



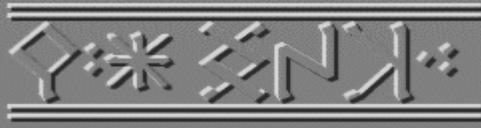
WSA Tutorial: Using the Optimizer

With version 1.27 of Wall Street Analyser (WSA) an optimizer was released. This tutorial shows how to use it.

I will start off with an example system that was posted in the forum (the system was called "System"). I chose that system because it has an error. It was setting a stop loss by looking two days into the future and therefore the results where phenomenal. Never the less I had a hunch that the system has potential and decided to run it through the optimizer. Basically the target was to find the optimal number of days to hold a buy.

Contents

1 THE CODE WE WANT TO OPTIMIZE	2
2 ADDING CODE PARAMETERS FOR THE OPTIMISER.....	2
3 RUNNING THE OPTIMISER.....	3
3.1 OPEN THE SYSTEM TESTER SCREEN	3
3.2 INSERT / EDIT CODE TO OPTIMISE	4
3.3 ENTER PARAMS FOR THE OPTIMISER	4
3.4 ANALYSING THE RESULTS.....	5
4 GENERAL THOUGHTS ON OPTIMISING.....	6



WSA Tutorial: Using the Optimizer

1 The code we want to optimize

Here is the original code posted in the forum:

```
Sub Main()  
  For CurrentBar = BeginBar to EndBar  
    Value = GetValue("Close", CurrentBar)  
    If (Value > 0) and (LastSignal <> 1) then  
      If CandlePattern("Inverted Hammer", CurrentBar) then Buy(CurrentBar)  
        Out = GetValue("Close", CurrentBar + 2)  
      End if  
      If (Out <= Value) then Sell(CurrentBar)  
      If LastSignal = Signal then Neutral(CurrentBar)  
    next  
  End Sub
```

The problem is highlighted in yellow and bold. The code is setting a stop loss depending on a value two days in the future: "CurrentBar +2".

2 Adding code parameters for the optimizer

The code presented below preserves the idea of the system, i.e. buy if an inverted hammer pattern is found. When running the original code I saw that the system seemed to sell 2 days after entering a position.

What we want to do now is find the optimal number of days to hold a position.

```
Sub Main()  
  inlong = 0  
  For CurrentBar = BeginBar to EndBar  
    Value = GetValue("Close", CurrentBar)  
    counter = counter + 1  
    If CandlePattern("Inverted Hammer", CurrentBar) then  
      Buy(CurrentBar)  
      inlong = 1  
      counter = 0  
    End if  
    If (counter = opt1 and inlong = 1) then  
      Sell(CurrentBar)  
      inlong = 0  
    end if  
  If Signal = LastSignal then WSA.Neutral(CurrentBar)
```



WSA Tutorial: Using the Optimizer

```
next  
End Sub
```

The variable we want to optimize is "opt1". As soon as a position is opened "counter" is set to 0. Whenever we go through the loop "counter" is increased by "1". When counter and opt1 have the same value the position is sold.

Note: I use the "inlong" variable a lot in my code(s) to make sure those "ghost arrows" are not shown in the graph screen.

3 Running the optimizer

Now we have set up everything to fire up the optimizer.

3.1 Open the system tester screen



Click on:



WSA Tutorial: Using the Optimizer

3.2 Insert / edit code to optimize

The screenshot shows the 'System tester' application window. The title bar reads '\$ System tester'. The menu bar includes 'File', 'Edit', 'Optimize', 'View', and 'Help'. The toolbar contains icons for file operations and a 'DWM' button. Below the toolbar are buttons for 'Test the stock', 'Test selected stocks', 'Test selected systems', and 'Selected stocks and systems'. The main window is titled 'Inverted Hammer' and has tabs for 'System code', 'System report', and 'Options'. The 'System code' tab is active, displaying the following code:

```
' Inverted Hammer
Sub Main()
inlong = 0
For CurrentBar = BeginBar to EndBar
Value = GetValue("Close", CurrentBar)
counter = counter + 1
If CandlePattern("Inverted Hammer", CurrentBar) th
Buy(CurrentBar)
inlong = 1
counter = 0
End if
If (counter = opt1 and inlong = 1) then
Sell(CurrentBar)
inlong = 0
end if
If Signal = LastSignal then WSA.Neutral(CurrentBar)
next
End Sub
```

On the left side of the window, a list of systems is shown, with 'Inverted Hammer' selected.

3.3 Enter params for the optimizer

Click on "Optimize the code"

This screenshot is similar to the previous one, but the 'Optimize the code' button in the bottom toolbar is highlighted with a yellow border. A black arrow points from a text box below to this button.

Click on:

to open the optimizer screen:



WSA Tutorial: Using the Optimizer

Optimization module Adidas Salomon Adidas Salomon Adidas Salomon

File

Code Optimize Results

Use first variable **A**

Optimize variable: **B**

From: **C** To: **D** Step: **E**

Use second variable

Optimize variable 2:

From: To: Step:

Optimize on last quotes **G**

Select stocks to optimize: **F**

- Adidas Salomon
- Alcoa Inc.
- Allianz
- American Express Co.
- AT&T Corp
- BASF
- Bayer
- BMW
- Boeing Co.
- Caterpillar, Inc.

Optimize

A) Tick use first variable. (make sure the use second variable is unticked, if you are optimizing one variable only).

B) Enter the name of the variable to optimize (in this tutorial "opt1", see code!)

C) Enter the starting value

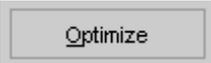
D) Enter the ending value

E) Enter a value for the incrementation of the variable

F) Select the stock to optimize for.

G) Enter the number of quotes to use for the optimization.

Summary: In the example above the optimizer will run 10 times for each of the selected stocks and test the results for $\text{opt1} = 1$ to $\text{opt1} = 10$. The test will be run for 1000 quotes for each of the selected stocks.

Now hit:  and the optimizer will start.

3.4 Analyzing the results

The optimizer displays the following during optimization and when it is done:



WSA Tutorial: Using the Optimizer

Code	Optimize	Results		
Return				
Adidas Salomon		D		
1.00		1.42		
2.00		-3.64		
3.00		-12.05		
4.00		-11.39		
5.00		2.11		
6.00		2.77	A	B
7.00		1.88		C
Stocks	Return	opt1		
Adidas Salomon	12.27	10.00		1.00
Alcoa Inc.	1.66	7.00		1.00
Allianz	1.94	9.00		1.00
Citigroup Inc.	-2.37	1.00		1.00
CNOW	3.42	1.00		1.00
Coca Cola Corp	22.80	5.00		1.00
Commerzbank	-4.26	10.00		1.00
Daimler Chrysler	17.75	8.00		1.00
Degussa	5.23	2.00		1.00
Dow Jones Index 1 1	1.28	8.00		1.00
Dow Jones Index 1	1.28	8.00		1.00
Dow Jones Index	0.83	10.00		1.00
All stocks best average	0.22	10.00		
All stocks worst average	-0.31	9.00	E	1.00

- A) This column shows the best return achievable for the stock.
- B) The best return was achieved using this value.
- C) If the optimizer used a second variable the results are displayed in this column.
- D) Detailed break down of the optimizers results.
- E) Optimizers results: In this case the optimizer found out setting a value of 10 for opt1 gives the best results. Using 9 would give the worst results.

Note: In this example I would normally run the optimizer again for values from 10 to 20, as the best value found here was the maximum tested.

4 General thoughts on optimizing

There is a lot of debate if it is a good idea to optimize or not. What you are actually doing is "curve fitting". AND never expect your system to perform nearly as close as the historical results that optimized code may imply!



WSA Tutorial: Using the Optimizer

I suggest running the optimizer for a certain market and validating the results against another market. If the result in the "other market" are acceptable then the optimized code is acceptable. If you do not have a series of markets to test on then select a subset of stocks in the market you are trading and validate the results against the other stocks in this market.

Happy Trading!

Marc Schnitzler - December 30, 2002