

Exponential Calculations for PCFs

Special thanks to imcharodude who introduced the Group to the formula for calculating Exponential Moving Averages (9/12/00 ejr39)

Calculating Exponential Percentage

(message 11519)

"An exponential (or exponentially weighted) moving average is calculated by applying a percentage of today's closing price to yesterday's moving average value. Exponential moving averages place more weight on recent prices."

From: <http://www.equis.com/free/taaz/movingaverages.html>

"The formula for converting time periods to exponential percentages is:

$(2 / (\text{Time Periods} + 1))$ "

Calculate to 3 places after the decimal.

An example using 21 time periods (i.e. days in 1 trading month):

$(2 / (\text{Time Periods} + 1))$

$2 / (21+1)$ or $2 / 22 = 0.091$

the result is the 21-day exponential percentage or

(ep) = 0.091

$(1-(2/(21+1)))$

$1 - (\text{ep}) = 0.909$

this result is the 21-day exponential percentage

subtracted from 1 or (ep1) = 0.909

An example using 12 time periods,

i.e. as used with the Indicator Tab# setting

. MACD Short: 12 Long: 26 - Exponential

$(2 / (\text{Time Periods} + 1))$

$2 / (12+1)$ or $2 / 13 = 0.154$

the result is the 12-day exponential percentage or

(ep) = 0.154

$(1-(2/(12+1)))$

$1 - (\text{ep}) = 0.846$

this result is the 12-day exponential percentage

subtracted from 1 or (ep1) = 0.846

An example using 26 time periods,

i.e. as used with the Indicator Tab# setting

. MACD Short: 12 Long: 26 - Exponential

$(2 / (\text{Time Periods} + 1))$

$2 / (26+1)$ or $2 / 27 = 0.074$

the result is the 26-day exponential percentage or

(ep) = 0.074

$(1-(2/(26+1)))$

$1 - (\text{ep}) = 0.926$

this result is the 26-day exponential percentage

subtracted from 1 or (ep1) = 0.926

Writing the 21-day EMA PCF

(message 11520)

For the 21-period EMA, copy the following formula to a word processor:

```
(((((AVGC21.21
*ep1+C20*ep) *ep1+C19*ep) *ep1+C18*ep)
*ep1+C17*ep) *ep1+C16*ep) *ep1+C15*ep)
*ep1+C14*ep) *ep1+C13*ep) *ep1+C12*ep)
*ep1+C11*ep) *ep1+C10*ep) *ep1+C9*ep)
*ep1+C8*ep) *ep1+C7*ep) *ep1+C6*ep)
*ep1+C5*ep) *ep1+C4*ep) *ep1+C3*ep)
*ep1+C2*ep) *ep1+C1*ep) *ep1+C*ep)
```

Replace: the characters 'ep' with the result of ep.

. For the 21-day example, ep = 0.091

Replace: the characters 'ep1' with the result of ep1.

. For the 21-day example, ep1 = 0.909

Count the number of) or right parens after each item in the list. The number of right parens must equal the number of (or left parens in the top line.

Remove ALL spaces and line returns from the formula.

Highlight an Editing formula for window.

Copy the spaceless formula to the Editing formula for window.

Test.

If a Syntax Error occurs,

. be sure the number of left parens equals the number of right parens.

Calculate For: All Stocks

Update All Criteria.

Testing the Exponential Moving Average PCF

(message 11521)

Be sure that the Price moving average is displayed as exponential:

Select a Chart Tab#

From the TC2000 menu bar,

Click [I] for the Editing Indicator Tab# window,

Top Window

. Prices - xxx Chart

. . Moving Average - 21 bars Exponential

During the testing phase, you may wish to uncheck the visibility of other moving averages in the Editing Indicator Tab# window.

From the Sort dropdown menu,

. Select: #0 21-day EMA

From the TC2000 menu bar,

. Click the plus magnifying glass

. . Set: Zoom = 8 or 9

Suggestion:

From the tools list,

. Select: Chart Display Options

. . Use Classic Telechart Scaling

Do the Sort Values agree with the right tip of the 21-EMA line?

Keep in mind the mechanical distortion resulting from the chart graphing process.

If the Sort Values and the chart 21-EMA are erratic or grossly inaccurate, check the PCF to be sure that there are 21 decending sequential entries.

When satisfied with the results, return chart display options to your preferred settings.

Writing other Exponential Moving Average PCFs:

(message 11521)

Calculate the Exponential Percentage for the moving average:

(((<= number of left parens in this line must equal
the number of) right parens in the formula.

AVGCnn <= simple moving average

.n <= as of or the same as nn

*ep1 + Cn-1 * ep) <= Cn-1 is the Close for the day

following .n

*ep1 + Cn-2 * ep) <= Cn-2 is the Close for the second

day following .n

include 1 decending sequential entry for each Close

following .n

*ep1+C*ep)

Replace ep with the value from the Exponential Percentage calculation.

Replace ep1 with the value from the Exponential Percentage calculation.

Copy the spaceless formula to the Editing formula for window.

[Test] [Save] [Update All Criteria]

Follow the previous directions for Testing the Exponential Moving Average PCF.