

PLOTTING THE ATR SAFETY NET

By Leon Wilson

Last week we used an ATR display to set a trailing stop loss and an ATR safety net stop loss suitable for use with intra-day stop loss orders. The intention is to construct a non-returning trailing stop, unfortunately this is not possible unless we make our indicator trend specific. We can accomplish this in MetaStock by stipulating the starting point for our indicator which is achieved through the application of the Day, Month and Year functions. The important element with this initial step is the "BarsSince" function. What we are telling MetaStock to do is only reference price action since this date. The first stage of the formula is written as follows:-

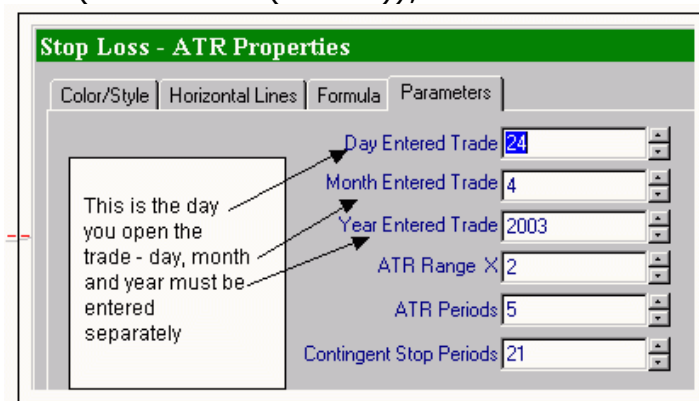
```
Day:=Input("Day Entered Trade",1,31,25);
Mnth:=Input("Month Entered Trade",1,12,6);
Yr:=Input("Year Entered Trade",1985,2100,2003);
HoldingDays:=BarsSince(Day=DayOfMonth() AND Mnth=Month() AND
Yr=Year());
```

The next step is to set some application parameters for the ATR calculations. When making adjustments we should avoid continually accessing the inner workings of the formula itself so we create three additional data panels for our indicator properties window. You will notice how each line concludes with three numbers. They represent the following values, first - lowest acceptable value, second - highest acceptable value, third - default value. The default ATR trailing stop parameters reads as follows 2 X ATR(5) and is written as shown below.

```
Value1:=Input("ATR Range X",1,5,2);
Value2:=Input("ATR Periods",5,34,5);
Value3:=Input("Contingent Stop Periods",3,34,21);
```

Now to calculate the trailing stop value below our closing price. The following line simply tells MetaStock to subtract 2 X ATR(5) from the closing price.

```
Stop:=CLOSE-(Value1*ATR(Value2));
```



The next step is to calculate our intra day contingent order value. This is the ATR Safety Net. Please remember that a contingent sell order does NOT replace our conventional trailing stop rule with a close below. This is purely a safety net for when things go against us intra day. We will permit intra day prices to dip below our trailing stop, however the dip allowed is not unlimited as the

greater the decline the less likely price action will return to close above our trailing stop value by days end. Average dips are acceptable, but anything beyond this will see us close out the position. On down days I like to know the average range of movement below the close, while on up days I monitor the range between the open and the low. In order to achieve this we can write the following steps:-

```
Down:=Sum(If(OPEN>CLOSE,CLOSE-LOW,CLOSE-LOW),Value3);
Up:=Sum(If(CLOSE>OPEN,OPEN-LOW,OPEN-LOW),Value3);
```

The last step is to average the intra day dips. I have set the default value at 21 periods however there is no reason why you can not apply the same periods as the ATR. You will notice that the following section of the formula has -0.01 at the conclusion. This places the intra day contingent sell order one cent below the average intra day dip being experienced.

```
ConStop:=(Stop-((Down+Up)/Value3))-0.01;
```

Now that we have the calculation process complete we just need to tell MetaStock how and when to plot our trailing stop. The following section stipulates that if the ATR value is higher than previous then plot the new value. If the new value is lower than the previous then plot then previous value and ignore the new ATR value. The ATR calculation generates values which are seldom whole numbers however we can not trade in fractions of a cent with most stocks. The round function of MetaStock is used to bring the ATR stop values to the whole cent. Finally we place the reference point for indicator commencement at the conclusion or our formula as shown by the placement of "holdingdays".

```
(Round(If(Stop>PREV,Stop,If(Stop<PREV,PREV,Stop*Holdingdays))*100)/100;
(Round(If(ConStop>PREV,ConStop,If(ConStop<PREV,PREV,ConStop*holdingdays))*100))/100;
```

Now that we have had a brief step by step look at the formula construction process, the end product appears as shown below. Copy and paste the following into your indicator builder:-

Indicator name:- ATR Trailing Stop

```
Day:=Input("Day Entered Trade",1,31,25);
Mnth:=Input("Month Entered Trade",1,12,6);
Yr:=Input("Year Entered Trade",1985,2100,2003);
HoldingDays:=BarsSince(Day=DayOfMonth() AND Mnth=Month() AND Yr=Year());
Value1:=Input("ATR Range X",1,5,2);
Value2:=Input("ATR Periods",5,34,5);
Value3:=Input("Contingent Stop Periods",3,34,21);

Stop:=CLOSE-(Value1*ATR(Value2));

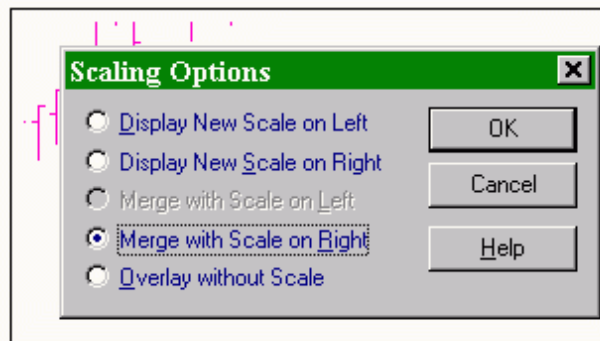
Down:=Sum(If(OPEN>CLOSE,CLOSE-LOW,CLOSE-LOW),Value3);
Up:=Sum(If(CLOSE>OPEN,OPEN-LOW,OPEN-LOW),Value3);
ConStop:=(Stop-((Down+Up)/Value3));
```

```

If(Stop>PREV,Stop,If(Stop<PREV,PREV,Stop*Holdingdays));
If(ConStop>PREV,ConStop,If(ConStop<PREV,PREV,ConStop*holdingdays)
);

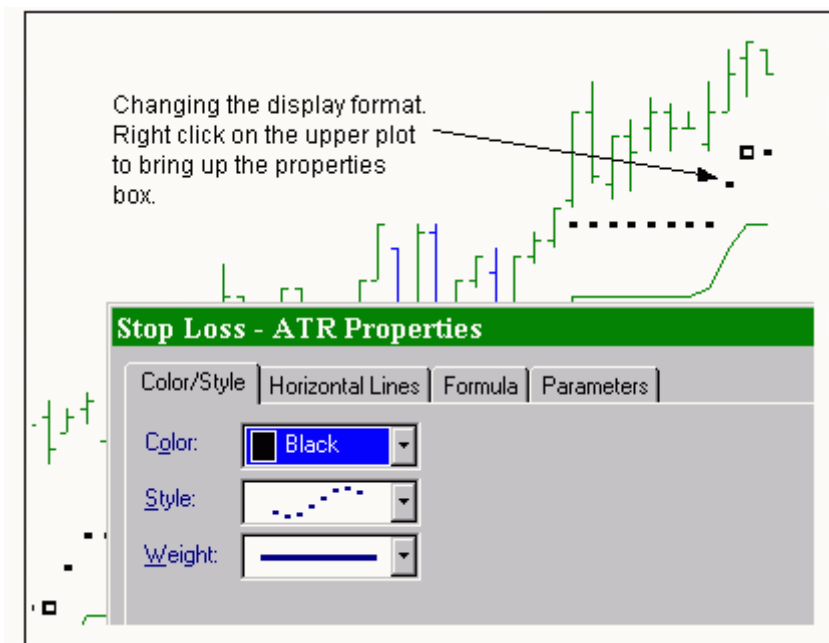
```

One final point to make is with regard to rounded values. The upside with rounded values is that we have an unambiguous price to work with. The problems start when we are trading low value stocks. By applying a rounded value, the position of our trailing stop will be disproportionate to price action. The final formula shown here will generate the precise ATR stop values and is suitable for all price ranges and increments. I would suggest that you avoid using whole values on stock's that trade in fractions of a cent. Readers wishing to apply a whole cent value to more expensive stocks must replace the last two lines of the formula with the two lines that include the "Round" function. The "Stop" calculation line has had the -0.01 excluded from the final formula. Its inclusion is also impractical on stocks that trade in fractions of a cent. Traders wishing to exit intra day on one cent below average movement should copy the line stipulating this requirement.



The only thing left to do is apply our trailing stop to our chart. Select the quick list menu at the top of your screen and scroll down to the formula section. If your trailing stop is not visible then you will need to access the indicator parameters through the indicator builder feature and activate the "Display in Quick List" function by selecting "Edit".

Once you have located your trailing stop, just drag and drop the indicator on to your chart as usual. You will be prompted by MetaStock with regard to scaling. In order for the ATR trailing stop to remain relative to price action we must "Merge with Scale on Right". I'm assuming here that your price scale is positioned to the right side of your screen. This is imperative for the stop to function correctly. Selecting "Display New Scale" or "Display without Scale" will see the trailing stop incorrectly positioned over price action. Click "OK" once you have chosen the correct merge procedure.



The indicator will usually appear on your screen as a continuous line whereas the preference for an ATR based trailing stop is to display a series of dots specific to each period. Place your screen arrow on the trailing stop and right click, then select the "Properties" function. The properties screen will now be visible. Select the "Colour/Style" tab to bring the page forward. In the "Style" pane select the dotted wave that usually appears at the bottom of the selection menu. In the "Weight" pane you may want to increase the visual aspect of the trailing stop so select the middle weighted line first up from the menu. This will be governed to a degree by the overall scaling of your chart so you may need to adjust line weight accordingly to better suit your own personal requirements, once done just click "OK".

You will need to repeat this process for the intra day contingent sell order value. Alternatively you may left click on the indicator so it becomes active, then select the required style and weight parameters from your main screen, however for these two features to be accessible on the main screen they need to be activated tool bars. I have a personal preference for displaying the contingent value as a continuous line in order to minimize any potential confusion between the two values. In addition to this I also have a greater line weight assigned to the ATR trailing stop so it is the dominant feature of the indicator and more pronounced on the chart. The choice is a personal one but I would suggest that the two values be clearly definable and easily distinguishable from the other. This is a trend specific non returning adjustable ATR trailing stop.

INDICATOR BUILDER

ATR SAFETY NET

ATR (Average True Range) is the measurement of volatility between today's high and low price in relation to yesterday's close. The application of ATR to trailing stops considers that a change in average volatility may reflect a change in characteristics for the stock. Common practice is to allow for two times the ATR

value. Greater than this reflects the probability of change calling for an exit from the stock. Two times ATR trailing stops are most effective when applied on a shorter term trading.

The ATR Safety Net sets an intra day contingent order value. A contingent sell order does NOT replace our conventional trailing stop rule with a close below. This is purely a safety net for when things go against us intra day. We will permit intra day prices to dip below our trailing stop, however the dip allowed is not unlimited as the greater the decline the less likely price action will return to close above our trailing stop value by days end. Average dips are acceptable, but anything beyond this triggers the safety net and will see us close out the position.