Use The Rainbow

A Color-Based System
For Short-Term Trading

Using the SPDR S&P 500 exchange traded fund as an example, here's how you can apply a simple swing trading system that utilizes the colors of volume bars.

by Edgar Kraut

Most technical traders use some combination of price-based indicators to support their trading decisions. Here's a very simple swing trading system based on coloring volume bars. It can be used either as a standalone trading system or in conjunction with other trading systems. This is how it works:

- If today's closing price and volume are greater than two weeks ago, color today's volume bar green.

- If today's closing price is greater than two weeks ago but volume is not, color today's volume bar blue.

- Similarly, if today's closing price and volume is less than two weeks ago, color today's volume bar orange.

- If today's closing price is less than two weeks ago but volume is not, color today's volume bar red.

It's a very simple color-based trading system that takes only long positions and works as follows:

- Buy the green or blue volume bars, use a 1% trailing stop, and stand aside on red or orange bars.

JOSE CRUZ

FIGURE 1: DAILY CHART OF THE SPDR S&P 500 ETF (SPY) FROM APRIL 17, 2002 TO APRIL 17, 2003. Here you see the green, blue, orange, and red bars implemented into the chart. Buy on the green or blue volume bars. Use a 1% trailing stop. Stand aside on the red or orange volume bars.

HOW WELL DOES THIS WORK?

With an initial investment of $10,000 on April 17, 2002, and trading the SPDR S&P500 exchange traded fund (SPY), this simple mechanical trading system grew to $22,143 as of one year later (April 17, 2003). These numbers do not

FIGURE 2: METASTOCK INDICATOR EDITOR. Here you see the MetaStock code for the green volume bars. Drop the green indicator as a histogram onto the price chart to create the green volume bars.
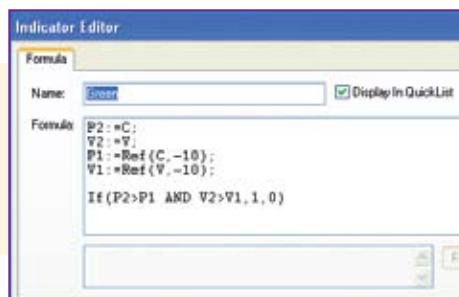

FIGURE 3: METASTOCK BUY ORDER FORM. Just buy when the bars are green or blue.

include commissions or slippage. This is a 121.43% gain compared to a buy & hold loss of -20.59% or -$2,059. I will show you how to construct this trading system in MetaStock (end of day) and how the system can be implemented as an Excel spreadsheet.

METASTOCK FORM

Figure 1 shows a MetaStock chart of the SPY from April 17, 2002, to April 17, 2003, with the volume bars colored according to the rules of the system described. The bar colors are implemented as indicators, as shown in Figure 2 for the case of the green volume bars. To implement all the colored bars, please refer to the sidebar, "To Produce Colored Bars In MetaStock," on page 31. P2 and V2 represent today's price and volume, while P1 and V1 are the price and volume as of 10 trading days (two weeks) ago. To produce the colored volume window, the green, blue, orange, and red indicators are dropped onto the price chart as histograms.

The trading system is constructed as follows: The buy order is illustrated in Figure 3 and the

FIGURE 4: SETTING THE 1% TRAILING STOP. Here's how to set a 1% trailing stop in MetaStock.
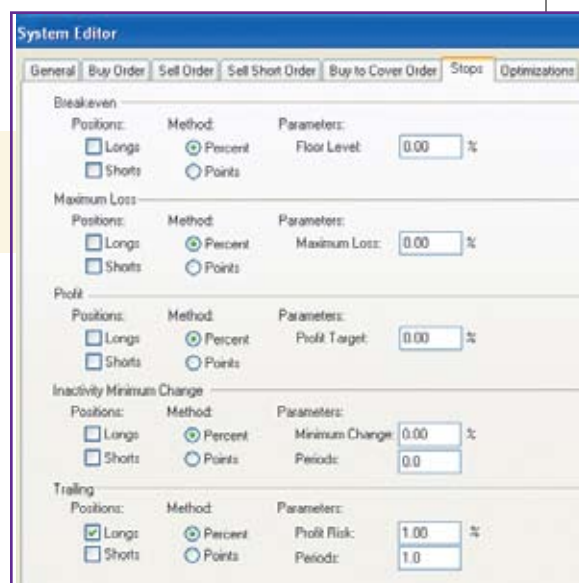

FIGURE 5: EQUITY GROWTH CURVE FOR THIS TRADING SYSTEM. Here you see the equity growth curve for the strategy using a 10-day lookback period. The equity growth for a long position is $10,000 from April 17, 2002, to April 17, 2003.

Day	Date P2	P2	Vol 2	Date P1	P1	Vol 1	Price delta%	Vol delta%	V2 Color
Tue	4/30/2002	107.86	194,753	4/16/2002	113.20	150,984	4.72	28.99	Red
Wed	5/1/2002	109.18	245,811	4/17/2002	112.96	129,286	3.35	90.13	Red
Thu	5/2/2002	108.76	156,673	4/18/2002	112.47	252,198	3.30	37.88	Orange
Fri	5/3/2002	107.58	181,860	4/19/2002	112.88	106,025	4.70	71.53	Red
Mon	5/6/2002	105.47	239,112	4/22/2002	111.00	139,245	4.98	71.72	Red
Tue	5/7/2002	105.1	221,735	4/23/2002	110.52	169,738	4.90	30.63	Red
Wed	5/8/2002	109.01	279,186	4/24/2002	109.41	189,039	0.37	47.69	Red
Thu	5/9/2002	107.75	180,873	4/25/2002	109.47	254,569	1.57	28.95	Orange
Fri	5/10/2002	105.72	189,595	4/26/2002	107.39	197,700	1.56	4.10	Orange
Mon	5/13/2002	107.87	146,870	4/29/2002	106.86	177,256	0.95	17.14	Blue
Tue	5/14/2002	110.22	342,249	4/30/2002	107.86	194,753	2.19	75.73	Green
Wed	5/15/2002	109.79	295,392	5/1/2002	109.18	245,811	0.56	20.17	Green
Thu	5/16/2002	110.36	280,974	5/2/2002	108.76	156,673	1.47	79.34	Green
Fri	5/17/2002	110.9	278,237	5/3/2002	107.58	181,860	3.09	53.00	Green
Mon	5/20/2002	109.7	138,342	5/6/2002	105.47	239,112	4.01	42.14	Blue
Tue	5/21/2002	108.7	168,781	5/7/2002	105.10	221,735	3.43	23.88	Blue
Wed	5/22/2002	108.94	158,451	5/8/2002	109.01	279,186	0.06	43.25	Orange
Thu	5/23/2002	110.1	138,816	5/9/2002	107.75	180,873	2.18	23.25	Blue
Fri	5/24/2002	108.69	118,766	5/10/2002	105.72	189,595	2.81	37.36	Blue
Tue	5/28/2002	108.1	242,372	5/13/2002	107.87	146,870	0.21	65.02	Green
Wed	5/29/2002	107.3	147,793	5/14/2002	110.22	342,249	2.65	56.82	Orange
Thu	5/30/2002	107	182,181	5/15/2002	109.79	295,392	2.54	38.33	Orange
Fri	5/31/2002	107.22	198,263	5/16/2002	110.36	280,974	2.85	29.44	Orange
Mon	6/3/2002	104.37	260,747	5/17/2002	110.90	278,237	5.89	6.29	Orange
Tue	6/4/2002	104.63	258,721	5/20/2002	109.70	138,342	4.62	87.02	Red
Wed	6/5/2002	105.61	197,185	5/21/2002	108.70	168,781	2.84	16.83	Red
Thu	6/6/2002	103.46	233,699	5/22/2002	108.94	158,451	5.03	47.49	Red
Fri	6/7/2002	103.34	240,116	5/23/2002	110.10	138,816	6.14	72.97	Red
Mon	6/10/2002	103.74	187,602	5/24/2002	108.69	118,766	4.55	57.96	Red
Tue	6/11/2002	101.96	199,922	5/28/2002	108.10	242,372	5.68	17.51	Orange
Wed	6/12/2002	102.58	312,734	5/29/2002	107.30	147,793	4.40	111.60	Red
Thu	6/13/2002	101.55	210,524	5/30/2002	107.00	182,181	5.09	15.56	Red
Fri	6/14/2002	101.4	392,675	5/31/2002	107.22	198,263	5.43	98.06	Red
Mon	6/17/2002	104.12	176,490	6/3/2002	104.37	260,747	0.24	32.31	Orange
Tue	6/18/2002	104.97	218,608	6/4/2002	104.63	258,721	0.32	15.50	Blue
Wed	6/19/2002	102.52	215,509	6/5/2002	105.61	197,185	2.93	9.29	Red
Thu	6/20/2002	101.21	257,624	6/6/2002	103.46	233,699	2.17	10.24	Red

TRADING TECHNIQUES

FIGURE 6: THE EXCEL VERSION. In column J (the last column) you see a display of the volume color for each trading day. In columns H and I you see the two-week percentage and volume change displayed.

stop order is shown in Figure 4. There are no sell or cover orders. As you can see from Figure 5, the equity growth curve for a long position shows only a $10,000 gain if you invest in SPY starting on April 17, 2002, and ending on April 17, 2003.

EXCEL FORM

Figure 6 is the Excel spreadsheet version of Figure 1. Column J shows the appropriate V2 volume color for each row or trading day. The two-week percent price and volume changes are shown as well. To construct column J, the appropriate color is first written in each column J cell using the following formula for row 2 and filling down.

=IF(AND(H2>0,I2>0),"Green",IF(AND(H2>0,I2<0),"Blue",IF(AND(H2<0,I2>0),"Red",IF(AND(H2<0,I2<0),"Orange",""))))

FIGURE 7: EXCEL CONDITIONAL FORMATTING. This feature is used to color the cells in column J, corresponding to the volume bar colors that you see in Figure 1.

Next, each cell in column J is assigned the color described by the text written in the cell by first coloring all the cells in column J red and then applying Excel's conditional formatting as shown in Figure 7.

Columns H and I are produced assigning the formulas "=100*((C2/F2) – 1)" and "=100*((D2/G2) – 1)" to cells H2 and I2, respectively, then filling these columns down.
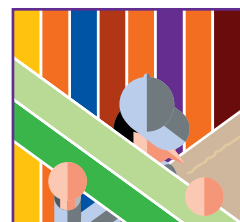
OPTIMIZING THE LOOKBACK PERIOD

In my efforts to optimize the trading system, I looked at the effect on profitability of shortening the lookback period from two weeks to one week, one day at a time, for each year, from 2002 to 2010. Between April 17, 2002, and April 17, 2003, reducing the lookback period from two weeks (10 trading days) to eight days for the SPY increased profits from $12,143.14 to $13,407 and the percentage gain from 121.43% to 134.07%.

The results for the eight years from 2002 to 2010 using optimized lookback periods in the five- to 10-day range are shown in Figure 8. This simple mechanical trading system based on the color of volume bars produced better than 98%
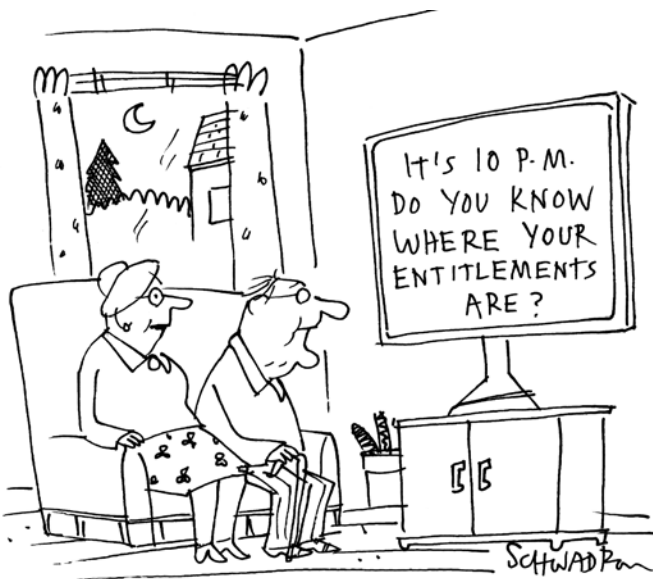
	A	B	C	D	E	F	G
	Trading Period	**$Gain ($10,000 invested)**	**% Gain**	**#Trades**	**#Wins**	**Lookback**	**Buy&Hold**
	4/17/2002 to 4/17/2003	$12,143.00	121.43%	98	97	10 days	-20.59%
	4/17/2002 to 4/17/2003	$13,407.00	134.07%	103	101	8 days	-20.59%
	4/17/2003 to 4/17/2004	$11,456.20	114.56%	167	163	10 days	26.94%
	4/17/2004 to 4/17/2005	$5,856.89	58.57%	133	131	10 days	0.28%
	4/17/2005 to 4/17/2006	$6,079.00	60.71%	152	147	9 days	12.32%
	4/17/2006 to 4/17/2007	$6,530.00	65.30%	175	171	10 days	14.19%
	4/17/2007 to 4/17/2008	$11,796.27	117.96%	137	135	8 days	-6.73%
	4/17/2008 to 4/17/2009	$22,008.04	220.08%	109	108	5 days	-35.98%
	4/17/2009 to 4/17/2010	$13,659.38	136.59%	171	168	9 days	36.80%

FIGURE 8: RESULTS FOR SYSTEM PERFORMANCE USING OPTIMIZED LOOKBACK PERIODS IN THE FIVE- TO 10-DAY RANGE. This simple mechanical trading system based on the color of volume bars produced better than 98% winning trades for every year from 2002 to 2010. The percentage gains varied from a high of 220% in 2008 to 2009 to a low of 58% in 2004 to 2005.

TO PRODUCE COLORED BARS IN METASTOCK

To produce the colored volume window, the green, blue, orange, and red indicators are dropped onto the monochrome volume bars of a chart as histograms.

Green Bar:

P2 := C;
V2 :=V;
P1 := Ref(C, -10);
V1 := Ref(V, -10);

If (P2 > P1 AND V2>V1, 1,0)

Blue Bar:

P2 := C;
V2 :=V;
P1 := Ref(C, -10);
V1 := Ref(V, -10);

If (P2 > P1 AND V2 < V1, 1,0)

Orange Bar:

P2 := C;
V2 :=V;
P1 := Ref(C, -10);
V1 := Ref(V, -10);

If (P2 < P1 AND V2 <V1, 1,0)

Red Bar:

P2 := C;
V2 :=V;
P1 := Ref(C, -10);
V1 := Ref(V, -10);

If (P2 < P1 AND V2 > V1, 1,0)

winning trades for every year from 2002 to 2010. The percentage gains varied from a high of 220% in 2008 to 2009 to a low of 58% in 2004 to 2005. For discretionary traders, this color-based system can be very flexible. For example, you could buy only green volume bars or only blue volume bars and short only red volume bars or only orange volume bars. You can also use different types of stops. There is plenty of room on the price chart for adding additional indicators and the system can be applied to any instrument for which volume is reported.

Edgar Kraut is a longtime private trader.

SUGGESTED READING

Kraut, Edgar [2005]. "The Time According To Wall Street," Working-Money.com, May 16.
‡MetaStock ‡Microsoft Excel

See our Traders' Tips section beginning on page 62 for implementation of Edgar Kraut's technique in various technical analysis programs. Accompanying program code can be found in the Traders' Tips area at Traders.com.

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