VOLATILITY BASED STOPS AND TRADE SIZE part I

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Recent volatility has traders looking for methods to identify and manage volatility. It's the new normal in the market and it makes investors uncomfortable.

When novice traders come into the market, they concentrate all their efforts on the entry part of the trade, neglecting the risk calculations to keep them in the game if their entry is incorrect (which is often).

Stoploss calculations done prior to the trade being taken is vital in assisting us in showing discipline when having to cut our trades short because it has gone against us.

If we only concentrate on the entry and take it when it is triggered, without a stoploss point already decided, when the trade turns on us we go into hope mode, we hope it will turn around, then we think that if we wait for a rally we can get out with less of a loss.

The stock falls further and we either panic and sell the lot at a greater loss, worse still, we buy more and think we can average down to get out even or put it in our bottom drawer and label it an investment.

Stoploss points are usually placed at minor swing lows when going long or highs if we are going short. This is the most common method and is reasonably effective.

Then there is the arbitrary money stop where the stop is placed at the entry minus 2% of our account, i.e. entry at 1$ x 1000 parcels = $1000, stop = 2% of account= $200 for a $10,000 account,

So $1000-$200 = $800, $800 / 1000 parcels = .80 as your stoploss level.

The problem with these methods is there is either not enough room for the market to move, or too little room and we get stopped out to early.

Some traders will use a 13 day Exponential moving average for a trailing stop in fast moving markets to catch as much profit as possible, this method is fine, but we must have a re-entry method in place to get us back in just in case the move retraces and then moves upwards into a new long term up trend.

Traders with a longer time frame will often use the 30-day exponential moving average, as there trailing stop, but this is a lagging method and often gives too much back.

Then there is the 3-day count-back technique, which works fantastic on stocks with low volatility but can sometimes give too much back on the more volatile stocks making big moves.
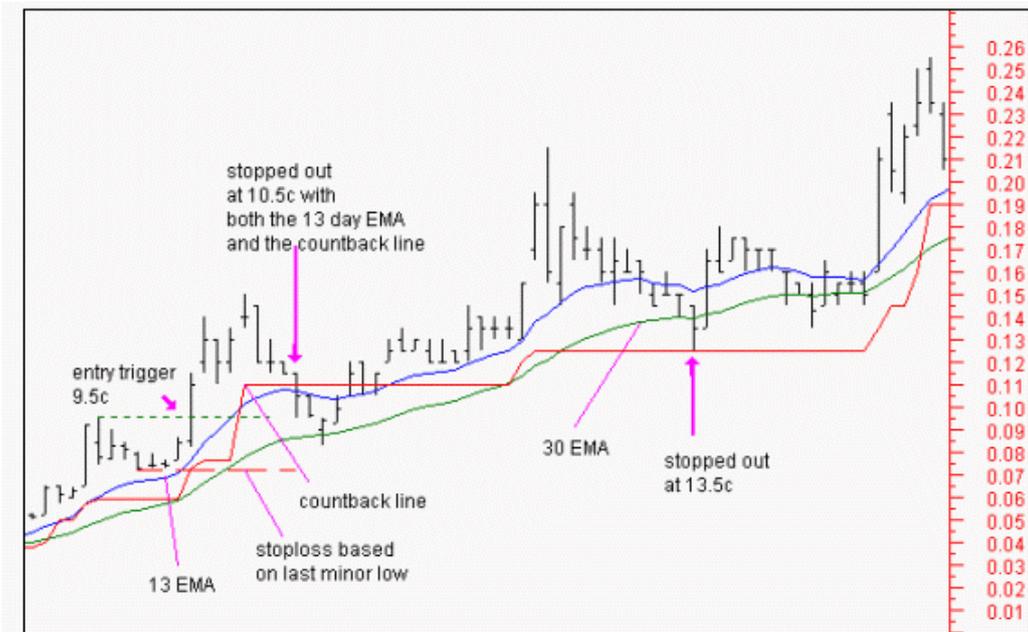
Now how do we fix these problems?

We have to come up with a stoploss calculation that takes into account the volatility of the stock so we can stay in the trade and take advantage of the bigger trending moves.

CLOSE	LN(P/P-1)
$0.11	27%
$0.08	13%
$0.07	0%
$0.07	1%
$0.07	-10%
$0.08	-2%
$0.08	6%
$0.08	-17%
$0.09	38%
$0.06	3%
$0.06	-5%
$0.06	23%
$0.05	0%
$0.05	-2%
$0.05	
Mean =	5.35%
Std.Dev =	14.937%

According to modern portfolio theory, traders can use the concept of volatility to set more effective stops, by considering, not only their own risk aversion but also the risk of the underlying stock.

When a stock moves from $0.50 to $1.50, can we call this a volatile stock?

The answer is that we do not know, because the volatility is referring to price change not price direction.

To define a stock's volatility we have to calculate the standard deviation of percentage price change

[Volatility = (Std Dev of natural logarithm x (Price / yesterdays Price))].

We use **percentage** price change in place of price change due to the frequency distribution of the data.

Frequency distribution of **price** change resembles a log normal distribution and causes problems due to its asymmetry around the mean; this is caused by the fact that stocks don't have negative values.

Using **percentage** price change gives it a more normal distribution and is symmetrical around the mean.

Let's say a trader is considering a long position at 11c based on the close after a break above the last minor high of 9.5c, and he is prepared to lose $200 out of his $10,000 account with a reward objective of 80%. This would give him a stoploss point of 10.78c for a price objective of 19.8c.

Now let's look at this trade using Value at risk (VAR).

VAR can be defined as the amount a stock can lose during a fixed period within a certain probability.

If we consider that the continuously compounded returns of a stock behave within a normal distribution and that it will hold for a certain future period, VAR can be calculated as; VAR = Mean +/- (Y)(std.dev).

Y is the confidence coefficient required to give a percentage probability of movement.

In a normal distribution 99% of the data will lie within a range of (mean +/- 2.326 x std.dev.)

For a 90% probability Y= 1.645 and for 95% Y=1.96

Using the VAR calc we can determine with 99% confidence that the price range will be contained between 8.2c and 17.34c over the coming week, as long as the distribution used in the calculation remains the same.

Upper range:

= Last x exponential(mean + Y x Std.dev)time
= .011 x exponential(5.35% + 2.326 x 14.937%)1
= 17.34c
17.35 / 11 – 1 x 100 = 57.72%
Lower range:

= Last x exponential(mean - Y x Std.dev)time
= .011 x exponential(5.35% - 2.326 x 14.937%)1
= 8.2c
= 8.2 / 11 – 1 x 100 = 25.45%

These ranges will allow for movement based on the stocks current volatility as long as the distribution remains the same during the week. This means there is only a 1% chance that the stock will move beyond this range over the following week.

Using this information we can establish a parcel size to suit the risk that the stock is trading at.

= Risk aversion / VAR
= $200 / 25.45% = $785.8 = 7144 shares

If you were to include brokerage of $30 each way, you could only afford to purchase 4998 shares.
= Risk aversion / VAR
= ($200-$60) / 25.45% = $549.75 = 4998 shares

So this position has a 99% probability of losing no more than $200 with an expected return of:
= 4998 x .11 x 80% = $439.82 return after brokerage.
This gives us a reward to risk ratio of 2.2 /1

I have designed a Metastock code which when placed in the indicator builder gives us the upper and lower stoploss range.

Volatility stoploss:
M:= Mov(((C/Ref(C,-1))-1),14,E);
SD:= Stdev(((C/Ref(C,-1))-1),14);
R:= M+(2.326)*(SD);
{R at 2.326 will give a 99% confidence rating}
C*Exp(R)*1;

M:= Mov(((C/Ref(C,-1))-1),14,E);
SD:= Stdev(((C/Ref(C,-1))-1),14);
R:= M-(2.326)*(SD);
{R at 2.326 will give a 99% confidence rating}
C*Exp(R)*1

Once this is plotted, use the tool bar to change the lines to dots.

Note: That this is a stoploss calculation and not a trailing stop method, next week we will look at using this figure to design a trailing stop that will keep us in the big moves whilst stopping us out of unfavourable ones.

MONEY MANAGEMENT:
VALUE AT RISK:

Correct money management calls for the use of pre-determined stoploss points, trailing stops and parcel size calculations to keep the value of our loss or profit at acceptable levels.

Most traders will use 2% of available capital as their limit, some will even use as little as 1%.

It is essential to show discipline when stops are hit, to ensure survival.