



PIX Recovered Paper Europe Price Indices Methodology and Specifications

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1. Introduction

FOEX Indexes Ltd (FOEX) in Helsinki, Finland, operating under the Finnish law, produces trade-marked PIX price indices for selected pulp, paper, recovered paper and packaging grades as well as for wood, wood based biomass and bioenergy products like pellets and wood chips. The first PIX index (PIX NBSK) was launched in September 1996. FOEX owns the trademark rights to PIX Index.

PIX indices are used as market reference prices for various purposes:

- price risk management services
- supply contracts for physical transactions between companies
- internal transactions between corporate divisions
- market research and miscellaneous uses

Methodology and Specifications are valid starting on April 1, 2018.

2. Overview

The general guidelines to ensure the reliability of the indices:

1. The main goal of PIX indices is to show the average market price changes over time in a reliable way, however, at the same time it aims to pinpoint the average level of the market price as accurately as possible.
2. The index calculation aims to include the prices of all eligible transactions over the current month to the extent possible with reasonable efforts.
3. The target is that the index calculations include every week as many price points as possible in order to maintain the accuracy of the index movements.
4. The Index process seeks to optimize the balance of prices between buyers and sellers and between large and small price providers.



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The PIX recovered paper benchmark indices are calculated and confirmed by FOEX based on confidential price information of actual, physical trades of recovered paper, collected on a weekly basis by email from companies trading in recovered paper. It represents the net price agreed on contract business for recovered paper used for paper or paperboard production.

The method of index calculation is fixed. The index has a large market coverage and a stable group of price providers. The rules for index calculation and the method have been approved by European financial regulatory bodies and by the European Commission DG IV (anti-trust). Index calculation is audited, most recently by EY.

2.1 Index currency

PIX OCC 1.04 dd and PIX ONP/OMG 1.11 dd: EUR/metric ton.

Prices reported in other currencies are converted to the index currency using the previous Friday's ECB exchange rate.

2.2 Publication frequency and time

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

2.3 Retroactive changes

FOEX will not retroactively change the index values.

3. Specifications

3.1 Product specifications

Grades include:

- CEN 1.04 Corrugated Paper & Board
- CEN 1.11 Sorted Graphic Paper for Deinking

All terms and definitions according to EN 643

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3.2 Types of transactions included

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

Specifically excluded are:

- Integrated sales: deliveries between affiliated parties.
- Indexed-price transactions: transactions whose prices are, according to the supply contract, tied to the PIX Recovered Paper Europe Price Index.
 - Index as fall-back mechanism: 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.

3.3 Net prices

Prices reflected in the index are net prices, customs and other duties paid, excluding VAT.

3.4 Final prices vs. prices to be adjusted at the end of the month

Prices reflected only include those with a final agreement for the month, i.e. without a retroactive adjustment clause.

3.5 Minimum volume

The total volume of the transaction is at least 20 tons of recovered paper.

3.6 Delivery and payment terms

The price is a net transaction price free delivered to the customer in Europe on standard payment terms between buyer and seller.

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4. Price Data Providers

4.1 Price data provider qualifications

Recovered Paper generators, traders and consumers qualify as price providers.

4.2 Price data providers' responsibilities

Price providers designate a person and a deputy for the price reporting task.

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 FOEX if they have any doubts as to the validity of a price to be reported. Price providers have received a Data Submitter Policy outlining the standards FOEX expects of them.

Data provider is obliged to supply FOEX their annual grade-specific volume information of the previous year by the end of January in order to allow FOEX to determine the data provider company's weighting in the index calculation (Appendix 1)

4.3 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 recovered paper during the current month.

An "eligible transaction" is a transaction that meets the specifications in Section 3 above.

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 over the month.

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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 FOEX before they become formal contributors to the PIX indices. The method should be consistently used to the extent possible with reasonable efforts.

4.3.1 Fixed price transactions

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.

4.3.2 Pricing with caps and floors

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.

5. FOEX' Responsibilities

Only authorized personnel can access price data received from the price providers.

FOEX' personnel dealing with the confidential price data or other sensitive information received from the price providers for the purpose of PIX index calculations, commits not to disclose the data received, nor the source, outside FOEX. The FOEX auditors and competent authorities, however, will be able to see the price data but they are bound by a confidentiality agreement of their own.

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

The calculation procedure and adherence to the methodology of one PIX index will be audited each year by an internationally recognized auditing firm.

6. Data Handling

6.1 Collection and storage of price data

Price data is collected typically by email. Possibilities to use other alternative ways will be followed-up whenever deemed useful.

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Reported price data will be stored at FOEX for a maximum of five full calendar years.

7. Index Calculation Procedure

7.1 Data validation

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, FOEX contacts the price provider.

7.2 Weighting

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 recovered paper in each index grade (OCC 1.04, ONP/OMG 1.11). Each price reporter'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.

While input to the index is generally evenly split between buyers and sellers, the share can vary from week to week. To eliminate any volatility caused by a shift in the share of the buyer/seller data, FOEX ensures that buyer and seller data each represent 50% of the index.

The weighting scales for OCC 1.04 and ONP/OMG 1.11 (separate scales for sellers and buyers), based on the total annual volumes of the previous calendar year are shown in Appendix 1.

7.3 Aggregation of weighted average prices

If data providers submit a single weighted average price (see Section 4.3 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 OCC 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.

7.4 Calculation procedure

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The index value is the arithmetic average of the price points included. The highest and lowest 10% of the number of price points are removed before calculating the PIX index values. 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.

7.5 Validity time of price points

If a price provider does not report prices in a given month (e.g. a company may not have sales or purchases during that month) FOEX may use the previous price received, but only for one additional month. From week to week, the monthly price(s) reported will remain unchanged in the index calculation.

7.6 Fall-back procedure

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, FOEX reserves the right to roll forward previous price data beyond the limits mentioned above in Section 7.5. FOEX may also state that because there are an insufficient number of eligible price points, the previous week's index value will be republished.

8. Revisions to the Specifications

In the event that significant changes are noticed in the general trading habits or terms and conditions or grade classifications of the international recovered paper business carried out in the European market which are seen to reduce the index reliability, FOEX will engage in a market consultation process with contributors as well as non-contributing stakeholders. If there is enough feedback to justify a possible change to the methodology, a proposal for changes will be issued with a timeline for feedback. Based on the feedback from the market consultation process, FOEX will decide if the presently valid index specifications will be modified, and will communicate the changes publicly.

9. Commercial Use

The PIX Indices are trademark registered by FOEX Indexes Ltd. Use of PIX Indices commercially (e.g. as a reference for pricing in physical supply agreements or financial derivatives contracts) requires a commercial use license.



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- 10. Revision History**
(please see the corresponding Section for details)

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Appendix 1

| PIX Recovered Paper Europe Indices | | | | | | | | | | |
|--|---------------|------|---|--------------|--|----------|---------------|------|---|--------------|
| Weighting scale since April 2018 | | | | | | | | | | |
| Categories based on annual supply or consumption of all OCC / ONP/OMG grades | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| OCC 1.04 | S E L L E R S | | | Price points | | ONP 1.11 | S E L L E R S | | | Price points |
| over | 1 000 000 | tons | 8 | | | over | 700 000 | tons | 8 | |
| up to | 1 000 000 | | 7 | | | up to | 700 000 | | 7 | |
| up to | 500 000 | | 6 | | | up to | 500 000 | | 6 | |
| up to | 200 000 | | 5 | | | up to | 200 000 | | 5 | |
| up to | 100 000 | | 4 | | | up to | 100 000 | | 4 | |
| up to | 50 000 | | 3 | | | up to | 50 000 | | 3 | |
| up to | 30 000 | | 2 | | | up to | 30 000 | | 2 | |
| up to | 20 000 | | 1 | | | up to | 20 000 | | 1 | |
| | | | | | | | | | | |
| OCC 1.04 | B U Y E R S | | | Price points | | ONP 1.11 | B U Y E R S | | | Price points |
| over | 1 000 000 | tons | 8 | | | over | 700 000 | tons | 8 | |
| up to | 1 000 000 | | 7 | | | up to | 700 000 | | 7 | |
| up to | 500 000 | | 6 | | | up to | 500 000 | | 6 | |
| up to | 200 000 | | 5 | | | up to | 200 000 | | 5 | |
| up to | 100 000 | | 4 | | | up to | 100 000 | | 4 | |
| up to | 50 000 | | 3 | | | up to | 50 000 | | 3 | |