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EXPERT DESIGN STUDIO AT WORK

## INTRODUCING 'CITIZEN KANE' — OUR BEST OF THE BEST EDS MODEL

By David Vomund

In the June 1999 *Opening Bell*, we presented one of our most effective Expert Design Studio models. The model backtested well and has performed well since publication. The model combines two rules to develop a bottom-fishing stock selection model. The rules are:

The stocks must have corrected at least 30% sometime between 10 and 50 days ago.

The stocks must have a positive Volume Accumulation Percent indicator (i.e., the indicator's value is greater than zero).

At the time of publication of this model, a sell strategy of 85% principal protect and a 95% profit protect above 15% was used. That produced an average holding period of about a month.

We have learned a lot about this strategy since last June. Our biggest surprise was that the model has proven to be a very effective short-term trading strategy. Timing bottoms is very hard to

do but surprisingly a case can be made that this simple strategy is even more effective for short-term selections than it is for intermediate-term entries.



DAVID VOMUND

In **Figure 1** we show a backtest using the original bottom-fishing model that appeared in the June *Opening Bell*. This time, however, we used a fixed 10-day holding period. Using a database of the S&P 500 stocks combined with the Nasdaq

100 stocks (about 550 stocks in total), we see that there were 720 trades since 1997.

During the 10-business-day holding period (14 calendar days) the average stock that passed the bottom-fishing model gained 4.75%. An equivalent set of trades in the S&P 500 index would

*"We hope to have a more effective short-term trading model after more testing, but right now this strategy is the best we've published."*

have produced an average return of 1.77%. The degree that the average trade outperforms the S&P 500 is remarkable, especially given that during most of this time period it was hard to outperform the S&P 500.

The average annualized return from our backtest was 120%. That's not the return you would get if you had actually traded the strategy since it is impossible to act on every trade. Nevertheless, this figure is higher than the results we saw when we first published the strategy last June. If you don't mind short holding periods, the fixed 10-day holding period is actually more effective than the 85% principal protect and 95% profit protect above 15%.

With 720 trades in just over three years, there will be many days when no new trades appear. When the market is very strong, then few trades are taken. After all, few stocks correct 30% in a roaring bull market. In most market environments, however, several trades can be placed every month.

In **Figure 2** we show the Positions Page from our backtest sorted by the Entry Date column (to sort by any of the columns, simply click on the column's title). We see that 13 trades appeared in the first week of March and there were many trades in Febru-

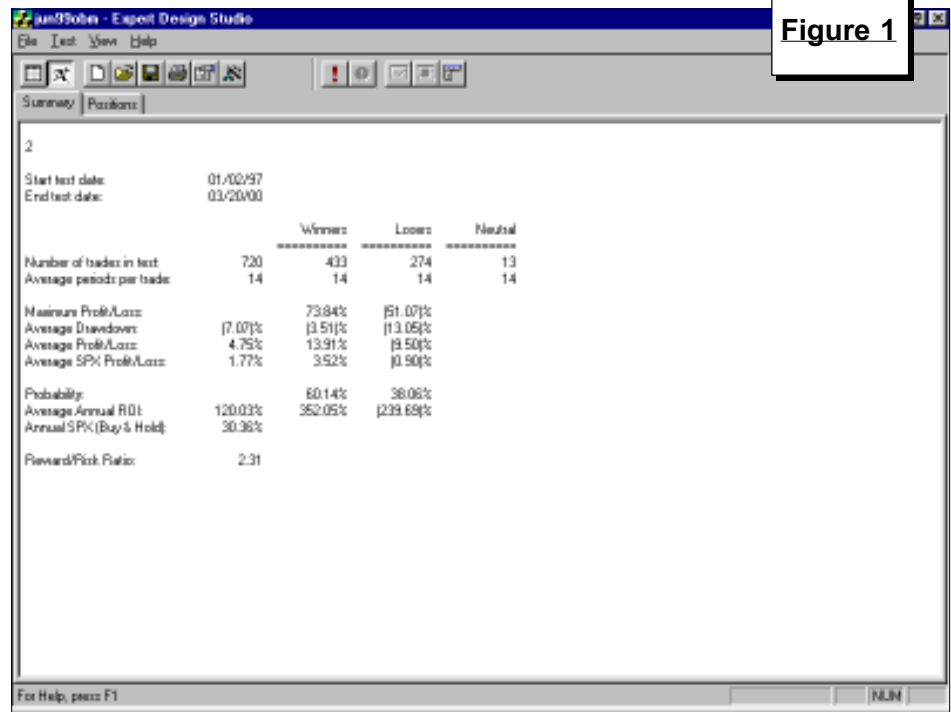


Figure 1

ary as well. If all the trades came at one time, then the model's results would be invalid. That's not the case here as there is a consistent set of trades most every month.

During periods of market weakness, such as in October 1998, many trades appear. This is to be expected because it is a bottom-fishing strategy. During October 1998 there were about 135 trades, 28 trades on October 9 alone!

Any model could pick winning stocks in October 1998 — that was the low for nearly all stocks. To further validate our results, we removed the October 1998 trades from our backtest and we're pleased to say that the model still outperformed.

The high quantity of stocks during periods of market weakness leads to the important question of which stock to buy when you can't buy them all? To answer that question, we will add additional screening rules to our Expert Design Studio model, hoping to keep the winning stocks.

One of the best trading rules that we found in the June *Opening Bell* article was called Gilligan's Island Buy. This strategy was published in

Jeff Cooper's *Hit and Run* book. It states that a stock must gap to a two-month low and then close in the upper half of its trading range.

In **Figure 3** we show the results of taking our original bottom-fishing model after adding the Gilligan's Island Buy rule. The model now states that a stock must have corrected more than 30% sometime between 10 and 50 days ago, its Volume Accumulation Percent indicator must be above zero, and the stock must have closed in the upper half of its daily range after gapping to a two month low. The sell criteria was a 10-day holding period.

The performance figures improved by adding the additional screening rule. The average gain per trade was 5.62%, up from 4.75%. The average annual return on investment increased to 145%. There is a problem, however. Since 1997 there were only 38 trades. That is too few trades to actually make a portfolio grow and so few trades can lead to an over-optimized system. Over-optimized systems work great in the past but almost always fail in the future.

In trying to add an additional screening technique to our original bottom-fishing strategy, we tested

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EXPERT DESIGN STUDIO AT WORK *continued* . . .

several rules. The one that we found the most effective stated that the 45-day slope of the Volume Accumulation Percent indicator is positive. By adding this rule to our bottom-fishing model, we had a better return per trade and a higher annualized return (Figure 4). The average gain per trade was 5.33%. An equivalent set of trades in the S&P 500 would have produced an average profit per trade of 2.17%. The average annual rate of return increased to 135%. We'll call this model "Citizen Kane."

Why name it Citizen Kane? Many consider Citizen Kane, created by Orson Wells, to be one of the best movies of all time. While Orson Wells continued to direct movies, he was never able to make a film that was better than Citizen Kane. We hope to have a more effective short-term trading model after more testing, but right now this strategy is the best we've published.

Our Citizen Kane model works well in filtering out some of the trades that appeared in the original bottom-fishing model. Yet, there may still be days when more stocks will appear as buy candidates than our money will allow us to buy. When that happens,

**Figure 2**

Ticket	Held	Entry Date	Entry Price	Exit Date	Exit Price	Profit	DrawDown	Max P/L	APOI	Profit%
BMET	14	03/07/00	30.8125	03/21/00	34.3750	3.5625	-9.33	21.90	301.43	11.96
PBY	14	03/07/00	5.8125	03/21/00	6.6875	0.8750	0.00	20.43	392.47	15.05
HLT	14	03/06/00	6.6875	03/20/00	7.8750	1.1875	-4.67	16.82	462.95	17.76
MEA	14	03/06/00	31.5000	03/20/00	33.3125	1.8125	-8.73	9.33	190.01	5.75
YH00	14	03/06/00	163.5000	03/20/00	172.1875	8.6875	-3.06	12.08	138.53	5.31
YUM	14	03/06/00	26.6250	03/20/00	30.7500	4.1250	-0.70	23.47	403.92	15.49
HCR	14	03/03/00	11.0625	03/17/00	14.6875	3.6250	0.00	32.77	894.32	32.77
LDG	14	03/03/00	17.8125	03/17/00	17.7500	-0.0625	-7.02	6.67	-8.15	-0.35
AMZN	14	03/02/00	64.9375	03/16/00	62.2500	-2.6875	-3.75	5.97	-107.90	-4.14
BMCS	14	03/01/00	46.1250	03/15/00	49.7500	3.6250	0.00	12.87	149.37	5.69
DFI	14	03/01/00	13.3125	03/15/00	12.8125	-0.5000	-6.63	2.35	-97.92	-3.76
IRI	14	03/01/00	24.9625	03/15/00	24.6875	-0.2750	-1.72	1.53	13.27	-0.51
WY	14	03/01/00	63.5000	03/15/00	62.2500	-1.2500	-5.84	3.04	-60.91	-2.34
DLTH	14	02/28/00	37.2500	03/14/00	39.5000	2.2500	-6.54	14.77	157.48	6.04
BISX	14	02/28/00	18.1250	03/13/00	20.8125	2.6875	-1.72	17.93	396.58	14.83
CC	14	02/28/00	34.0000	03/13/00	42.0000	8.0000	0.00	31.25	613.45	23.53
CUM	14	02/28/00	34.0625	03/13/00	31.5000	-2.5625	-8.81	1.65	-196.13	-7.52
PK	14	02/28/00	35.1250	03/13/00	33.2500	-1.8750	-8.43	0.53	-139.17	-5.34
AGC	14	02/25/00	51.5000	03/10/00	47.5000	-4.0000	-5.58	1.82	-302.50	-7.77
K	14	02/25/00	22.1250	03/10/00	23.3750	1.2500	-5.08	14.41	147.30	5.65
LOW	14	02/25/00	42.5000	03/10/00	46.3750	3.8750	-2.06	12.90	237.71	9.12
PIR	14	02/25/00	95.5000	03/10/00	90.1250	-5.3750	-8.68	7.21	-252.49	-5.68
LGTO	14	02/23/00	37.3100	03/08/00	37.6300	0.3200	-4.69	17.26	22.36	0.86
GP	14	02/22/00	34.3750	03/07/00	34.3750	0.0000	-2.73	6.73	0.00	0.00
HIG	14	02/22/00	33.0000	03/07/00	31.0000	-2.0000	-7.20	0.00	-198.01	-6.06
YNR	17	02/18/00	49.5000	03/06/00	52.8125	3.3125	0.00	10.61	143.68	6.69
LU	15	02/17/00	52.7500	03/03/00	72.0625	19.3125	-0.47	36.37	890.88	36.61
PBY	15	02/17/00	6.3125	03/03/00	5.9375	-0.3750	-10.89	0.00	-144.55	-5.94
CCOM	15	02/17/00	125.1250	03/03/00	131.0000	5.8750	0.00	17.39	114.25	4.70
YH00	15	02/17/00	165.8750	03/03/00	196.0000	30.1250	-7.27	1.32	-144.86	-5.95
AMZN	15	02/15/00	73.4375	03/01/00	67.6250	-5.8125	-13.45	0.51	-192.60	-7.91

which stocks should you buy? To answer that question, we will add more screening rules which in turn will filter out more of our trades. In effect, we are looking for the "Best of Kane."

In creating the Best of Kane, we tested many rules as additional filters

on the Citizen Kane model. One effective rule stated that the stock must have had an Expert Rating up signal of 90 or greater sometime in the previous 10 days. That worked well but we found better rules.

Our final Best of Kane model is the Citizen Kane model with the addition of two rules. First rule – the RSI Wilder must be below 30 (i.e., over-sold). Second rule – the 45-day slope of On Balance Volume Percent must be increasing at the same time that the 45-day slope of the stock is decreasing.

The result of adding these additional filters is found in Figure 5. Using a database of the S&P 500 stocks combined with the Nasdaq 100 stocks, there were 111 trades. The average gain per trade is 10.10% and the average annual return on investment is 258.21%. Ordinarily we wouldn't consider 111 trades to be sufficient to give valid results but remember – this model is designed as an additional filter of the Citizen Kane model.

The Best of Kane's outstanding results aren't limited to using a

**Figure 3**

	Winners	Losers	Neutral
Number of trades in test	38	24	13
Average periods per trade	14	14	14
Maximum Profit/Loss	33.49%	(11.30)%	
Average Drawdown	(6.98)%	(5.67)%	(9.94)%
Average Profit/Loss	5.82%	12.74%	(7.10)%
Average SPX Profit/Loss	3.94%	5.64%	1.12%
Probability	63.16%	34.21%	
Average Annual ROI	144.76%	308.22%	(183.22)%
Annual SPX (Buy & Hold)	30.36%		
Forward/Pink Ratio	3.31		

database of the S&P 500 stocks. By running the model on a database of 2000 stocks from 1996 to the current date, we found 1081 trades with an average gain per trade of 6.41%. An equivalent set of trades in the S&P 500 index produced a return of 2.72%.

**Summary**

Three models have been presented in this article, with each model becoming a further screening of the previous model. To help clarify each model, let's look at Sysco Corp. (SY), a stock that passed all three models (Figure 6).

Our first bottom-fishing model, originally published in the June 1999 *Opening Bell*, states that a stock must have corrected at least 30% sometime between 10 and 50 days ago. In addition, the stock's Volume Accumulation Percent indicator must be above zero. In Figure 6 we see that SY experienced a sharp correction but despite the setback its Volume Accumulation Percent indicator was above zero.

This bottom-fishing model works very well and could be used as is. This model can produce a lot of trades,

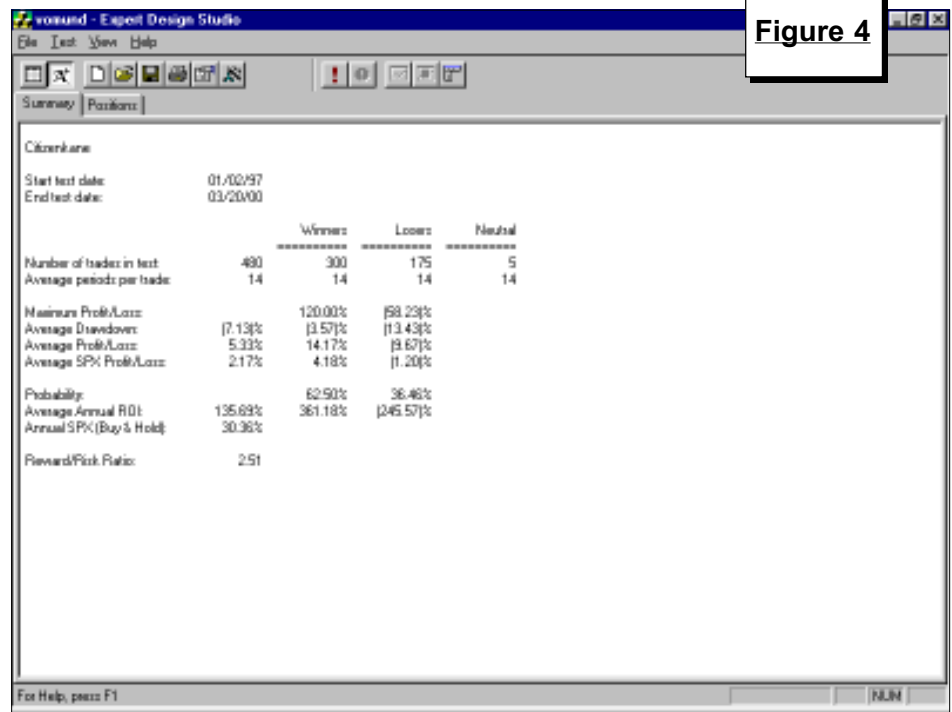


Figure 4

however, so we decided to add an additional filter that would lower the number of trades but increase the return per trade. The additional filter stated that each stock's Volume Accumulation Percent indicator must have an increasing 45-day slope. Indeed, we see in Figure 6 that SY's

Volume Accumulation Percent indicator was sloping higher. This additional filter reduced the number of trades but increased the overall return. This is the model we named Citizen Kane.

There will be times when the Citizen Kane model gives you more stocks than you can buy. In order to find the cream of the crop, we ran additional rules on the Citizen Kane model and came up with the Best of Kane model. The Best of Kane model takes the stocks that pass the Citizen Kane model and then keeps the stocks that have an RSI Wilder less than 30 plus a positive 45-day slope on the On Balance Volume Percent indicator. By itself the Best of Kane model does not give enough trades, but it provides a great method of determining which stocks have the highest probability of success.

Figure 6 shows that Sysco Corp. passed all three models. The stock corrected by more than 30%, its Volume Accumulation Percent indicator was positive and sloping higher, its On Balance Volume Percent was sloping higher, and its RSI Wilder indicator was below 30.

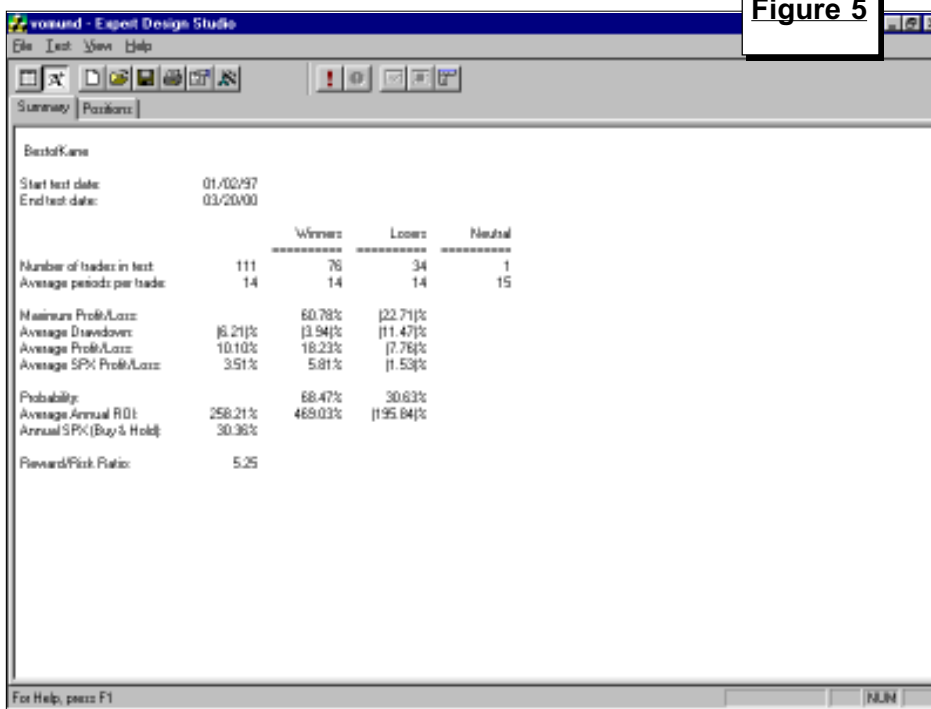


Figure 5

## Additional Information to Consider

Buying stocks that have fallen at least 30% can be scary. In many cases, the reason behind the falls is that companies without earnings may be on their way to bankruptcy. For that reason, we'd recommend incorporating some fundamental analysis before using this technique on a large database of stocks.

In our tests, we ran the model on a database of S&P 500 and Nasdaq 100 stocks. This in itself is a fundamental screening because S&P 500 and Nasdaq 100 companies are generally well established and are more stable than smaller companies.

With that said, it is important to monitor which stocks are added and removed from the S&P 500. When a stock is deleted from the index, don't buy it even if it passes the Citizen Kane model. A case in point is Fruit of the Loom (FTL). Last fall, FTL was in the S&P 500 and began to fall. Most of the time a weak stock eventually becomes a good value and buyers emerge. In FTL's case, however, value was hard to find and Standard & Poor's removed the stock from the



Figure 6

index. Several unprofitable trades would have been placed in FTL if you didn't know that it had been removed from the S&P 500 index.

In each issue of the *Opening Bell* we list the component changes in the S&P 500. You can also get this information by visiting Standard &

Poor's web page at [www.spglobal.com](http://www.spglobal.com).

We did not include a minimum price rule in our model but we suggest users only purchase stocks that are greater than \$10. This rule is not in the model because it would affect backtesting results. Some stocks that were over \$10 now have historical data that is below \$10 because of stock splits.

Citizen Kane is a bottom-fishing model. There are market environments when buying into weakness works well and there are market environments when buying into strength works well. In general, as a bottom-fishing model Citizen Kane works best during periods of broad market participation. Look to the Advance/Decline Line to determine participation. When the Advance/Decline Line is rising, then Citizen Kane should perform well. When the Advance Decline Line is in a downtrend, then the model will struggle.

Examining the Advance/Decline Line (AD Line) for last year, we see a short period in April when the AD

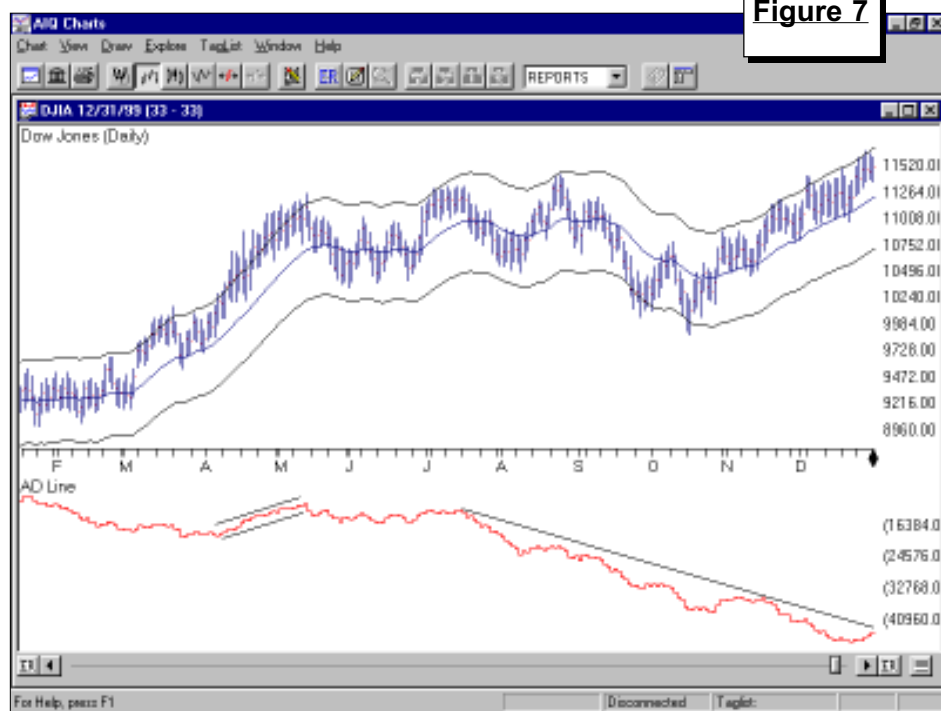


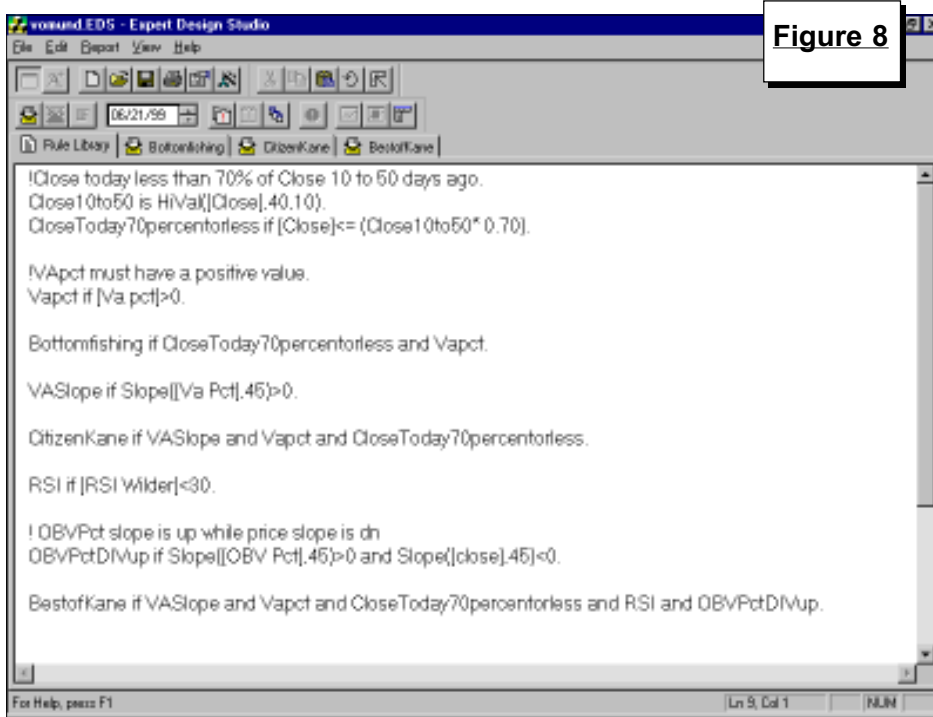
Figure 7

EXPERT DESIGN STUDIO AT WORK *continued* . . .

Line was moving higher but from July through the end of the year the AD Line consistently moved lower (**Figure 7**). A backtest of Citizen Kane shows great results in April but results are lower in the second half of the year. Bottom-fishing models struggle when only a selected few large-cap stocks lead the market higher.

Our final model is found in **Figure 8**. Users can download this file from AIQ's web page at [www.aiq.com](http://www.aiq.com). Click on *Educational Products* and then click on *Opening Bell*. At the lower right, the April 2000 model can be found. ■

*David Vomund publishes VIS Alert, a weekly investment newsletter. For a sample copy go to [www.visalert.com](http://www.visalert.com) or call (775) 831-7033.*



STOCK DATA MAINTENANCE

The following table shows past and future stock splits and large dividends:

Stock	Ticker	Split/Div.	Approx. Date	Stock	Ticker	Split/Div.	Approx. Date
Comverse Tech.	CMVT	2:1	04/04/00	Interlink Electronics	LINK	3:2	04/10/00
Engage Techs Inc.	ENGA	2:1	04/04/00	Quanta Services	PWR	3:2	04/10/00
On Assignment Inc.	ASGN	2:1	04/04/00	Datalink.net	DTLK	2:1	04/11/00
Redback Networks	RBAK	2:1	04/04/00	Mechanical Tech	MKTY	3:1	04/13/00
NYFIX Inc.	NYF	3:2	04/05/00	Finisar Corp.	FNSR	3:1	04/13/00
Symbol Tech.	SBL	3:2	04/06/00	Vignette Corp.	VIGN	3:1	04/14/00
CT Communications	CTCI	2:1	04/06/00	Concord Camera	LENS	2:1	04/17/00
Vitria Tech	VITR	2:1	04/06/00	Metromedia Fiber Net.	MFNX	2:1	04/18/00
Uniroyal Tech	UTCI	2:1	04/06/00	Commerce One	CMRC	2:1	04/20/00
Abgenix Inc.	ABGX	2:1	04/07/00	Kohl's Corp.	KSS	2:1	04/25/00
Harley Davidson	HDI	2:1	04/10/00	Hooper Holmes	HH	2:1	04/27/00
Waddell & Reed	WDR	3:2	04/10/00				

**Trading Suspended:**

Ardent Software Inc. (ARDT), Best Software (BEST), CompUSA (CPU), Gibson Greetings (GEBG)  
Greenwich Street Municipal Fund (GSI), Loewen Group Inc. (LWN)

**Name/Ticker Changes:**

CNET Inc. (CNET) to CNET Networks Inc. (CNET)  
Hollywood Park Inc. (HPK) to Pinnacle Entertainment (PNK)  
PNC Bank Corp. (PNC) to PNC Financial Services (PNC)  
Premier Technologies (PTEK) to PTEK Holdings (PTEK)

## USING LOG PRICE SCALE

# LOG SCALE CHARTS DISPLAY PRICE ACTIVITY IN EQUAL PERCENTAGE TERMS — IMPORTANT TODAY

By David Vomund

A feature few AIQ users know exists is the ability to plot graphs using a log-pricing scale instead of an arithmetic-pricing scale. This feature was added when TradingExpert went to the Windows platform. In the past, unless you were plotting a multi-year graph, using a log scale chart was usually not necessary. That has changed. In today's market where many stocks make parabolic advances, using a log scale chart is quickly becoming increasingly important.

Most stock charts are plotted with equal price increments (arithmetic scale). That is, the price scale on the right side of a chart remains constant and is not dependent on the price of a stock. For example, a graph may show prices between \$50 to \$100 using a \$10 increment. Arithmetic charts are simple to understand but in a fast

moving stock they can exaggerate recent price activity.

Reporters on CNBC-TV often say, "we are seeing our second largest Nasdaq point drop in history." Part of these "records" is due to high volatility but most of the reason we are

*"In Today's market, there are many cases where a stock has tripled in price in four months. In these cases, it is better to switch to a log scale chart."*

seeing so many of the largest point advances/declines in history is because the market is at very high levels. A 100-point move when the Nasdaq Composite is at a 4500 level is a lot smaller move than when the Nasdaq was at a 2000 level.

When you plot a multi-year chart

of a strong stock or a market index, it looks like there was very little volatility in the past but it will show high volatility more recently. It also gives the impression that the rate of advance is increasing, similar to a parabolic pattern. That's because a chart

plotted with equal price increments will show a \$10 move for a \$30 stock to be the same as a \$10 move when the stock is \$90.

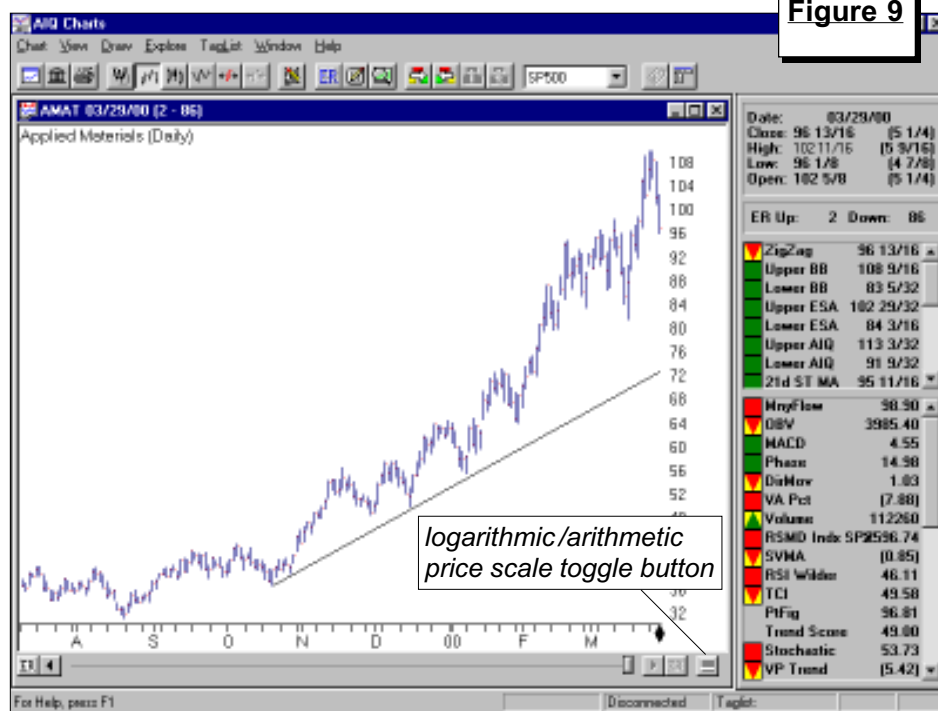
The problem with exaggerating current price movement is fixed in a log scale chart. Rather than plotting equal price increments, a log scale chart plots price activity in equal percentage terms.

That is, the distance on the price scale between \$10 and \$20 will be the same as the distance from \$50 to \$100. Everything is plotted in equal percentage terms so you can compare a recent move in a stock to a similar move a year earlier by just eye-balling a chart.

Most people plot daily bar charts which typically show about four to eight months of data. Normally, log scale charts are not needed when plotting a few months of data because each stock's price range is fairly narrow. Recently, however, growth stocks have made parabolic advances. In today's market there are many cases where a stock has tripled in price in four months. In these cases, it is often better to switch to a log scale chart.

In **Figure 9** we see a chart of Applied Materials (AMAT) using equal price scaling. Notice the correction in August 1999 looks like a small downward move. In fact it was a painful 17% correction. Compare that to the selloff in early March 2000. Visually it looks like a similar downward move but the March selloff was only about 10%. Recent price activity is exaggerated compared to previous activity simply because the stock has a

*Using Log Scale continued on page 8*



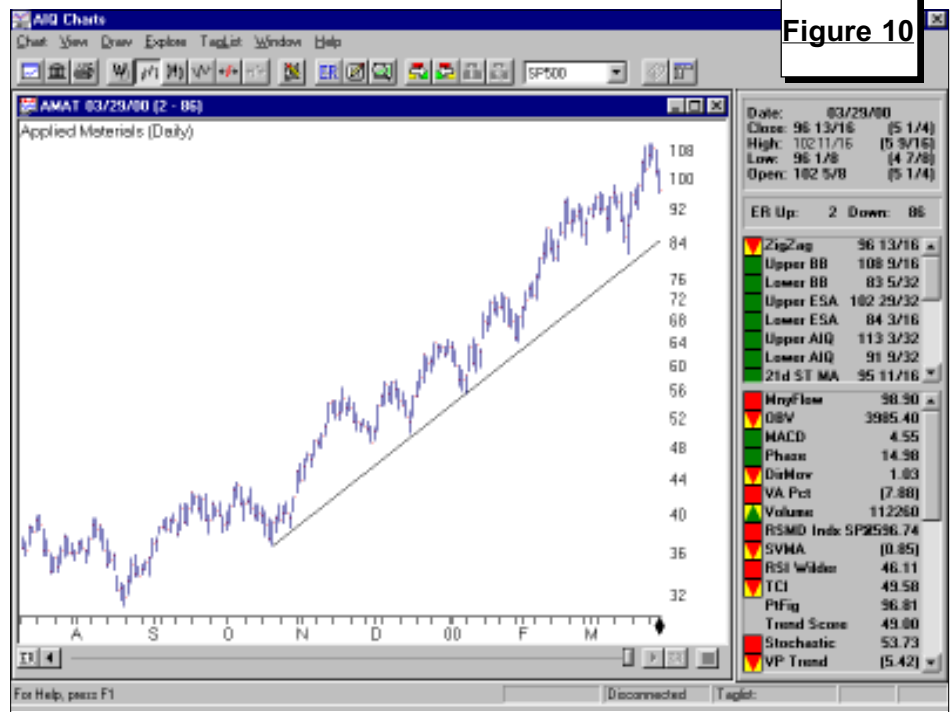
USING LOG SCALE *continued* . . .

higher price.

In **Figure 10** we see the same stock using a log scale. Notice on the price scale that there is a large space between \$32 and \$36 but there is only a small space between \$72 and \$76. The scaling is dependent on percentage increments instead of equal price increments. Now that we are using log scale charting, we see the August 1999 selloff looks larger than the early March 2000 selloff.

How does this affect our analysis? In Figure 9 we drew a support trendline connecting the October 1999, December 1999, and January 2000 low points in the stock. This year the stock has staged such a strong advance that it looks like the stock has entered a parabolic move. Applied Materials is so far above the support trendline that it has rendered the trendline nearly useless.

The analysis is different with the log scale chart. Once again we've drawn a support trendline connecting the October 1999, December 1999, and January 2000 lows. Instead of entering a parabolic advance, AMAT now shows a more steady advance and it successfully tested the support trendline in late January 2000 and again in March 2000. Whereas the



**Figure 10**

equal scale chart shows current support for AMAT at \$75, the log scale chart shows support much closer to current price activity at \$85. A break below support will come much earlier on the log scale chart than it will on an arithmetic scale chart.

To switch back and forth from an equal dollar scale (arithmetic) chart to a log scale chart, click the icon to the

right of the ER icon on the bottom of the chart (see Figure 9). When the icon shows lines evenly spaced, then you are plotting on log scale. When the icon shows lines unevenly spaced, then you are plotting an arithmetic scale format. Alternatively, you can look at the scale on the right side of a graph to see which format is being used. ■

## MARKET REVIEW

The AIQ timing model was on a January 31 buy signal as we headed into the month of March. Two additional buy signals were registered in March. A 97 buy came on March 1 and a 100 buy signal came on March 9.

The S&P 500 moved sideways for the first half of the month but rocketed upward when "old economy" stocks took leadership in mid-month. Between March 14 and March 23 the S&P 500 gained 13%. For the month of March the S&P 500 gained 9.7%.

While the S&P 500 rallied, the Nasdaq Composite fell. During March, the Nasdaq Composite saw two 10% corrections. For the month,

the Nasdaq was down just under 3%.

Relative strength indicators shifted from the Nasdaq to the S&P 500. The Nasdaq's RSMD SPX indicator switched in favor of the S&P 500 mid-month and experienced a precipitous drop during the second half of the month. The weekly RSMD SPX indicator had been heading higher each week since last November but this indicator turned lower in late March as well.

There were some industry groups that saw extreme selling in March. Biotechnology stocks were the worst hit as Biotechnology groups were down by at least 20% in March. ■

## S&P 500 Changes

Linear Technologies (LLTC) replaces Monsanto Co. (MTC). LLTC is added to the Electronics-Semiconductors (EQUIPSEM) group.

Pharmacia Corp (PHA) replaces Pharmacia & Upjohn (PNU). PHA is added to the Health Care-Drugs Major Pharmaceuticals (HEALTHDR) group.

Veritas Software (VRTS) replaces Pep Boys (PBY). VRTS is added to the Computers-Software & Services (COMPUTES) group.