

PRICE ASSESSMENT METHODOLOGY AND SPECIFICATIONS

Graphic Papers – Europe

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KEY CONCEPTS

Each price assessment is...

RISI's assessment of the **open market reference price** for **recurring business** based on **actual transaction prices** and supporting data gathered from a **systematic survey of buyers and sellers** that has been **rigorously evaluated**.

Open market prices are those arrived at through negotiation, so exclude "indexed" transactions, i.e. transactions whose price is determined by a formula based on published prices (whether from RISI or other source) *(See "Grade detail and specifications" below)*

Recurring business: Reflects transactions in ongoing supply relationships and excludes one-off/spot transactions. *(See "Grade detail and specifications" below)*

Actual transaction prices form the bulk of data in each assessment; supporting data like price offers made or received is used to support transaction data. *(See "Types of data considered" below)*

A **reference price** assessment represents the negotiated price that may serve as a basis from which customer-specific discounts are given based on the customer's volume or long-term relationship with a supplier. *(See "Grade detail and specifications" below)*

Systematic survey of buyers and sellers: 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)*

Rigorous evaluation: 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 European graphic paper assessments. As of mid-2015, 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 a European team of graphic papers editors. 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 month 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. An exception is assessments for Spain,

which are primarily based on supplier data, with limited data from buyers. 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.

How data are provided

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

Types of data considered

Directly considered data

The following types of data may be included in an assessment. Each successive type of data is only considered if the volume of previous types is deemed insufficient to yield a reliable and representative market price assessment. See "Grade Detail and Specifications" below for details on the relative importance of data types used in each specific price assessment.

1. **Transaction prices**
 - a. Price levels
 - b. Change of price levels from previous period
2. **Participants' estimates of market levels**, based on price offers made/received and ongoing negotiations.

3. **Prices for comparable grades or basis weights** that can substitute for the grade in question and that have relatively consistent historical spreads against the grade in question.

Influencing data

These types of data aren't price points that enter directly into an assessment. Rather, these data can serve to either corroborate or cast doubt on directly considered data points, thus leading the assessor to increase or reduce the weight attached to that data point.

1. **Prices of a given grade in adjacent regions:** For instance, when assessing prices in France, if we found the previous week that prices in Germany had gone up, we would assign a relatively lower weight to transaction data that show a decrease in prices in France (if the data aren't supported by other factors).

Transaction prices are the most important data source for all assessments. See "Grade Detail and Specifications" below for details on the relative importance of data types used in each specific price assessment.

Assessments based on up/downcharges

Some assessments for non-benchmark basis weights are derived by applying a standard up- or downcharge to the benchmark grade. For instance, 56-g is the benchmark grade for SC. Assessments for 52-g and 60-g SC are calculated by applying a standard upcharge (for 52-g) or downcharge (for 60-g) to the 56-g price.

Standard up- and downcharges are generally updated once per year based on data from market participants.

Assessments determined via up/downcharge from a benchmark grade are noted in the "Grade Details and Specifications" section below.

Assessment calculation

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 (see "Relative importance of data types" under "Grade Detail and Specifications" below).

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 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.

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.

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

These are specifications that apply to all graphic paper grades. Specifications unique to each grade are detailed below.

Where published	<p>PPI Europe</p> <ul style="list-style-type: none"> • Newsletter (pdf) • Online (interactive database)
Frequency	<p>Monthly (Germany, UK, France, Italy)</p> <p>Quarterly (Spain) : Prices are reported in the last month of each quarter. When prices are reported, monthly prices for that quarter are reported retroactively. For instance, no prices are published in January or February. In March, prices for January, February and March are published.</p>
Schedule	See www.risi.com/schedule
Assessment window	Assessments reflect prices agreed in the month to the date that the assessment is published and don't reflect any agreements on price changes that will take effect in the future.
Transaction types reflected	<p>Open market transactions in ongoing supply relationships (i.e. excluding internal transfer prices and spot transactions) only between manufacturers and traders.</p> <p>Open market transactions are defined as those whose price is arrived at through negotiation, so excluded are "indexed" transactions, i.e. transactions whose price is determined by a formula based on published prices (whether from RISI or other source).</p>
Price levels reflected	<p>Reference prices, i.e. the price negotiated each month that may serve as a basis from which customer-specific discounts are given based on the customer's volume or long-term relationship with a supplier</p> <p>Assessments are presented as a range in which the bulk of transactions take place.</p>
Arms-length transactions	Only transactions between unaffiliated parties are reflected.
Point in supply chain	<p><i>Newsprint, mechanical, coated woodfree:</i> Seller: Producer or merchant Buyer: Printer or publisher</p> <p><i>Uncoated woodfree copy:</i> Seller: Producer Buyer: Merchant, office supplier or retailer</p>

	<p><i>Uncoated woodfree offset:</i> Seller: Producer Buyer: Merchant or printer</p>
Delivery terms	Free delivered to buyer's facility unless otherwise noted.
Normal terms of payment	Price estimates assume normal and customary payment terms. Where discounts are offered for faster payment (e.g. typical terms in Germany of 3% discount for payment within 14 days for SC and coated mechanical offset reels), prices do not reflect these discounts.
Currency/units	Euro/tonne except for UK prices, which are £/tonne
IOSCO categories	<p>Uncoated woodfree A4 Copy (B Grade), 80 g – Germany: Category 1 All others: Category 2 See implementation of IOSCO's Principles for Price Reporting Agencies (www.risi.com/iosco) for definition of categories.</p>

Newsprint

Grade	Location	RISI Price ID	Currency	Frequency	Notes
Standard Newsprint					
40 g	France	454	EUR	m	Calculated via full-yield formula ¹
	United Kingdom	432	GBP	m	Calculated via full-yield formula ¹
42 g	France	1155	EUR	m	
	Spain	1354	EUR	q	
42.5 g	Germany	1176	EUR	m	Calculated via full-yield formula ¹
	United Kingdom	1149	GBP	m	
45 g	France	2	EUR	m	
	Germany	1	EUR	m	
	Italy	4	EUR	m	
	Spain	126	EUR	q	
	United Kingdom	3	GBP	m	
48.8 g	France	453	EUR	m	Calculated via full-yield formula ¹
	Germany	461	EUR	m	Assessment based on standard downcharge from 45-g

	Spain	475	EUR	q	
	United Kingdom	427	GBP	m	Calculated via full-yield formula ¹
Improved (68 ISO)					
52 g	United Kingdom	1250	GBP	m	

¹ The full-yield formula in general is as follows: To find the price P_a of grammage a based on the price P_b of grammage b ...

$$P_a = P_b / a * b$$

RISI uses the 42.5g price as the basis for this formula in the UK and 45g in all other markets.

Relative importance of data types in determining assessments

For all prices except those calculated via formula:

Directly considered data (***** to *** = most to least important)

- *** Transaction prices
- * Participants' estimates of market levels

Influencing data (**+++ to +** = most to least important)

- ++ Prices in other countries (Euro zone): Prices in Germany, France, Italy and Spain all serve as influencing data in each other market.
- + Prices in other countries (UK): European prices are considered influencing data for the UK versa, but the link between price movements is much weaker than among Euro zone countries.

Uncoated mechanical

Grade	Location	RISI Price ID	Currency	Frequency	Notes
Supercalendered-A (SC-A) Rotogravure Reels					
52 g	Italy	444	EUR	m	Assessments based on standard upcharge from 56-g
	United Kingdom	435	GBP	m	
56 g	Germany	5	EUR	m	
	Italy	442	EUR	m	

60 g	Spain	127	EUR	q	Assessments based on standard downcharge from 56-g
	United Kingdom	7	GBP	m	
	France	6	EUR	m	
	France	455	EUR	m	
	Germany	462	EUR	m	
	Italy	8	EUR	m	
	United Kingdom	433	GBP	m	
Supercalendered-A (SC-A) Offset Reels					
52 g	Italy	445	EUR	m	Assessments based on standard upcharge from 56-g
	United Kingdom	436	GBP	m	
56 g	France	10	EUR	m	
	Germany	9	EUR	m	
	Italy	443	EUR	m	
	Spain	128	EUR	q	
	United Kingdom	11	GBP	m	
60 g	France	456	EUR	m	Assessments based on standard downcharge from 56-g
	Germany	463	EUR	m	
	Italy	12	EUR	m	
	United Kingdom	434	GBP	m	

Relative importance of data types in determining assessments

Directly considered data (**** to * = most to least important*)

- *** Transaction prices
- ** Participants' estimates of market levels

Influencing data (*+++ to + = most to least important*)

- ++ Prices in other countries (Euro zone): Prices in Germany, France, Italy and Spain all serve as influencing data in each other market.
- + Prices in other countries (UK): European prices are considered influencing data for the UK versa, but the link between price movements is much weaker than among Euro zone countries.

Coated mechanical

All assessments cover paper made primarily from virgin fiber, not recycled fiber.

Grade	Location	RISI Price ID	Currency	Frequency	Notes
Rotogravure Reels					
80 g	Germany	468	EUR	m	
	Italy	446	EUR	m	
Offset Reels					
70 g	Italy	447	EUR	m	
80 g	Germany	469	EUR	m	
Lightweight Coated (LWC) Rotogravure Reels					
54 g	Germany	465	EUR	m	Assessments based on standard upcharge from 60-g
57 g	Germany	464	EUR	m	
60 g	France	14	EUR	m	
	Germany	13	EUR	m	
	Italy	16	EUR	m	
	Spain	130	EUR	q	
	United Kingdom	15	EUR	m	
Lightweight Coated (LWC) Offset Reels					
54 g	Germany	467	EUR	m	Assessments based on standard upcharge from 60-g
57 g	Germany	466	EUR	m	
60 g	France	18	EUR	m	
	Germany	17	EUR	m	
	Italy	20	EUR	m	
	Spain	129	EUR	q	
	United Kingdom	19	EUR	m	

Relative importance of data types in determining assessments

Directly considered data (***) to * = most to least important)

*** Transaction prices

** Participants' estimates of market levels

Influencing data (+++ to + = most to least important)

- ++ Prices in other countries (Euro zone): Prices in Germany, France, Italy and Spain all serve as influencing data in each other market.
- + Prices in other countries (UK): European prices are considered influencing data for the UK versa, but the link between price movements is much weaker than among Euro zone countries.

Uncoated woodfree

Grade	Location	RISI Price ID	Currency	Frequency	Notes
A4 Copy (B Grade)					
80 g	France	34	EUR	m	
	Germany	33	EUR	m	
	Italy	36	EUR	m	
	Spain	133	EUR	q	
	United Kingdom	35	GBP	m	
A4 Copy (C Grade)					
80 g	France	519	EUR	m	
	Germany	518	EUR	m	
	Italy	662	EUR	m	
	Spain	684	EUR	q	
	United Kingdom	517	GBP	m	
Offset Reels					
80 g	France	22	EUR	m	
	Germany	21	EUR	m	
	Italy	663	EUR	m	
	United Kingdom	23	GBP	m	
70 g	Spain	132	EUR	q	
Offset Sheets					
70 g+	Italy	32	EUR	m	

80 g	France	30	EUR	m	
	Germany	29	EUR	m	
	Spain	131	EUR	q	
	United Kingdom	31	GBP	m	

Relative importance of data types in determining assessments

Directly considered data (**** to * = most to least important*)

- *** Transaction prices
- * Participants' estimates of market levels

Influencing data (*+++ to + = most to least important*)

- ++ Prices in other countries (Euro zone): Prices in Germany, France, Italy and Spain all serve as influencing data in each other market.
- + Prices in other countries (UK): European prices are considered influencing data for the UK versa, but the link between price movements is much weaker than among Euro zone countries.

Coated woodfree

Grade	Location	RISI Price ID	Currency	Frequency	Notes
Reels					
80 g	Germany	470	EUR	m	
90 g	Germany	37	EUR	m	
	Spain	134	EUR	q	
100 g	France	39	EUR	m	
	Germany	38	EUR	m	
	Italy	41	EUR	m	
	United Kingdom	40	GBP	m	
Sheets					
90 g	Germany	471	EUR	m	

100 g	France	43	EUR	m	
	Germany	42	EUR	m	
	Italy	46	EUR	m	
115 g	Spain	135	EUR	q	
	United Kingdom	44	GBP	m	

Relative importance of data types in determining assessments

Directly considered data (**** to * = most to least important*)

- *** Transaction prices
- *** Participants' estimates of market levels

Influencing data (*+++ to + = most to least important*)

- ++ Prices in other countries (Euro zone): Prices in Germany, France, Italy and Spain all serve as influencing data in each other market.
- + Prices in other countries (UK): European prices are considered influencing data for the UK versa, but the link between price movements is much weaker than among Euro zone countries.

REVISION HISTORY

Changes to methodology and specifications will be tracked here.

January 2017 – Changes to Newsprint yield formulas

Basis for the yield formula used to assess UK 48.8-g and 40-g Newsprint changed from 45g to 42.5g.