

PIX Paper Price Indices



Methodology and specifications – April 2021

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Mission statement

Fastmarkets is a leading commodity price reporting agency (PRA) covering the metals, mining, minerals, and forest products industries, and agricultural products and biofuels. Our products include Metal Bulletin, American Metal Market, RISI, FOEX, Random Lengths, AgriCensus, EnergyCensus and Industrial Minerals. For more than 100 years we have been providing commodities price reporting services for use by market participants in their day-to-day commercial activities. These services include assessments and indices of commodity prices as well as news, research and commentary on the underlying markets.

Our mission is to meet the market's data requirements honestly and independently, acting with integrity and care to ensure that the trust and confidence placed in the reliability of our pricing methodologies is maintained. We do not have a vested interest in the markets on which we report.

Introduction

Fastmarkets FOEX, in Helsinki, Finland, operating under the Finnish law, produces trademarked PIX price indices for selected pulp, paper, recovered paper and packaging grades as well as for wood-based biomass and bioenergy products like pellets, sawn timber and roundwood. The first PIX index was launched in September 1996. Fastmarkets FOEX owns the trade mark rights to PIX Index.

Fastmarkets' staff are required to abide by a code of conduct and clear pricing procedures during their market reporting and pricing activities. Fastmarkets is completely independent and has no vested commercial interest in any of the markets it prices.

We are the world's largest dedicated forest products price reporting team. We have offices in New York, Boston, San Francisco, Eugene, Charlottesville, Atlanta, Brussels, Helsinki, Beijing, Shanghai, Singapore and Sao Paulo.

The aim of this document is to provide a clear overview of Fastmarkets methodology and specifications for the PIX Paper Europe Indices. If you have any questions, please contact Fastmarkets FOEX director Tytti Inkinen, tytti@fastmarkets.com

Price discovery process and methodology

1.1 Methodology Rationale

Fastmarkets FOEX produces independent, fair and representative price indices for graphic paper on a weekly basis. Fastmarkets FOEX's rationale is to adopt and develop the price discovery process and the methodology described in the present guide to produce indices that are a consistent and representative indicator of value of the market to which they relate for the trading period they measure, as well as for the change in prices from one week to the next.

The PIX paper benchmark indices are calculated and confirmed by Fastmarkets FOEX based on confidential price information of actual, physical trades of paper, collected on a weekly basis by email or phone from companies trading in paper. They represent the transaction price agreed on contract business for paper used mainly in publishing, printing, retail, and in the office and business sectors. The method of index calculation is fixed. The index has a large market coverage and a stable group of price providers.

The time period, or window, identified to assess a market (e.g., daily, weekly, monthly) is determined by Fastmarkets FOEX after considering the number of data points that Fastmarkets FOEX can reasonably expect to collect on a consistent basis over the selected period to support the price assessment process.

1.2 Data collection criteria

Fastmarkets FOEX staff aim to canvas a broad sample of market participants specifically involved in the buying and selling of the paper grade of interest, with a good representation of both sides of the market. Paper producers, merchants, agents and consumers qualify as price providers.

Price data is collected weekly from price providers, typically by email or phone. Possibilities to use other alternative ways of submitting data will be followed-up whenever deemed useful.

Reported price data will be stored at Fastmarkets FOEX for a period of seven years.

Fastmarkets FOEX has the discretionary right to decide whether to include price data received after noon on the working day preceding publication in the index calculation that week.

Price providers designate a person and a deputy for the price reporting task. Each price provider shall report their prices weekly or monthly, or provide a note of how long the last reported price is valid. For more details, see below.

Price providers agree to report their prices according to the methodology described in this document and based on all transactions meeting the specifications and to consult with Fastmarkets FOEX if they have any doubts as to the validity of a price to be reported.

Fastmarkets FOEX encourages organizations to submit all their pricing data, especially all the concluded transactions. Fastmarkets FOEX welcomes organizations to submit transaction data from authorized back office functions.

Company-specific data received from the price providers is accessible only to personnel employed by Fastmarkets FOEX. Board Members do not have access to this data.

Fastmarkets FOEX's personnel dealing with the confidential price data or other sensitive information received from the price providers for the purpose of PIX index calculations, commit not to disclose the data received, nor the source, outside Fastmarkets FOEX.

Fastmarkets FOEX commits to compile the price data, to calculate the index values and to publish the index values in accordance with the rules and specifications set forth in this document.

1.3 What price data providers submit

Data providers submit prices reflecting all eligible transactions, to the extent possible with reasonable efforts, taking into account the practical tasks in the sales administrative work to collect all required transactions. "Transaction" is defined as follows:

1. Final agreement on price for delivery of a specific quantity of graphic paper during the contract period. The length of contract period varies between grades and end-use, but can range from one month, to one quarter, six months, or one year. An "eligible transaction" is a transaction that meets the specifications outlined in the Price Specifications section below.

Providers have the option to submit prices in one of three ways:

1. Average price per market (country)
2. Transaction price per supplier/customer
3. Single weighted average price: Providers submit a single price reflecting the weighted average price of all eligible transactions.

This weighted average can be calculated based on actual monthly volumes or from an annual estimate. The way each data submitter reports prices is mutually agreed with Fastmarkets FOEX before they become formal contributors to the PIX indices. The method should be consistently used to the extent possible with reasonable efforts.

Transactions with prices fixed in advance for a longer period than one year do not count as eligible transactions and shall not be reported to the index.

If the pricing structure includes a cap and floor, the price shall be reported only as long as it remains between the cap and floor. After the price has hit either of the limits, the price within the cap and floor should not be reported.

1.4 Price specifications and reference units

Fastmarkets FOEX 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 paper trading conventions.

Fastmarkets FOEX specifications detail the material's characteristics or quality, location, incoterm, payment terms and the minimum volume accepted. These specifications are determined in consultation with market participants and follow industry convention. Fastmarkets FOEX staff ensure that the information they receive matches these specifications.

All Fastmarkets FOEX pulp and paper price specifications define the minimum lot size accepted.

1.5 Criteria to discard pricing data

Transactions are against contract-based business or other recurring business with similar pricing terms.

Specifically excluded are:

- Indexed-price transactions: transactions whose prices are, according to the supply contract, tied to the PIX Paper Price Index.
- Integrated sales: deliveries between affiliated parties unless they are equal to market prices and include no premium of any sort.

Some contracts stipulate that prices are negotiated between buyer and seller but that PIX or another index can be used to settle prices if the buyer and seller can't agree on a price. Transactions under these contracts are not considered indexed and thus shall be submitted to the index.

1.6 Providing prices of non-benchmark grade

Some buyers and sellers trade in paper products that do not exactly match the specifications set out in this methodology guide but have a very high price correlation with the index grade. These include cases such as grades with a different basis weight (e.g. 42.5-g newsprint instead of 45-g newsprint), different printing use (e.g. rotogravure instead of heatset web offset LWC), and different brightness (e.g. coated mechanical reels with ISO above 76). The possibility of reporting such data needs to be separately discussed with Fastmarkets FOEX before joining PIX. If included, this data must be normalized to the equivalent index grade according to industry standards or alternative measures discussed with Fastmarkets FOEX.

1.7 Data validation

Fastmarkets FOEX reviews the incoming price data in order to check its consistency with the reporting rules. If there are any doubts or questions about the price data, Fastmarkets FOEX contacts the price provider.

1.8 Weighting of Data

Weighting between price providers is achieved by assigning more price points to larger buyers/sellers than to smaller ones. The number of price points assigned to each provider is scaled by the annual

volume of sales or purchases of paper in each index grade group (LWC, CWF, copy paper and newsprint). Each price provider's weight is kept constant through the year, if no major changes occur in production capacity or purchasing/sales volumes. Volumes are checked in January to define the weighting for that year.

Fastmarkets FOEX aims to achieve an even split between buyers and sellers each week.

The weighting of data providers is limited so that no single data provider or group of data providers can dominate the index. For PIX paper indices, the influence of any single data provider is capped at 50% in the index calculation.

The weighting scales for LWC, CWF, copy paper and newsprint (separate scales for sellers and buyers), based on the total annual volumes of the previous calendar year are shown in Appendix 1. This weighting scale may be updated and republished annually.

1.9 Aggregation of weighted average prices

If data providers submit a single weighted average price (see Section 1.3 above), that price point is included in the week's collected price points multiple times, according to the number of price points the data provider is allowed. For instance, if a seller of LWC is allowed 5 price points and submits a single weighted average price of €X in a given week, then €X is included 5 times in that week's collected price points.

1.10 Calculation procedure

The highest and lowest 10% of the number of price points are removed before calculating the average. This is done to eliminate clerical errors in the price reporting and to dampen any possible attempts to manipulate the PIX index value in one direction or the other.

1.11 Validity time of price points

Price providers can report prices on a weekly, monthly, or quarterly schedule, or according to the company's contract validities. If a weekly/monthly price provider does not report prices in a given week/month (e.g. a company may not have sales or purchases during that period), Fastmarkets FOEX may use the previous price received for one additional month. On rare occasions Fastmarkets FOEX staff may use their discretion to roll the price forward an additional month. From week to week, prices with monthly or longer contract validities will remain unchanged in the index calculation.

1.12 Fall-back procedure

Fastmarkets FOEX does not set a minimum number of price points for calculating the index. In the unlikely event that there are not enough eligible price points in a given week, and the lack of price points is threatening to distort the index development, Fastmarkets FOEX reserves the right to roll forward previous price data beyond the limits mentioned above. In such case, Fastmarkets FOEX will

state that because there are an insufficient number of new price points, the previous week's index value will be republished.

1.13 Monthly average prices

The monthly average of any of the PIX indices is calculated by Fastmarkets FOEX as a straight arithmetic average from the weekly PIX index values of the month in question. The average value is published together with the last weekly index value (included in the monthly average).

1.14 Procedure to ensure consistency in the price discovery procedures

All Fastmarkets FOEX price reporters are formally trained in the price discovery process and must abide by a written Code of Conduct and pricing procedures.

On a regular basis, Fastmarkets FOEX staff review markets and methodologies to ensure that assessment methodologies and the assessments they produce are appropriate for the market. Fastmarkets FOEX has also committed to conducting one external audit per year of one key index.

Methodology review and consultation process

Fastmarkets' editorial teams carry out a formal review of its methodologies on an annual basis.

The process starts with an open consultation in which feedback is invited from users. Further consultation follows should any material change to the methodology be proposed. Material changes are those that, once implemented, may result in fundamental changes to the published price.

At the end of the consultation process, the editorial teams review any feedback received and decide on whether a change should be made before announcing and explaining that decision to the market via a pricing notice.

The editorial teams may also suggest changes or additions to methodologies on an ad-hoc basis to reflect market developments, in which case they will follow the same process as outlined for formal reviews.

For more details, please refer to Fastmarkets' Methodology Review and Change Consultation Process document available on the Fastmarkets website, as well as on divisional websites such as Fastmarkets MB, Fastmarkets RISI or Fastmarkets FOEX.

Queries and complaints

Fastmarkets FOEX encourages engagement from the market on its pricing principles and methodology. The company promotes understanding of its pricing procedures and is committed to responding to requests for further information and clarification on a timely basis.

There are multiple channels for interaction with the pricing team including email and telephone.

If a user has an issue with the published prices, then they may contact the pricing team. In the event that the response is not satisfactory the issue may be escalated to the internal compliance department. For more details refer to Fastmarkets' Complaint Handling Policy available on the Fastmarkets FOEX website.

Fastmarkets FOEX takes all queries and complaints seriously and will seek to provide an explanation of the prices wherever possible. It is important to note, however, that input data remain confidential and cannot be provided to third parties.

Price correction policy

Price errors may occasionally happen for reasons that include technical input errors or incorrect application of the methodology. Fastmarkets FOEX will rectify and republish any incorrectly published price as soon as possible; and will send a pricing notice to all subscribers informing them of the change.

No prices will be amended due to the emergence of new data or market activity after the initial publication. Retrospective changes to the published values will only be made in cases of administrative or calculation error leading to a material change in price.

Become a contributor to the price discovery process

Fastmarkets FOEX continually seeks to increase the number of market sources willing to take part in the price discovery process. The main condition Fastmarkets FOEX requires from contributors is for them to be active participants in the market. Fastmarkets FOEX Data Submitter Policy provides guidelines defining the high level of data quality and integrity that Fastmarkets FOEX expects from contributing organization providing pricing data. Market participants that wish to provide pricing data and be part of the price discovery process should first read the Data Submitter Policy available on the Fastmarkets FOEX website.

All data sources are subject to review before their data submitted is fully taken into account in the pricing process. The aim is to make sure that submitters are trustworthy and have sufficient visibility and understanding of the market to be able to provide viable price data.

If you want to become a contributor to Fastmarkets FOEX pricing or have questions or comments about the methodology and price specifications, please contact Fastmarkets FOEX director Tytti Inkinen, tytti@fastmarkets.com.

Price specifications

Description: **PIX Paper LWC**

Basis weight: 60 g/m²

Unit: Metric ton.

Quantity: Minimum 20 metric tons of prime quality in reels.

Typical furnish: Mainly mechanical or deinked pulp with some chemical pulp.

Un/coated: Two-side coated.

Location: Europe

Incoterm: Free delivered to the buyer's printer or warehouse.

Timing: Participants report their most recent transaction prices for delivery during the previous, current or following month.

Currency: EUR. Prices reported in other currencies are converted to the index currency by Fastmarkets FOEX using the previous Friday's ECB exchange rate.

Payment terms: 10-14 days with cash discount, 30-60 days net or other term of payment which is used in the majority of sales/purchases. Customs and other duties paid.

Price type: Transaction prices before customer-specific discounts or rebates.

Publication: Weekly, on Tuesdays at noon Helsinki time. If Tuesday falls on a public holiday in Finland, the index will be published on the first working day thereafter.

Brightness: 70-76 ISO.

Notes: Terms and definitions according to CEPI's list of graphic papers. Prices reflect material included under the CEPI Harmonised code for coated mechanical paper (212 000 000). Intended for heatset web offset printing of magazines, catalogues and other printed products.

Description: **PIX Paper Ctd WF**

Basis weight: 100 g/m²

Unit: Metric ton.

Quantity: Minimum 10 metric tons of prime quality in reels.

Typical furnish: Chemical and/or deinked pulp.

Un/coated: Two-side coated.

Location: Europe

Incoterm: Free delivered to the buyer's printer or warehouse.

Timing: Participants report their most recent transaction prices for delivery during the previous, current or following month.

Currency: EUR. Prices reported in other currencies are converted to the index currency by Fastmarkets FOEX using the previous Friday's ECB exchange rate.

Payment terms: 10-14 days with cash discount, 30-60 days net or other term of payment which is used in the majority of sales/purchases. Customs and other duties paid.

Price type: Transaction prices before customer-specific discounts or rebates.

Publication: Weekly, on Tuesdays at noon Helsinki time. If Tuesday falls on a public holiday in Finland, the index will be published on the first working day thereafter.

Brightness: Above 85 ISO.

Notes: Terms and definitions according to CEPI's list of graphic papers. Prices reflect material included under the CEPI Harmonised code for coated woodfree paper (232 000 000). Intended mainly for commercial printing, high-quality magazines, and catalogues.

Description: **PIX Paper A4 B-copy**

Basis weight: 80 g/m²

Unit: Metric ton.

Quantity: Minimum 5 metric tons of prime quality copy paper in sheets.

Typical furnish: Chemical and/or deinked pulp.

Un/coated: Uncoated.

Location: Europe

Incoterm: Free delivered to the buyer's warehouse.

Timing: Participants report their most recent transaction prices for delivery during the previous, current or following month.

Currency: EUR. Prices reported in other currencies are converted to the index currency by Fastmarkets FOEX using the previous Friday's ECB exchange rate.

Payment terms: 10-14 days with cash discount, 30-60 days net or other term of payment which is used in the majority of sales/purchases. Customs and other duties paid.

Price type: Transaction prices before customer-specific discounts or rebates.

Publication: Weekly, on Tuesdays at noon Helsinki time. If Tuesday falls on a public holiday in Finland, the index will be published on the first working day thereafter.

Brightness: 90-96 ISO

Notes: Terms and definitions according to CEPI's list of graphic papers. Prices reflect material included under the CEPI Harmonised code for uncoated woodfree paper (231 000 000). Intended mainly for photocopying and office printing.

Description: **PIX Paper Newsprint**

Basis weight: 45 g/m²

Unit: Metric ton.

Quantity: Minimum 20 metric tons of prime quality standard newsprint in reels.

Typical furnish: Mechanical and/or deinked pulp.

Un/coated: Uncoated.

Location: Europe

Incoterm: Free delivered to the buyer's printer or warehouse.

Timing: Participants report their most recent transaction prices for delivery during the previous, current or following month.

Currency: EUR. Prices reported in other currencies are converted to the index currency by Fastmarkets FOEX using the previous Friday's ECB exchange rate.

Payment terms: 10-14 days with cash discount, 30-60 days net or other term of payment which is used in the majority of sales/purchases. Customs and other duties paid.

Price type: Transaction prices before customer-specific discounts or rebates.

Publication: Weekly, on Tuesdays at noon Helsinki time. If Tuesday falls on a public holiday in Finland, the index will be published on the first working day thereafter.

Brightness: 58-60 ISO.

Notes: Terms and definitions according to CEPI's list of graphic papers. Prices reflect material included under the CEPI Harmonised code for newsprint (100 000 000). Intended mainly for printing of newspapers.

Description: **PIX US Newsprint**

Basis weight: 27.65 lb (45 g/m²)

Unit: Metric ton.

Quantity: Minimum 20 metric tons of prime quality standard newsprint in reels.

Typical furnish: Mechanical and/or deinked pulp.

Un/coated: Uncoated.

Location: US (East Coast)

Incoterm: Free delivered to the buyer's printer or warehouse.

Timing: Participants report their most recent transaction prices for delivery during the previous, current or following month.

Currency: USD. Prices reported in other currencies are converted to the index currency by Fastmarkets FOEX using the previous Friday's exchange rate.

Payment terms: 10-14 days with cash discount, 30-60 days net or other term of payment which is used in the majority of sales/purchases. Customs and other duties paid.

Price type: Transaction prices before customer-specific discounts or rebates.

Publication: Weekly, on Tuesdays at noon Helsinki time. If Tuesday falls on a public holiday in Finland, the index will be published on the first working day thereafter.

Brightness: 55-58 ISO.

Notes: Terms and definitions according to AF&PA's newsprint description. Prices reflect material that meets the 4801 heading under the US Census harmonized commodity codes. Intended mainly for printing of newspapers.

Revision History

Changes to methodology and specifications will be tracked here.

April 2021 – Open consultation 2021 completed; no material changes made.

Following the annual review, no material changes were made to the methodology. “Coverage Note” had been changed to “Pricing Notice”.

February 2021 - Updates to Appendix 1

The graphic paper market is facing a continuous structural decline. The weighting scale (Appendix 1) has been updated to reflect the current market situation.

September 2020 – Updates to the sections Methodology review and consultation process and Queries and complaints.

May 2020 – Open consultation 2020 completed; no material changes made.

Minor changes include adding a line stating there is no minimum number of price points for index calculation (1.12), changing the wording in the price correction policy (p. 9) to match with Fastmarkets policy and allowing annual updates of Appendix 1 (1.8).

January 2020 – PIX US Newsprint 30 lb discontinued, brightness changed

PIX US Newsprint (30 lb/48.8 g) were discontinued in January 2020. PIX US Newsprint 27.65 lb (45 g) will continue. At the same time, the brightness specification for PIX US Newsprint 27.65 lb was adjusted from 58-60 ISO to 55-58 ISO.

December 2019 – Limit for data retention changed

Storage of price data was changed from five to seven years. The methodology guide was changed accordingly.

July 2019 – PIX Paper indices added to the methodology

Fastmarkets FOEX revamped the PIX Paper Europe indices methodology and specifications guidelines as part of the company-wide rebranding. The weighting scale was added. The methodologies were not changed materially during this process.

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Your investment actions should be solely based upon your own decisions and research and appropriate independent advice should be obtained from a suitably qualified independent adviser before any such decision is made.

Appendix 1 – The weighting scale

PIX Paper Indices

Weighting scale since February 2021

Categories based on annual supply or consumption of LWC, Ct WF, copy paper, and newsprint grades in Europe or the US

				EUROPE	BUYERS		
					LWC		Price points
				over	40 000	tons	7
				up to	40 000		6
EUROPE	SELLERS			up to	30 000		5
	LWC, Ctd WF		Price points	up to	20 000		4
over	300 000	tons	8	up to	10 000		3
up to	300 000		7				
up to	200 000		6	EUROPE	BUYERS		
up to	100 000		5	Ctd WF		Price points	
up to	50 000		4	over	20 000	tons	8
				up to	20 000		7
				up to	15 000		6
				up to	10 000		5
				up to	5 000		4

EUROPE	SELLERS			EUROPE	BUYERS		
	Copy paper		Price points		Copy paper		Price points
over	300 000	tons	8	over	30 000	tons	7
up to	300 000		7	up to	30 000		6
up to	200 000		6	up to	20 000		5
up to	150 000		5	up to	10 000		4
up to	100 000		4	up to	5 000		3

EUROPE	SELLERS			EUROPE	BUYERS		
	Newsprint		Price points		Newsprint		Price points
over	400 000	tons	8	over	150 000	tons	7
up to	400 000		7	up to	150 000		6
up to	300 000		6	up to	125 000		5
up to	200 000		5	up to	100 000		4
up to	100 000		4	up to	50 000		3

US	SELLERS			US	BUYERS		
	Newsprint		Price points		Newsprint		Price points
over	300 000	tons	15	over	40 000	tons	10
up to	300 000		13	up to	40 000		9
up to	250 000		11	up to	30 000		8
up to	200 000		9	up to	20 000		6
up to	150 000		7	up to	10 000		4