

PRICE ASSESSMENT METHODOLOGY AND SPECIFICATIONS

Packaging Paper and Board – Asia

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Except for the specifics on quarterly Japan prices under “Grade Detail and Specifications” below, this methodology does not apply to Japan, which are sourced from a third party.

KEY CONCEPTS

Each price assessment is...

Open market price: Price for regular business excluding one-off/spot, internal transfers and transactions whose price is not negotiated, i.e. prices determined by a formula based on published prices from RISI or other source. (See “Grade detail and specifications” below)

RISI’s assessment of the **open market price** based on **actual market data** gathered from a **broad, systematic survey** of market participants that has been **rigorously evaluated** to produce an assessment.

RISI price assessors consider a range of market data, including actual transaction prices, bids and offers, trigger prices and supporting data. (See “Assessment Calculation” below)

Survey has thorough representation of the market and includes both buyers and sellers, and a range of players from small to large. (see “Data collection process” below)

Assessment procedures include evaluation, verification, weighting and aggregation, plus confirmation of the assessment by a supervising editor. (See “How prices are assessed” below)

About this methodology

RISI Indices is the division of RISI responsible for price assessments. This document describes the procedures RISI Indices uses to determine its price assessments for packaging paper and board in Asia. This methodology has been strengthened by application of the Principles for Oil Price Reporting Agencies published by IOSCO, the International Organization of Securities Commissions (www.iosco.org).

RISI has *voluntarily* chosen to adapt these principles to the markets we cover even though our markets fall outside of the governance of IOSCO and the Principles. That's because these guidelines represent the internationally recognized gold standard in price assessment. By adapting and implementing these principles, RISI demonstrates its commitment to providing the highest degree of reliability in price reporting.

For more on the Principles and how RISI has applied them, see "Implementation of IOSCO's Principles for Oil Price Reporting Agencies" at www.risi.com/iosco.

HOW PRICES ARE ASSESSED

RISI Indices creates price assessments in accordance with this methodology document and our internal Price Assessment Procedures Manual.

Who assesses prices

Prices are assessed by an Asian team of packaging paper and board editors and analysts, including some working for RISI subsidiary UM Paper. Standards for training, experience and skills required for editors involved in price assessment, as well as supervision of editors, are described in the RISI Indices Price Assessment Procedures Manual.

Data collection process

RISI Indices makes price assessments based on a systematic survey of active market participants to find out agreed transaction prices and volumes as well as price offers made or received, and other supporting information such as supply and demand conditions.

The amount and type of information that a respondent provides each week varies across individuals and companies; data from respondents providing more complete information is weighted more heavily in the final assessment. Price data are also weighted roughly according to tonnage.

Data providers

The survey includes both buyers and sellers, ensuring that the survey pool is balanced and representative of the overall market. See "Grade Detail and Specifications" section below for details for each grade.

All market participants are encouraged to submit price data and supporting market information for inclusion in the assessment.

RISI encourages organizations to submit all their pricing data, especially all the concluded transactions. Depending on market liquidity, RISI reserves the right to also base its prices on bids, offers, deals heard, trigger prices and market participants' assessment or indication of prevailing values.

RISI welcomes organizations to submit transaction data from authorized back office functions. RISI may sign Non-Disclosure Agreements (NDA) with any data provider, if requested to do so, in order to maximize the number of data points collected for inclusion in the assessment or index calculation.

For more on RISI's Data Submitter Policy, please see [here](#).

How data are provided

Each price period, the price assessor contacts data providers and collects data via phone interviews and emails.

Assessment calculation

Types of data considered

The following types of data are considered when producing price assessments.

- Transaction prices
- Bids and/or offers made or received
- Trigger prices
- Participants estimates of market levels
- The change in price levels from previous periods
- Other market information such as prices in related markets, supply and demand fundamentals etc.
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RISI has clear specifications for all the price points that it covers. All the reference units, such as currency and volume, are in line with recognized conventions in the pulp and paper markets.

Guidelines on the use of judgement

When assessing market prices, greater weighting is generally given to actual concluded transaction data. Next in terms of importance come bids and offers made or received. RISI does not set a minimum threshold for the amount of transaction data needed to produce assessments.

In the absence of sufficient transaction data, bids and offers or other actual price information, RISI reserves the right to use other factors to determine the assessment. These include:

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- market participants' trigger prices;
- market participants' reports of the change in prices from previously assessed periods;
- market fundamentals such as changes in inventory levels, shipments, operating rates and export volumes;
- relative values of similar commodities in the same region;
- relative values of the same commodity in different regions;
- changes in the value of the commodity's primary feedstock or primary derived product(s).

In very opaque markets, where little actual market data is available, price developments may at times not be immediately apparent. If RISI price assessors detect this, their market assessments in the next reporting period would generally reflect the price change. This is in line with RISI's policy of acting on new information as it becomes available.

Criteria for exclusion of data

Data are excluded from the assessment in the following cases:

- The price of a transaction is indexed to published prices from RISI or another source. A transaction price is considered "indexed" when it is entirely determined according to a formula based on a published price assessment, whether that assessment is from RISI or any other source.
- The transactions don't meet the assessment specifications. (See "Grade Detail and Specifications" section below.)
- The transaction has special circumstances that, in the price assessor's judgment, render it unrepresentative of the broader market and/or not repeatable. (This type of exclusion is rarely used.)

Weighting of data

- Higher-quality data are weighted more heavily than lower-quality data. Higher-quality data includes:
 - Data with more detail, e.g. prices reported as separate transactions with accompanying volume rather than an overall average price.
 - Data whose credibility is supported by answers to the assessor's follow-up questions.
 - Data from contacts with a history of reliability. Contacts are deemed more reliable if they:
 - Provide information that is corroborated by other sources
 - Provide complete and detailed information
 - Provide information regularly and consistently over time
 - Report price information that goes against their natural interests (e.g. a buyer reporting higher prices or a producer reporting lower prices)
- Data are weighted according to the type of information.

Larger transactions are given more weight than smaller ones. However, the weighting of any single data provider's data is limited so that it doesn't dominate the assessment.

CONTROLS AND COMPLIANCE

Ensuring consistency and quality of assessments

RISI Indices has in place a number of procedures to ensure the consistency and quality of price assessments, including:

- **Sign-off:** Prior to publication, each price assessment is reviewed by a senior price assessor other than the assessor primarily responsible for the assessment to ensure the assessment is accurate and has followed proper procedures.
- **Quality assurance audit:** A supervising editor is responsible for overseeing all price assessments. The supervisor will periodically do a detailed review of decision-making for a given price assessment, reviewing price assessments in relation to assessments from similar markets, ensuring that the methodology has been followed consistently and that judgment has been applied appropriately.
- **Market review:** On an annual basis, Indices staff reviews markets and methodologies to ensure that assessment methodologies and the assessments they produce are appropriate for the market.
- **External audit:** In accordance with the standards of IOSCO's PRA Principles, Category 1 price assessments (see "Grade Detail and Specifications" below for categories by assessment) are audited to ensure that assessments comply with this methodology and with IOSCO's PRA Principles.

Independence and freedom from conflicts of interest

Please see RISI Indices' Conflicts of Interest Policy (www.risi.com/conflicts). Key points include:

Independence of RISI

RISI has no affiliation with buyers or sellers of forest products and therefore no vested interest in either higher or lower prices.

Absence of financial interest

RISI is free of ownership or other ties that would give it a financial interest in the movement of prices we report. RISI prohibits its employees who conduct price assessments from having a financial interest (excluding passive investments like mutual funds) in companies whose values are directly and substantially affected by prices on which they report.

Separation from forecasting

RISI Indices is a separate business unit from RISI Analytics, which carries out RISI's forecasting activities, ensuring that forecasting of future prices doesn't influence assessment of actual prices.

Confidentiality

Our data providers are essential to our work, so RISI Indices goes to great lengths to keep price survey data confidential. Confidential data include both the data collected and the names of individuals and companies who provide data. RISI's policy is to neither confirm nor deny the participation of any individual or company in our price surveys at any time, either directly or indirectly.

This confidentiality is essential to ensure the highest number of data contributors as well as to ensure that contributing data to RISI cannot be used as a means for market players to unfairly communicate to each other.

RISI Indices' Confidentiality and Data Protection policy (www.risi.com/confidentiality) explains full details around how price assessors protect the confidentiality of their contacts and data. Each year, price assessors are trained in data protection procedures and must sign a compliance agreement.

Antitrust compliance

All price assessment methodologies from RISI Indices are explicitly designed to comply with antitrust rules. See RISI Indices' Antitrust Compliance Policy (www.risi.com/antitrust) for further details.

Disclaimer of warranty

Although RISI collects information from sources who are believed to be reliable, RISI does not warrant or guarantee the accuracy or completeness of its price assessments. Actual transaction prices will often vary from the assessed level. Under no circumstances shall RISI nor any of its subsidiaries, parent corporations and affiliates, and all of their respective officers, directors, owners, employees, agents, licensors, representatives, licensors and suppliers (collectively, the “RISI Parties”), be liable for any loss or damage caused by your reliance on information obtained through the RISI services. It is your responsibility to evaluate the information, opinion, advice, or other content available through the RISI services.

Changes and feedback

Changes to methodology and specifications

RISI Indices periodically reviews the markets it covers to ensure that our methodology and specifications are still appropriate for that market.

Understanding that some RISI Indices price assessments are used in long-term contracts, RISI Indices seeks to minimize changes that will affect the continuity of its price assessment over time.

Prior to implementing any material changes to the methodology and specifications, these changes will be announced in draft form and open for comment from all stakeholders. RISI Indices will review all comments and seek to balance the views of all players as much as possible while ensuring the reliability of price assessments.

Based on comments received, RISI Indices will finalize the changes and announce them to the market, specifying exactly what will change and when.

Corrections and non-market adjustments

Publication of price errors can occasionally happen for reasons that may include technical, input errors or incorrect application of the methodology. To minimize the inconvenience to our subscribers, RISI aims to investigate each error as soon as it becomes aware of it and to publish a correction promptly. If the correction is

substantial, a Coverage Note will be published on the RISI website and an email will be sent to subscribers with an explanation of the reason for the correction.

RISI will publish a correction of a price only where it has established undeniably that there has been an error. RISI price assessments are produced based on the best data available at the time of the assessment. It will not retroactively change a price based on new information or additional submission of data received after a respective pricing session has closed.

Occasionally, in very opaque markets, price developments may not become apparent for some time. If this happens, RISI reserves the right to adjust a price series upwards or downwards to bring it back in-line with market values. Such cases should not be considered corrections but rather non-market price adjustments. A retroactive correction of the price history would not normally be made. RISI has a very structured process for such non-market adjustments, similar to that for changes to methodologies and specifications. They would only be implemented after industry consultation. Ample notice would be given of the proposed adjustment and stakeholders would have the chance to send their feedback.

Feedback and complaints

RISI Indices welcomes feedback on its price assessment methodology as well as on specific price assessments published. We greatly value such feedback and the dialog that it generates.

In general, such feedback is most effectively dealt with by the editor directly in charge of the price assessment in question. We invite you to speak with or email any of your existing contacts within the editorial team, or view a list of contacts at www.risi.com/EditorialContacts.

If working with the editor does not adequately address your issue, please view our procedures for submitting complaints at www.risi.com/complaints.

GRADE DETAIL AND SPECIFICATIONS

General Specifications

The specifications apply to all Asian paper packaging and board price assessments. See sections below for more detailed specifications by country.

Where published	<p>PPI Asia</p> <ul style="list-style-type: none"> • Newsletter (pdf) • Online (interactive database)
Transaction types reflected	<p>All open market transactions</p> <p>Open market = transactions where price is negotiated, i.e. excluding:</p> <ul style="list-style-type: none"> • transactions whose price is indexed to published prices (whether from RISI or other source) • transactions between affiliated parties (e.g. between a mill and an affiliated converting plant) <p>(In North American and European markets, “spot” and “contract” transactions tend to have different characteristics, and so may be assessed separately. In Asia, the distinction between spot and contract is not always clear, and is not meaningful in assessing prices.)</p>
Price levels reflected	<p>Net prices</p> <p>Assessments are presented as a range in which the bulk of transactions take place.</p>
Normal terms of payment	Assessments reflect normal and customary payment terms
IOSCO categories	<p>All grades: Category 2</p> <p>See implementation of IOSCO's Principles for Price Reporting Agencies (www.risi.com/iosco) for definition of categories.</p>

China

Frequency	Monthly
Schedule	Assessments are published either in the last week of month or first week of the following month.

Assessment window	Orders taken in the month to date for shipment in the current or following month
Point in supply chain	Seller: producer or distributor Buyer: independent converter
Location	East China, which includes Zhejiang, Jiangsu, Anhui, Jiangxi and Shandong provinces, and Shanghai municipality.
Quality	Domestic grades. Prices reflect sales of the most common brands and don't reflect prices of lower-quality, smaller-volume brands.
Other notes	Prices include taxes

Grade	Basis weight	RISI Price ID	Frequency	Currency	Units	Delivery terms
Cartonboard						
Coated ivory board (premium)	250 g	667	m	RMB	tonne	Ex-major distributor's warehouse
Coated ivory board (commodity)	250 g	1351	m	RMB	tonne	Ex-major distributor's warehouse
Grayback coated duplex board (premium)	250 g	669	m	RMB	tonne	Ex-major distributor's warehouse
Grayback coated duplex board (commodity)	250 g	1352	m	RMB	tonne	Ex-major distributor's warehouse
Containerboard						
Testliner	140 g	1348	m	RMB	tonne	Ex-mill
Kraftliner	175 g	12004	m	RMB	tonne	Ex-mill
Kraft-top liner	170 g	1122	m	RMB	tonne	Ex-mill
White-top liner	140 g	1350	m	RMB	tonne	Ex-mill
High-strength corrugating medium	120 g	1349	m	RMB	tonne	Ex-mill

Southeast Asia

Frequency	Monthly
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Schedule	
Assessment window	Prices apply to current or recent transactions rather than to an average over the quarter
Point in supply chain	Seller: producer or trader Buyer: independent converter
Location	CIF SE Asia (main ports)

Grade	Basis weight	RISI Price ID	Frequency	Currency	Units	Delivery	Notes
Cartonboard							
Coated duplex board (whiteback)	350 g	1147	q	USD	tonne	CIF	
Grayback coated duplex board	350 g	1146	q	USD	tonne	CIF	
Containerboard							
Kraft-top liner	125 g	1143	q	USD	tonne	CIF	
Testliner	125 g	1144	q	USD	tonne	CIF	
Recycled fluting	110 g	1145	q	USD	tonne	CIF	

Japan

Unlike other prices published by RISI, prices for Japan (for packaging paper and board as well as other grades) are provided from third-party sources that don't operate according to RISI's standard price assessment methodology.

Source	Nikkei, which publishes prices for a number of commodities in addition to pulp and paper
Frequency	Quarterly Prices reflect transactions in the last month of the indicated quarter. For instance, 4 th quarter prices reflect December prices.

Schedule	The last month of every quarter
Price type	Net prices
Range/point	Range that includes the bulk of transactions in the market
Location	Tokyo, Japan
Point in supply chain	Seller: Primary wholesalers Buyer: Independent converters
Normal terms of payment	60-90 days cash after delivery
Delivery terms	Free delivered

Grade	Basis weight	RISI Price ID	Frequency	Currency	Units	Notes
Containerboard						
Unbleached kraftliner		275	q	JPY	Kg	Usually contains some recovered paper.
Inner linerboard		276	q	JPY	Kg	
Corrugating medium		1010	q	JPY	Kg	
Packaging Paper						
Grocery bag		274	q	JPY	Kg	
Multi-wall sack kraft		273	q	JPY	Kg	
Boxboard (cartonboard)						
Coated white board	350 g	279	q	JPY	Kg	

South Korea

Frequency	Quarterly. Prices reflect transactions in the last month of the indicated quarter. For instance, 4 th quarter prices reflect December prices.
Schedule	The last month of every quarter
Price type	Net prices
Location	Seoul, South Korea

Point in supply chain	Seller: Producers; Buyer: Independent converters
Normal terms of payment	90-100 days cash after delivery
Delivery terms	Free delivered

Grade	Basis weight	RISI Price ID	Frequency	Currency	Units
Containerboard					
Testliner	180 g	208	q	KRW	tonne
Testliner	210 g	209	q	KRW	tonne
Corrugating medium	115 g	210	q	KRW	tonne
Packaging Paper					
Unbleached sack kraft (domestic)	80 g	207	q	KRW	tonne
Boxboard (cartonboard)					
Coated duplex (grayback)	350 g	212	q	KRW	tonne
Coated duplex (whiteback)	350 g	213	q	KRW	tonne
Uncoated duplex (grayback)	350 g	211	q	KRW	tonne
Solid bleached board	350 g	214	q	KRW	tonne

REVISION HISTORY

Changes to methodology and specifications will be tracked here.

February 2018 – Adds reference to Data Submitter Policy

Adds reference to Data Submitter Policy.

January 2018 – Changes Southeast Asia/China assessments, additional information on corrections and non-market adjustments

From January 2018, Southeast Asia assessments are henceforth published on a monthly basis. Southeast Asia kraftliner price assessments were withdrawn and monthly East China kraftliner price assessments were added. Paragraphs on corrections and non-market adjustments were added to the methodology guide.

November 2017 – Updates methodology for South Korea assessments

RISI now applies the same methodology to assessing South Korea prices as in other Asian markets. Previously South Korea assessments were based on information provided by a third party.

October 2017 – Comment added on compliance regime

Comment added on page 5 regarding RISI's current transition to a new compliance regime in the light of its purchase by Euromoney.