Day were only available from 1-January-2021. All prices used in the calculation were obtained from the data source provider.

### Section 5: Stakeholder engagement, risk, and limitations

### Limitations of the index

Though the Index is designed to be representative of the markets it measures or otherwise aligns with its stated objective, it may not be representative in every case or achieve its stated objective in all instances. It is 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 that the Index measures or upon which the Index is dependent to achieve its stated objective. For example, illiquidity can have an impact on the quality or amount of data available to the administrator for calculation and may cause the Index to produce unpredictable or unanticipated results.

In particular, the Index measures the performance of a weighted portfolio of instruments. The Indices are therefore subject to the effectiveness of such investment strategy.

### Section 6: Benchmark oversight and governance

### Benchmark governance, audit, and review structure

Please refer to the BISL Benchmark Procedures Handbook available here.

### **Index and Methodology Changes**

Please refer to the BISL Benchmark Procedures Handbook available here.

### **Expert judgement and Discretion**

Please refer to the BISL Benchmark Procedures Handbook available here.

### **Conflicts of interest**

Please refer to the BISL Benchmark Procedures Handbook available here.

### **Restatement policy**

Please refer to the BISL Benchmark Procedures Handbook available here.

### **Cessation Policy**

Please refer to the BISL Benchmark Procedures Handbook available <u>here</u>.

# **Appendix I: Glossary**

Annual Reconstitution Day	The final weekday day of each January of each year.	
Component	An input as defined in the Index Components table.	
Indicator Calculation Day	The 5 <sup>th</sup> business day of each calendar month based upon the New York Stock Exchange trading calendar.	
Indicator Reference Day	The final weekday of each calendar month.	
Base Date	30 <sup>th</sup> January 2015.	
Base Value	A value of 100.	
Indicator Value	Has the meaning set forth in the Introduction.	
Index Calendar	New York Stock Exchange.	
Index Commencement Day	The day on which an index is first published.	
Index Components	The most recent selection of inputs and weights determined by BISL in consultation with Green Markets, a Bloomberg Company, as shown in Appendix II: Annual Index	
Price	The pricing value returned from the Ticker for the respective Component.	

# **Appendix II: Annual Index Components and Yearly Target Weights**

## **Appendix III: Market Disruptions**

Please refer to the BISL Benchmark Procedures Handbook available <u>here</u>.

# **Appendix IV: ESG Disclosures**

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY	
Name of the benchmark administrator.	Bloomberg Index Services Limited ("BISL")
2. Type of benchmark	Other Benchmark
3. Name of the benchmark or family of benchmarks.	Bloomberg Corrugated Box Cost Index
<b>4</b> . Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	No
	pelow, for each family of benchmarks, those ESG factors that are taken into count the ESG factors listed in Annex II to Delegated Regulation (EU)
Please explain how those ESG factors are used for the s	selection, weighting or exclusion of underlying assets.
The ESG factors shall be disclosed at an aggregated we	eighted average value at the level of the family of benchmarks.
a) List of environmental factors considered:	Selection, weighting or exclusion:
	N/A
b) List of social factors considered:	Selection, weighting or exclusion:
	N/A
c) List of governance factors considered:	Selection, weighting or exclusion:
	N/A
	below, for each benchmark, those ESG factors that are taken into account e ESG factors listed in Annex II to Delegated Regulation (EU) 2020/1816, l.
Please explain how those ESG factors are used for the s	selection, weighting or exclusion of underlying assets.
The ESG factors shall not be disclosed for each Compo average value of the benchmark.	nent of the benchmark, but shall be disclosed at an aggregated weighted
	in the form of a hyperlink to a website of the benchmark administrator vebsite shall be easily available and accessible. Benchmark administrators site remains available for five years
a) List of environmental factors considered:	Selection, weighting or exclusion:
	N/A
b) List of social factors considered:	Selection, weighting or exclusion:
	N/A
c) List of governance factors considered:	Selection, weighting or exclusion:
	N/A

<b>7</b> . Data and standards used.	
a) Data input.	N/A
(i) Describe whether the data are reported, modelled or, sourced internally or externally.	
(ii) Where the data are reported, modelled or sourced externally, please name the third party data provider.	
b) Verification of data and guaranteeing the quality of those data.  Describe how data are verified and how the quality of those data is ensured.	N/A
c) Reference standards  Describe the international standards used in the benchmark methodology.	N/A
Day on which information has been last updated and reason for the update:	NA First Publication

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