

Historical Close-to-Close Volatility

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$$r_i = \ln \left(\frac{C_{i+1}}{C_i} \right)$$

$$\bar{r} = \frac{r_1 + r_2 + \dots + r_{n-1}}{n - 1}$$

$$\sigma = \sqrt{\frac{Z}{n - 2} \sum_{i=1}^{n-1} (r_i - \bar{r})^2}$$

Historical volatility calculation using close-to-close prices.

Symbol list:

σ	Volatility
C_i	The closing price on the ith day
n	Number of historical days used in the volatility estimate
r_i	Log return on the ith day
Z	The number of closing prices in a year