

INDEX RULE BOOK

Euronext® Transatlantic PAB

Version 23-02

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1. GENERAL

This document is applicable to the Euronext Transatlantic PAB 50 ("Index Family"), which consists of all the Indices as mentioned in the Reference Table.

The Index Family is designed to reflect the price level trends in the trading of shares listed in the Eurozone and USA ("Parent index").

Euronext Paris is the Administrator of this Index Family. The Expert Committee acts as Independent Supervisor of the Index Family.

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VERSION NOTES

Version	Effective date	New or changed parts	Reference/announcement
23-01	22-08-2023	Initial rulebook	
23-02	26-09-2023	Clarification Step 4: Selection of constituents at the reviews	

2. INDEX REVIEWS

2.1 REVIEW FREQUENCY AND RELEVANT DATES

Review frequency: Annual

Review Effective Date: After the market close of the third Friday of December.

Review Cut-Off Date: After the market close of the penultimate Friday of November.

Review Announcement Date: At least five trading days before the Review Effective Date.

Review Weighting Date: Three trading days before the Review Effective Date.

Review Weighting Announcement Date: Two trading days before the Review Effective Date.

2.2 INDEX METHODOLOGY PRINCIPLES

2.2.1 General Methodology Objectives

The Index seeks compliance with Paris Aligned Benchmark (PAB) objectives.

The Index targets 50 constituents after exclusion process. Compliance with PAB is aimed to via weight adjustments following core selection and preliminary weights.

The weights are constructed using an optimization process that aims to achieve the PAB decarbonization objectives while minimizing the weights' deviation relative to the Free Float Market Cap (FFMC) weights. (Cf section 2.5 for further details)

2.2.2 Data Partner

Moody's ESG Solutions provides research datapoints related to ESG, Carbon exposure, Controversies and Activity involvement.

2.2.3 Climate Impact sections

Grouping of companies based on NACE section classification (Annex I to EC Regulation No 1893/006) into two sections:

- High Climate Impact section
 - NACE Sections A to H and Section L
- Low Climate Impact section
 - NACE Section that are not part of the High Climate Impact section

NACE Section	NACE Section Name	Climate Impact Section Group
A	AGRICULTURE, FORESTRY AND FISHING	High

B	MINING AND QUARRYING	High
C	MANUFACTURING	High
D	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLIES	High
E	WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	High
F	CONSTRUCTION	High
G	WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	High
H	TRANSPORTATION AND STORAGE	High
I	ACCOMMODATION AND FOOD SERVICE ACTIVITIES	Low
J	INFORMATION AND COMMUNICATION	Low
K	FINANCIAL AND INSURANCE ACTIVITIES	Low
L	REAL ESTATE ACTIVITIES	High
M	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	Low
N	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	Low
O	PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	Low
P	EDUCATION	Low
Q	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	Low
R	ARTS, ENTERTAINMENT AND RECREATION	Low
S	OTHER SERVICE ACTIVITIES	Low
T	ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFFERENTIATED GOODS- AND SERVICES-PRODUCING ACTIVITIES OF HOUSEHOLDS FOR OWN USE	Low
U	ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES	Low

2.3 REVIEW SELECTION

Step 1: Index Universe

The Index Universe consists of the Companies included in the Euronext Eurozone 300 index and Euronext North America 500 index (excluding companies listed on the Toronto Stock Exchange XTSE).

At reviews this means included in the Index after the Review Effective Date.

The Investable Universe consists of the Companies included in the Index Universe excluding those that don't have Carbon Emission Data.

Step 2: Eligibility screening at reviews

The following Companies are not eligible:

- Companies with a 3 months ADTV of less than €10m on the market of reference.

Exclusions	Exclusion criteria	Moody's datapoint
1. (a) companies involved in any activities related to controversial weapons;	<p>Companies providing full weapon systems and platforms, or key parts and services, for controversial weapons (This criterion does not cover general parts or services) as determined by Moody's ESG Solutions. It includes :</p> <ul style="list-style-type: none"> • Anti-Personnel Mines • Cluster Munitions • Chemical Weapons • Biological Weapons • Nuclear Weapons • Incendiary Weapons 	Controversial weapons involvement (MIL 1.2)

	<ul style="list-style-type: none"> • Non-Detectable Fragments • Blinding Laser Weapons • White phosphorus Weapons • Depleted Uranium Weapons 	
<p>1. (b) companies involved in the cultivation and production of tobacco;</p> <p>1. (c) companies that benchmark administrators find in violation of the UNGC principles or the OECD Guidelines for Multinational Enterprises;</p>	<p>Companies not integrating Global Compact principles to a certain level i.e. "Non communicative" and/or "controversial" as determined by Moody's ESG solutions. It is based on the following description:</p> <ul style="list-style-type: none"> • presence of critical controversies on UNGC ESG criteria including environmental criteria • presence of revenues from production of tobacco • presence of revenues from landmines or cluster munitions 	Level of Integration of Global Compact principles = 'Non communicative and/or controversial'
1. (d) companies that derive 1 % or more of their revenues from exploration, mining, extraction, distribution or refining of hard coal and lignite	Companies with an Involvement of more than 0% of the turnover derived from Coal mining and extraction.	FOSF2.1 - Coal mining >0%
1. (e) companies that derive 10 % or more of their revenues from the exploration, extraction, distribution or refining of oil fuels	<p>Companies with an involvement of 10% of the turnover derived from Fossil Fuels (Oil & Gas) industry including the following activities:</p> <ul style="list-style-type: none"> • Upstream (exploration, production) • Midstream (processing and transport) • Power generation from fossil sources 	FOSF1.2 - Fossil fuels industry revenues ≥10%
1. (f) companies that derive 50 % or more of their revenues from the exploration, extraction, manufacturing or distribution of gaseous fuels	Companies belonging to NACE section D35.2.2 i.e. "Distribution of gaseous fuels through mains" are excluded.	<p>NACE Class code "Distribution of gaseous fuels through mains"</p> <p>FOSF1.2 - Fossil fuels industry revenues ≥50%</p>
1. (g) companies that derive 50 % or more of their revenues from electricity generation with a GHG	Exclusion of companies with a carbon intensity of more than 100g CO ₂ e/kWh	Carbon factor (V.E ENV1008) > 100

intensity of more than 100 g CO2 e/kWh.		
2. Administrators of EU Paris-aligned Benchmarks shall exclude from those benchmarks any companies that are found or estimated by them or by external data providers to significantly harm one or more of the environmental objectives	Exclusion of companies facing critical controversies around environmental criteria	Level of integration of Global Compact principles = 'Non communicative and/or controversial'. It takes into critical controversies around environmental criteria
Genetic Engineering	Major involvement or Minor involvement	GMO Involvement
Animal Welfare	Major involvement or Minor involvement	ANIM Involvement
Animal Welfare Responsible animal testing for medical purposes	Yes	ANIM 1.4

Step 3: Selection Ranking

Eligible Companies are ranked on their Free Float Market Capitalization on the Review Cut-Off Date.

Step 4: Selection of constituents at the reviews

The 50 highest ranking Companies are selected (25 highest in the USA, 25 highest in the Eurozone).

2.4 PERIODICAL WEIGHTING UPDATE

Weighting method

The Index is Non-Market Capitalization weighted, based on an optimization approach.

The Weighting Factors are explained in the following paragraphs.

Number of shares

The Number of Shares are calculated such that each constituent will have the weight in accordance with the outcome of the weighting procedure detailed in 2.5.

The Number Of Shares are determined based on the closing prices of the Constituents to be included in the Index on the Review Weighting Date.

Free Float factor

The Free Float Factor is not applicable for this Index Family.

Capping Factor

The Capping Factor is technically set at 1, per-stock caps and other capping mechanisms are part of the weight optimization and therefore taken into account when calculating the final Constituents weights and the derived number of shares; Cf section 2.5.2.

2.5 WEIGHT CALCULATION

2.5.1 Decarbonization objectives

2.5.1.1 Carbon Intensity calculation

Euronext will calculate the Carbon Intensity (CI) for each of the Constituents in the Index as well as for each Constituents in the Index Starting Universe.

The Carbon intensities are calculated as follows:

$$CI = \frac{\text{Sum of Emissions}}{\text{Enterprise Value including Cash}}$$

- Emissions are Scope 1+2+3 carbon emission, provided by Moodys-ESG ¹
- Enterprise Value including Cash = Market capitalization + Debt

- For Index:

$$\text{Stock-level weighted CI} = CI * \text{Index weight}^2$$

- For Index Investable Universe:

$$\text{Stock-level weighted CI} = CI * \text{FFMC weight}^3$$

The Weighted Average Carbon Intensity (WACI) of the Index and the Index Starting Universe are established as follows:

- WACI of Portfolio = \sum Stock-level weighted CI

2.5.1.2 Decarbonization targets

The target metric for decarbonization objectives is the WACI. The following two objectives need to be respected at the same time – they form the **PAB Double Cap**.

i) Carbon Intensity reduction of the Index vs the Index Starting Universe of at least 50%

- The WACI of the Index each year will be compared to the WACI of the Index Starting Universe

ii) Year-on-year self-decarbonization trajectory of the Index⁴

- During the review in base year Euronext will calculate the WACI of the Index and calculate a decreasing trajectory of carbon intensity target for future years, with 7% annual geometrical decrease as below:

$$WACI_{T+1} \leq (1 - 0.07) * WACI_T$$

- This self-decarbonization trajectory will be made public

Ex:	Index WACI Trajectory	Trajectory Formula
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¹ In case Moodys-ESG does not provide Carbon Emissions then the carbon intensity is calculated as the median of the ICB Supersector carbon intensities.

² The calculation of the Index Weights are described in the section 2.5.2

³ Free Float Market Cap Weights of the components in the index starting universe

⁴ Trajectory calculation only applicable since the publication of the Index

Base Year T	1000	WACI _T
Year T+1	930	(1 – 0.07) * WACI _T
Year T+2	864.9	(1 – 0.07) ² * WACI _T

The base date and level of the carbon intensity are the following:

Base date of Carbon intensity	Carbon intensity
18/11/2022	201.26

2.5.2 Weight adjustments to achieve decarbonization objectives:

The index weights are constructed using an optimization process that aims to achieve the decarbonization objectives while minimizing the weights' deviation from the Free Float Market Cap Weights (Weight_{FFMC}).

The objective function to minimize is the following:

$$f(w_1, w_2, \dots, w_p) = \sum_{i=1}^p (w_i - w_i^{FFMC})^2$$

With:

- w_i = Weight of constituent i in the portfolio
- w_i^{FFMC} = Free Float Market Cap Weight of constituent i in the portfolio
- P = Number of constituents in the portfolio

The constraints imposed are the following:

- All weights are positive and sum to 1
- US stocks weights sum is capped to 0.6
- All weights are capped at 15%
- High Stake NACE Section weight in the Index \geq High Stake NACE Section weight in the Index Starting Universe
- Minimum reduction in WACI relative to Parent index of 50% (Scope 1+2+3)⁵
- Minimum average reduction (per annum) in WACI relative to WACI at the base year of 7%
- The weight in the Index should satisfy the two below inequalities:
 - $\frac{\text{Weight}_{FFMC}}{\text{factor}} \leq \text{Weight in the Index} \leq \text{Weight}_{FFMC} \times \text{factor}$
 - The initial value of the factors is 2

During the annual Index review, in the event that there is no optimal solution that satisfies all the optimization constraints, the following constraints will be alternatively relaxed, until an optimal solution is found:

⁵ An additional constraint that maximizes the WACI reduction relative to Index Starting Universe at 40% was used in the backtested Index

- Relax the factor in steps of 1 up to a maximum factor of 20

In the event that no optimal solution is found after all constraint relaxations are exhausted, the relevant Index will not be rebalanced for that Annual Index Review.

3. REFERENCES

Index name	Isin code	Mnemonic	Bloomberg Code	Reuters code	Base date	Base value	Publication since	Index Type
Euronext Transatlantic PAB 50	FRCLIM000106	TPABP	TRPAB5P	.TPABP	01/01/2010	1000	01/09/2023	Price Return
Euronext Transatlantic PAB 50 NR	FRCLIM000114	TPABN	TRPABN	.TPABN	01/01/2010	1000	01/09/2023	Net Return
Euronext Transatlantic PAB 50 GR	FRCLIM000122	TPABG	TRPABG	.TPABG	01/01/2010	1000	01/09/2023	Gross Return
Euronext Transatlantic PAB 50 Decrement 5%	FRCLIM000130	TPAB5	TRPAB50	.TPAB5	01/01/2010	1000	01/09/2023	Decrement 5% on Net Return

3.1 BASE CURRENCY

The Base Currency of this index family is Euro.

3.2 PUBLICATION

The opening index level is disseminated at the same time as the first index level. The index is calculated based on the most recent prices of transactions concluded on the relevant markets. The level of the index is in principle published every 15 seconds. The index is calculated from 09:00 hours until US Markets stop regular daytime trading on the days when the Euronext Markets are open for trading.

The closing level is the last level disseminated on the trading day.

4. ESG DISCLOSURES

EXPLANATION OF HOW ESG FACTORS ARE REFLECTED IN THE KEY ELEMENTS OF THE BENCHMARK METHODOLOGY	
Item 1. Name of the benchmark administrator.	Euronext Paris
Item 2. Type of benchmark	Equity Benchmark
Item 3. Name of the benchmark or family of benchmarks.	Euronext Transatlantic PAB 50 Index
Item 4. Does the benchmark methodology for the benchmark or family of benchmarks take into account ESG factors?	Yes
Item 5. If the response to Item 4 is positive, please find below the ESG factors that are taken into account in the benchmark methodology and how they are used for selection, weighting and exclusion	
a) List of combined ESG factors	<p>Exclusion:</p> <ul style="list-style-type: none"> • Companies not integrating Global Compact principles to a certain level i.e. "Non communicative" and/or "controversial" as determined by Moody's ESG solutions. It is based on the following description: <ul style="list-style-type: none"> • Presence of critical controversies on UNGC ESG criteria including environmental criteria • Presence of revenues from production of tobacco • Presence of revenues from landmines or cluster munitions • Companies with an Involvement >0% of the turnover or more derived from Coal mining and extraction. • Companies with an involvement ≥10% of the turnover derived from Fossil Fuels industry including the following activities: <ul style="list-style-type: none"> • Upstream (exploration, production) • Midstream (processing and transport) • Power generation from fossil sources • Companies belonging to NACE section D35.2.2 i.e. "Distribution of gaseous fuels through mains" are excluded. • Electricity producers with lifecycle GHG Emissions higher than 100Gco2/kWh as determined by Moody's ESG Solutions. • Companies that threat to the wellbeing of animals: animal testing, fur and intensive farming.

	<ul style="list-style-type: none"> • Companies involved in genetic engineering • Companies involved in Human Embryonic Stem Cells • Companies providing full weapon systems and platforms, or key parts and services, for controversial weapons (This criterion does not cover general parts or services) as determined by Moody's ESG Solutions. It includes : <ul style="list-style-type: none"> • Anti-Personnel Mines • Cluster Munitions • Chemical Weapons • Biological Weapons • Nuclear Weapons • Incendiary Weapons • Non-Detectable Fragments • Blinding Laser Weapons • White phosphorus Weapons • Depleted Uranium Weapons
b) List of environmental factors considered:	<i>Refer to a)</i>
c) List of social factors considered:	<i>Refer to a)</i>
d) List of governance factors considered:	<i>Refer to a)</i>
Item 6. Data and standards used.	
a) Data input. <i>(i) Describe whether the data are reported, modelled or, sourced internally or externally.</i> <i>(ii) Where the data are reported, modelled or sourced externally, please name the third party data provider.</i>	Moody's ESG Solutions <ul style="list-style-type: none"> • Moody's ESG Solutions research on Carbon Emissions • United Nations Global Compact (UNGC) screening • Controversial weapons involvement (MIL 1.2) • Fossil fuels industry revenue (FOSF 1.2) • Coal mining (FOSF 2.1) • Carbon factor (V.E ENV1008)
b) Verification of data and guaranteeing the quality of those data. <i>Describe how data are verified and how the quality of those data is ensured.</i>	Moody's ESG Solutions Moody's ESG Solutions represents and warrants that to the best of its knowledge the Methodology is robust and reliable, rigorous, and capable of validating and verifying including, but not limited to, the following: <ul style="list-style-type: none"> • Shall promptly correct any errors made in its computations of the Data and inform Euronext thereof, immediately. • Periodically review the Methodology • Has clear written rules identifying how and when discretion may be exercised when deviating from the methodology • Will inform Euronext prior to making any material change to the Methodology and will

	provide Euronext with the rationale for such change.
<p>c) Reference standards</p> <p><i>Describe the international standards used in the benchmark methodology.</i></p>	<p>Moody's ESG Solutions</p> <p>The methodology behind ESG performance indicators and the assessment of controversies severity is based on the following international standards:</p> <ul style="list-style-type: none"> • Global Reporting Initiative (GRI) • OECD Guidelines for Multinational Enterprises, and sectorial guidance • G20/OECD recommendations on Corporate governance • UN Conventions and recommendations, • UN Global Compact Principles • UN Sustainable Development Goals • ILO Conventions, including the core ones, and recommendations • TFCD recommendations • Paris Agreement (UNFCCC)
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