The Model:

We have two assets X and Y, which are tied are tied to the objective true value, (TV) but have a probability to *break-up* and thus no longer be tied to the true value. We conduct pairs-trading strategy on X and Y if difference in the prices of X and Y becomes greater than a given threshold, and we trade back when the prices converge back.

Definitions of X and Y:

Both X and Y start at 100, as well as the TV.

If x_i is less then tv_i:

$$detlaX_i = Uniform(-variance, variance) \tag{1}$$

$deltaX_i$ is chosen from an uniform distributes that ranges between specifed values of variance.

$$detlaTV_i = Uniform(-variance, variance) \tag{2}$$

$deltaTV_i$ is chosen from an uniform distributes that ranges between specifed values of variance.

$$tv_{i+i} = tv_i + deltaTV \tag{3}$$

$$x_{i+i} = x_i + deltaX_i + (tv_i - x_i) * ConvRate \tag{4}$$

Therefore, for non-zero value of *ConvRate* X and expected 0 value of *deltaX*, X is getting a bump and is tending towards convergence.