

INDEX RULE BOOK

Rules for the EXT Index family

CAC 40[®] EXT, AEX[®] EXT

Version 19-01

Effective from 2 October 2019

indices.euronext.com

Index

1.	Index Summary		1
2.	Governance and disclaimer		3
2.1	Indices	3	
2.2	Underlying Index	3	
2.3	Administrator	3	
2.4	Cases not covered in rules	3	
2.5	Rule book changes	3	
2.6	Liability	3	
2.7	Ownership and trademarks	3	
3.	Calculation of the Ext Index		4
3.1	Definition	4	
3.2	Calculation	4	
3.3	Future maturity and prices	4	
3.4	Publication frequency	4	
3.5	Session	4	
3.6	Rollover	4	
3.7	Exceptional event	4	
3.8	Formula	4	

1. INDEX SUMMARY

Factsheet	EXT index family
Index names	CAC 40 [®] EXT, AEX [®] EXT
Index type	Market Index
Underlying index	CAC 40, AEX
Administrator	Euronext Amsterdam for the AEX EXT. Euronext Paris for the CAC EXT.
Dissemination	The EXT Index is calculated and distributed from 8.00 a.m. till 6:30 p.m.
Methodology	The EXT Index is calculated on the basis of the first month futures contract on the underlying index traded on the Euronext exchange, adjusted for interest payments and dividends.
Risk free interest rate	The risk free interest rate is calculated by a linear interpolation of the reference rates (averaging the two closest listed interest rates, above and below the future expiration rate).
Dividends	Dividends points to be paid until the expiration date (announced and forecasted).
Rollover	Rolling between the first month futures and the second month futures takes place one day before the expiration date.
Calculation frequency	Every 15s
Base Currency	EUR

Note: the factsheet is a summary of the rule book for information purposes only. The text of the rulebook is leading.

Index name	Isincode	Mnemo	Bloomberg Code	Reuters code	Mic
CAC 40® EXT	QS0011252754	CAEXT	CAEXT	.CAEXT	XPAR
AEX® EXT	QS0011257225	AEEXT	AEEXT	.AEEXT	XAMS

Version notes

18-01 Removal of the 2W Eonia Swap (Euro) and replacement of the 2M Eonia Swap (Euro) by the MM Eonia Swap (Euro).

19-01 Removal of the 3W Eonia Swap (Euro) and replacement of EONIA rates by recalibrated EONIA (€STR plus a spread) and Euribor rates. Update of governance naming.

2. GOVERNANCE AND DISCLAIMER

2.1 INDICES

This rule book applies to the following indices (hereinafter “EXT index”) owned by Euronext N.V. or its subsidiaries (hereinafter jointly “Euronext”):

- AEX EXT
- CAC 40 EXT

2.2 UNDERLYING INDEX

The underlying indices for the EXT index, hereafter referred to as “Underlying index”, are:

- AEX-Index®
- CAC 40®

2.3 ADMINISTRATOR

Euronext Amsterdam is the Administrator of the AEX EXT index. Euronext Paris is the Administrator of the CAC EXT index. The Administrator is responsible for all aspects of the management of the index. Within the scope of the Administrator, Index Design is responsible for decisions regarding the interpretation of these rules.

2.4 CASES NOT COVERED IN RULES

In cases which are not expressly covered in these rules, operational adjustments will take place along the lines of the aim of the index. Operational adjustments may also take place if, in the opinion of Index Design, it is desirable to do so to maintain a fair and orderly market in derivatives on this index and/or this is in the best interests of the investors in products based on the index and/or the proper functioning of the markets.

2.5 RULE BOOK CHANGES

These rules may be supplemented, amended in whole or in part, revised or withdrawn at any time. Supplements, amendments, revisions and withdrawals may also lead to changes in the way the index is compiled or calculated or affect the index in another way.

2.6 LIABILITY

Euronext is not liable for any losses resulting from supplementing, amending, revising or withdrawing the rules for the index.

Euronext will do everything within its power to ensure the accuracy of the composition, calculation, publication and adjustment of the index in accordance with relevant rules. However Euronext is not liable for any inaccuracy in index composition, share prices, calculations and the publication of the index, the information used for making adjustments to the index and the actual adjustments. Furthermore, Euronext does not guarantee the continuity of the composition of the index, the continuity of the method of calculation of the index, the continuity of the dissemination of the index levels, and the continuity of the calculation of the index.

2.7 OWNERSHIP AND TRADEMARKS

Euronext owns all intellectual and other property rights to the index, including the name, the composition and the calculation of the index. AEX®, AEX-Index®, CAC® and CAC 40® are registered trademarks of Euronext.

3. CALCULATION OF THE EXT INDEX

3.1 DEFINITION

The EXT Index aims to give investors an indicator of the levels of the Underlying index outside the regular Euronext trading period.

3.2 CALCULATION

The EXT Index is calculated on the basis of the futures contracts traded on the Euronext exchange, adjusted for interest payments and dividends (see below).

3.3 FUTURE MATURITY AND PRICES

The values of the EXT Index are calculated using the last traded prices of the 1st month futures traded on Euronext.

3.4 PUBLICATION FREQUENCY

The level of the EXT index is in principle published every 15 seconds.

3.5 SESSION

The calculation of the levels of the EXT index starts at 8.00 a.m. to 6.30 p.m.

3.6 ROLLOVER

Rolling between the first month futures and the second month futures takes place one day before the expiration date.

3.7 EXCEPTIONAL EVENT

If there is a disruption event of the Underlying index, the EXT index will continue to be calculated using the latest prices available on the future market.

If the futures exchange fails to open or halts due to unforeseen circumstances, the Administrator may decide to stop the calculation and broadcast of the EXT index. As a rule, the EXT index will not be recalculated.

3.8 FORMULA

The general formula of the EXT Index is defined as follows:

$$\text{EXT Index} = F_t e^{-r^*t} + D_t$$

Where:

F_t = Last prices of the 1st month future at time t

t = Number of days to expiration of the 1st month future maturity / 360

r^* = Interpolated risk free interest rate (see section below)

D_t = Dividend to be paid by the components of the underlying index until the 1st month future maturity

3.8.1 Risk Free rate (r^*)

The risk free interest rate (r) is calculated by a linear interpolation of the recalibrated EONIA (€STR plus a spread) or Euribor swap rates as described below:

$$r^* = r_1 + \frac{r_2 - r_1}{t_2 - t_1} \times t_* - t_1$$

Where

r^* = Risk free rate, i.e interpolated rate between r_1 and r_2

r_1 = Listed recalibrated EONIA (€STR plus a spread) or Euribor swap rate with closest maturity **before** the futures expiration date.

r_2 = Listed Euribor swap rate with closest maturity **after** the futures expiration date.

t_1 = Number of days to maturity for r_1

t_2 = Number of days to maturity for r_2 where $t_1 < t^* < t_2$

t^* = Number of days to maturity for r^*

Name	Maturity
recalibrated EONIA (€STR plus a spread)	1D
1W Euribor Swap (Euro)	1 Week
1M Euribor Swap (Euro)	1 Month
3M Euribor Swap (Euro)	3 Months

3.8.2 Dividends (D_t)

D_t represents the total amount of dividend points to be paid by the components of the Underlying index until the 1st month future maturity. For each index constituent the dividend amount considered for the calculation is equal to the amount of ordinary gross dividend calculated in index points.

Most of the times, companies announced their dividend before the 1st month future expiration. If not, dividend forecasts (amount and ex-date) will be based on dividend estimates.