First, let me remind you the Gaussian probability density function:

$$G(x;\mu,\sigma)=\frac{1}{\sigma\sqrt{2\pi}}e^{-\frac{(x-\mu)^2}{2\sigma^2}},$$

Here x is a random variable, which is a price change $p(t+\tau)-p(t)$ in our case, and μ and σ are parameters, for which, as you can check the following equalities are true:

$$\langle x\rangle=\mu \text{ and } \langle x^2\rangle=\sigma^2,$$

where by $\langle ...\rangle$, I have denoted averaging over a PDF.

Let us, say, you chose to histogram an empirically given to you random variable y (for example, using an Histogram tool in Excel). For that you need to select an equidistant range of bins, separated with step Δ. Then the PDF value obtained from the numerical histogram measurements can be calculated as follows:

$$P(x_i)=\frac{1}{\Delta}\frac{N_i}{N},$$

where i is the bin number, N_i is the count of values in bin i, and $N=\sum_{i=1}^{M}N_i$, where M is the number of bins. This empirical PDF needs to be calculated as an function of $\hat{x}_i=x_i-\frac{\Delta}{2}$, as the center of bin having x_i as its larger endpoint.