SMM

Copper Concentrate

Index

2024/12/30

Assessment Methodology

and specifications

About Shanghai Metals Market

Shanghai Metals Market (SMM) is an integrated business information agency of commodity pricing and big data services. SMM's portfolio of businesses include price assessment reports and analysis and key information database of nonferrous metals, as well as customized consulting projects and industry conferences.

SMM's big data department provides extensive support for market research, price forecast and consulting services. Prices indices generated from the big data system are widely used in physical and paper trades in the commodities industry.

Price assessments for China's spot market ("SMM price/index") are published on a regular basis, which strictly adhere the International Organization of Securities Commissions (IOSCO) standards and a specific assessment methodology. SMM, an independent third party agency, interact with market participants on a regular basis, and the price assessment methodology is constantly reviewed accord-ing to most common product specifications, trade terms and conditions.

The SMM price/index provides a reference benchmark to business owners, which helps them in trading cost reduction and market risk aversion, so as to achieve higher standards in the nonferrous metals market.

SMM spot copper concentrate index assessment methodology

The SMM copper concentrate index reflects the spot price of copper concentrate at Chinese smelters on a weekly basis. The document specifies the calculation model for SMM copper concentrate index as well as the collection and processing processes of trade sample data in accordance with IOSCO standards, in pursuit of fair and accurate presentation of transactions in China's spot copper concentrate market. It also creates an accurate, transparent and verifiable mechanism for the assessment of the index.

To reflect the actual trades in the SMM copper concentrate spot market on an unbiased basis, SMM produces the benchmark data based on historical data collected through market survey.

SMM Cu Cons Index

Benchmark:	Spot cu cons TC/RCs of Chinese smelters purchsed.		Base	Min	Max
Unit:	USD per dmt/US cent per lb	Cu(%)	25	18	38
Quantity	Minimal 5,000 wet tons.	Au(g/t)	1.1	0	30
Delivery time:	Within three months.	Ag(g/t)	75	0	400
Payment:	Letter of Credit on sight.	S(%)	32	20	40
Publishing time:	Please refer to the main text of SMM Copper Concentrate Index for details.	Fe(%)	28	12	35
		Pb(%)	0.1	0	4
SMM copper concentrate index is produced on the basis of the methodolody of cu concenrtate TCs. The methodology will be revised from time to time to reflect the latest trading trends of the spot copper concentrate market. For any queries, please contact us at copperconcindex@smm.cn		Zn(%)	1	0	5
		As(%)	0.2	0	0.5
		Sb(%)	0.02	0	0.2
		Hg(ppm)	2.5	0	10
		Bi(ppm)	150	0	2000

Data Collection

Data Source

Data source is a key basis as the SMM copper concentrate index is calculated based on spot trade data. The analysts conduct detailed market survey from miners, traders and smelters in the market, collecting trade information that adheres to our standards (accurate and valid data and information) to build the SMM copper concentrate price index. This include actual traded spot prices, as well as quotes by sellers and offers by buyers that fail to conclude a deal. The data is collected from SMM's price contributors and key market participants who are not incorporated in our price contributors list for the time being.

A data collection and assessment team (which comprises of two sub-teams and a price manager) has been set up to manage the daily management of the SMM copper concentrate index.

Data utilization

SMM decides whether to incorporate a specific deal in the database for calculation as per the SMM copper concentrate index standards to ensure data integrity and accuracy. The standards specify the parameter information required in data provided by market participants, including brand name, copper concentrate type, element content, trading volumes, pricing mechanism and other information that can affect the spot price.

SMM copper concentrate index is generated by normalizing and weighing the average of the collected data, limiting the trading parameters, including the minimum trading volume and brand, to avoid any disturbances of small-volume transactions and abnormal trading on the index. Only transaction data that meets the limitation will be included in the calculation of the SMM copper concentrate index.

Transactions activity

SMM believes that when the number of transactions in a week is greater than or equal to 5, SMM considers the copper concentrate spot market to be active, and the SMM copper concentrate index calculation does not introduce a TC/RCs evaluation system. When the number of transactions in a week ranges from 1 to 4, SMM will introduce a 70% TC/RCs evaluation system and a 30% actual transaction weight; If there is no transaction during the week, SMM will introduce a 100% TC/RCs evaluation system. In addition, according to the Anti-monopoly Law, SMM has a weight limit of 25% for each price provider included in the calculation.

Data Calculation

The SMM copper concentrate index is intended to reflect the trades of the copper concentrate spot market on a weekly basis, in a fair and reasonable manner, and provide a reference value based on the SMM copper concentrate spot trading benchmark data. Calculation methods include transaction data normalization, abnormal data processing, and calculating under special circumstances, to ensure methodology normal working.

Standardization

SMM standardizes the collected qualified data according to its internal data processing model. This involves determining a standard for SMM copper concentrate index based on historical import data of copper concentrate in China, standardizing the collected data according to its deviation from the standard by using adjustment factors, and weighting average the standardized data based on the trading volume.

The brand of the copper concentrate is the key adjustment factor in the standardization process. In the calculation model, SMM determines the difference in transaction TC/RCs between the major copper concentrate brands and the copper concentrate benchmark. We also update the difference value regularly to ensure that it meets the actual trading situations of the copper concentrate market. Each piece of trading information will be standardized in terms of the brand adjustment factor to contribute to the SMM copper concentrate index.

Counterparty buyer will also be taken into account in the standardization process as traders, smelters and miners provide different copper concentrate TC/RCs based on their own needs.

According to common cases in the copper concentrate trading market, SMM sets the benchmark QP of M+3. Data under other types of QP such as M+1, M+2, M+4, M+5 and M+6 will be discounted into M+3 by using LME's future forward curve.

Treatment of outliers value

SMM collects data on spot transactions in the market assuming that TC/RCs follow a standard normal distribution. When the clean cu cons transaction TC/RCs, adjusted for various parameters, deviate by 1.96 standard deviations from the weekly index mean of the past four periods, they are considered outliers. To avoid significant price fluctuations, they are not included in the SMM copper concentrate index calculation.

For the excluded outliers, SMM will investigate to determine whether there was any behavior that misled SMM's working.

Index Publication

Publishing time

The SMM copper concentrate weekly index is released around noon on the last working day of each week, and the number of working days in the week must be greater than 2 days. The release time of SMM copper concentrate monthly index is the last working day of the last working week of the month. In addition, the calculation of SMM monthly index is the arithmetic mean of the weekly index that meets the requirements. In addition, if there is a cross month in the last working week of a natural month, the weekly index of the last working week should be included in the calculation of the monthly index of the previous month.

Index internal control

In order to ensure the consistency of SMM copper concentrate index methodology and internal computation model in practical application and avoid the deviation of the SMM copper concentrate index calculation caused by human error, SMM will carry out strict internal control procedures ahead of the index publication.
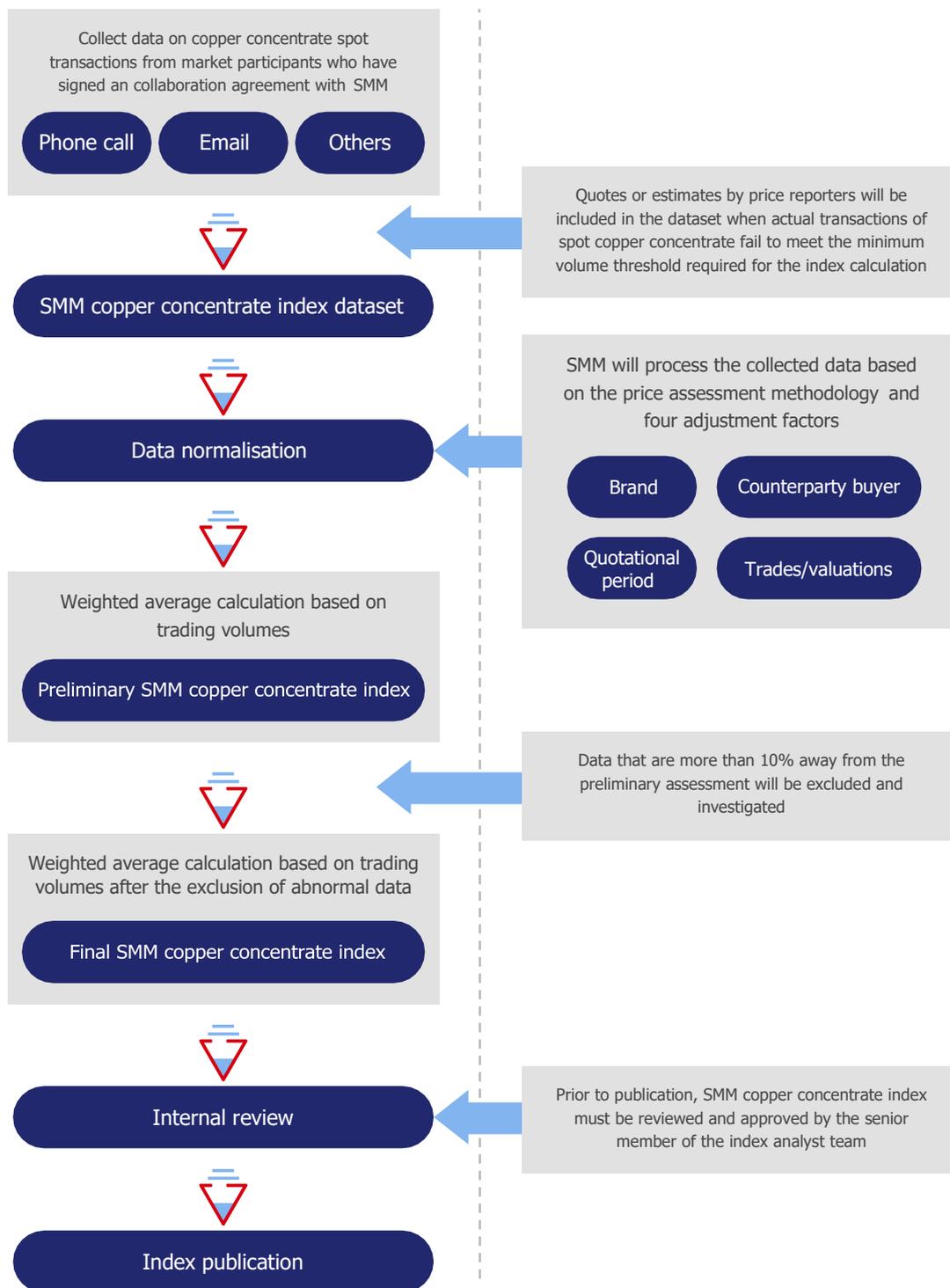
Prior to the release, the assessed spot copper concentrate TC/RCs must be reviewed and approved by supervisor of the analyst team. In the review process, the reviewer must check whether the price methodology and the internal calculation model are correctly applied in the full process of assessing spot copper concentrate TC/RCs to ensure the accuracy and integrity of the index published on our websites. In addition, all data input and calculation details will be stored in the SMM backend database for review purposes.

Publication delay and index revised

SMM will inform all subscribers of the SMM copper concentrate index of the delay of publication. Publication delay will not include transactions happened after CST 12:00 on the day for the index assessment. Errors in the published index will be corrected and updated on the websites and notifications sent to subscribers.

Revise of methodology

SMM will update our methodology to reflect a changing spot copper concentrate market. Amendments will be made based on feedback by market participants, and will go through an internal review by SMM. All revisions and updates will be published on our websites for public comments for at least 30 days, before the release of a finalized version of the assessment methodology. SMM will inform subscribers of SMM copper concentrate index of the changes in the methodology and when the new version will take effect.

Collect data on copper concentrate spot transactions from market participants who have signed an collaboration agreement with SMM

Phone call **Email** **Others**

Quotes or estimates by price reporters will be included in the dataset when actual transactions of spot copper concentrate fail to meet the minimum volume threshold required for the index calculation

SMM copper concentrate index dataset

SMM will process the collected data based on the price assessment methodology and four adjustment factors

Brand **Counterparty buyer**

Quotational period **Trades/valuations**

Data normalisation

Weighted average calculation based on trading volumes

Preliminary SMM copper concentrate index

Data that are more than 10% away from the preliminary assessment will be excluded and investigated

Weighted average calculation based on trading volumes after the exclusion of abnormal data

Final SMM copper concentrate index

Prior to publication, SMM copper concentrate index must be reviewed and approved by the senior member of the index analyst team

Internal review

Index publication

● Contact

For queries, please contact

Logan LU

+86 02151595830

loganlu@smm.cn

Jianhua YE

+86 02151666848

yejianhua@smm.cn

Michael Wu

+86 02151666832

wuyifan@smm.cn