



Rules for the CAC 40® Protective Put index

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1. Composition of the CAC 40 Protective Put index

- 1.1 *Definition of CAC 40 Protective Put Index* The CAC 40 Protective Put index is an index that reflects the performance of the well-known Protective Put Strategy as applied to the CAC 40 index.
- 1.2 *Composition of the CAC 40 Protective Put Index* The CAC 40 Protective Put index is made up of the combination of a long position on the CAC 40 index and the purchase of a CAC 40 put option based on the CAC 40 index options contract traded on Euronext Liffe.
- The CAC 40 put option purchased is an out-of-the-money option with 5% moneyness and a time to expiration of one month. The short lifetime of the option involves a monthly adjustment as defined in section 3.

2. Calculation of the CAC 40 Protective Put index

- 2.1 *Calculation outside rolling time* The CAC 40 Protective Put Index is calculated according to the following formula on a given trading day j, at any time (t) except on the rolling time:

$$CACP_{j,t} = \frac{f_{\text{exp}+1,j-1} \times (I_t + D_j) + P_t}{I_{\text{exp}} + P_0} \times CACP_{\text{exp}}$$

$CACC_{j,t}$ = CAC 40 Protective Put index level at time t on day j

$CACC_{\text{exp}}$ = CAC 40 Protective Put settlement price index at the last expiry date (exp)

I_t = CAC 40 Index level at time t on day j

I_{exp} = CAC 40 settlement price index at the last expiry date (exp)

D_j = index point dividends paid by the CAC 40 Index on day j

$f_{\text{exp}+1,j-1}$ = factor dividend reflecting the holding period dividend yield since the first trading day following the last expiry date (exp)

Whereby

$$f_{\text{exp}+1,j-1} = \prod_{d=\text{exp}+1}^{j-1} (1 + \delta_d)$$

and where

$$\delta_d = \frac{D_d}{I_d}$$

P_t = last price of the CAC 40 put option at time t on day j

P_0 = inclusion price of the CAC 40 Put option defined as the arithmetic average of the best asks quoted on Euronext Liffe from 16:15:00 to 16:45:00 CET

D_j and the factor $f_{\text{exp}+1,j-1}$ are available on the at “newindices.euronext.com”.

2.2 *Calculation frequency* The CAC 40 Protective Put index is calculated with the same frequency as the CAC 40 index, except on the option expiry day. The CAC 40 Protective Put index is then calculated every 30s between 09:00 and 17:35 CET.

2.3 *Calculation on the rolling day at the expiry time* The CAC 40 Protective Put index is calculated according to the following formula on the rolling day (exp), at the expiry time of the option:

$$CACP_{\text{exp}} = \frac{f_{\text{prev exp,exp}} \times (I_{\text{exp}} + D_{\text{exp}}) + P_{\text{exp}}}{I_{\text{prev exp}} + P_0'} \times CACP_{\text{prev exp}}$$

Whereby

$CACC_{\text{prev exp}}$ = CAC 40 Protective Put settlement price index at the previous expiry day

C_{exp} = settlement price of the CAC 40 put option at the current expiry date (exp)

$I_{\text{prev exp}}$ = CAC 40 settlement price index at the expiry date (prevexp), that is the date of the previous expiry before the current expiry

C_0' = inclusion price of the CAC 40 Put option defined as the arithmetic average of the best asks quoted on Euronext Liffe from 16:15:00 to 16:45:00 CET

$f_{\text{prev exp,exp}}$ = factor dividend reflecting the holding period dividend yield since the previous expiry

2.4 *Calculation on the rolling day after the rolling time* On the expiry day, and after the rollover time, the CAC 40 Protective Put index is calculated according to the formula previously described in the section 2.1. The parameters $f_{\text{exp}+1,j-1}$ and D_j are, however, reset to 1 and 0 respectively.

3. Rollover procedure of the CAC 40 Protective Put index

- 3.1 *Purpose of the procedure* On the expiration date of the option included in the calculation of the CAC 40 Protective Put index, a monthly adjustment that entails the inclusion of a new put option with a remaining lifetime of one month is required to make sure that the CAC 40 Protective Put will continue to reflect the strategy on which is based.
- 3.2 *Rollover procedure* The rollover procedure of the CAC 40 Protective Put index is carried out according to the following steps:
1. The calculation of the CAC 40 Protective Put index is temporarily suspended at the option expiration on the rolling time (at 16:00 CET).
 2. The expiry or settlement value of the CAC 40 Protective Put index $CACC_{exp}$ is calculated on the basis of the CAC 40 settlement price index I_{exp} and the CAC 40 put option expiration value C_{exp} .
 3. The new 5% out-of-the-money put option is selected on the basis of the settlement price of the CAC 40 index. The relevant strike is the lowest strike equal or above 95% the settlement price of the CAC 40 index.
 4. The inclusion price of the new put option is determined. It is defined as the arithmetic average of the best asks quoted between 16:15:00 and 16:45:00 (CET).
 5. The calculation of the CAC 40 Protective Put index resumes at 16:45 with the new one-month put option.

4. Special circumstances of trading

4.1 *Unavailability of the CAC 40 Put option*

1. Unavailability outside the rolling period

If the CAC 40 put options prices are not available during regular daytime trading on Euronext Liffe, except during the rolling period, the CAC 40 Protective Put index will be calculated with the last known option price.

2. Unavailability during the rolling period

If for any reason, the new CAC 40 put option prices cease to be established during the averaging period (that takes place from 16:15 to 16:45 CET), only the bid prices quoted before the suspension of trading will be considered for determining the inclusion price of the new option, provided that the asks available are deemed economically representative of option premium.

If the CAC 40 options contract prices cease to be established before the averaging period and trading does not resume before the end of the averaging period, the rollover procedure will be postponed until Euronext Liffe announces the resumption of the official trading.

If the CAC 40 options are suspended until the end of trading, the rollover will be implemented during the next business day on the basis of a time schedule published by Euronext.

4.2 *Unavailability of the underlying*

1. Unavailability outside the expiry time

If the publication of the CAC 40 index is suspended during regular daytime trading on Euronext markets, the CAC 40 Protective Put index will be calculated with the last known CAC 40 index level until the dissemination of the CAC 40 index levels resumes.

2. Unavailability on the expiry date

If the level of the CAC 40 index settlement price is not available on the expiry date, the calculation of the settlement value of the CAC 40 Protective Put index value will be delayed until Euronext Liffe establishes the underlying settlement price that should prevail on the expiry date in question.

If the unavailability of the settlement price makes the determination of the inclusion price impossible, the rollover will be implemented according to conditions laid down in the article 4.1.

5. Examples

In the following example, the settlement price of the CAC 40 index I_{exp} is supposed to be equal to 6 150 on day 0. The lowest strike equal or above 105% the settlement price is 5 850.

	(a) CAC 40 Index (t)	Call Price (t)	CAC Cexp	Inclusion price option	(b) Dividend in index points (Dt)	factor ft	CAC 40 settlement Price (Iexp)	CACC(t)
Day 1	5 898.16	41	97	50	0.375480147	1	6 150	92.92
Day 2	5 934.27	39.7	97	50	0 (*)1.0000697756371		6 150	93.74
Day 3	6 047.23	45	97	50	0.811500221	1.0000697756371	6 150	95.46
Day 4	6 105.28	35.5	97	50	0 (**)1.00022423873575		6 150	96.54
	(*)'1.0000697756371=[1+(b)/(a)]							
	(**) 1.00022424=[1.000697756371*(1+0.811500221/5254.05)]							
	The Dt and ft are available on the Euronext website							