MARKET DYNAMICS

LEARN RELATIVE STRENGTH POINT & FIGURE CHARTING

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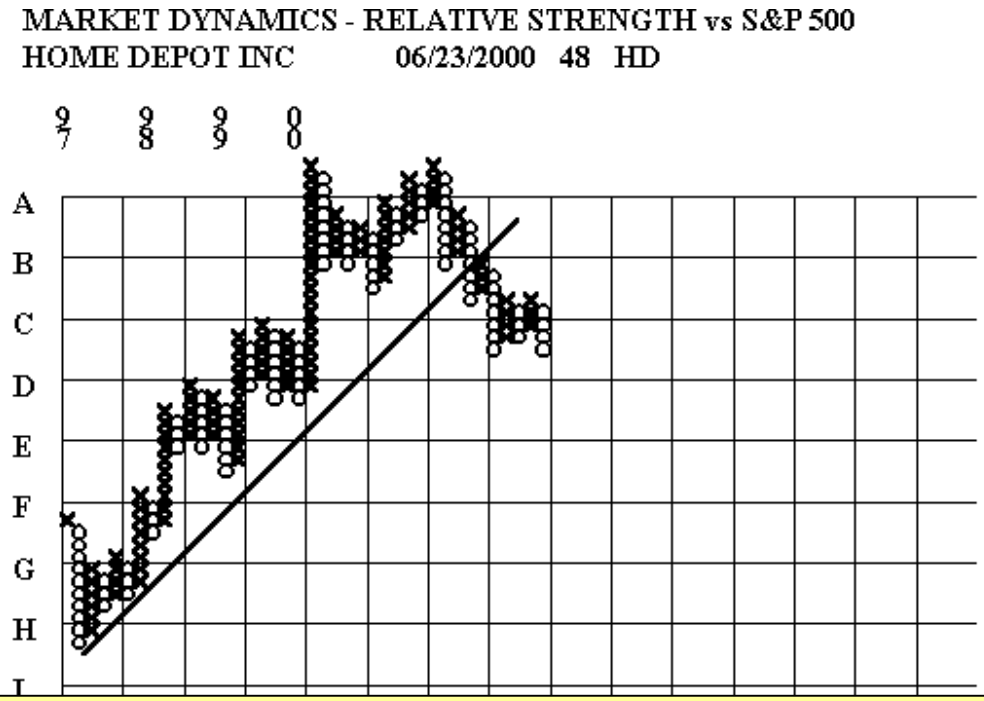
The Spirit of Technical Analysis



In my opinion the Market Dynamics version of technical analysis is a tool for judging long-term trends and the reversals of direction of those trends.

<u>It is not a tool for prediction.</u>

It has certain rules but it is more or less an art form – I certainly don't believe it is scientific.

It helps in a majority of cases (65% to 75% estimate by WCA) and fails in others or at least the trends quickly change direction from what was hoped for!

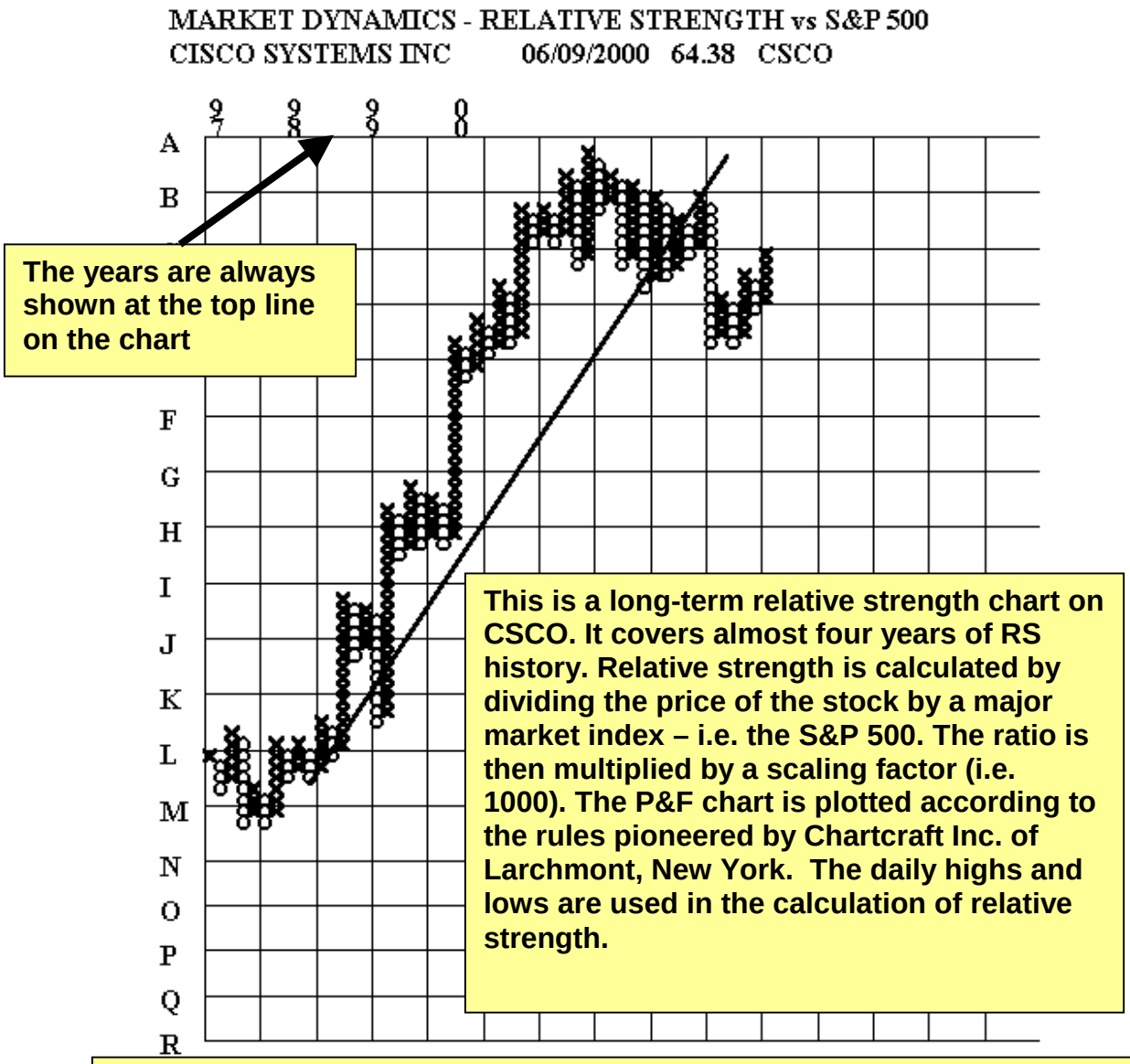
If I can correctly gauge the direction of the long-term trend I will be able to advise and manage my portfolios successfully.

If Market Dynamics is used with discipline - it will require the sale of losers and the retention of winners as long as they are able to perform. That, after all, is the key to successful portfolio management.

WCA

Chart construction and layout

Ratio chart – price relative to S&P 500



The years are always shown at the top line on the chart

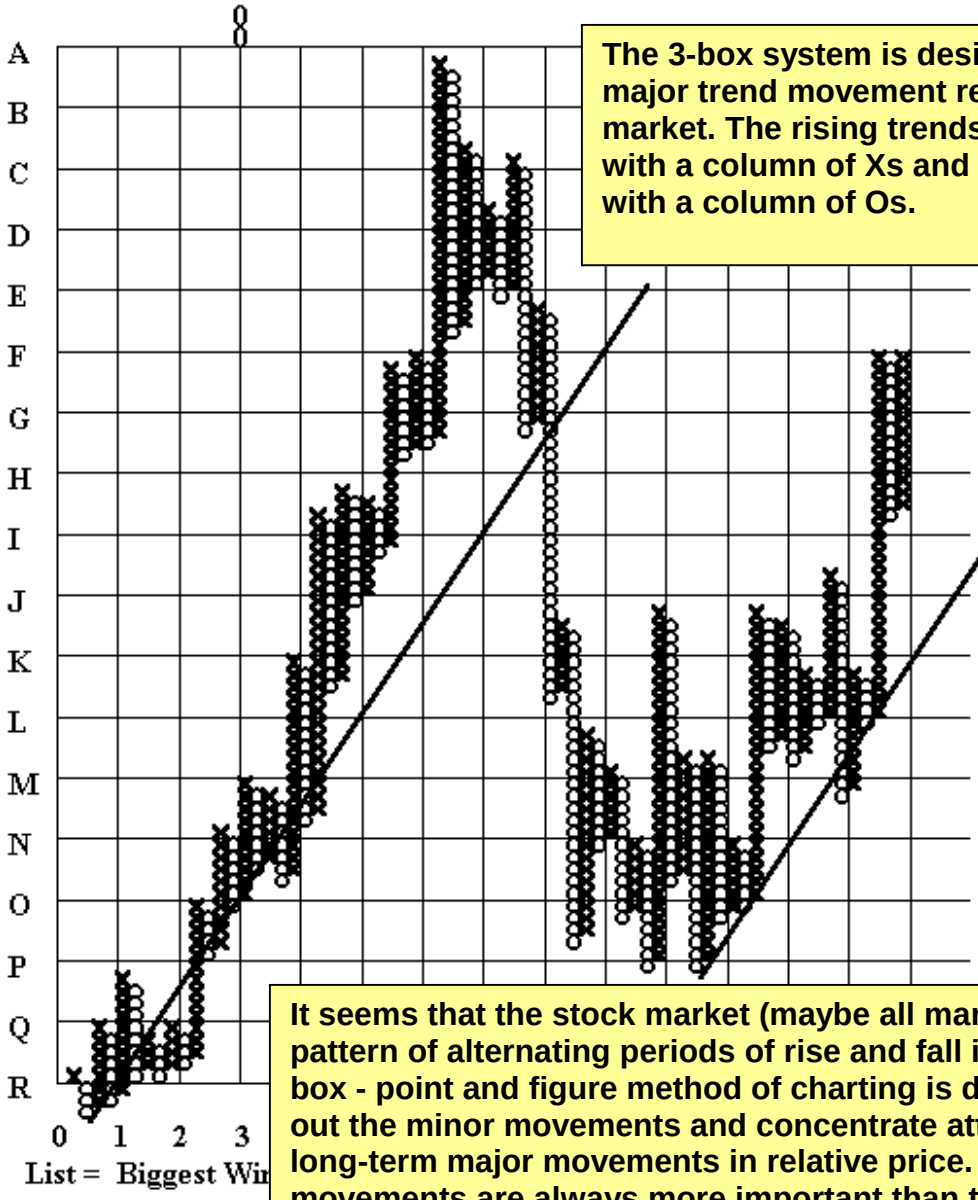
This is a long-term relative strength chart on CSCO. It covers almost four years of RS history. Relative strength is calculated by dividing the price of the stock by a major market index – i.e. the S&P 500. The ratio is then multiplied by a scaling factor (i.e. 1000). The P&F chart is plotted according to the rules pioneered by Chartcraft Inc. of Larchmont, New York. The daily highs and lows are used in the calculation of relative strength.

Since the chart is a plot of ratios - the movement relative to the market is what is being recorded. The ratios don't mean anything in and of themselves. The letters along the Y-axis and the numerals along the X-axis are to be used only as reference points when discussing the charts.

The grids on the Market Dynamics relative strength charts are square. This becomes important when using 45-degree bullish support lines and 45-degree bearish resistance lines.

It is important to note that the X-axis does not measure time.

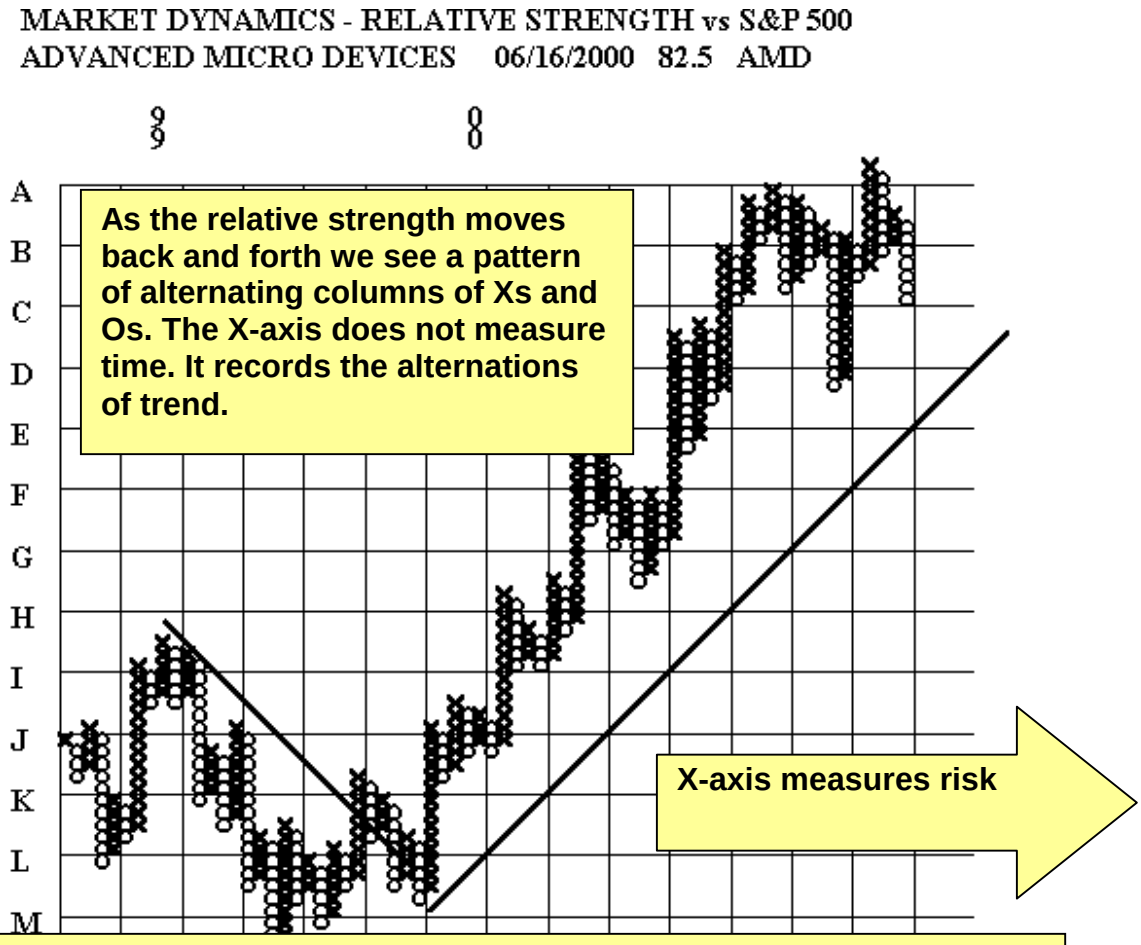
MARKET DYNAMICS - RELATIVE STRENGTH vs S&P 500
MILLENNIUM PHARMACEUTICL 06/09/2000 121.5 MLNM



The 3-box system is designed to show major trend movement relative to the market. The rising trends are recorded with a column of Xs and the declines with a column of Os.

It seems that the stock market (maybe all markets) exhibit this pattern of alternating periods of rise and fall in price. The three box - point and figure method of charting is designed to filter out the minor movements and concentrate attention on the long-term major movements in relative price. The long-term movements are always more important than the short-term noise and this system is designed to take advantage of that characteristic behavior.

X-axis – does not measure time –It records alternations of trend



The alternations of trend are a direct function of volatility - so we can say that the X-axis is scaled in units of risk - since volatility is often thought of as a proxy for risk. The Y-axis is scaled in units of relative return. We are actually recording the movement of <u>risk versus return</u>.

We should be gaining more in the Y direction than we are recording in the X direction if we are performing better than the market.

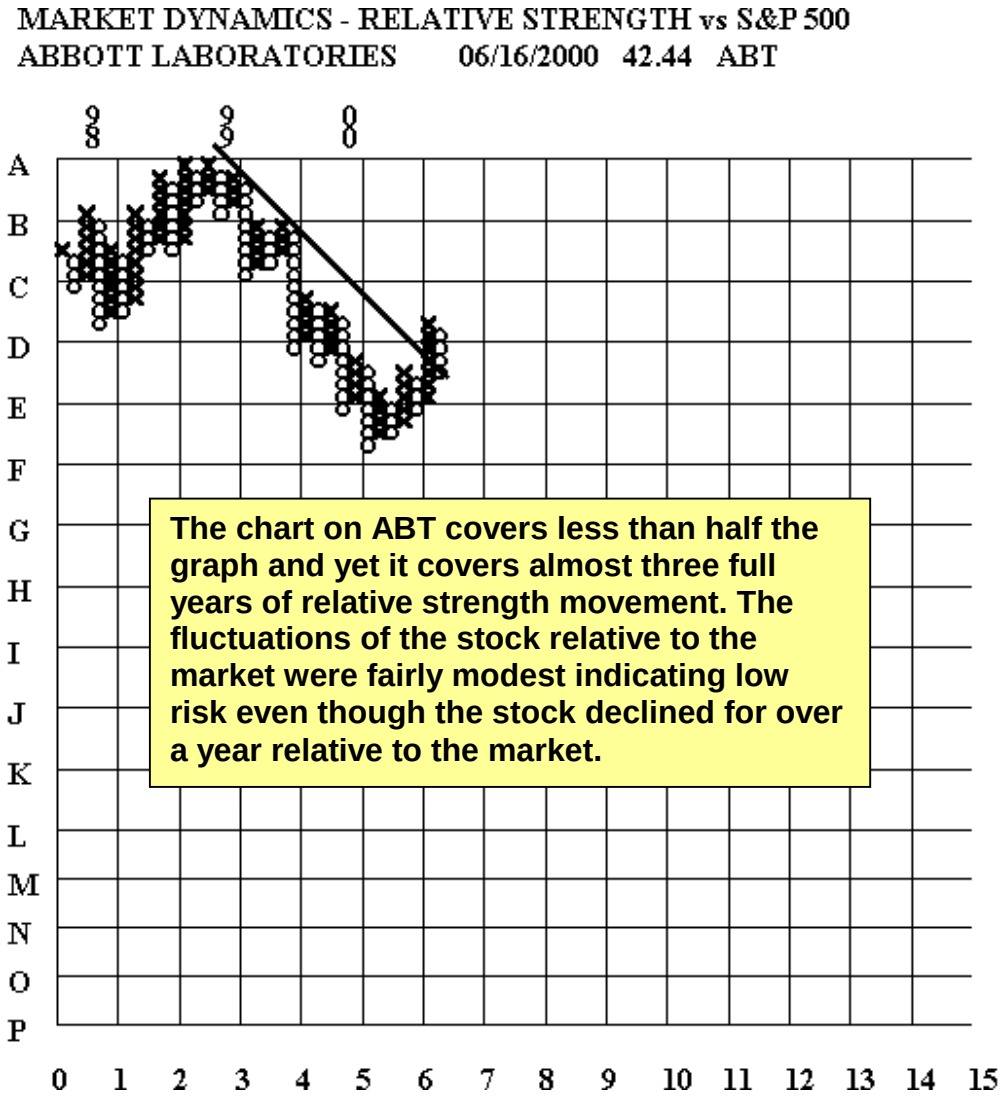
The RS of the stock should remain above an upward sloping line if we are outperforming the market. Many times a 45-degree line that slopes upward to the right is used to gauge the performance of a stock. Above the 45-degree line is acceptable and below the 45-degree line is unacceptable. This ensures a margin of excess return - over and above the performance of the market. The slope is +1 for a bullish support line, which requires one box up for each box to the right. <u>One unit of gain for each unit of risk.</u>

Region of Excess Return

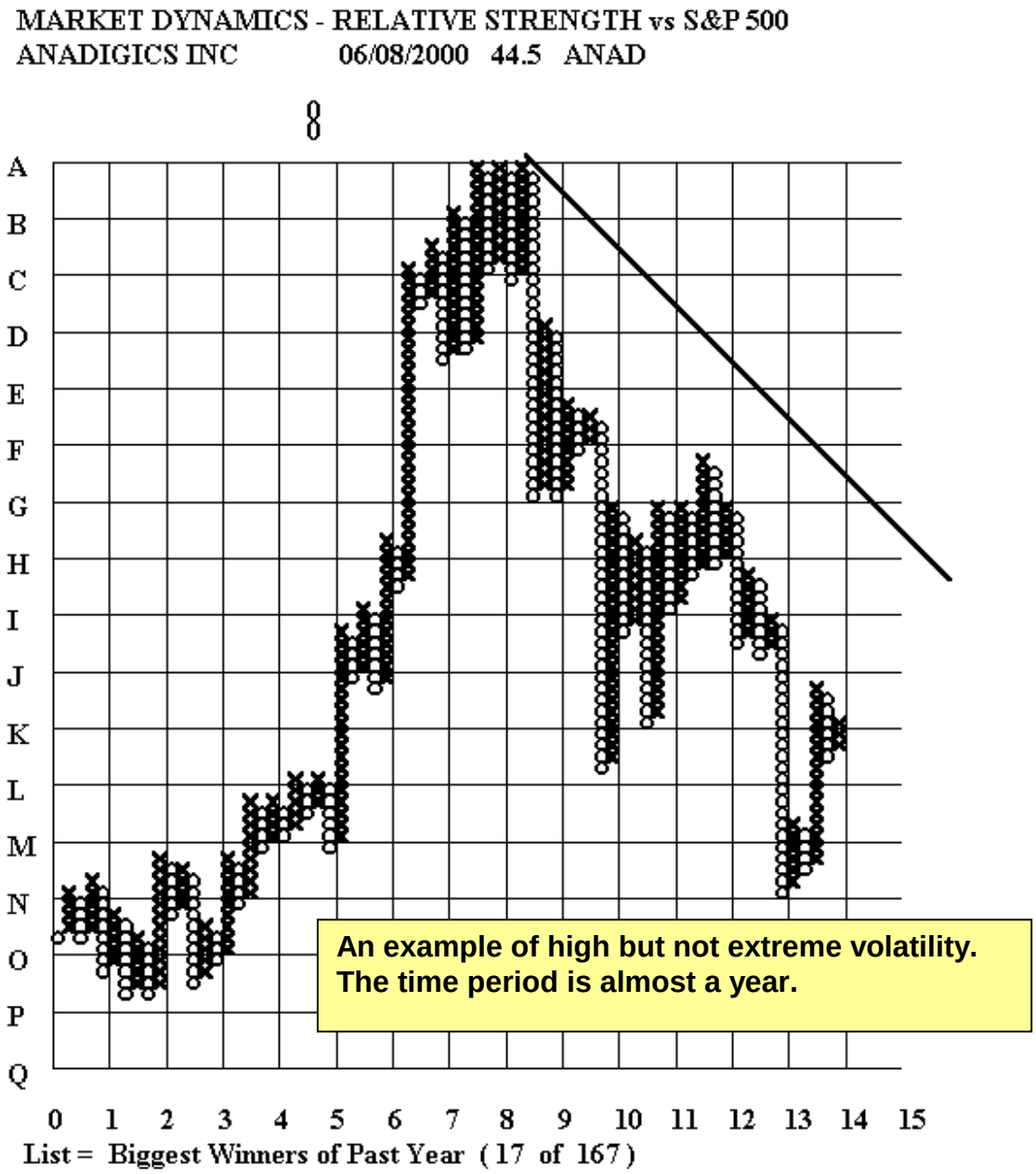
Region of serious under-performance

Time period covered – all charts are programmed to cover four years of history. Volatility effects how much time the chart covers.

Low volatility – Long time period



High volatility - Intermediate time period

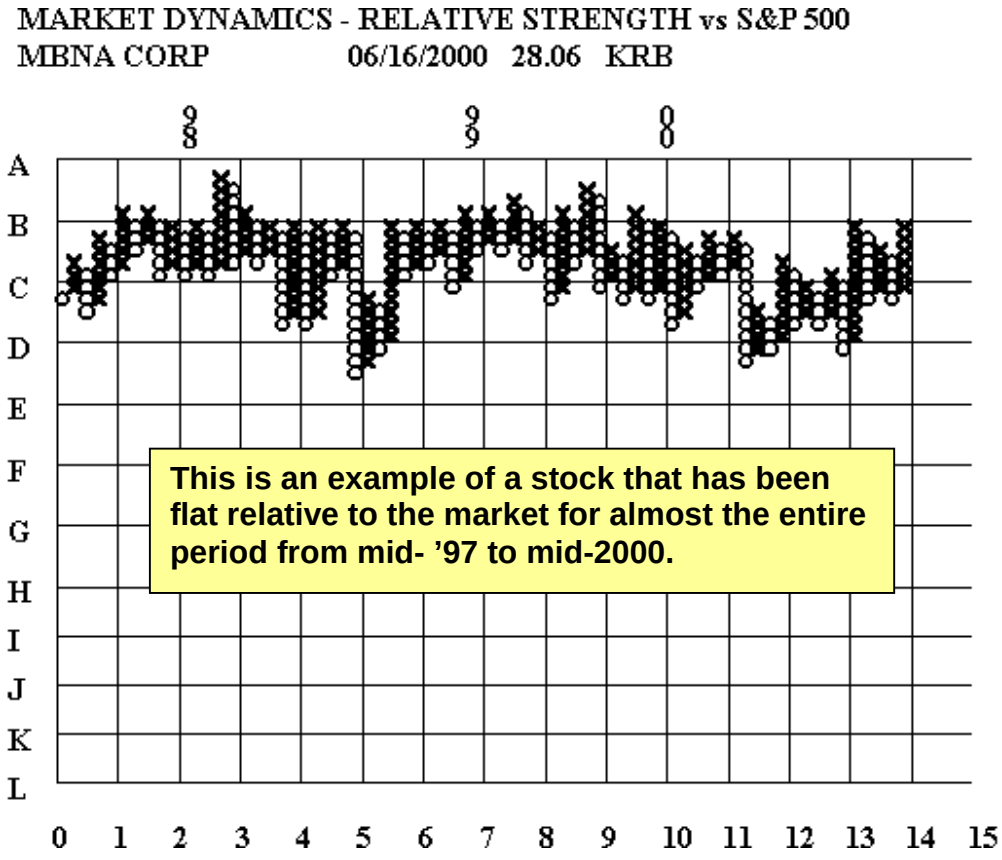


Extreme volatility - Shortest time period

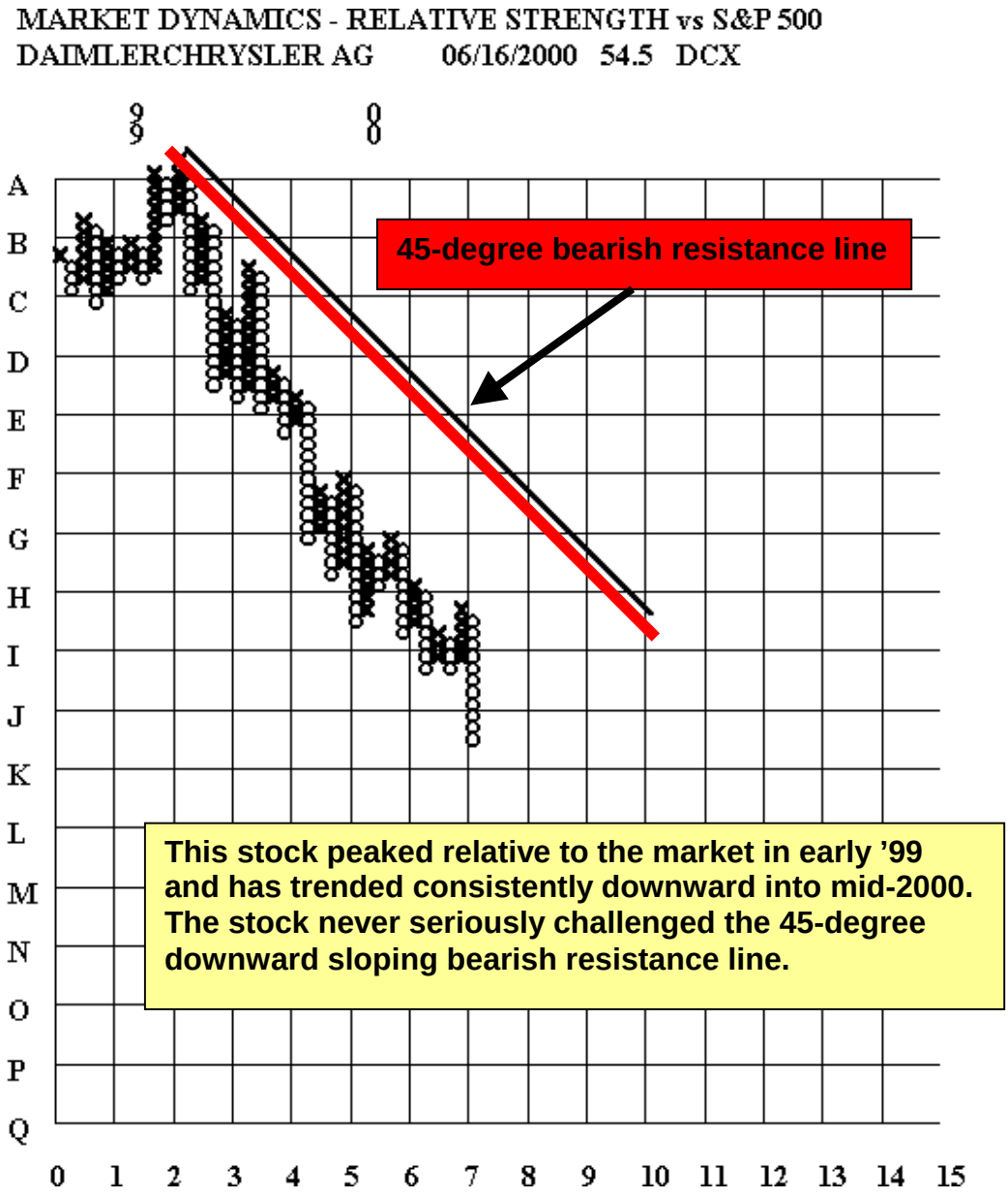
Performance relative to market

Better than market – Upward sloping graph

Even with the market – flat chart

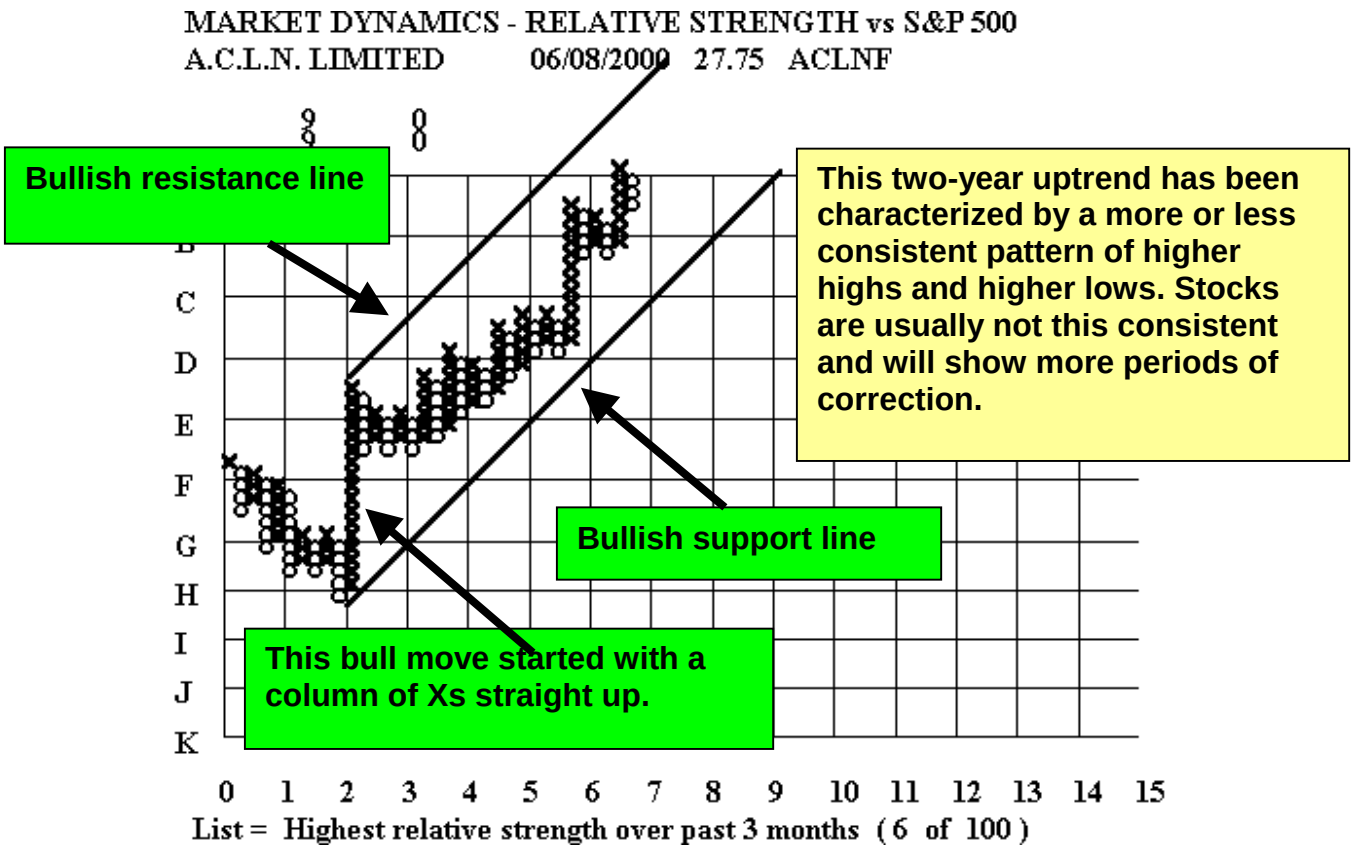


Worse than the market – downward sloping chart

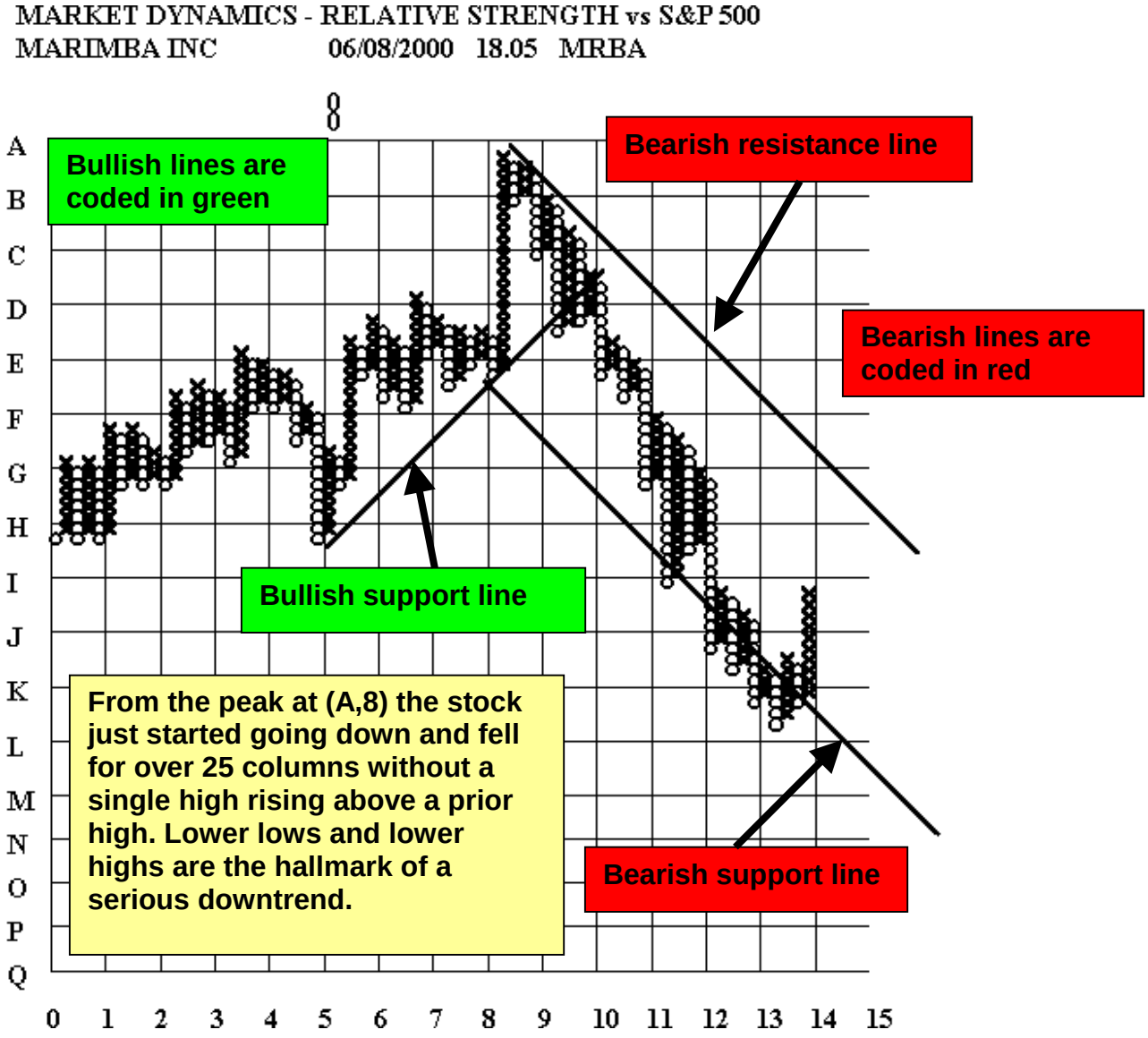


Analysis of trends

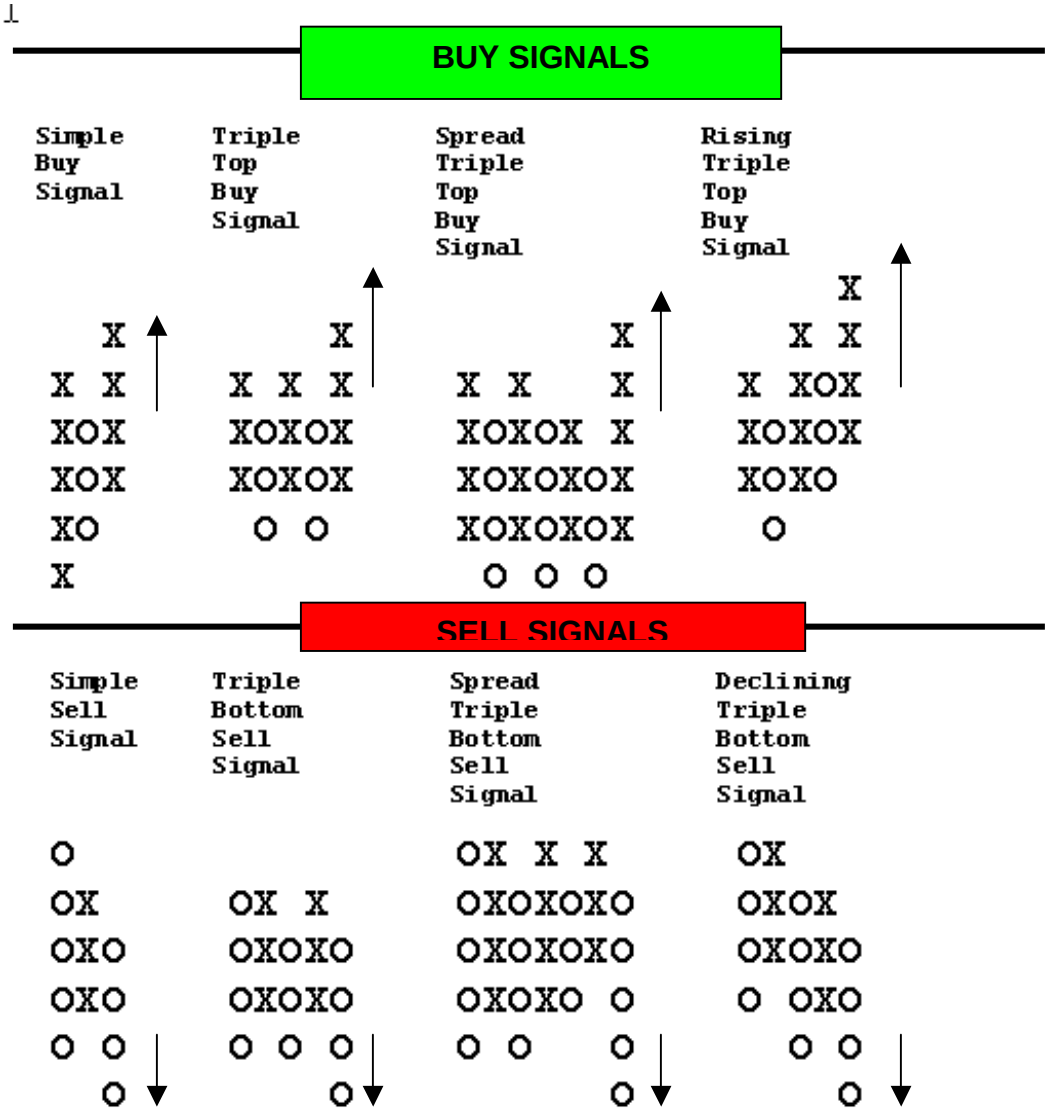
Uptrends



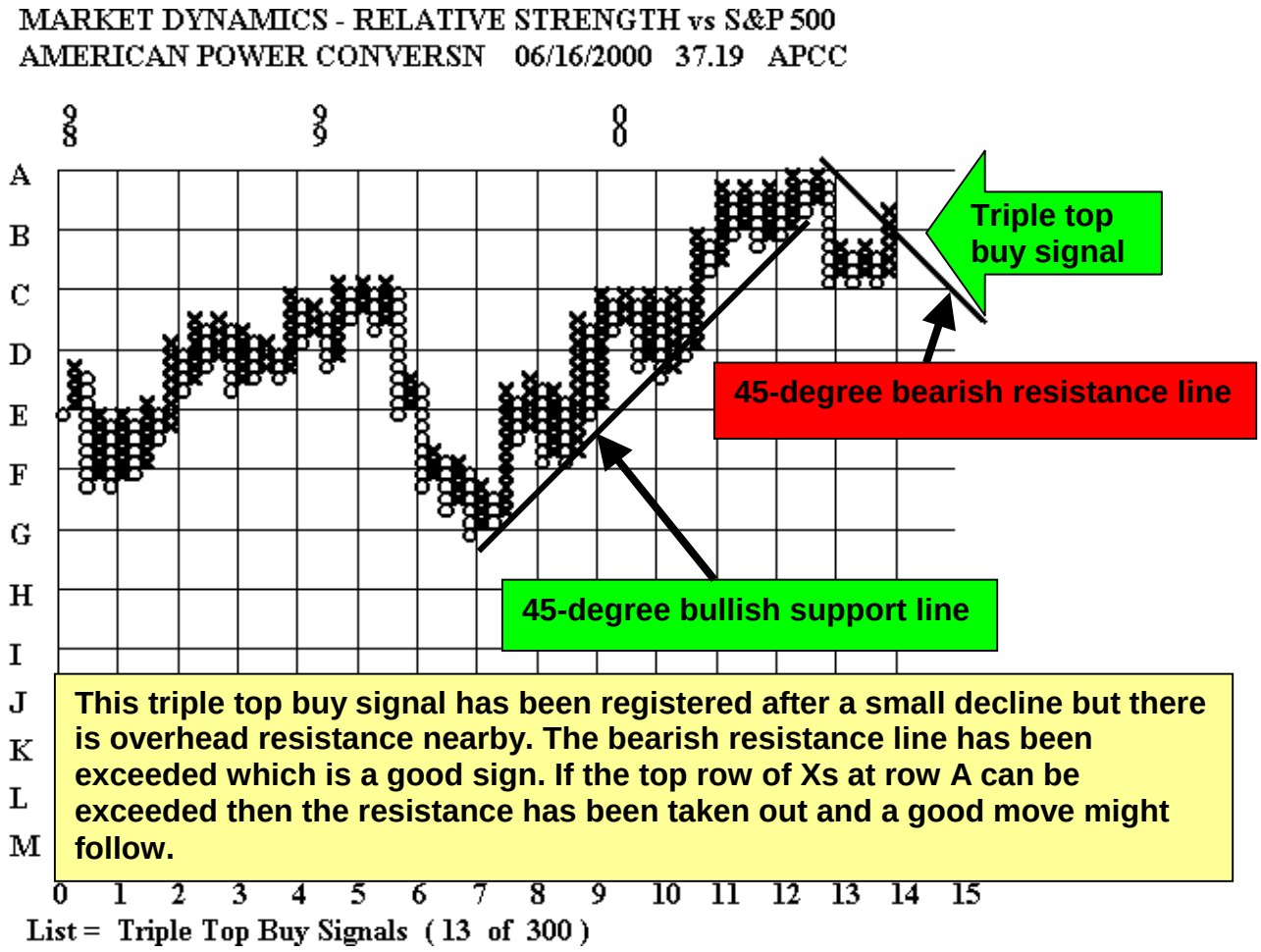
Downtrends


MARKET DYNAMICS - RELATIVE STRENGTH vs S&P 500
MARIMBA INC 06/08/2000 18.05 MRBA
Bullish lines are coded in green
Bearish resistance line
Bearish lines are coded in red
Bullish support line
From the peak at (A,8) the stock just started going down and fell for over 25 columns without a single high rising above a prior high. Lower lows and lower highs are the hallmark of a serious downtrend.
Bearish support line
A B C D E F G H I J K L M N O P Q
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

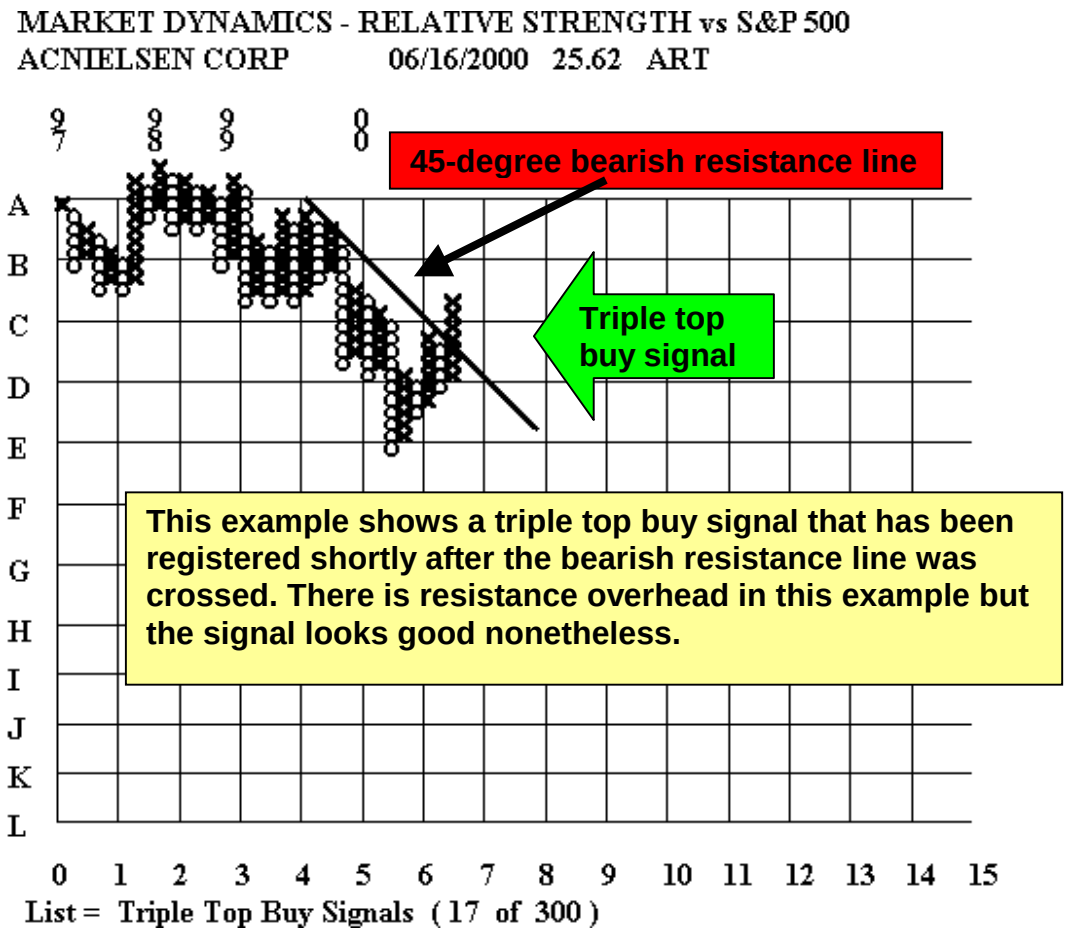
Signal patterns



Triple top buy signal – example #1 – There are many examples of triple top buy signals on the chart.



Triple top buy signal – example #2



Triple top buy signal – example #3

Triple bottom sell signal – example #1

Triple bottom sell signal – example #2

The triple bottom sell signal is shown in the example. It should usually be used with a penetration of the bullish support line. A sell signal after a major bull market move should be given more weight than a signal that is registered after a long decline.
This example shows both a triple bottom sell signal and a bullish support line violation. A downward sloping bearish resistance line could now be drawn from the top at (A, 13).

45 degree lines- Bullish

Bullish support lines

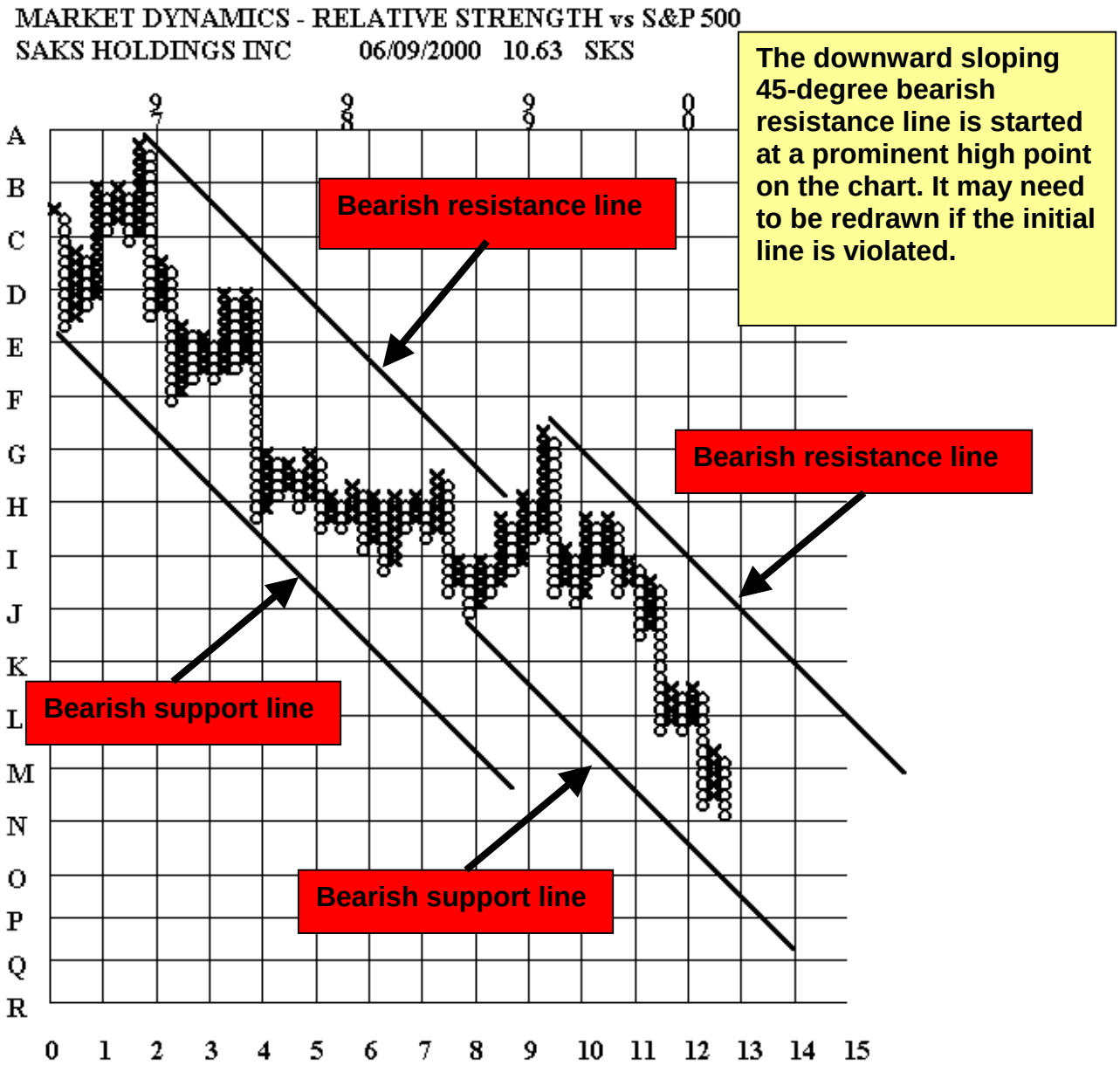
Bullish resistance lines

The upward sloping 45 degree bullish support line is drawn from any prominent low point on the chart. A long-term investor would start the line at the lowest point on the chart. A new bullish support line should be started if the initial line is violated.
These lines are a very important part of using relative strength in a point and figure format. They provide a standard of performance that almost ensures the achievement of the portfolio's performance goals. A stock must <u>continuously gain on the market</u> to remain above these lines.

45-degree lines - bearish

Bearish resistance lines

Bearish support lines



The downward sloping 45-degree bearish resistance line is started at a prominent high point on the chart. It may need to be redrawn if the initial line is violated.

Stocks that remain below their 45-degree bearish lines are seriously hurting the portfolio's performance. They hurt the portfolio twice – (first) they lose performance and (second) they keep the portfolio manager from buying another stock that has a better chance of performing!

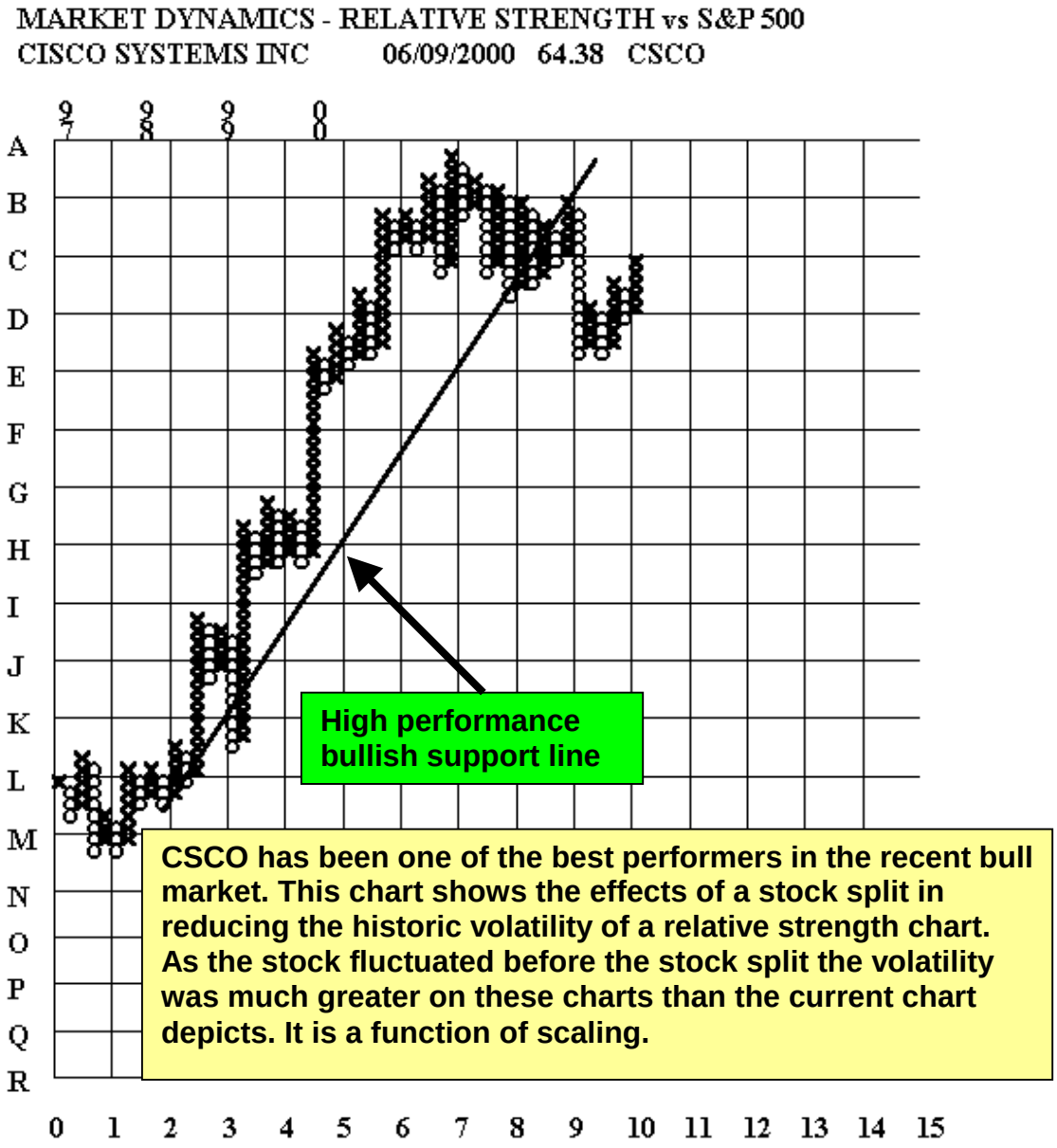
High performance bullish support lines

Use on high risk, speculative stocks

Slope is 50% steeper than 45 degree bullish support line

HPBSL - Example 1

HPBSL - Example 2

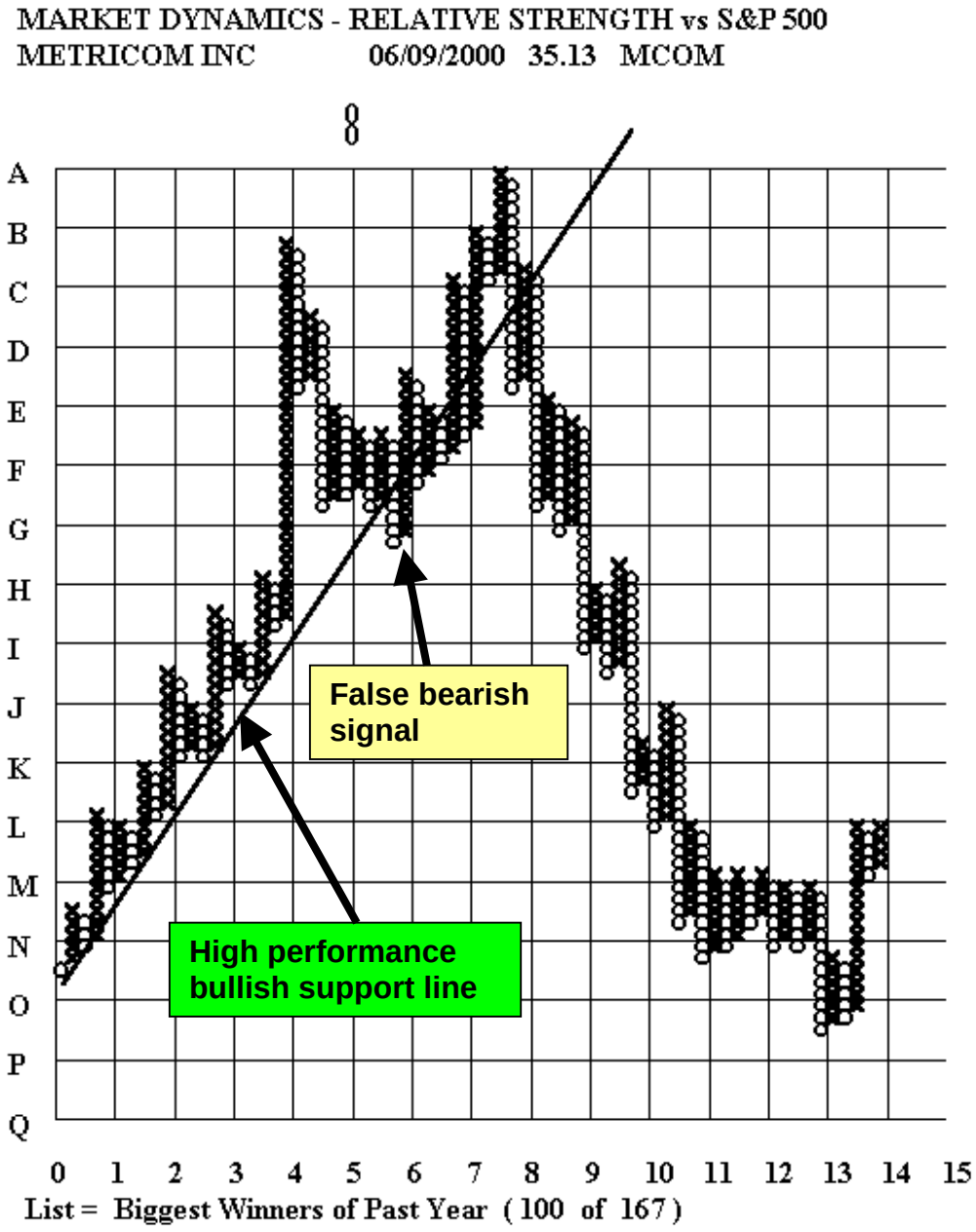


HPBSL - Example 3

HPBSL – example 4

HPBSL – example 5

HPBSL – example 6



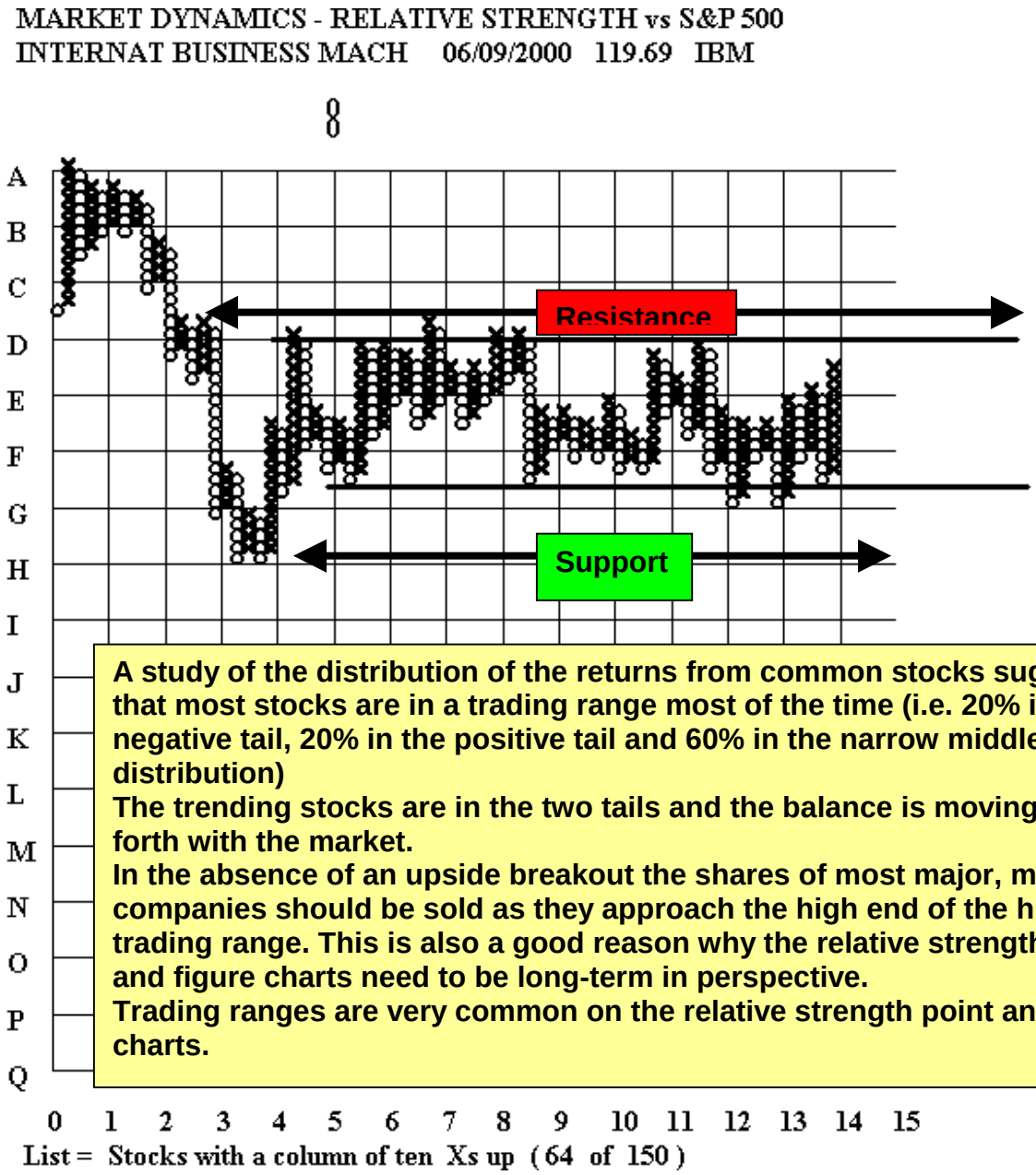
HPBSL – example 7

HPBSL – example 8

HPBSL – example 9

HPBSL – example 10

Support and resistance



A study of the distribution of the returns from common stocks suggests that most stocks are in a trading range most of the time (i.e. 20% in the negative tail, 20% in the positive tail and 60% in the narrow middle of the distribution)
The trending stocks are in the two tails and the balance is moving back and forth with the market.
In the absence of an upside breakout the shares of most major, mature companies should be sold as they approach the high end of the historic trading range. This is also a good reason why the relative strength point and figure charts need to be long-term in perspective.
Trading ranges are very common on the relative strength point and figure charts.

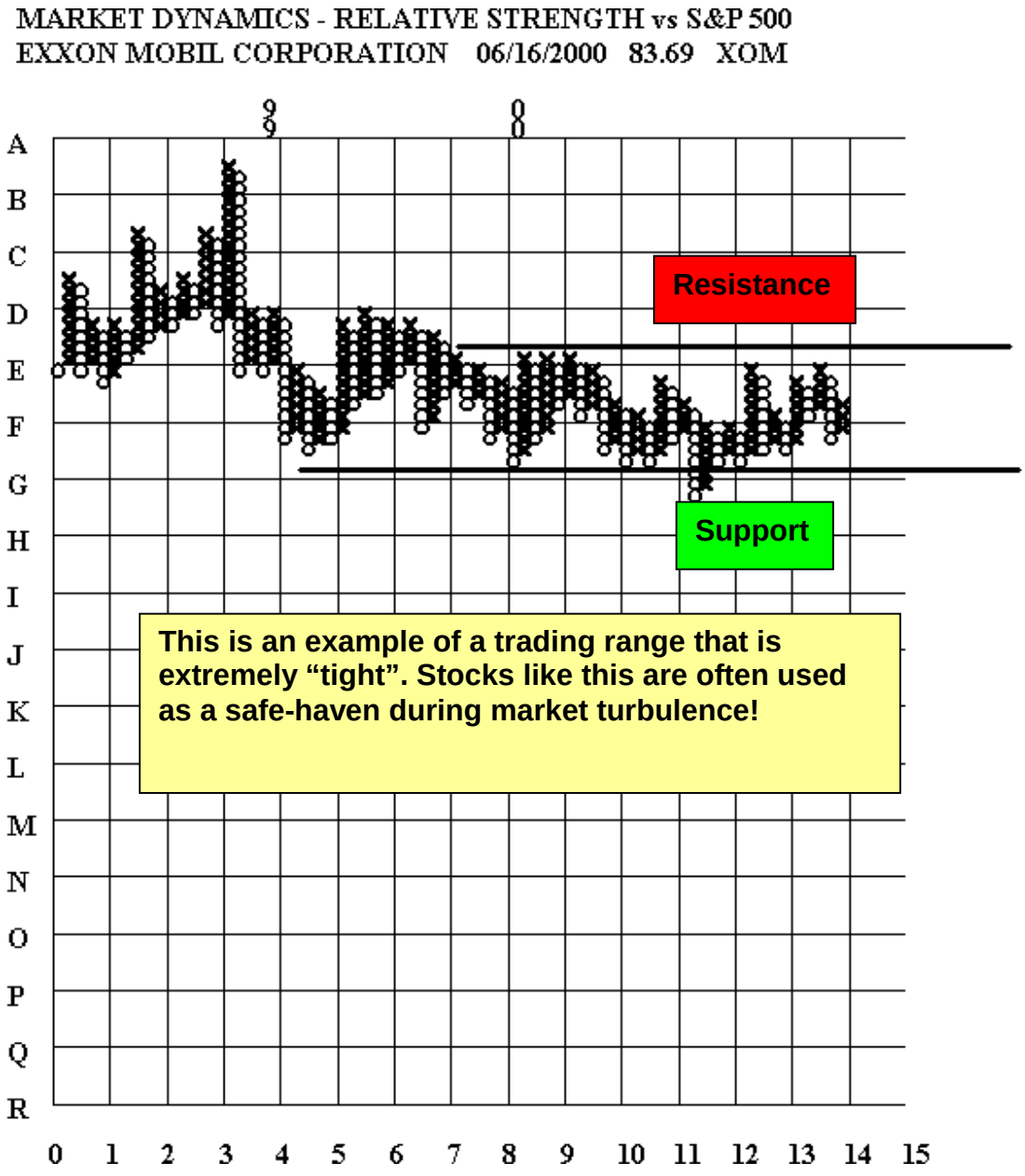
Resistance below the bearish resistance line

Trading ranges – example 1

Trading ranges – example 2

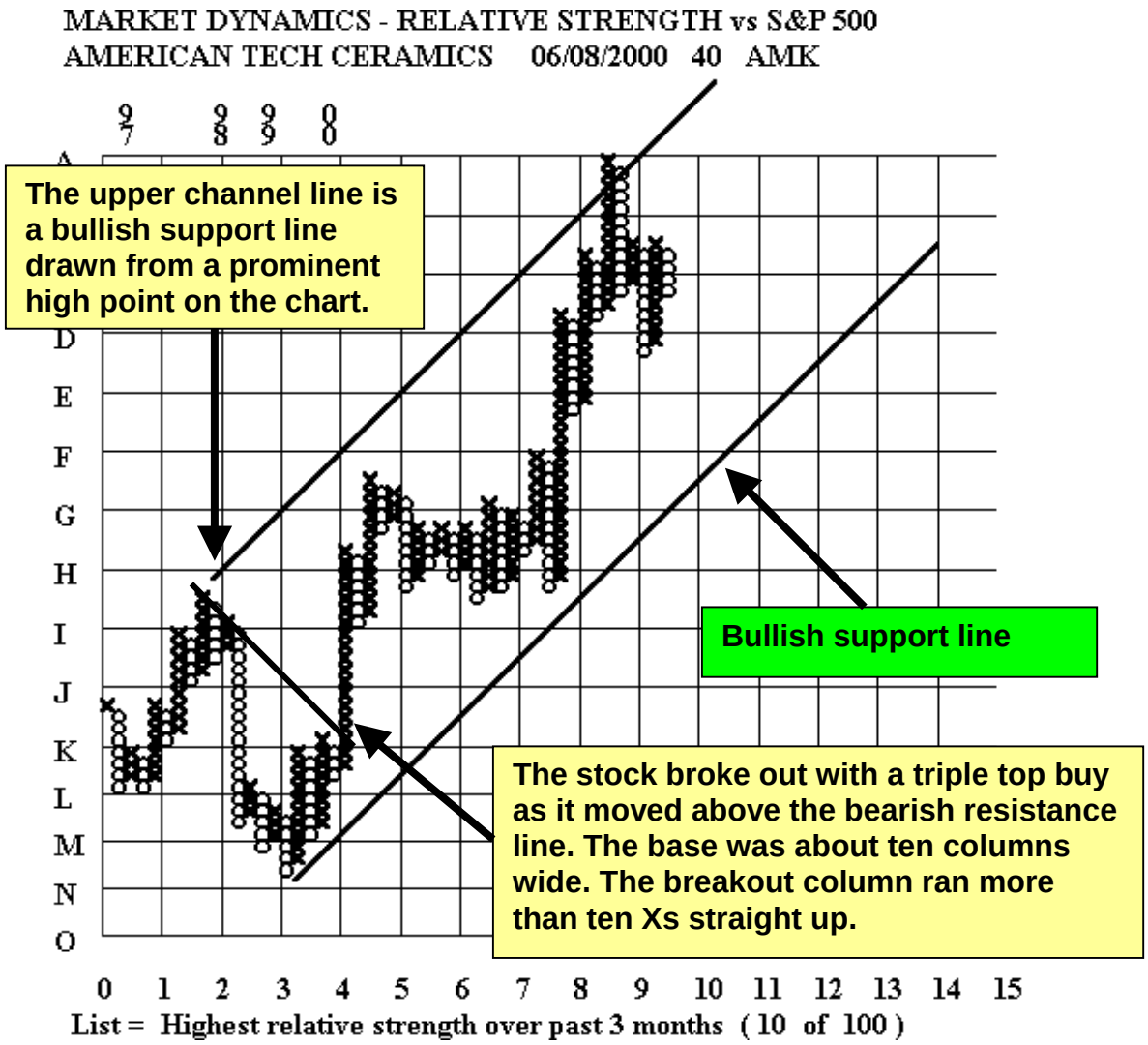
Trading ranges – example 3

Trading range – example 4

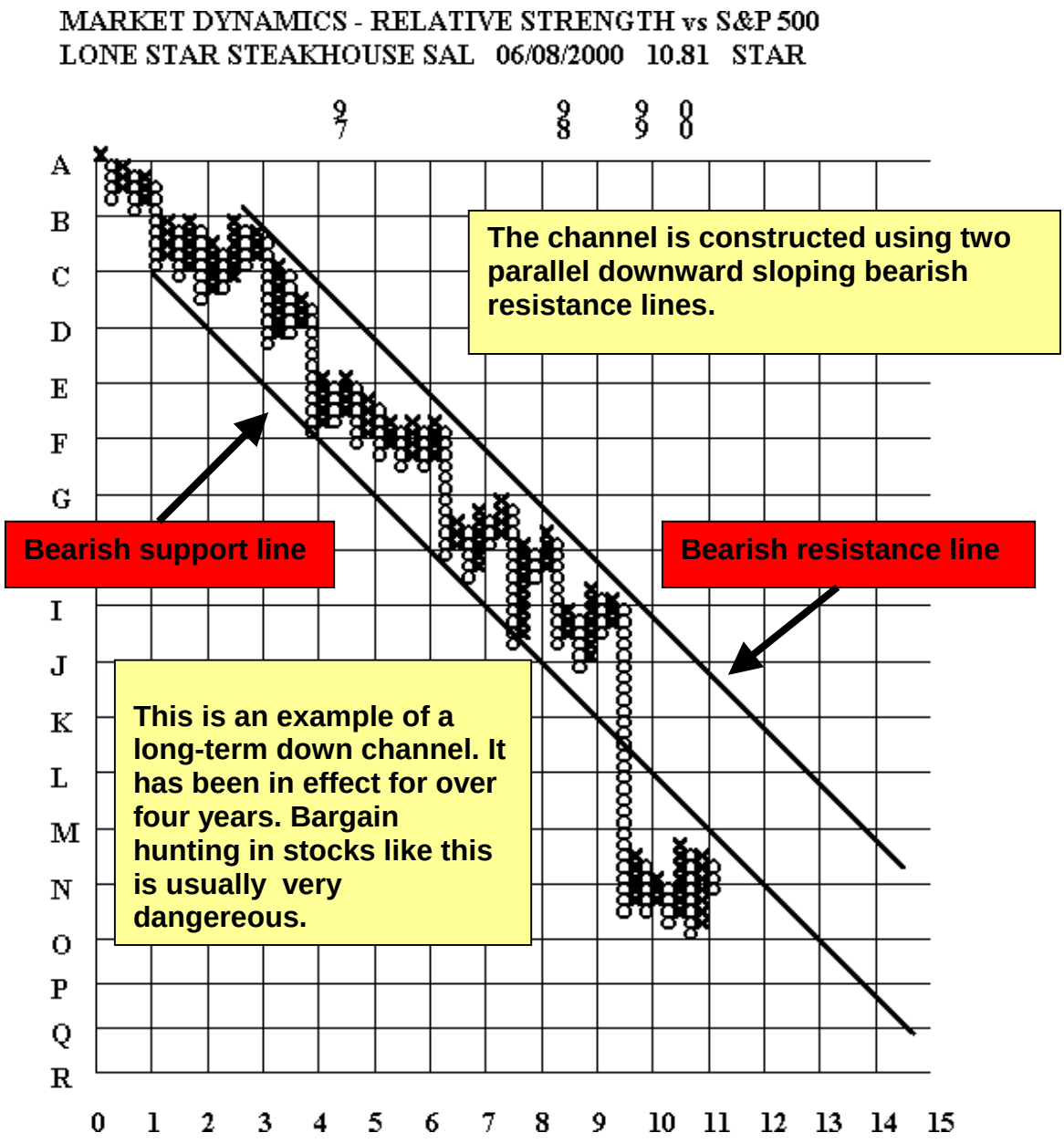


Channels

Long-term up channels



Long-term down channels



Major long-term trends

Major long-term up-trends – example 1

Column with ten Xs up

High performance bullish support line

Stocks that start to move up dramatically on the relative strength charts like this will appear on the Market Dynamics one-month high RS screen, the triple top buy signals screen and often on the ten box up screen. The increasing relative strength is an indication they are moving out into the positive tail of the distribution. They should have broken out above almost all-historic resistance and the up trend should be accelerating. Trend following tools work best on stocks like this. These stocks have the potential to become big winners. They are easily identified early in their moves with the screens supplied by Market Dynamics.

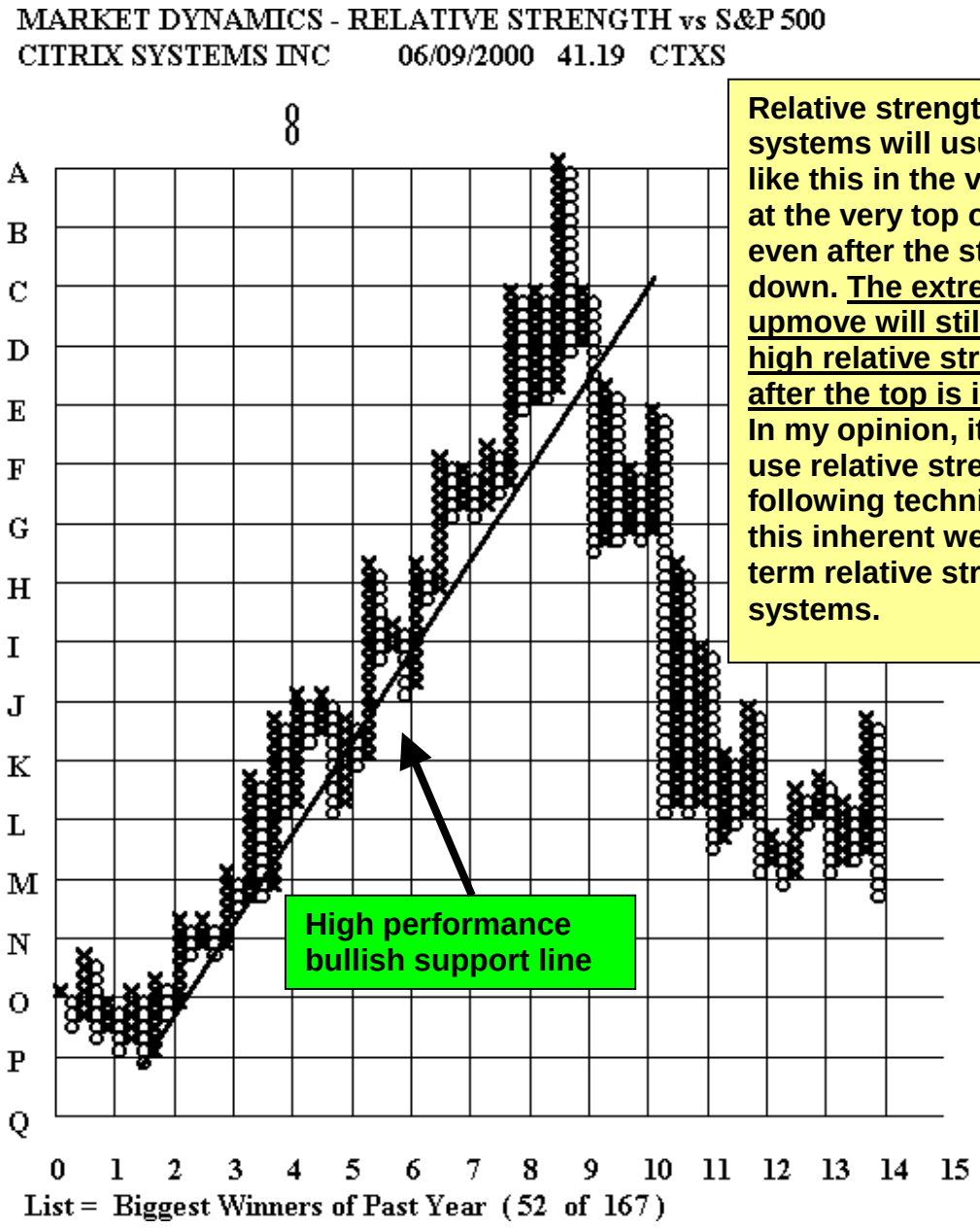
Major long-term uptrends – example 2

Major long-term uptrends – example 3

Trendlines that get steeper and steeper are suggesting a blow-off. These situations are usually best sold into the strength since the top will almost certainly give little warning.

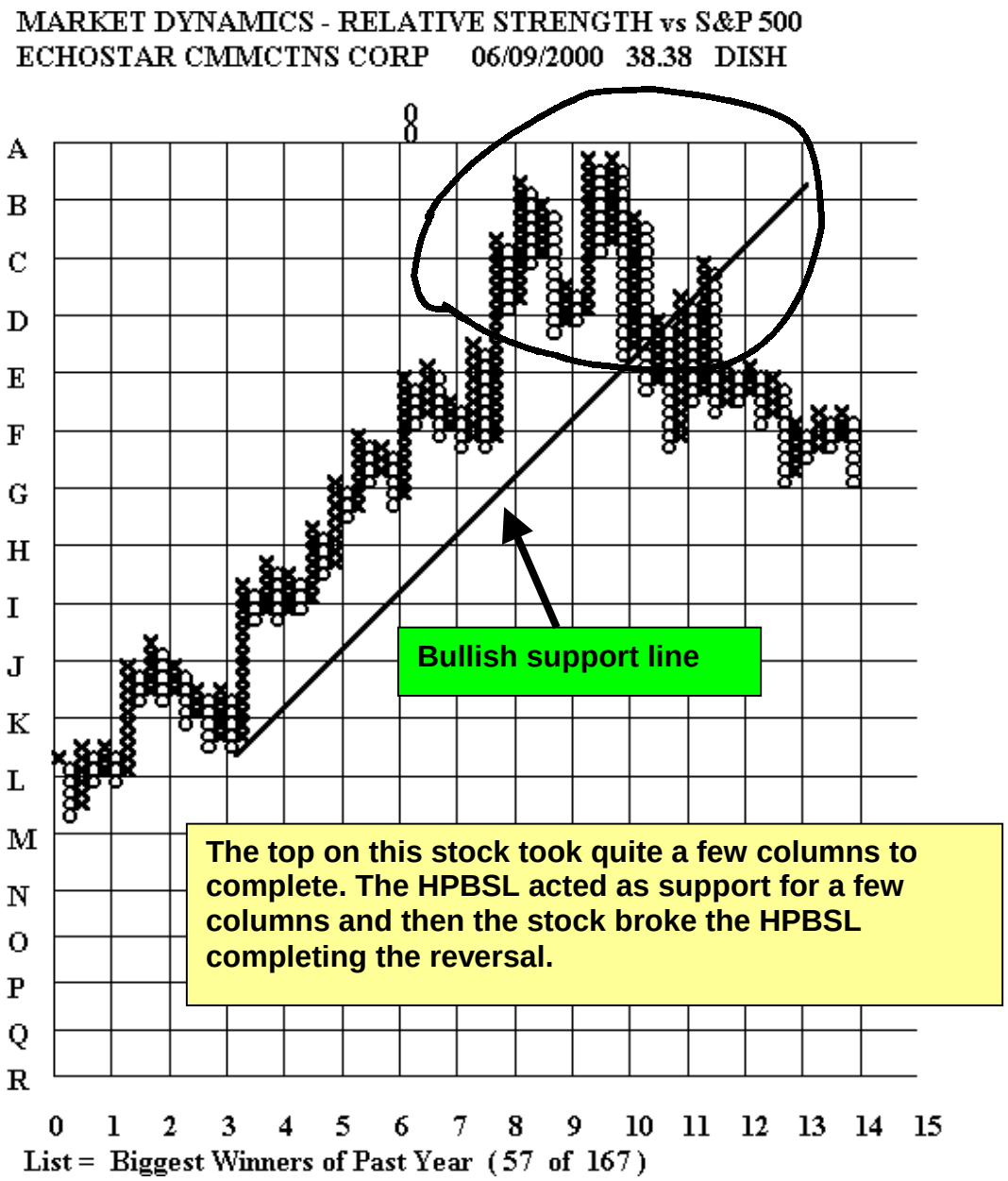
The rule of nine new high columns can be used to estimate the end of the rise.

Major long-term uptrends – example 4

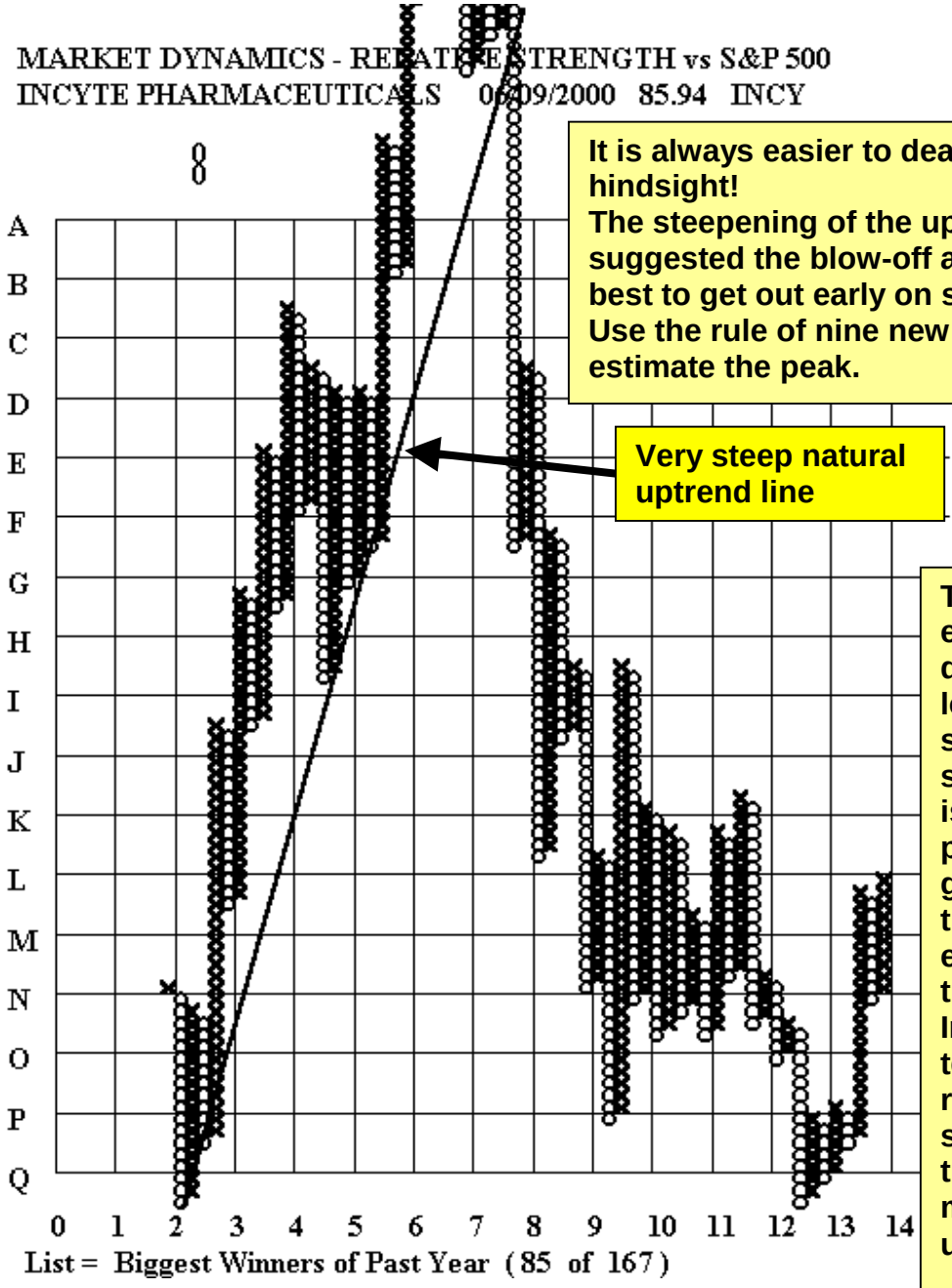


Relative strength ranking systems will usually rank a stock like this in the very highest ranks at the very top of the move and even after the stock has turned down. <u>The extreme nature of the upmove will still generate very high relative strength ranks well after the top is in.</u>
In my opinion, it is far better to use relative strength trend following techniques because of this inherent weakness of long-term relative strength ranking systems.

Major long-term uptrends – example 5



Major long-term uptrends – example 6

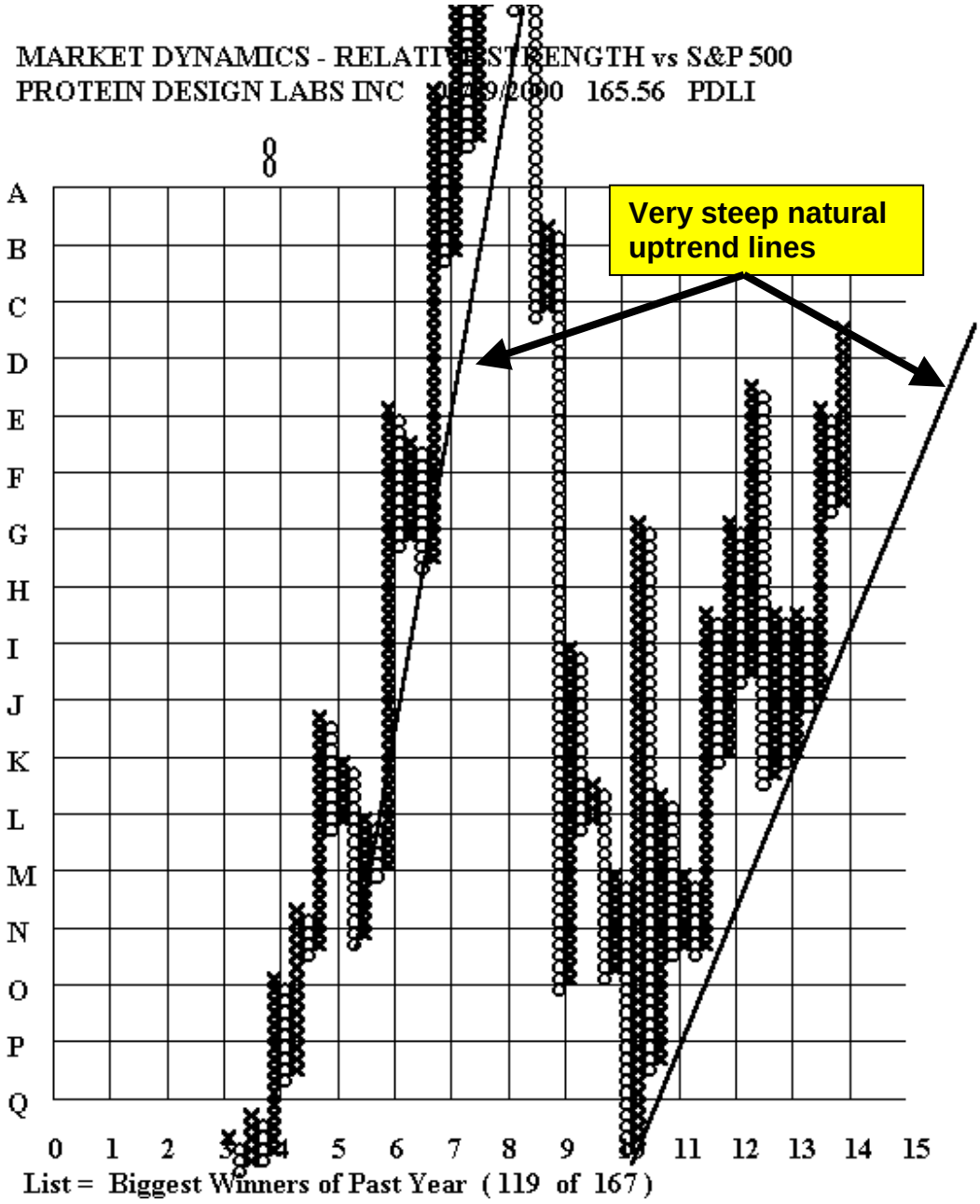


It is always easier to deal with a blow-off in hindsight!
The steepening of the upward trendlines suggested the blow-off as it occurred. It is best to get out early on situations like this. Use the rule of nine new high columns to estimate the peak.

Very steep natural uptrend line

This is another example of the dangers inherent in long-term relative strength ranking systems. The reversal is so fast that the portfolio manager gets bagged before the ranks decline enough to indicate trouble.
In my opinion, long-term ranking systems require the use of a stop-loss discipline that most portfolio managers refuse to use.

Major long-term uptrends – example 7

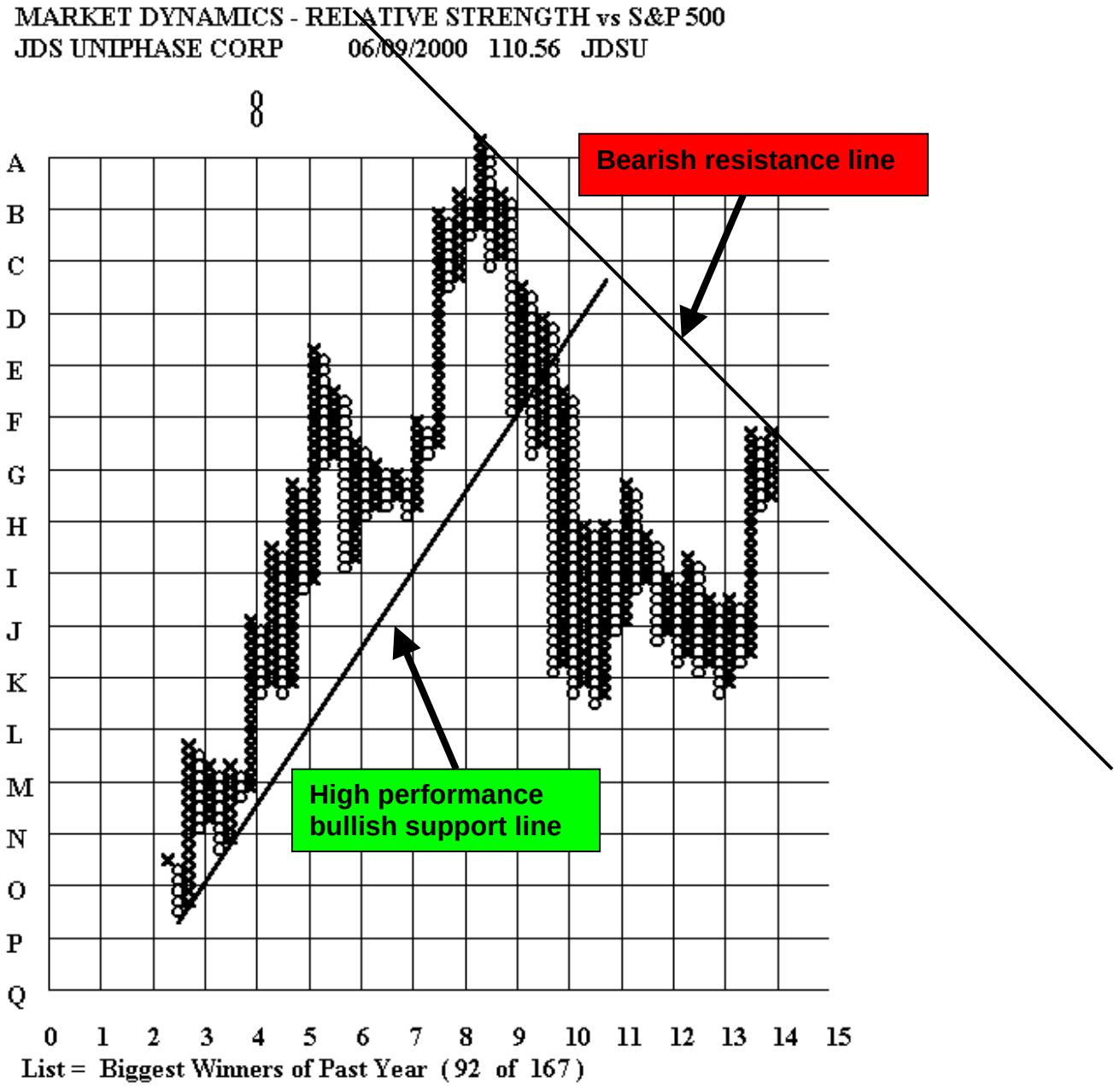


These are examples of stocks that experience wild swings in both directions. Since stocks like this are almost always extremely speculative we must be willing to leave the party on "short notice". The violation of an extremely steep up trend line is a "good enough" reason to step aside on a stock like this.

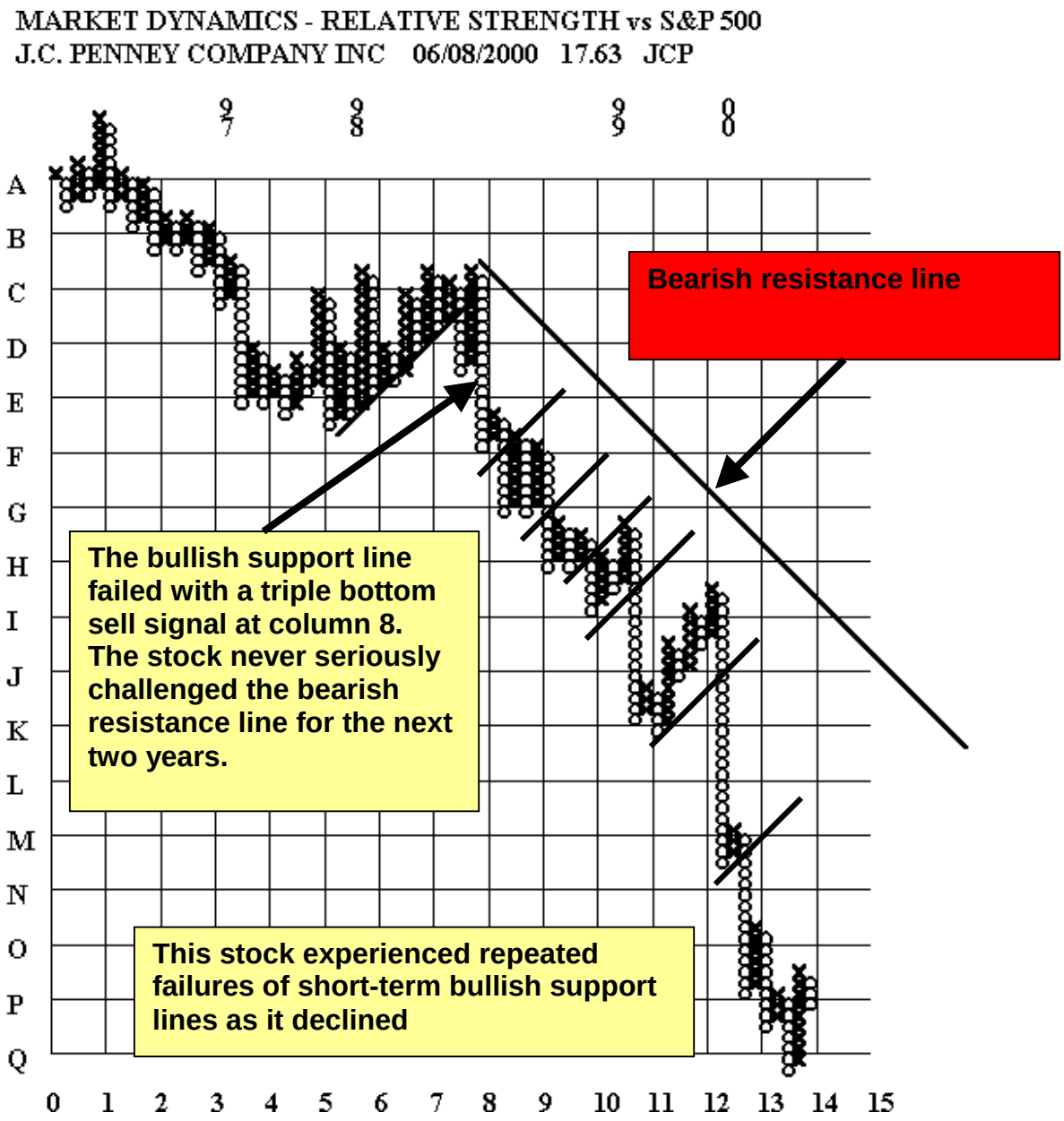
Major long-term uptrends – example 8

Major long-term uptrends – example 9

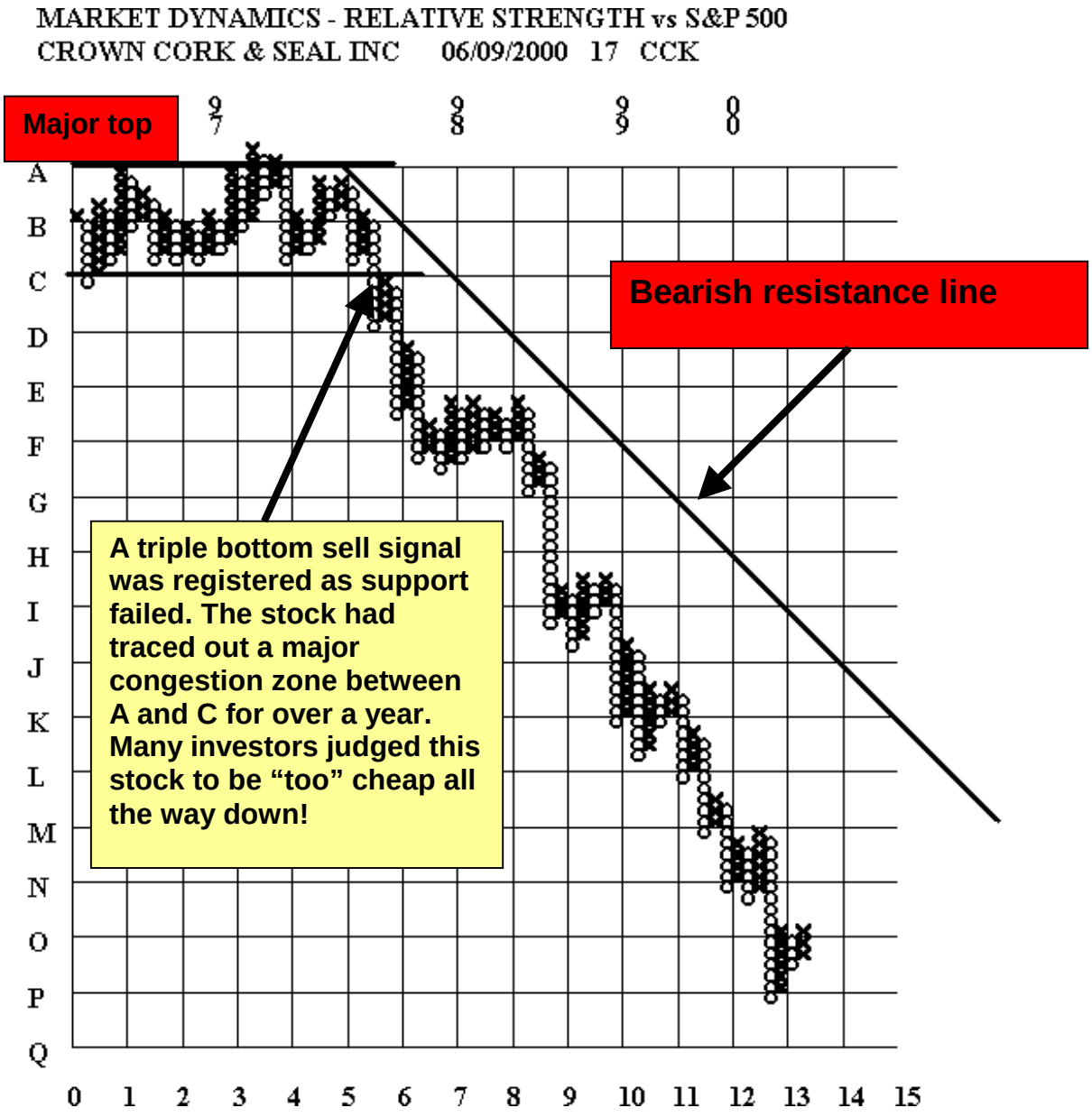
Major long-term uptrends – example 10



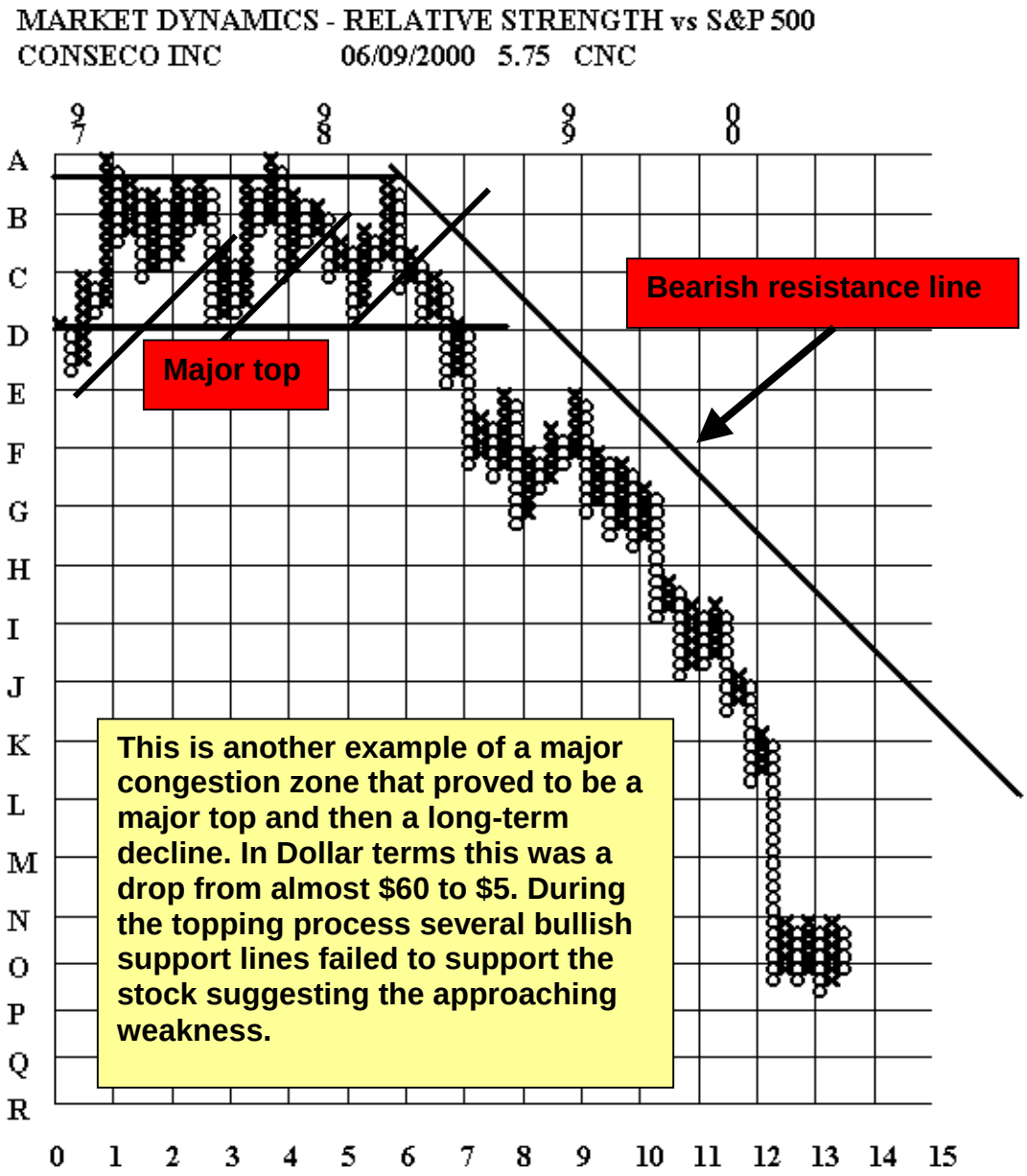
Major long-term down-trends – example 1



Major long-term down-trends – example 2



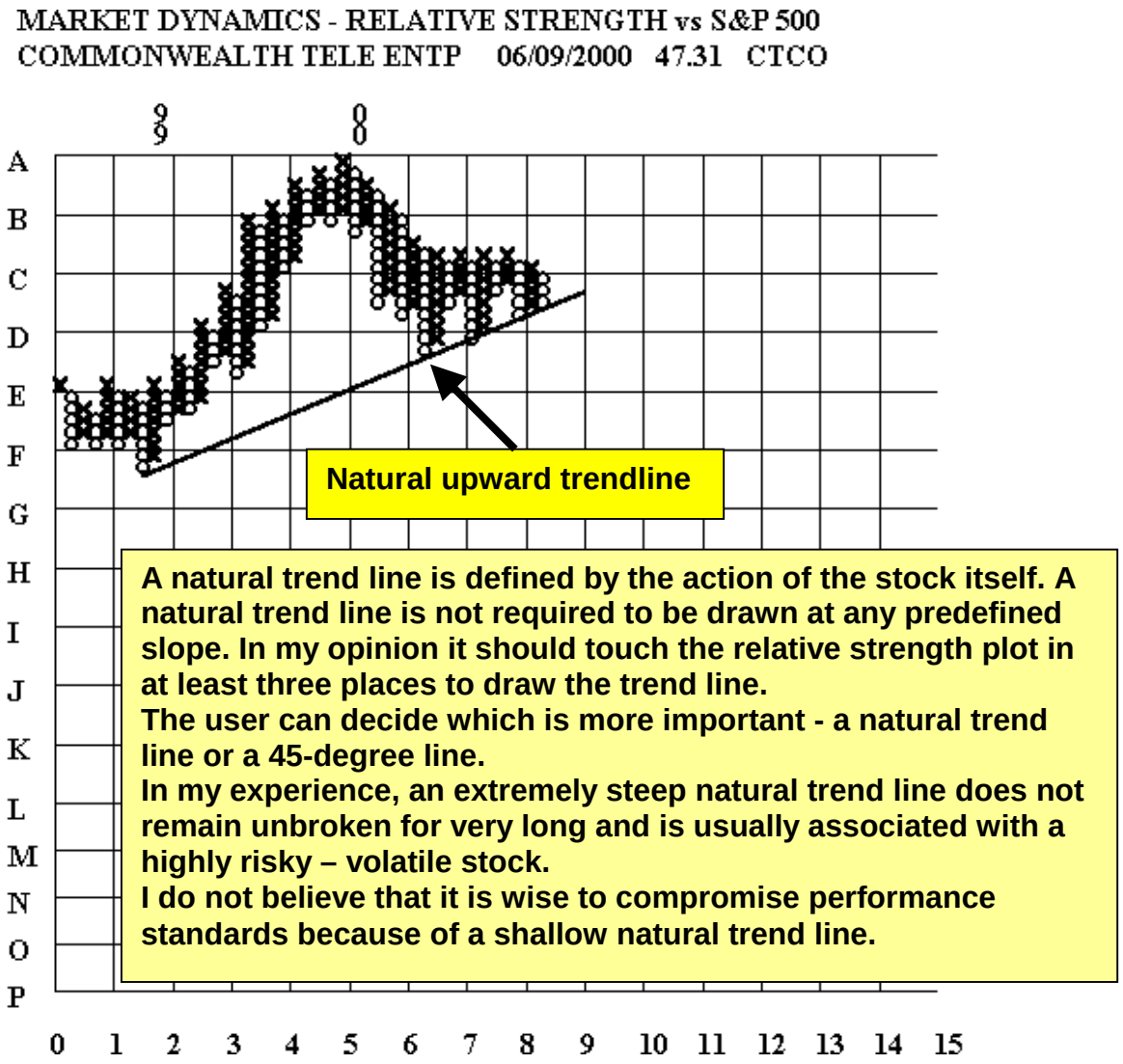
Major long-term down-trends – example 3



Natural trendlines

Should be defined by touching the RS plot at least three times

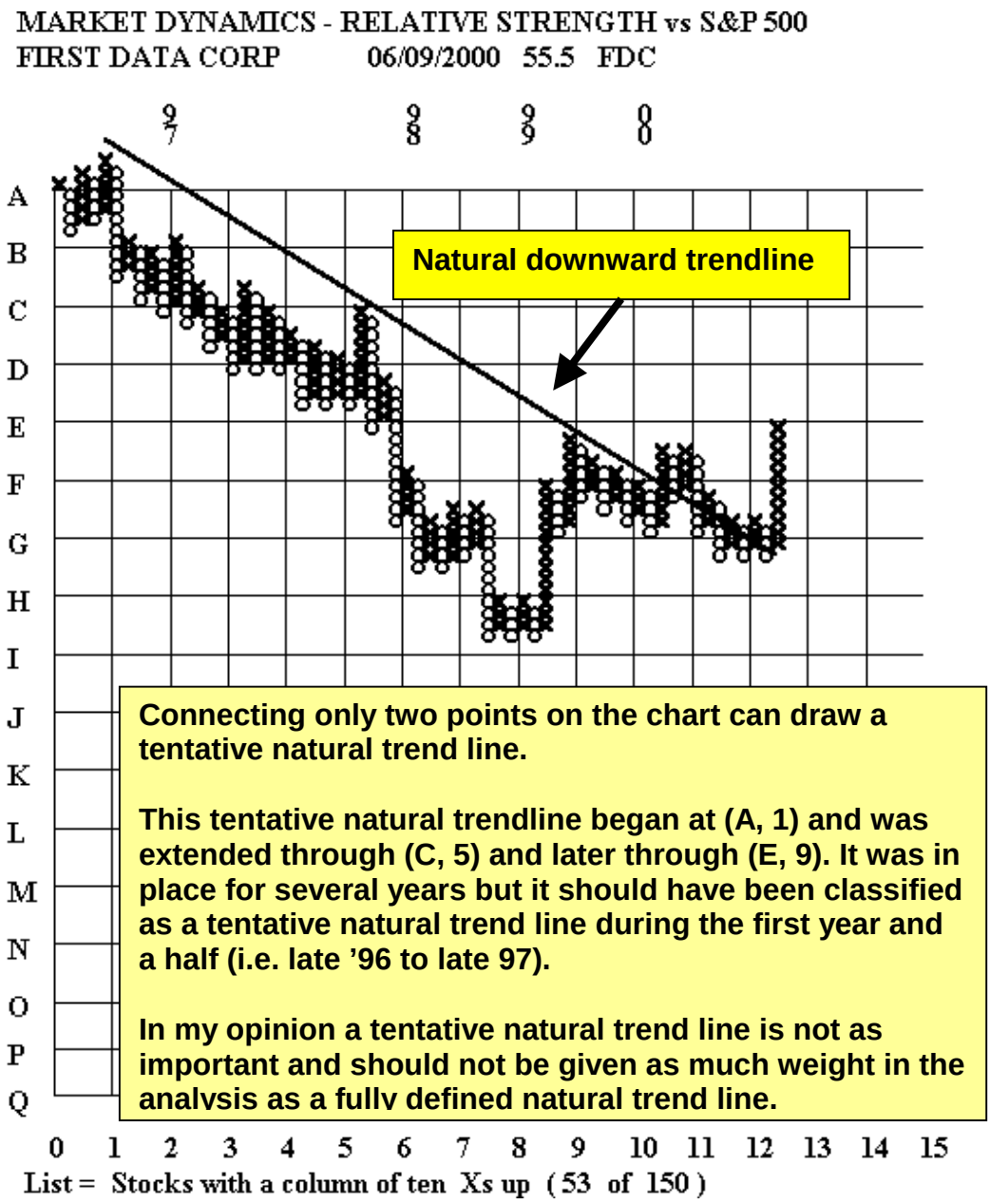
User decides if natural trend line takes precedence over 45 degree lines.



A natural trend line is defined by the action of the stock itself. A natural trend line is not required to be drawn at any predefined slope. In my opinion it should touch the relative strength plot in at least three places to draw the trend line.
The user can decide which is more important - a natural trend line or a 45-degree line.
In my experience, an extremely steep natural trend line does not remain unbroken for very long and is usually associated with a highly risky – volatile stock.
I do not believe that it is wise to compromise performance standards because of a shallow natural trend line.

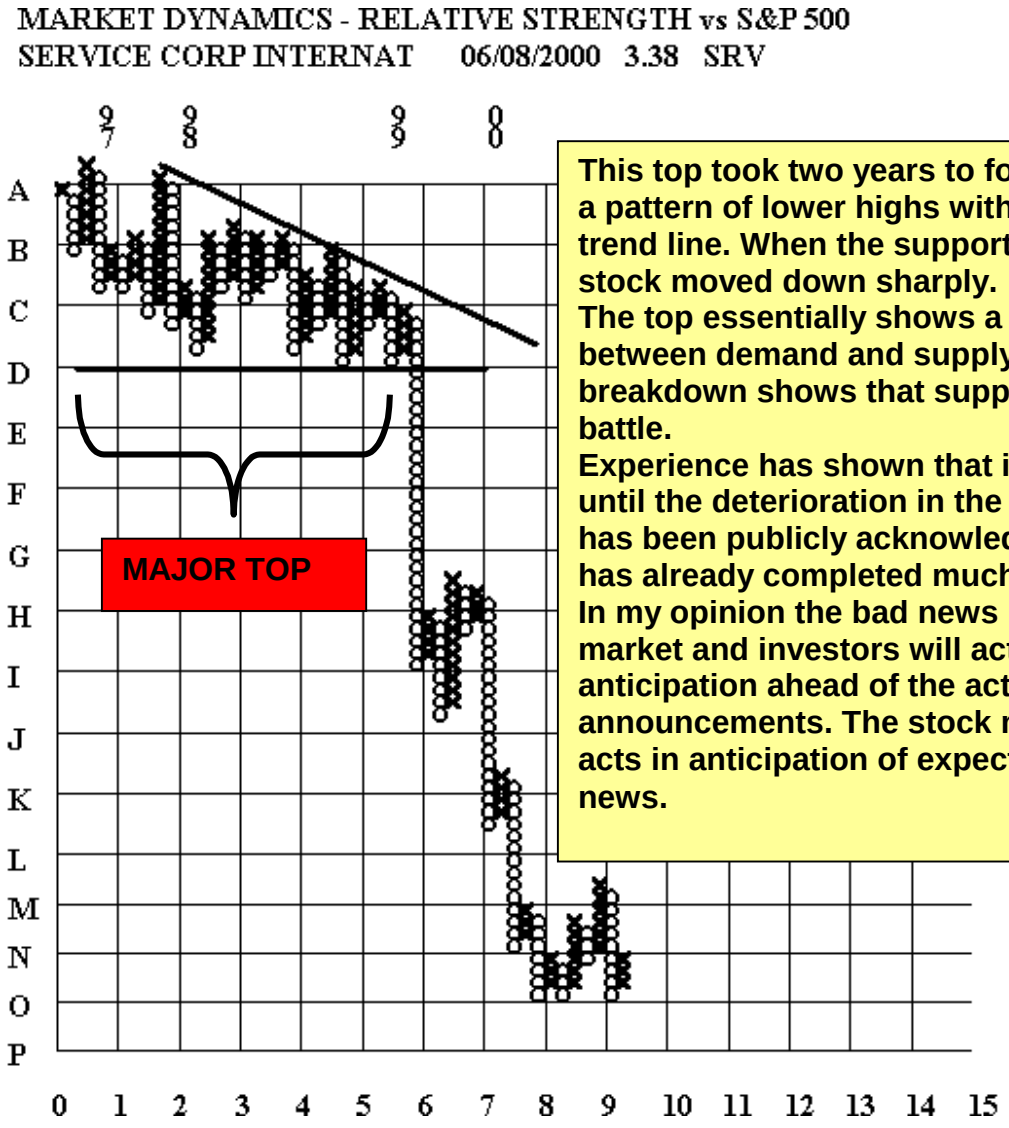
Natural trendline

Downtrend



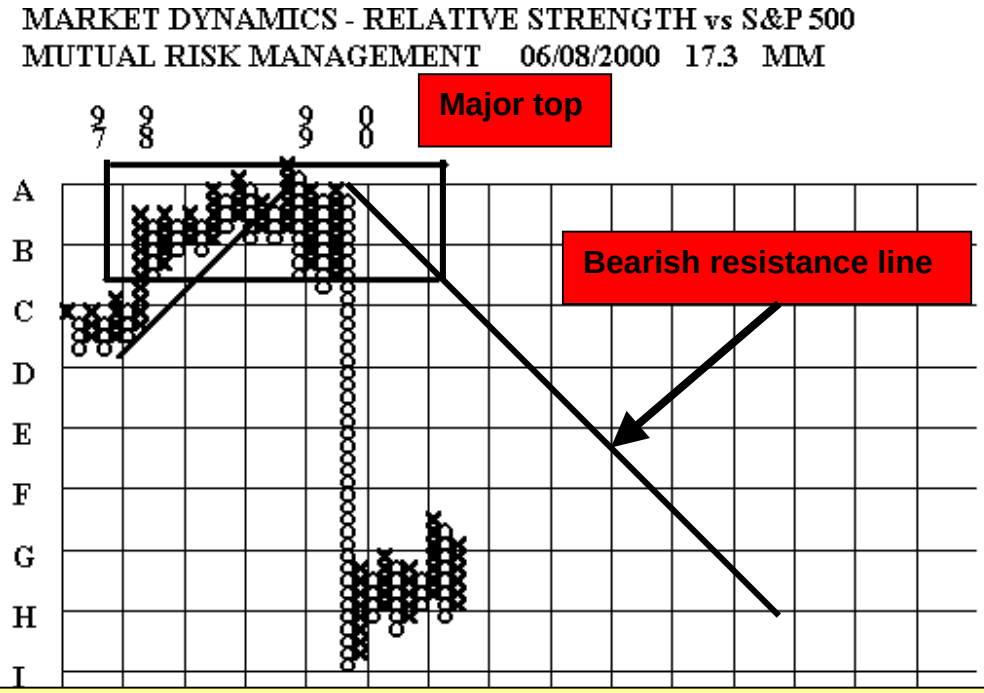
Major reversal patterns

Major tops – example 1



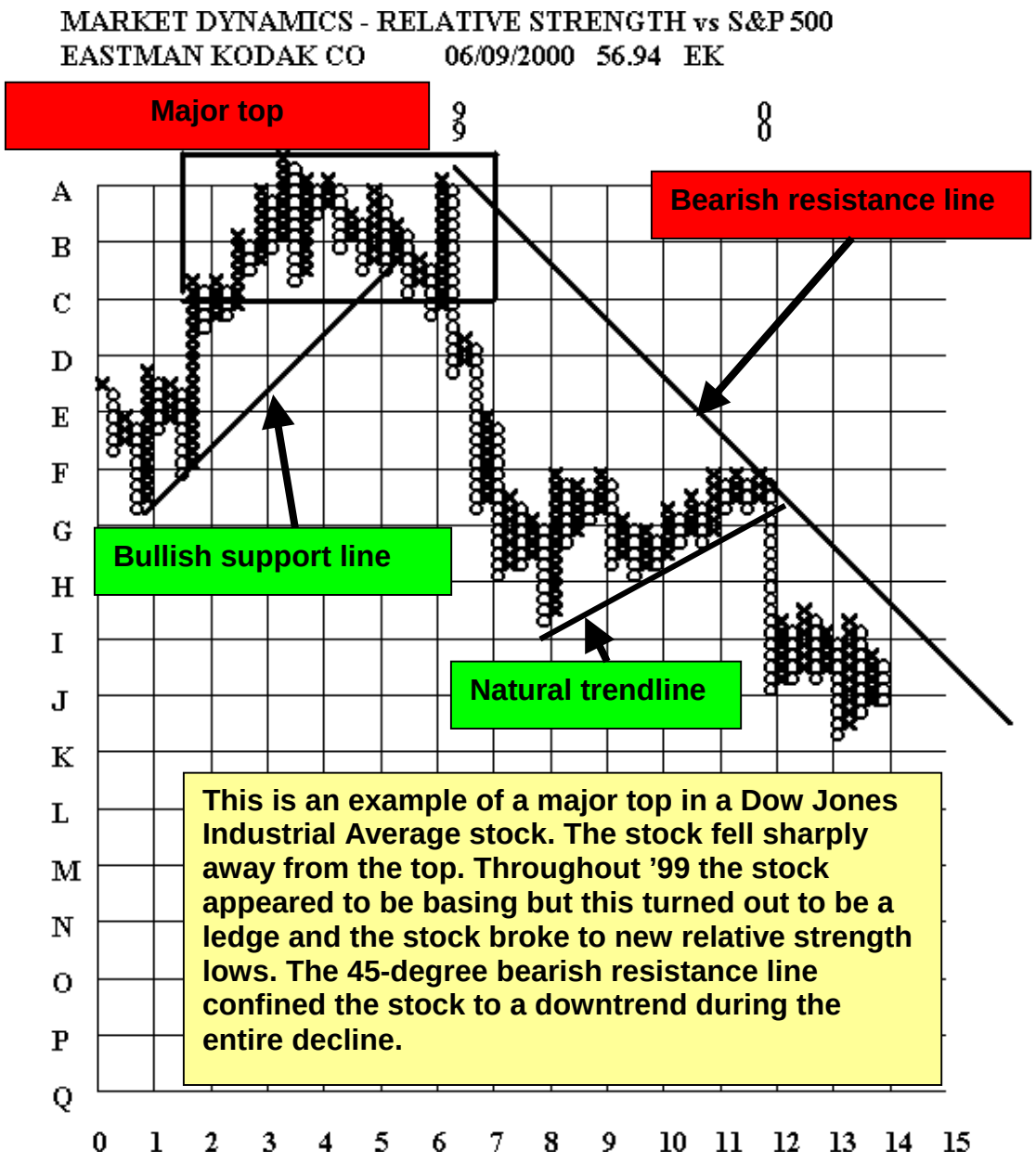
This top took two years to form and showed a pattern of lower highs with a downward trend line. When the support at D failed the stock moved down sharply.
The top essentially shows a balance between demand and supply. The breakdown shows that supply won the battle.
Experience has shown that if a stock is held until the deterioration in the fundamentals has been publicly acknowledged the stock has already completed much of its decline. In my opinion the bad news leaks into the market and investors will act on this anticipation ahead of the actual announcements. The stock market always acts in anticipation of expected events and news.

Major tops – example 2



This example shows a top almost 20 columns wide. The width of the top in many ways forecasts the extent of the decline.
The decline started with a triple bottom sell signal but shortly thereafter - a negative news item caused a dramatic one-day plunge in the stock.
The stock has recently started to base but it remains far below the bearish resistance line.
Experience indicates that the "sell" decision is more heavily weighted toward the technical method of analysis. Invariably the tip-off is a stock with apparently great fundamentals that consistently acts poorly on the relative strength charts. You can assume there is a good reason behind the poor performance. Rarely is it just an accident or purely a coincidence.

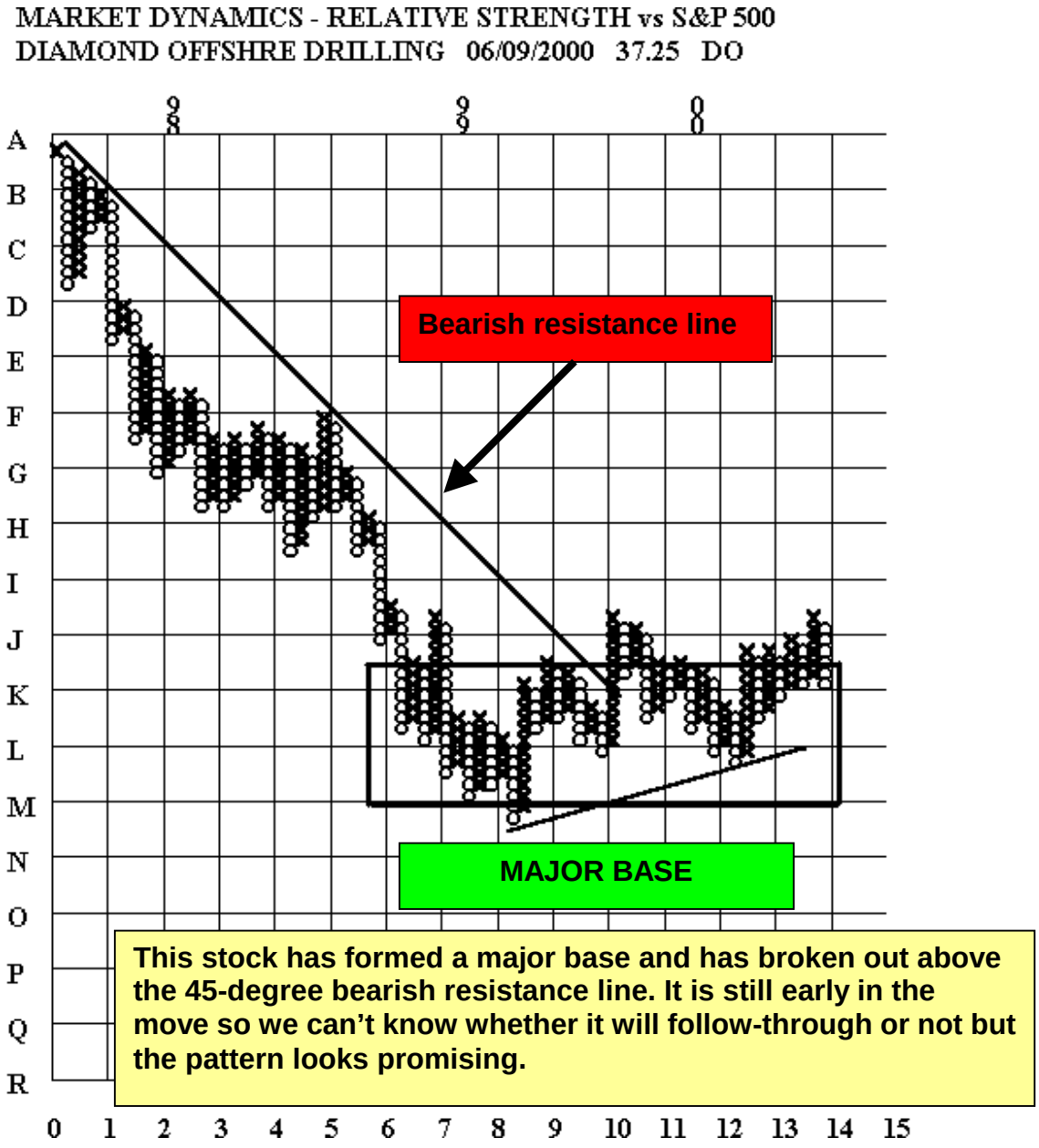
Major tops – example 3



Major bases – example 1

The completion of the major base is signaled when the downward sloping bearish resistance line is exceeded. The width of the base must match the extent of the prior decline in order to go above the 45-degree bearish resistance line. This is a very practical rule that precludes premature entry into a stock prior to the completion of a sufficient base.

Major bases – example 2

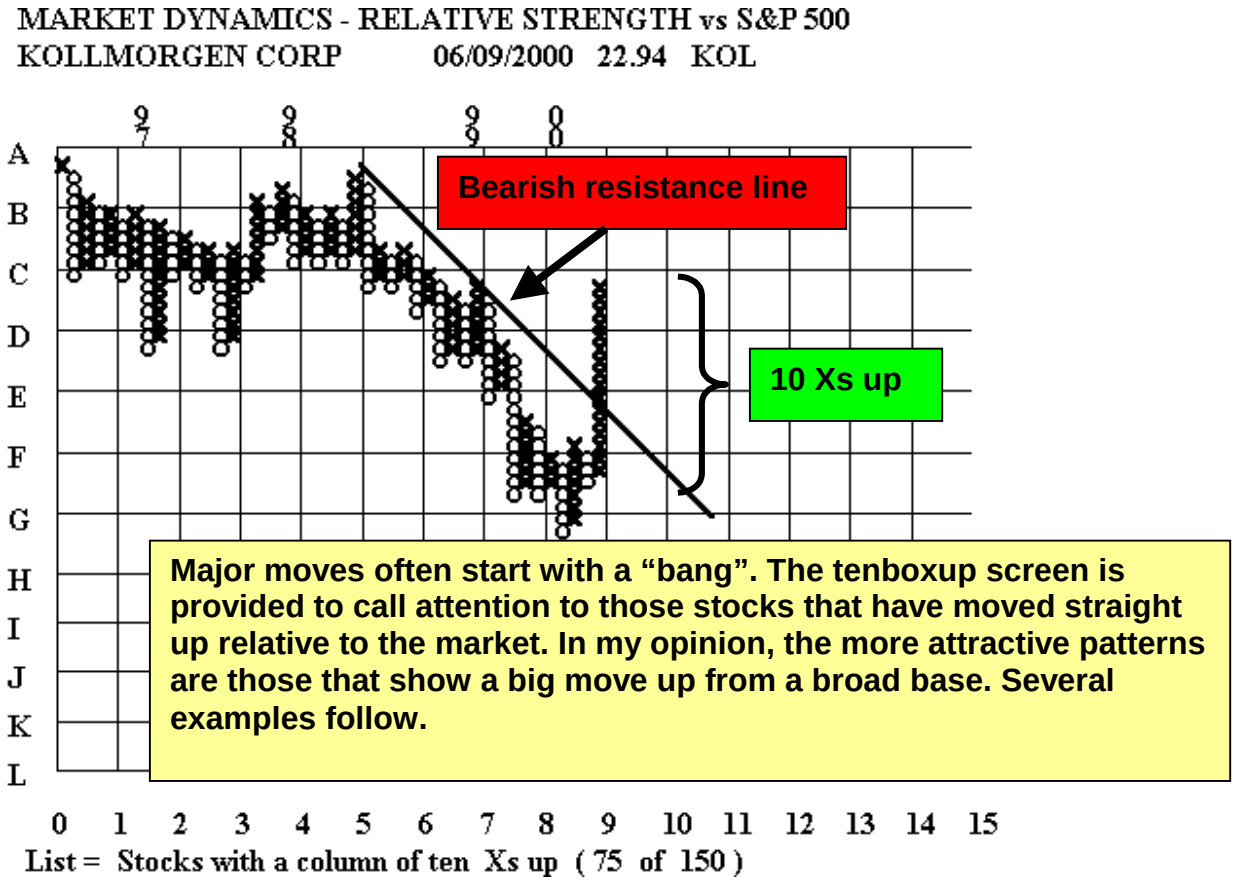


Major bases – example 3

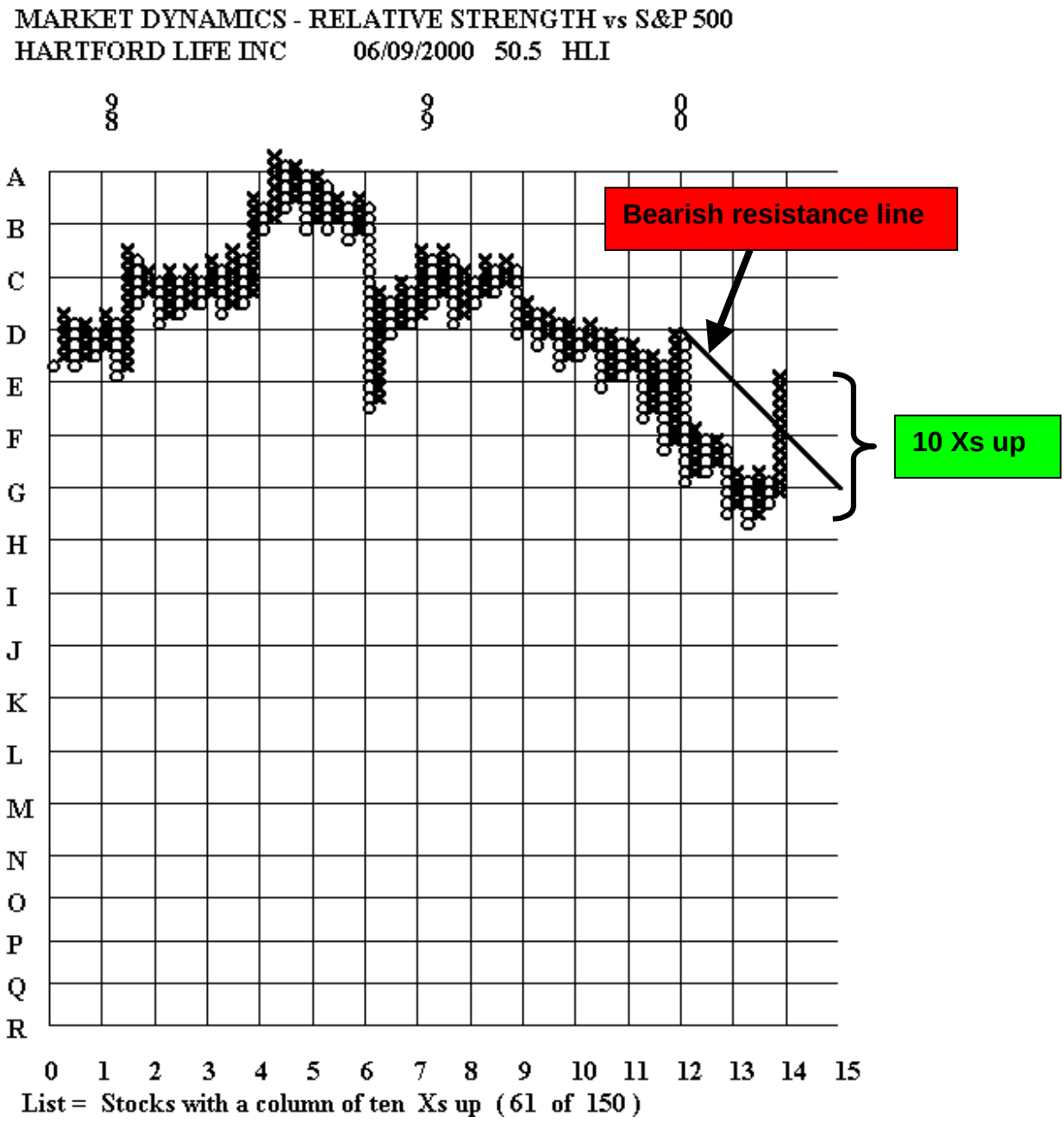
Breakouts

MARKET DYNAMICS - RELATIVE STRENGTH vs S&P 500
AON CORP 06/09/2000 35.63 AOC
97 98 99 00
A B C D E F G H I J K L M N O P
Bearish resistance line
Bearish support line
New bullish support line
This is an upside breakout above a consolidation that was almost 15 columns wide. The breakout clears all recent resistance and should include breaking above a downward bearish resistance line. A new bullish support line can be drawn after the breakout.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
List = Highest relative strength over past 3 months (10 of 100)

Tenboxup screen #1

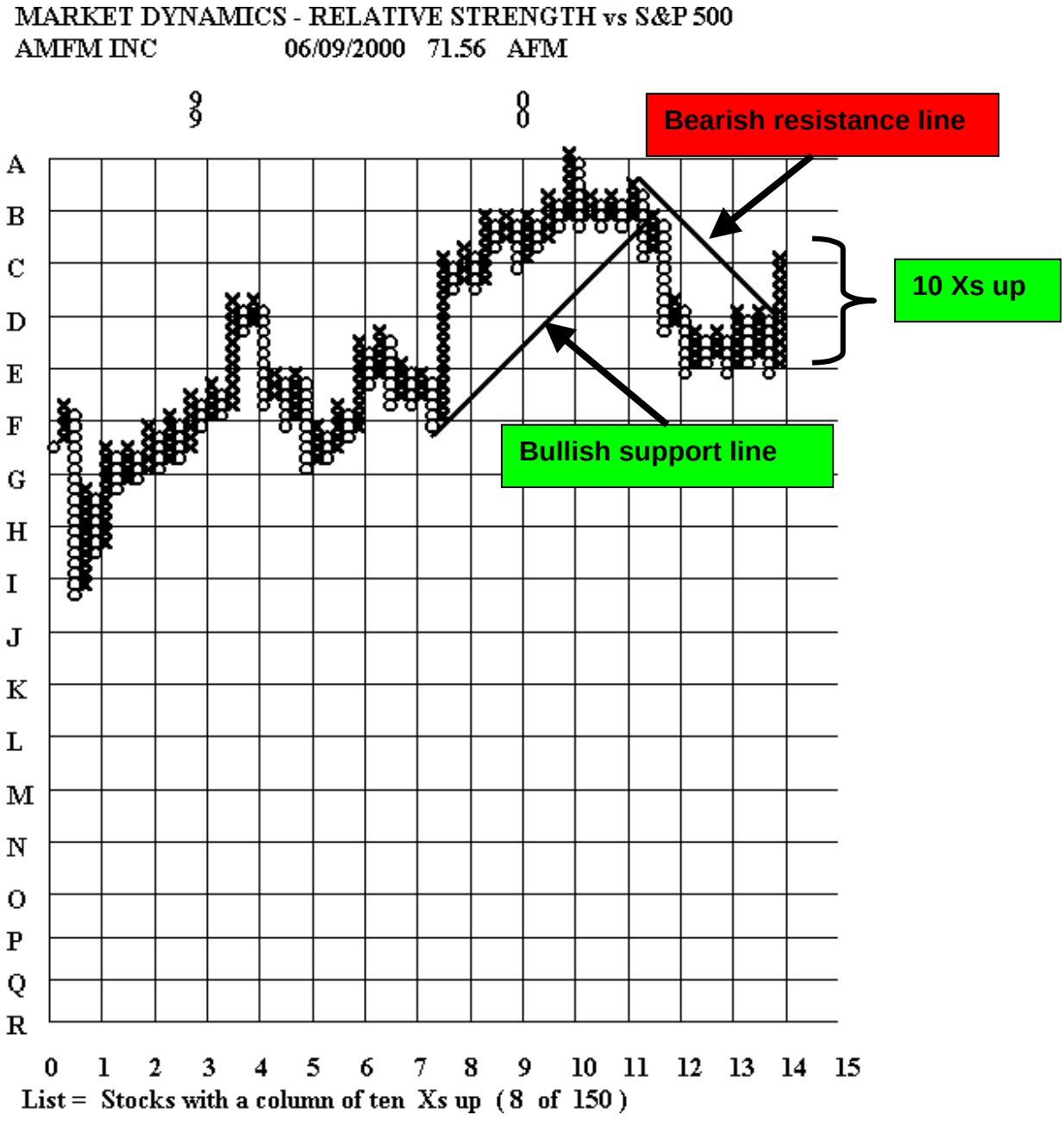


Tenboxup screen #2

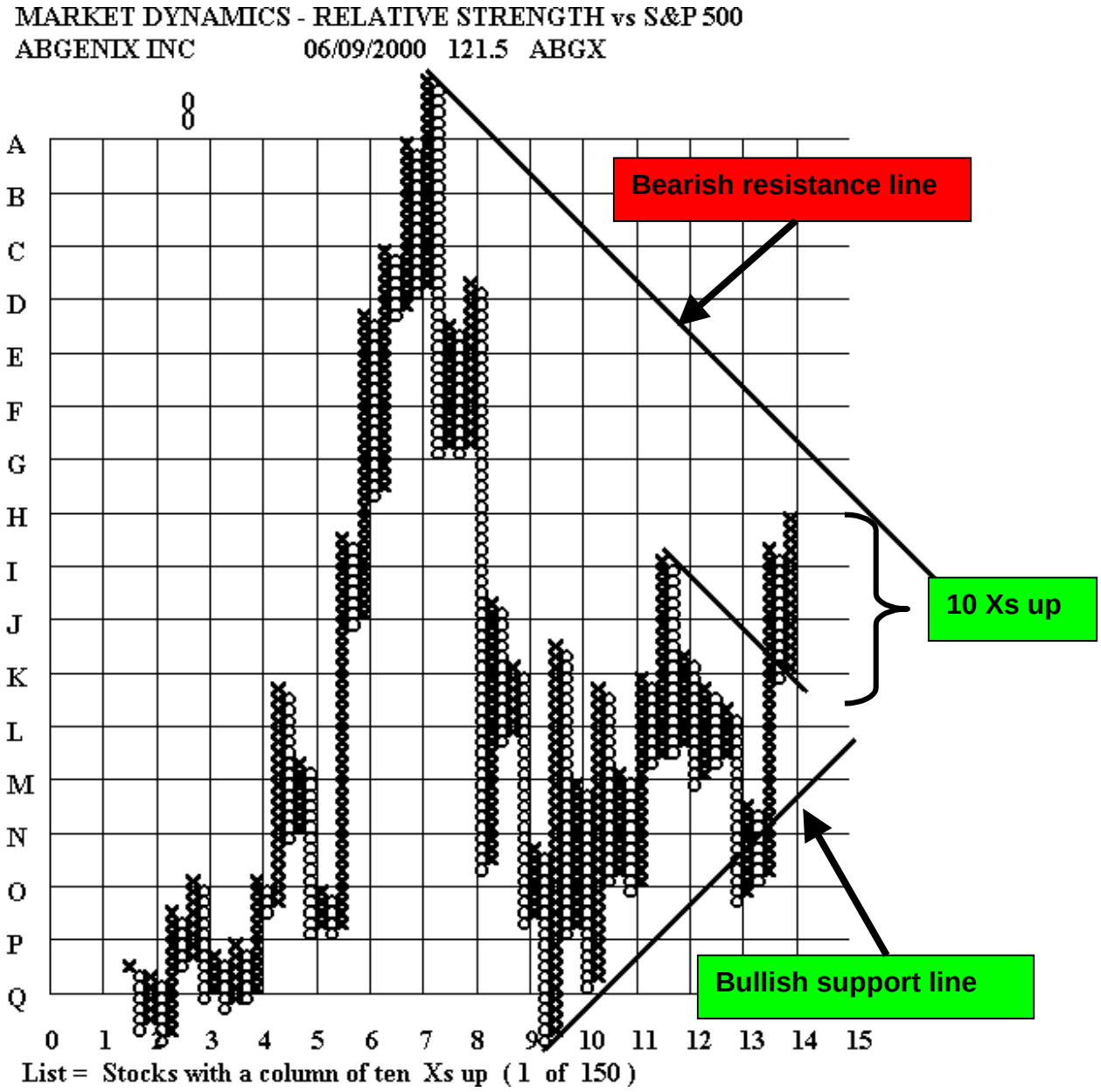


Tenboxup screen #3

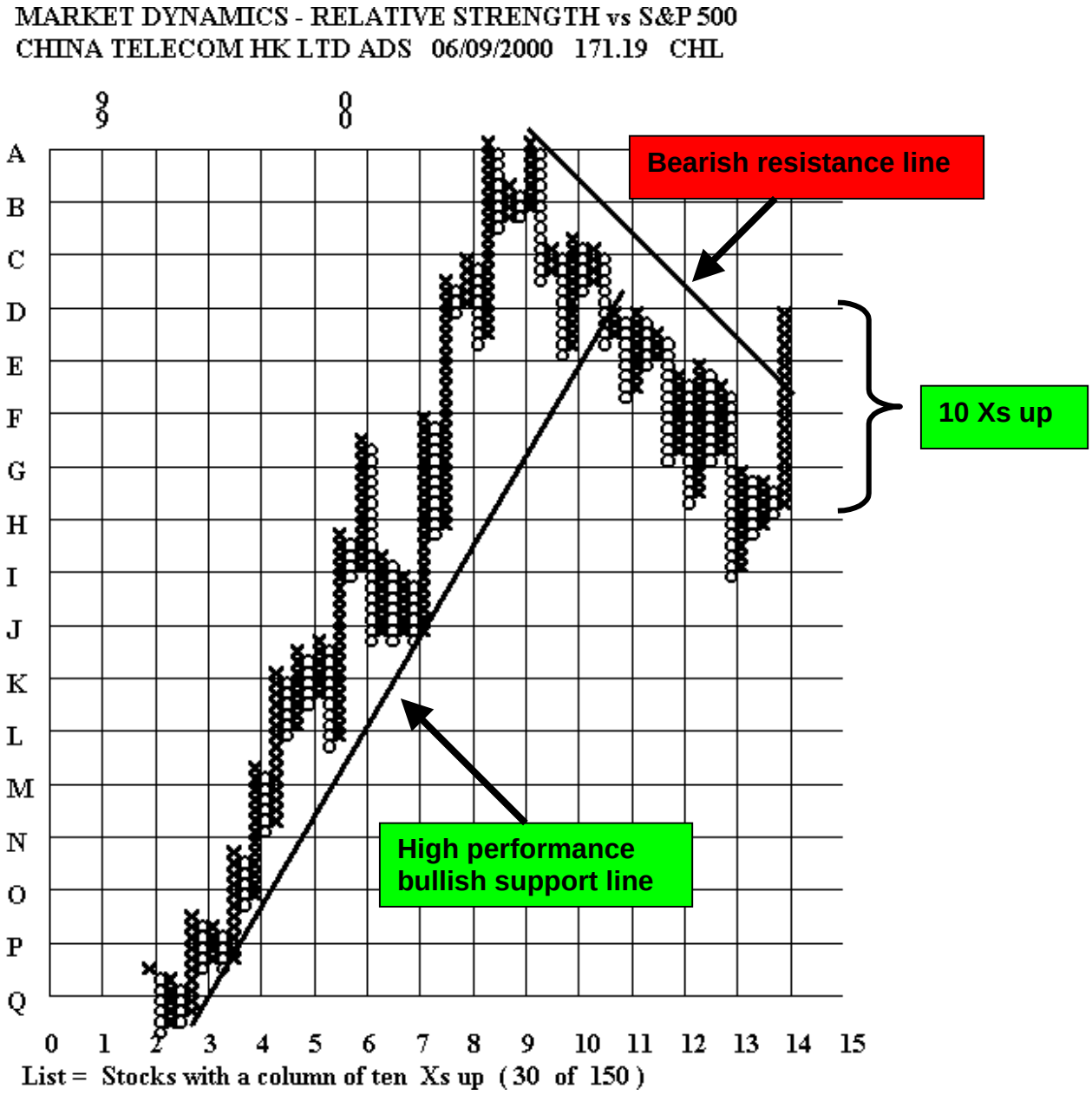
Tenboxup screen #4



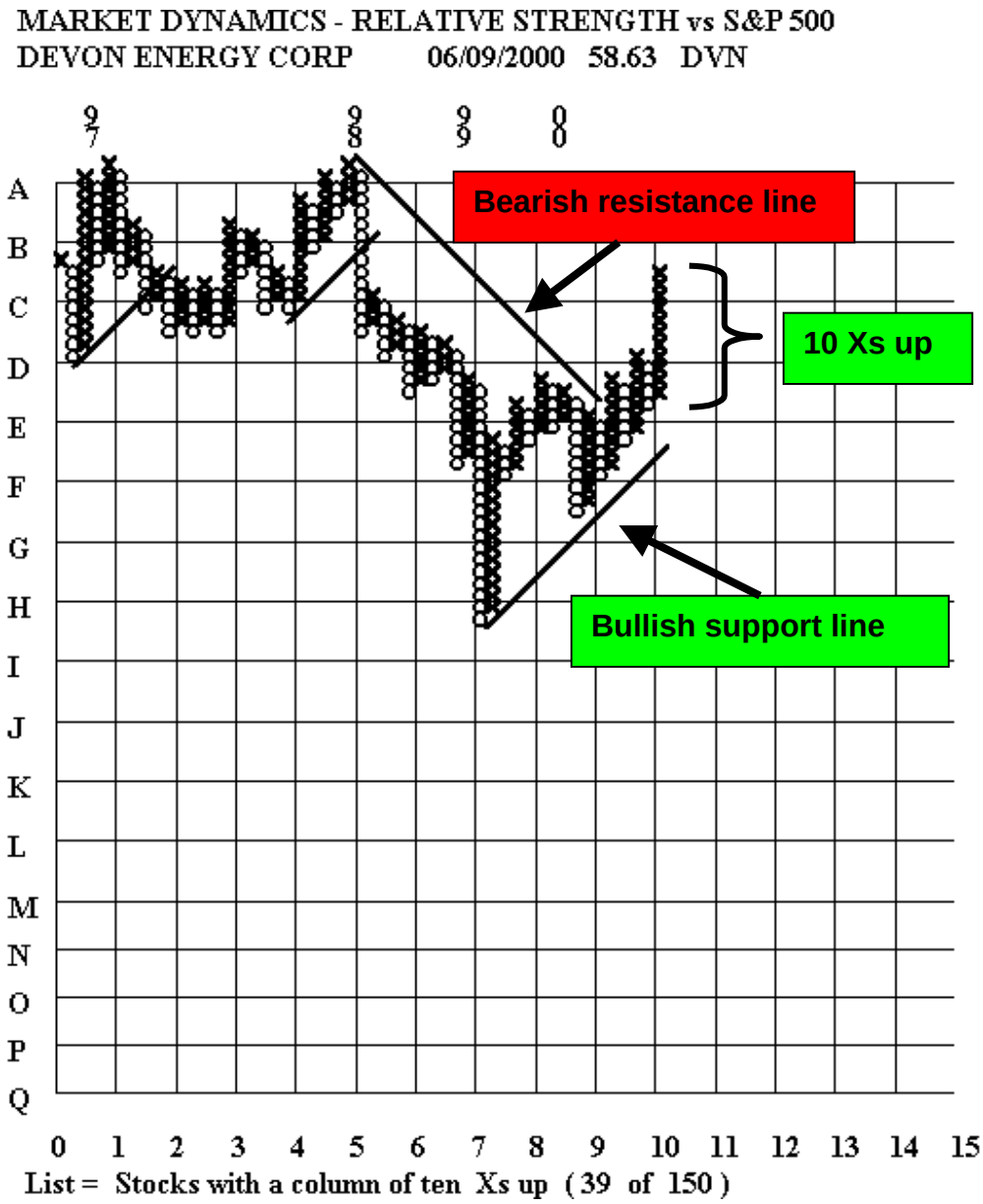
Tenboxup screen #5



Tenboxup screen #6

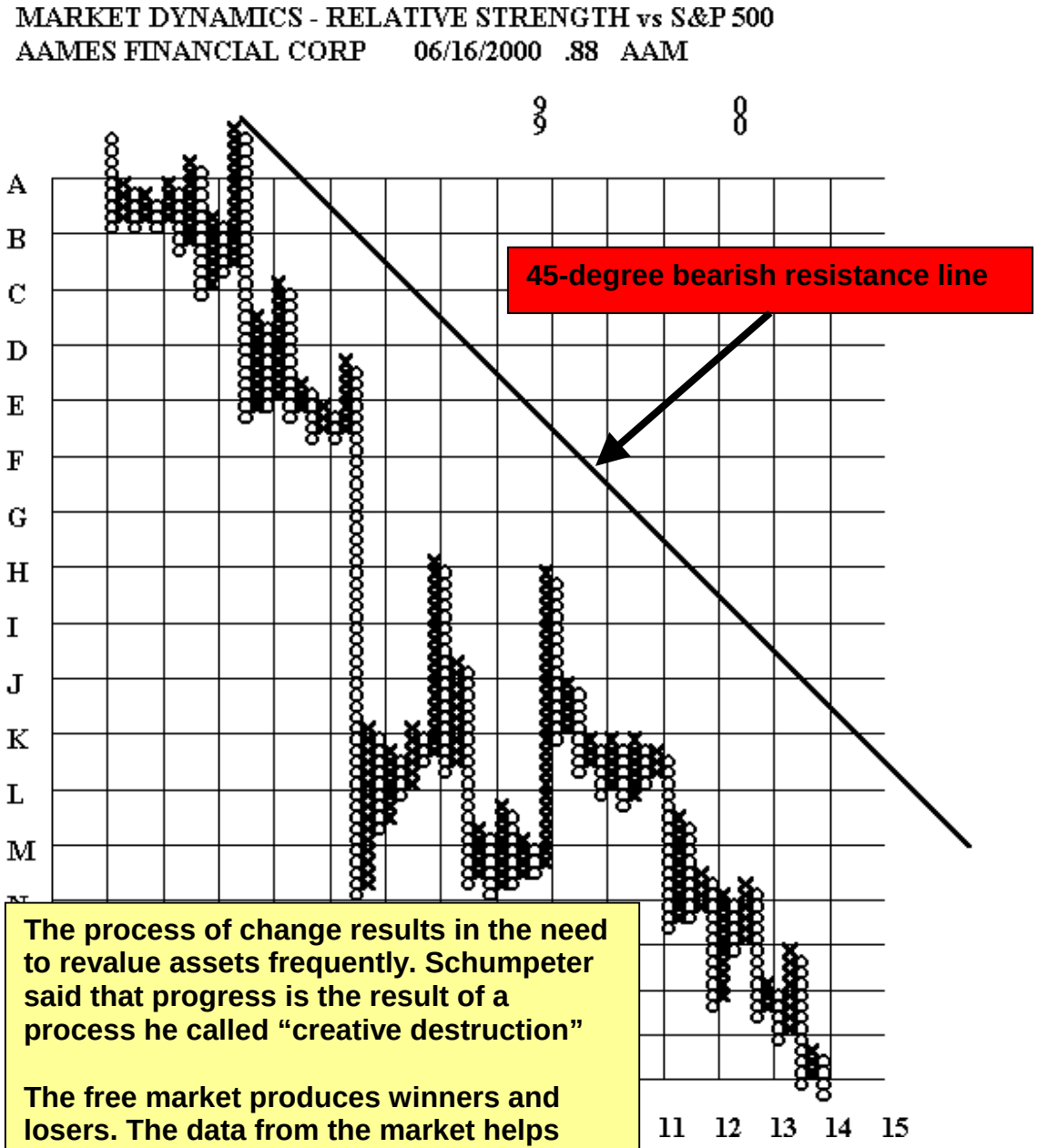


Tenboxup screen #7



Some thoughts about how the market works

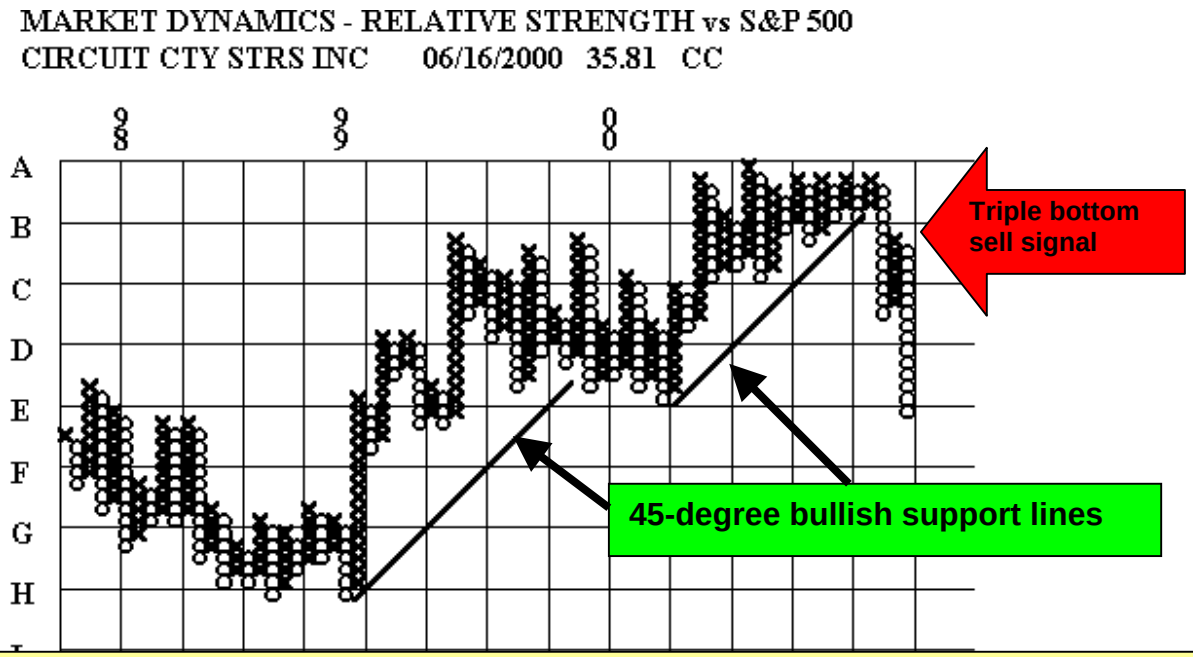
Need to revalue assets due to changing conditions – "Creative destruction"



The process of change results in the need to revalue assets frequently. Schumpeter said that progress is the result of a process he called "creative destruction"

The free market produces winners and losers. The data from the market helps portfolio managers to identify and avoid losers before it is too late. This process can be expected to continue into the future as long as markets exist.

The difficulty in interpreting current events - Current events are not history to us – We don't know what the consequences will be.



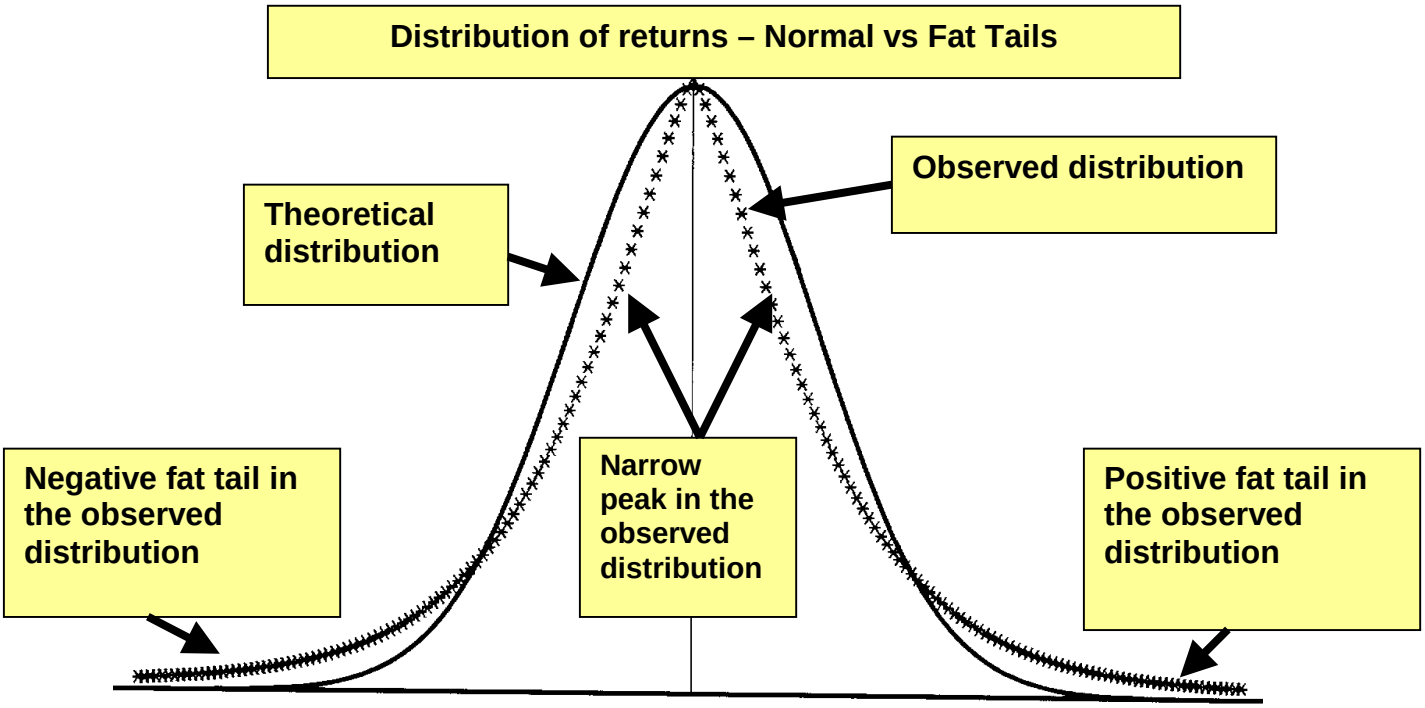
It is very easy- now that we know what happened – to say, "sure I would have sold that stock on that triple bottom sell signal"
The problem is that when we see the signal we really can't know whether it will follow through or not. We don't know what the significance of the signal will be. In this instance the follow-through was immediate, dramatic and down.
The stock market often demonstrates "non-linear" behavior in which small causes may produce unexpectedly large results. This is often true of sell signals.

In my opinion, every major sell signal that includes the penetration of a bullish support line should be treated as a danger signal with potentially serious consequences. I am referring to sell signals on current positions in the portfolio. In order to ensure the avoidance of major declines - all sell signals must be honored. It is only when the market is in a state of deep distress that sell signals can be ignored.

Charlie Ellis said years ago " 80% of next years problems are in the portfolio now".

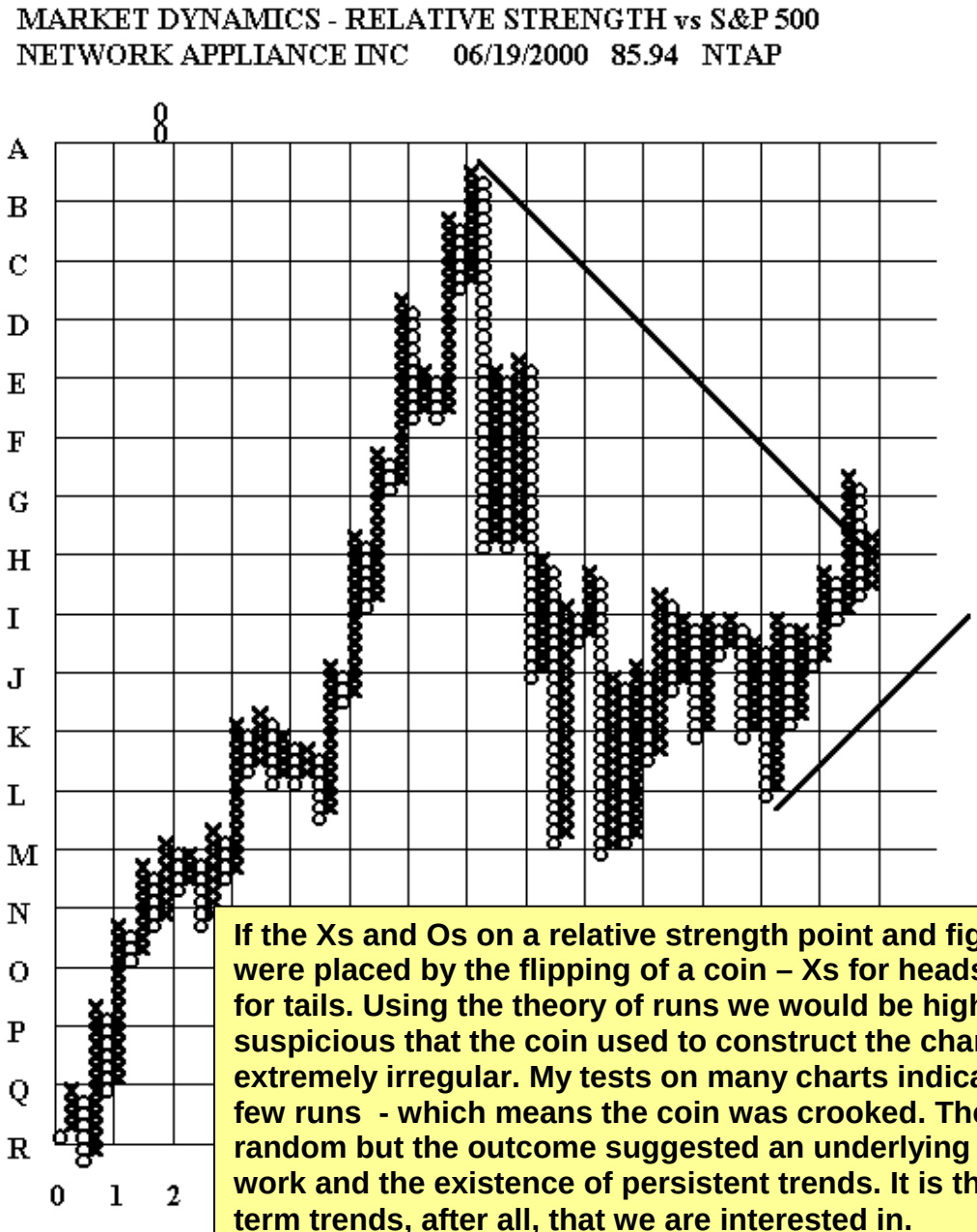
The relative strength in point and figure format is just the tool to help root out those problems before they hurt the portfolio's performance. But to get the benefit - you must act on the signals!

The distribution of returns from stocks - Non-normal – peaked with fat tails. Proportion of the population in the extremes of the distribution is 5 to 10 times what it would be if normal - 80/20 rule holds in the stock market why?



The distribution of returns from common stocks differs from the normal distribution in subtle but important ways. This is a stylized comparison of the two curves with the solid line depicting the academic normal distribution and the curve plotted with + signs representing the real, observed distribution of returns.
The real world is characterized by a distribution that displays a high degree of kurtosis (i.e. fat tails). A narrower peak around the mean also characterizes it.
What this means in "real English" is that there are far more major winners and losers than you would experience if the real world distribution were exactly normal. Research has indicated that there are 5 to 10 times as many stocks in the extremes of the distribution than there should be. This indicates that major long-term trends tend to run longer and farther than we should normally expect.
These are also the most important trends that we should spend our time trying to find and invest in.
The narrow peak seems to indicate that most stocks tend to mirror the major market averages. These are also most likely to exhibit trading range characteristics.
The conclusions seem to be clear: Use a trading range approach to tracking most stocks and use a trend following methodology when dealing with stocks that have demonstrated an ability to depart from the averages and to move out into the "fat" positive tail. This also suggests relative strength as an effective way to identify major trend stocks.
The difference between these two distributions has extremely important consequences for portfolio management in terms of methodology and a realistic application of portfolio management tools.

Theory of Runs



If the Xs and Os on a relative strength point and figure chart were placed by the flipping of a coin – Xs for heads and Os for tails. Using the theory of runs we would be highly suspicious that the coin used to construct the chart was extremely irregular. My tests on many charts indicated far too few runs - which means the coin was crooked. The flips were random but the outcome suggested an underlying process at work and the existence of persistent trends. It is the long-term trends, after all, that we are interested in.

Complex Adaptive System

No functional relationships that last

" It is statistics not physics" – from Louis Navellier

Markets must have uncertainty – No need for a market if there is no uncertainty - because then everyone would agree on price and value.

Like evolution in nature - we can understand, describe but can't predict - Need to adapt to change as much as predict - Feedback goes both ways – fundamentals to price and price to fundamentals.

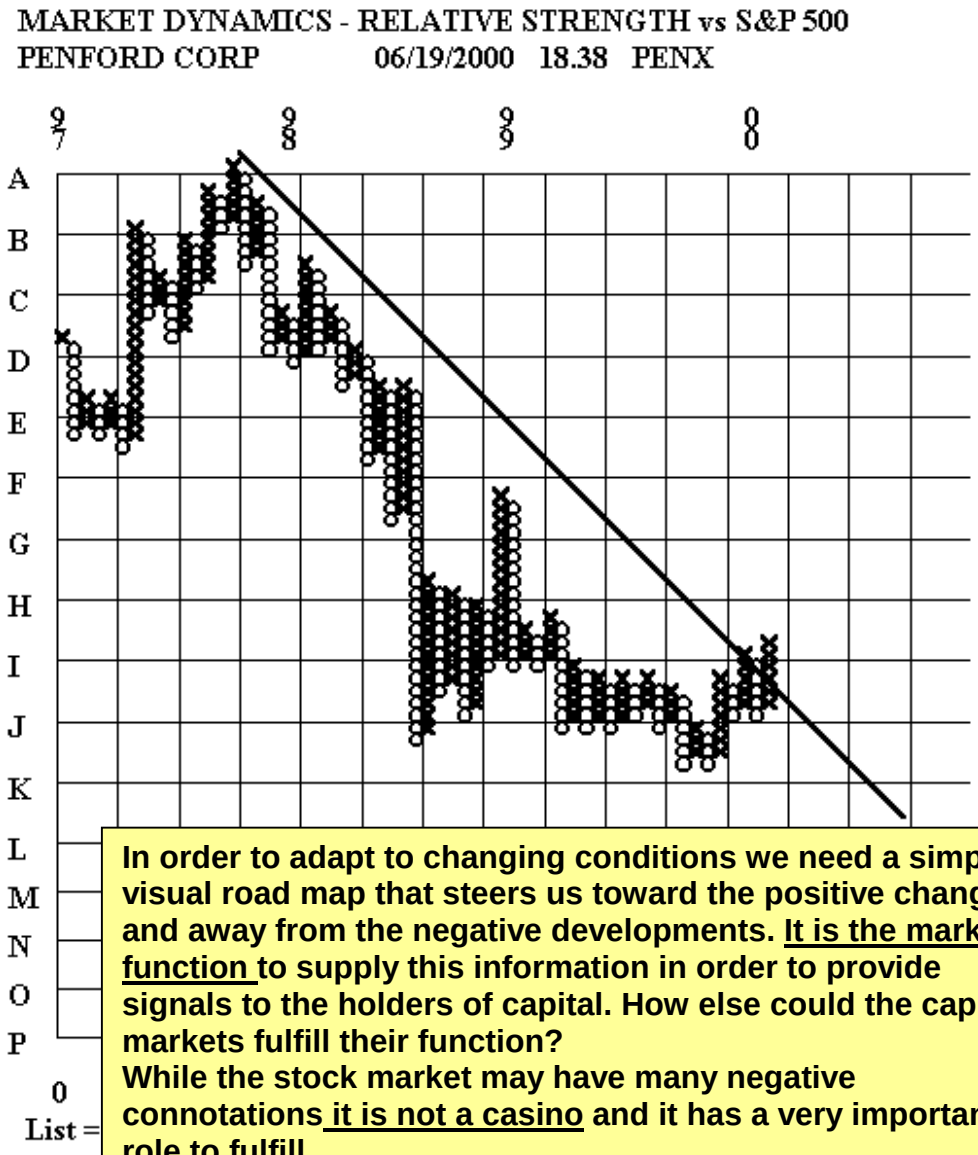
For those interested in the implications of Complex Adaptive Systems in the stock market you should visit the Santa Fe Institute's web site at http://www.santafe.edu/

Also see Complexity by Waldrop

Also see Dr Brian Arthur's articles on stock markets.

Some thoughts about portfolio management

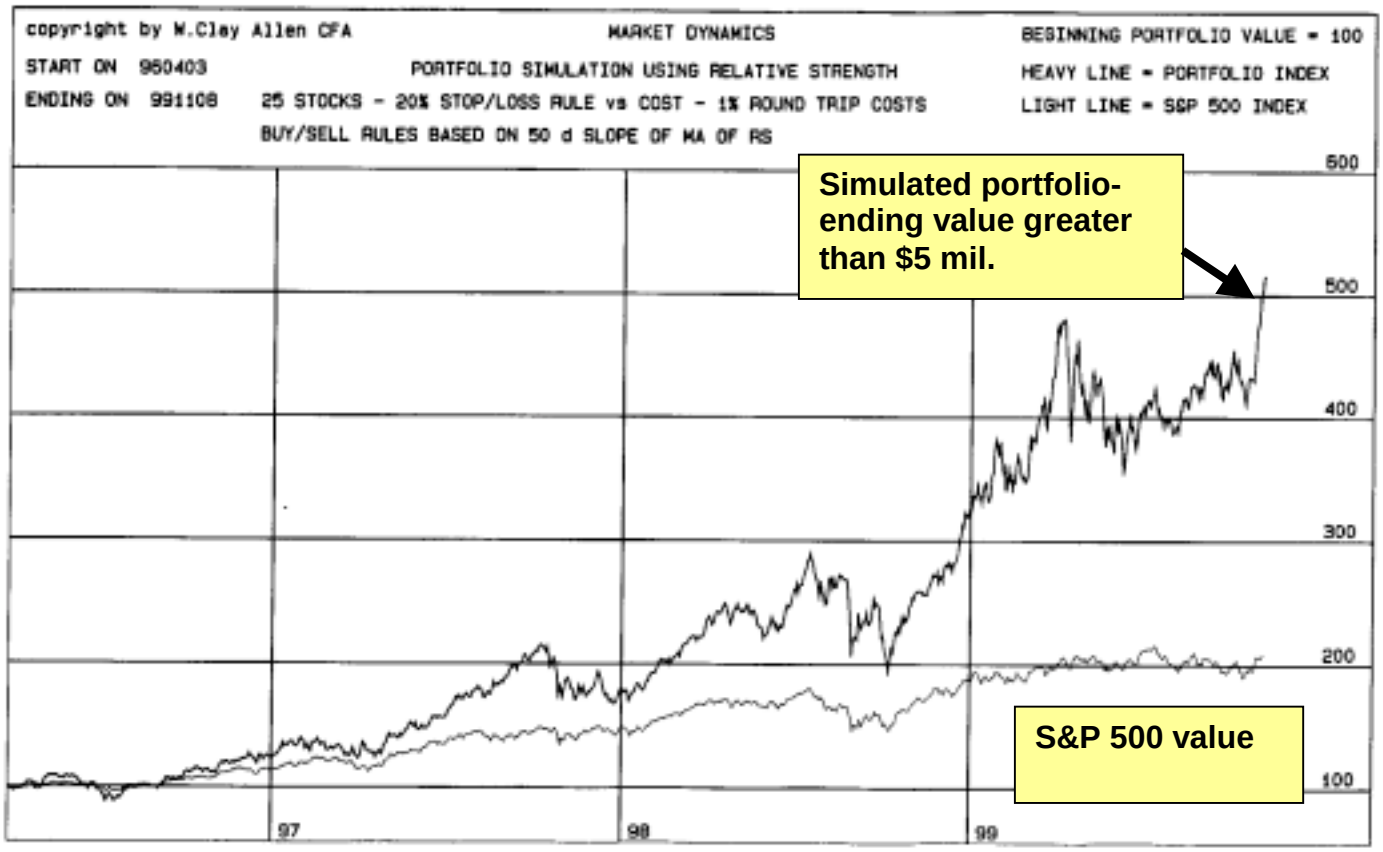
Portfolio management must be adaptive



In order to adapt to changing conditions we need a simple, visual road map that steers us toward the positive changes and away from the negative developments. <u>It is the markets function</u> to supply this information in order to provide signals to the holders of capital. How else could the capital markets fulfill their function?
While the stock market may have many negative connotations <u>it is not a casino</u> and it has a very important role to fulfill.

I believe that communism collapsed in Russia because the central planners did not know how to allocate the nation's capital – only a free market can do that.

Portfolio Simulation



The graph above shows the results of a recent portfolio simulation that covered about 3.5 years – ending in the fall of '99. The rules were simple; 25 stocks, fully invested at all times, 1% round-trip commission costs, 20% stop-loss against cost, if the slope of the 50 day moving average of relative strength across a span of 21 days turned negative the stock was sold the next day as of the closing price, and the strongest relative strength stock on the basis of the 21 day slope of a 50 day moving average of relative strength was purchased to replace the stock that was sold. Daily closing price data was used and relative strength was based on the S&P 500 index.

The turnover was very high but commissions were charged at a reasonable rate. This portfolio simulation was drawn from a collection of 400 institutional stocks that also had high volatility as measured by their standard deviation of daily percent price changes. This database has been maintained by WCA for over ten years. All stocks in this database shared one requirement – they had to have 4 years of trading history to be included. W. Clay Allen CFA performed all programming and the data was checked for accuracy.

The simulated portfolio value started at $1 mil and rose to slightly more than $5 mil - almost 2.5 times the performance of the S&P 500 over this three year period.

There is no guarantee that the future will be like the past but this simulation seems to confirm the effectiveness of using relative strength trend following as a portfolio management tool.

Relative strength study – real time – uptrends and downtrend lists published by WCA in 1999

In early July '99 I started sending lists to customers of stocks that I categorized as in uptrend or downtrends utilizing the relative strength point and figure charts produced by Market Dynamics. The lists quickly became very large and in the study I will discuss each list included slightly more than 300 stocks.

I was primarily interested in the tendency of relative strength to persist. Did the uptrends list outperform the S&P 500? Did the downtrends list underperform the S&P 500? Did relative strength persist for days or months?

I calculated the percentage price change for each stock on each list from the day after the list was sent out – from July 19, 1999 til the close on May 1, 2000. There were no changes from the original lists – no additions or deletions.

	Average % change	number of stocks
Uptrends list	**+43.15%**	**330**
Downtrends list	**-.71%**	**305**
S&P 500	**+4.31%**	

The 45-degree bullish support lines and the bearish resistance lines were an important factor in the analysis and the selection for each list. The lists were actually e-mailed to my customers on July 18, 1999.

The samples were very large and the differences between the means of these samples were also quite large. At least for the time period covered there seemed to be a very strong tendency for relative strength to persist. In my opinion, the persistence is very important. The ability to determine the direction of the relative strength trend seems to be a very useful tool.

I have to admit that it probably won't work in all markets, for all stocks and at all times. There probably is no tool available that could stand up to a requirement as rigorous as that.

Other research has suggested the usefulness of relative strength and I think my work confirms the effectiveness when relative strength is used in a point and figure format. It does seem to provide an edge that while not perfect, is, nonetheless, useful.

W Clay Allen CFA

Positive turnover

Trading tactics must be subservient to longer-term goals -Retain winners as long as performance lasts- sell losers and reinvest in potential winners- Negative turnover is doing the opposite.

Most portfolio managers think about turnover in a negative sense. If you could enhance the appreciation potential of the portfolio at a rate more substantial than the cost of transactions and taxes then that would constitute positive turnover.

When I discuss relative strength with potential clients the objection of increased turnover almost always comes up. If the turnover produced by the application of relative strength means that you hold your winners and sell your losers then it has served its purpose. I believe most portfolio managers tend to do the opposite – they sell winners and hold/add to losers – which is negative turnover to me.

Peter Lynch said "its like pulling the flowers and watering the weeds".

Too cheap to sell!

It is unbelievable how much performance is lost because a portfolio manager makes the judgment that a stock is too cheap to sell! There is a great temptation to hope that a fallen stock will come back and "duds" are often held long after the hope should have materialized.

I think we would all be better off if we didn't use the word too when evaluating stocks. Too high, too cheap, too far, too fast, too low etc.

To return to the top of the main tutorial – click on thefollowing link

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303-804-0507 or FAX @ 303-804-0513

clayallen@msn.com

http://www.clayallen.com

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