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Chart Patterns Explained

Understanding Chart Patterns Adds Insightful Analysis to Work Performed by AIQ Software

By David Vomund

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DAVID VOMUND

The AIQ TradingExpert Pro software does a lot of work for you. The Color Barometer gives a quick reading of indicator strength and the Expert Design Studio screens the stocks in your database based on specific indicator criteria. There is one type of analysis that a computer can't be programmed to do well, however. That is, looking for chart patterns.

By knowing a handful of chart patterns, one can apply insightful analysis on top of the work performed by the AIQ software.

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Chart pattern analysis is subjective, however, so practice helps to achieve reliability.

Chart patterns do not call market tops or bottoms. In each chart, the analyst waits for a sign, such as a trendline break, to indicate that the trend has actually reversed. Instead of calling tops or bottoms, pattern analysis gives an early indication as to when a new trend has emerged.

In this article, we will cover four important chart patterns – the Rectangle, Right Triangle, Wedge, and Symmetrical Triangle.

Rectangle Pattern

A Rectangle pattern is formed when a security fluctuates back and forth in a narrow range. One horizontal line is drawn connecting the highs and another horizontal line is drawn connecting the lows. The upper trendline represents resistance and the lower trendline represents support.

The more times a trendline is touched and a reversal occurs, the more powerful its support or resistance becomes. When a Rectangle pattern is forming, the security is often said to be consolidating, or in a trading range.

The direction of the breakout from this pattern cannot be predicted. On the bet that the pattern will continue intact, short-term traders can enter long positions when the security is near its lower support line and enter short positions when the security is near its upper resistance line. Stops are placed just outside the pattern.

"A Rectangle pattern is formed when a security fluctuates back and forth in a narrow range... The more times one of the trendlines is touched, the more powerful its support or resistance becomes."

Most traders, however, wait for the eventual breakout from the pattern. Typically, the longer the security remains in the pattern, the bigger the move after the breakout. Ideally, the breakout comes with heavy volume.

Figure 1 shows a weekly chart of the S&P 500 during the recent bear market. From its high to its low, the S&P 500 fell in a series of lower highs. That is, each rally stalled at a lower level than the previous rally.

Beginning in the summer 2002, the market stopped falling and a Rectangle pattern was formed. Trendlines are drawn at the upper and lower extremes of the price range.

As of this writing, the S&P 500 is still within this trading range. It is likely that the eventual break, whether up or down, will mark the start of the next trend.

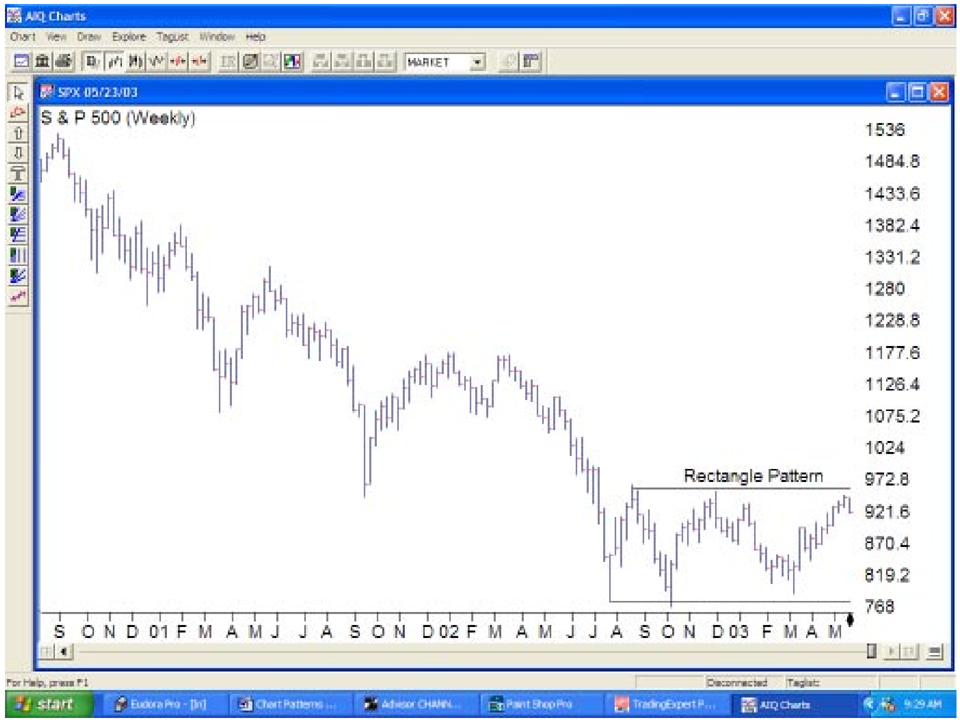

Figure 1. Weekly chart of S&P 500 during 2000-2003 bear market. Rectangle pattern that began forming late in 2002 is drawn on chart.

Right Triangle Pattern

The Right Triangle is a pattern that exhibits a series of narrower price fluctuations. On one side of the fluctuation, the boundary of price action is horizontal. The boundary on the other side slopes toward the opposite (horizontal) boundary. An Ascending Triangle is a Right Triangle with a horizontal top and an ascending bottom. A Descending Triangle is the reverse.

In most cases, it is the horizontal trendline that is broken in this pattern. Therefore, caution should be exercised when a Descending Triangle is developing. Likewise, be ready to buy long when an Ascending Triangle is developing.

If the security breaks the sloping trendline instead of the horizontal trendline, then the resulting move has less significance. If the downward sloping trendline on a Descending Triangle is broken, the stock may only rally to its previous reaction high.

"Caution should be exercised when a Descending Triangle is developing. Likewise, be ready to buy long when an Ascending Triangle is developing."

Figure 2 shows a daily chart of the Dow and its recent Ascending Triangle pattern. Notice the four occasions where the high point on the Dow touched the upper trendline but failed to break through it. Each sell-off, however, was less than the previous sell-off. Since this is an Ascending Triangle, this suggests the eventual break will be to the upside. In fact, that's what happened.

Unfortunately there are false breakouts where a breakout occurs but the security reverses direction and heads lower. When this happens, the upward sloping trendline can work as a good stop loss. If the security crosses this trendline, positions can be closed.

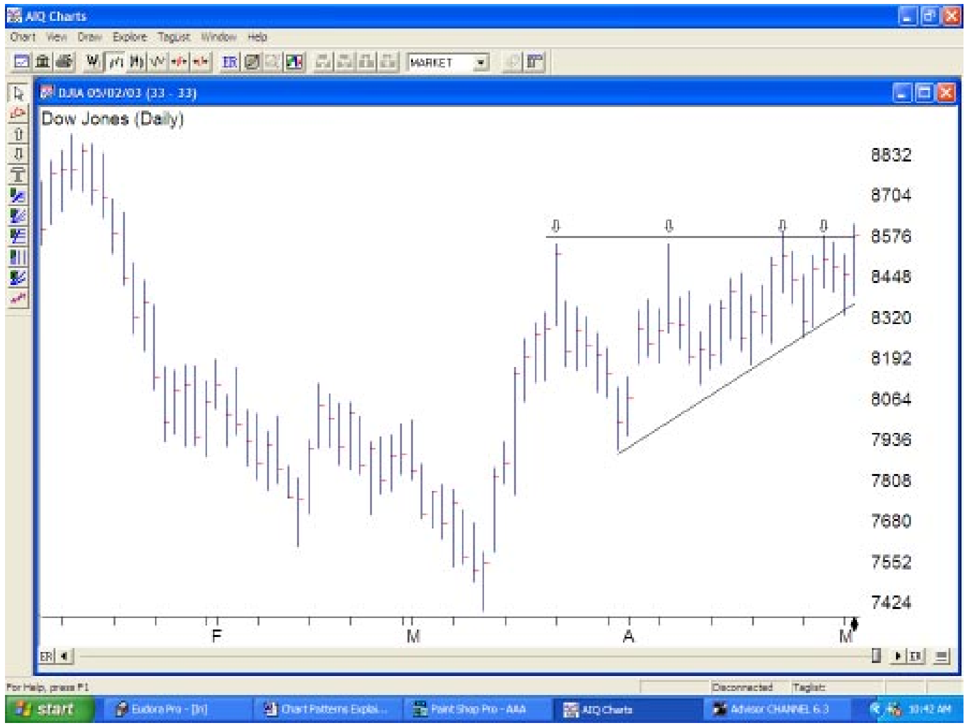

Figure 2. Daily chart of DJIA displays first four months of 2003. Right Triangle pattern that preceded upside breakout is shown. Arrows indicate where advances met resistance.

Wedge Pattern

A Wedge is a pattern bounded by trendlines that are not parallel and that both slope in the direction of the overall trend. The range of the price fluctuation narrows as price approaches the point where the trendlines intersect. Wedges are typically formed after a strong upward or downward move.

"For a stock in an uptrend, the break below the Wedge means the security should begin a sideways consolidation or move lower. The opposite is true for a downtrending stock."

For a stock in an uptrend, a break below the Wedge means the security should begin a sideways consolidation or move lower. The opposite is true for a downtrending stock. Ideally, volume dries up when the security is in the Wedge and then the breakout occurs on heavy volume.

Figure 3 shows the S&P 500 with a recent Wedge pattern. Since this is an upward sloping Wedge, the pattern is fulfilled when the lower support trendline is broken. That happened on May 19.

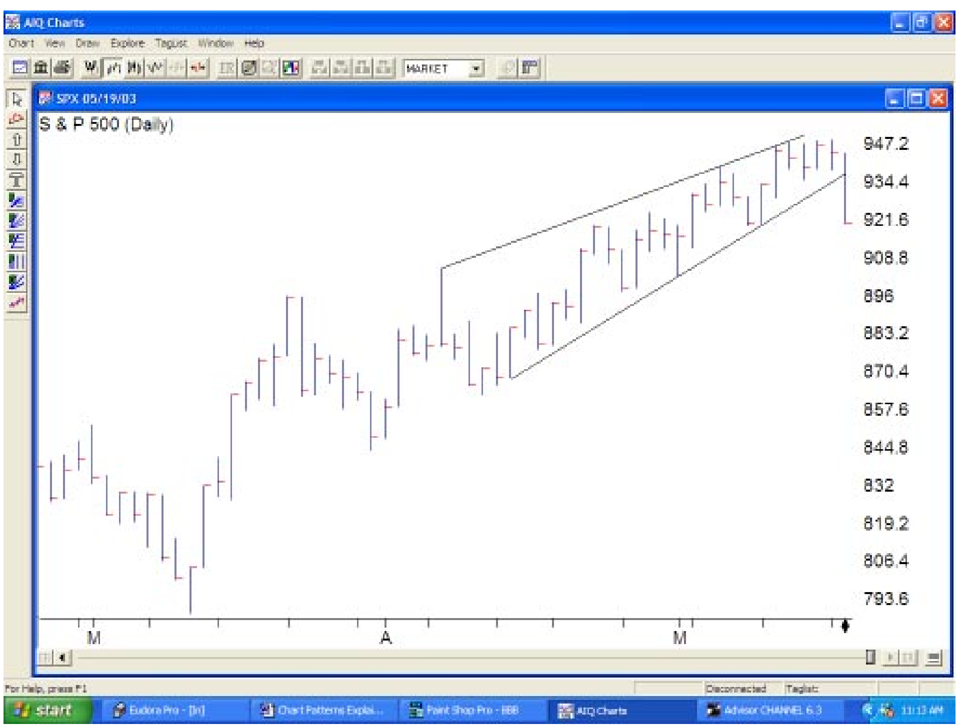

Figure 3. Daily chart of S&P 500. Shown on chart is upward trending Wedge pattern that formed in April 2003. Break of lower support trendline occurred on 5/19.

Symmetrical Triangle Pattern

Whereas the Right Triangle has one horizontal trendline and one sloping trendline, the Symmetrical

Triangle pattern has two sloping trendlines that form two sides of the triangle. Since they slope in opposite directions, the trendlines intersect somewhere around the middle of the existing price range. That is, the price fluctuates up and down but each move is smaller than its predecessor.

The descending tops in the price movement are defined by a downward sloping boundary line (resistance line) and the low points in the fluctuation are defined by an upward sloping line (support line). The upper and lower lines need not be of equal length.

Figure 4 shows a real-time chart of the S&P 500 on May 19, the day the index broke below the Wedge pattern shown in Figure 3. The first trendline shows support at about 926.5. In the 11 o'clock hour, that support became resistance once the market fell below 926.5.

Figure 4. Real-time chart of S&P 500 for 5/19/03. A trendline break and a break below a Symmetrical Triangle are shown. This is day shown in Fig. 3 when index broke below trendline.

"The Symmetrical Triangle pattern has two sloping trendlines that converge to each other. That is, a stock fluctuates up and down but each move is smaller than its predecessor."

The Symmetrical Triangle began to form around 12:30. Each rally was less than the previous rally and each decline was less than the previous decline. The S&P 500 eventually fell below its support. The pattern turned bearish and the market continued to fall.

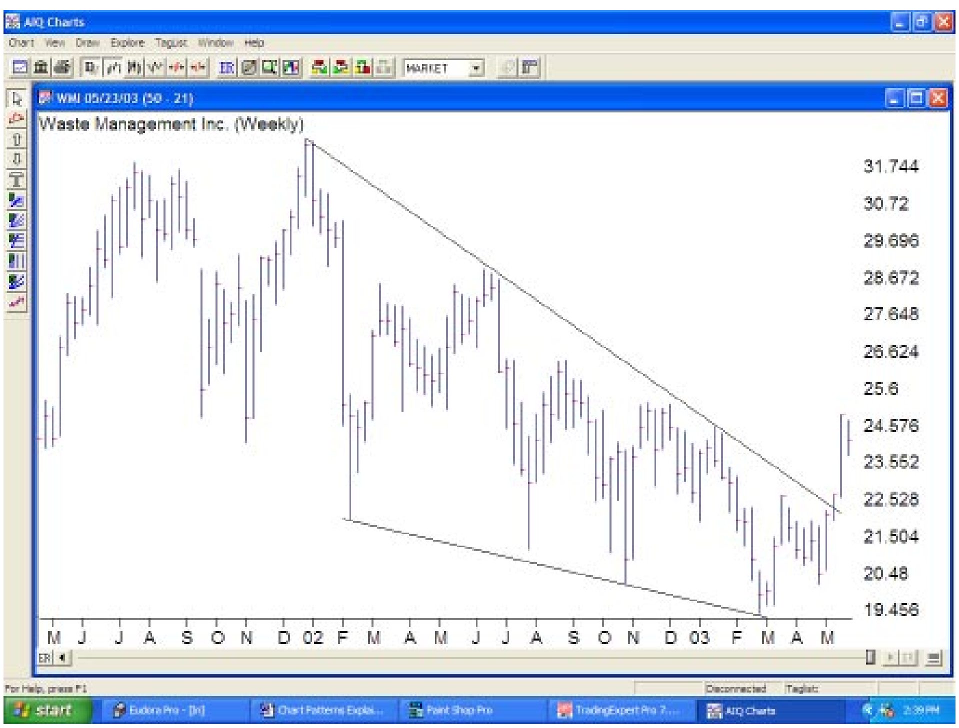

Figure 5. Weekly chart of Waste Management stock. In May of 2003, WMI broke above the downward sloping Wedge pattern that had been in place for more than a year.

Summary

We've shown several important chart patterns covering recent market activity. Our examples use weekly, daily, and real-time charts.

The length of the chart is significant. A completed pattern on a weekly chart implies a long-term move while a pattern on a real-time chart may forecast a move that will last only part of that trading day.

Using our examples, the S&P 500 is in a long-term Rectangle pattern (Figure 1) so its trend is sideways. As it approached the upper half of the trading range, a Wedge pattern formed (Figure 3).

The Wedge was broken to the downside on May 19. Within this day, a bearish Symmetrical Triangle signaled a market sell-off that lasted several minutes.

All of our examples use market indexes. The same patterns work for stocks as well as other traded securities. While the S&P 500 fell below an upward sloping Wedge pattern (Figure 3), one of its components, Waste Management, broke above a downward sloping Wedge pattern (**Figure 5**).

If you draw trendlines on end-of-day charts, you can run the Trendline Breakout report (found under TradingExpert Pro's Summary Reports) to get a list of stocks with broken trendlines. You can also be alerted when a trendline is broken on a real-time chart.

For more on chart pattern analysis, read *Technical Analysis of Stock Trends* by Robert Edwards and John Magee.

David Vomund publishes VIS Alert, a weekly investment newsletter. For free trial issues, call 775-831-1544 or go to ***www.visalert.com.***

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Market Review

The market continued its advance during the month of May. Through May 28, the S&P 500 rose 3.96%. While much of the focus was on the Nasdaq Composite's impressive 6.76% advance, the real leadership was in the Russell 2000 which jumped 7.97% in May. The small-cap stocks are quietly performing very well. This is also an indication that the advance is broad-based.

The significant event of the month was the lowering of dividend and capital gains tax rates. This makes equities a more attractive investment. As a result, dividend yielding stocks posted solid gains. The typically quiet Utilities sector was the best performer in May jumping 12%. Telecommunication Services was the next best performer gaining 10%. The worst sector was Transportation which had fractional losses.

As of this writing (May 28), the S&P 500 is within a few points from its 965 resistance level. A close above this level would mark the first time since the start of the bull market that the S&P 500 rose above a previous swing high. A lot of bears are using this as a stop-loss level.

S&P 500 Changes

Changes to the S&P 500 Index and Industry Groups:

No S&P 500 changes this month.

STOCK DATA MAINTENANCE

The following table shows stock splits and other changes:

Stock	Ticker	Split	Approx. Date
FTI Consulting	FNC	3:2	06/05/03
Ecolab Inc.	ECL	2:1	06/09/03
Dean Foods	DF	3:2	06/10/03
Phoenix Footwear	PXG	2:1	06/13/03
Gateway Financial	GBTS	5%	06/13/03
Old Dominion Frght	ODFL	3:2	06/17/03
Int'l Bancshares	IBOC	5:4	06/17/03
Norwood Fin'l	NWFL	3:2	06/17/03
Jeffersonville Bancorp	JFBC	3:1	06/18/03
SLM Corp.	SLM	3:1	06/23/03
Dearborn Bncp.	DEAR	5%	06/23/03
CB Bancshares	CBBI	10%	06/30/03

Trading Suspended:

Bradley Pharm. (BDY), India Growth Fund (IGF), Next Level Commun. (NXTV), Ocean Energy (OEI), Wallace Computer Svs. (WCS), Zernex Corp. (ZMX)

Name Changes:

Banknorth Group (BKNG) to Banknorth Group (BNK)
Broadwing Inc. (BRW) to Cincinnati Bell (CBB)
Chemed Corp. (CHE) to Roto-Rooter Inc. (RRR)
El Paso Energy Partners (EPN) to Gulf Terra Energy Partners (GTM)
Infogrames Inc. (IFGM) to Atari Inc. (ATAR)
Moore Corp (MCL) to Moore Wallace (MWI)
Pittston Co. (PZB) to Brinks Co. (BCO)
Trans Canada Pipelines Ltd. (TRP) to Trans Canada Corp (TRP)

A Tool for Stock Market Analysis

ZigZag Indicator Identifies Actual Turning Points In Price Action -- Eliminates 'Random Noise'

At first glance, the ZigZag indicator appears to be an almost perfect predictor of market and stock movements. **Figure 1** shows the ZigZag indicator plotted on the S&P 500 index. Every major turning point is called perfectly. In this case, what appears to be too good to be true, is.

The ZigZag was never intended to be a market indicator. It is, however, a very good tool for stock market analysis. It was called Filtered Waves by the developer, Arthur A. Merrill, in his book, *Filtered Waves – Basic Theory*. In fact, the subtitle of the book is "*A Tool for Stock Market Analysis*."

This indicator is included in TradingExpert Pro because of its value as a research tool. It is our way of identifying turning points in price action.

A valid turning point is a peak in prices that is greater than some percentage of the previous trough. A trough then is a lower turning point that is less than the same percentage of the previous peak. The duration of a filtered wave is measured from the trough to the peak and back down to the following trough.

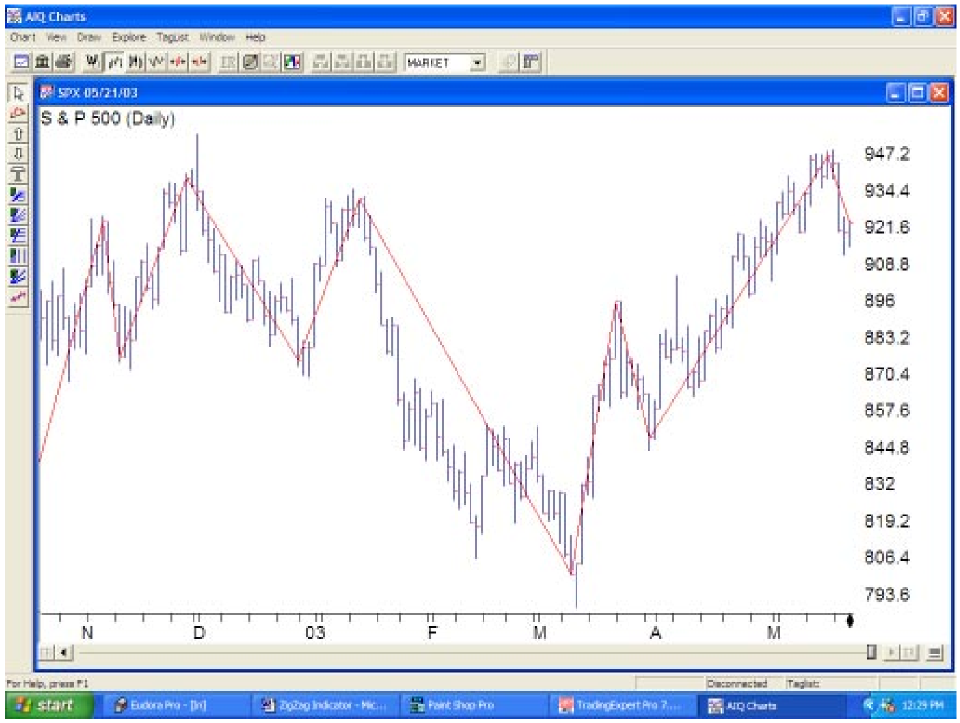


Figure 1. Daily price chart of S&P 500 with ZigZag indicator overlaid.

The percentage used in the determination of the turning points is called the filter. In Figure 1, the ZigZag of the S&P 500 is derived by using a 5% filter, which is the filter value recommended by Merrill. That is, the ZigZag permanently reverses directions only after the S&P 500 reverses its direction and moves at least 5% away from its previous peak or trough.

The reason the ZigZag appears to be a good indicator is that it is self-correcting. Let's look just at the peaks. This explanation can be reversed and applied to the troughs as well.

A possible turning point occurs when prices move up and then down over three days, forming a peak. If the percentage of the peak price over the prior trough is greater than the filter, then it is a potential turning point. It becomes one only when it is followed by a potential trough.

If it is followed by another potential peak, the first one is forgotten and the wait continues for the next potential trough. It is similar to saying that prices reached all-time highs today only to be followed by a similar statement a few days later. A peak is not a valid turning point until the next trough is established. In other words, you don't know that a peak turning point occurred until after the next drop.

> *"If the ZigZag identifies peaks and troughs long after they occur, what good is it?...In order to understand the behavior of prices, of volume, and of the indicators, we must study the behavior at the turning points. ZigZag identifies those turning points for us."*

If the ZigZag identifies peaks and troughs long after they occur, what good is it? Research is the way we improve our ability to call the turning points in price action when they occur — not afterward. In order to understand the behavior of prices, of volume, and of the indicators, we must study the behavior at the turning points. ZigZag identifies those turning points for us.

Merrill points out in his book that Filtered Waves can be used in interpreting market action under all sorts of analysis techniques. As we backtest, all we want is the turning points. From there, we can analyze the specific behavior of prices and volume at the turning points without the random noise that occurs at other places on the chart.

Notice in Figure 1 that the market rallied in mid-February but the ZigZag indicator never changed its direction. That means the rally failed to meet our 5% criteria so it was just random noise. If you are developing a trading system that allows you to capture moves of 5% or more, you don't want a long entry from the February low. The ZigZag indicator makes that clear.

The importance of a wave or a turning point is measured by the filter required to eliminate it. Therefore, we have the ability to control the size of the moves that are identified by changing the filter.

For example, developing a very short-term model to trade S&P 500 futures might require a filter of only, say, 2%. All the waves large and small would be included in the ZigZag chart. A great many turning points would occur and the action would be fast. A longer-term model might require a filter of 10%, so that only the really important turning points are evaluated.

In TradingExpert Pro, the ZigZag filter can be changed by double-clicking on the indicator.

AIQ's Group Analysis Report

Identifying Group Rotation

By David Vomund

No matter what style of stock analysis you perform, identifying group rotation is critical. For top-down traders, group analysis is extremely important because you are limiting the stocks you buy to those that are in attractive industry groups. Group analysis is important for bottom-up traders as well. Buying a stock in a bad group, even if its indicators are attractive, will usually result in a losing trade.

One of TradingExpert Pro's advantages is its industry group analysis tools. The Standard & Poor's and AIQALL industry structures are provided with the system but you have the ability to create your own industry groups as well.

For this article, we will show how the Group Analysis report helps identify group rotation. The industry group structure that we'll use is one we created based on the largest holdings of the Rydex sector funds. Therefore, if we find an attractive group, we can either buy the attractive stocks within the group or we can buy the Rydex sector fund that the group represents.

There are several reports in TradingExpert Pro that help identify which groups are outperforming and which are underperforming. The Group Price Change report sorts the groups based on their percentage change movement. The user can specify the time period for this report. The Market Log shows a bullish/bearish barometer for each group. The report we'll focus on is the Group Analysis report.

The Group Analysis report sorts the groups based on their Trend Score readings. Trend Score, which is derived from an AIQ expert

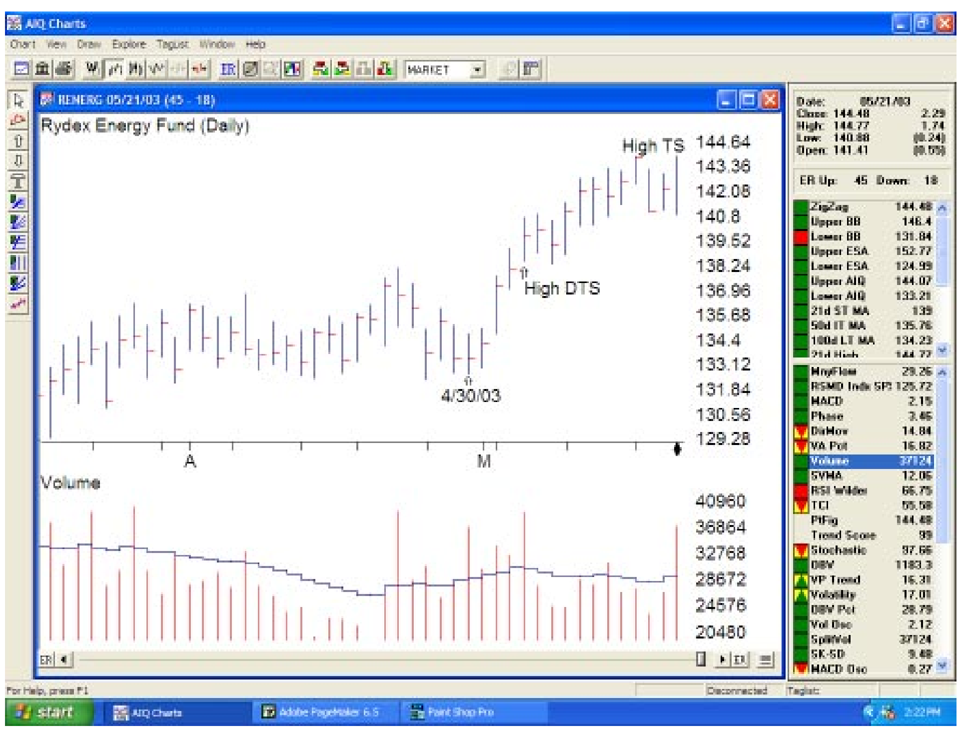


Figure 1. Daily chart of Rxdex Energy group. Arrows show dates of Group Analysis reports.

system, measures the short-term technical strength or weakness of each group. It is derived from six technical indicators (MACD, Directional Movement, ADXR, Positive Volume, Volume Accumulation, and On Balance Volume). Trend Score is designed to give a quantitative measure of the current trend of these indicators.

To see how to apply the Group Analysis report, we will study the Energy group in **Figure 1**. Notice that throughout April the group was drifting sideways with no sign that it would enter a strong rally. While the group drifted sideways in April, the overall market was rallying. As a result, Energy was the lowest ranked group on the Group Analysis report on April 30. There was no indication that it was the right time to buy.

During the next week, Energy began to rally with above average volume. Four trading days after the low, the Energy group had strong momentum and this was reflected in the Group Analysis report of May 6 (**Figure 2**). While this report is sorted by Trend Score, it is the Delta Trend Score (DTS) column that we are interested in. DTS reflects the daily change in the Trend Score. In effect, it measures the momentum of Trend Score.

Scanning this column, Energy has the highest DTS reading (32), followed by Consumer Products (30). The high DTS groups usually appear in the lower half of the report because it is easier for an underperforming group to gain momentum than it is for a strong group to gain momentum.

A high DTS is the first indication that a group is gaining strength and will outperform the other groups. For those who prefer to enter early in an advance, look for high DTS groups.

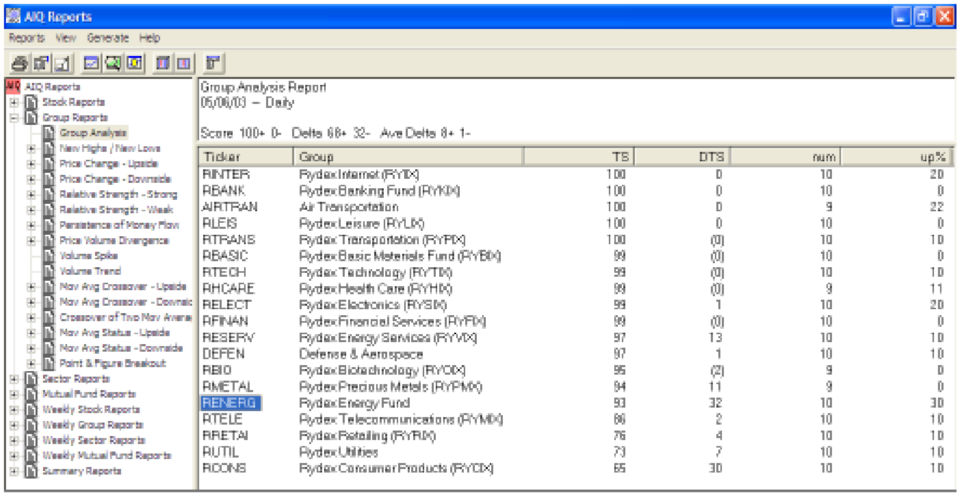
Our Energy example is a case where the DTS properly picked a group that continued to rally. There are many false readings as well. Consumer Products only marginally responded to its high DTS reading. Picking top performing groups as they enter their advance leads to some false signals, but when you are right profits are better than if you waited until a clear uptrend had formed.

There is not a strict cutoff in what is a high DTS level. What is a high level one day may not be a high level the next day. A high DTS on a strong market day may be 50 whereas a high DTS on a down market day may be 5.

As the group enters an uptrend, its Trend Score will improve and the group will rotate toward the top of the report. By May 19, Energy was the top-ranked group, second only to Energy Services (**Figure 3**). Growth investors who like to buy into trends should examine the groups at the top of the report.

There is a perception that a group should be sold once it is at the top of the report because it can only go down. That's not the case. A group can remain in the top half of the report for several weeks, indicating that it is outperforming most of the other groups.

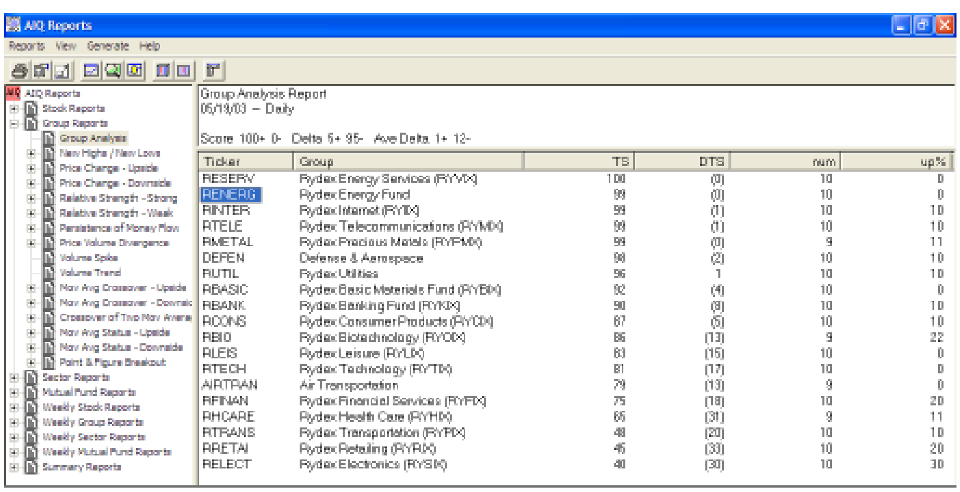
The Group Analysis report doesn't tell you anything that you can't see in the charts. Rather, it speeds up the analysis process by identifying which groups are outperforming, underperforming, or gaining momentum. It allows you to identify rotation without browsing all of the group charts. That is a definite time saver.


Group Analysis Report
05/06/03 -- Daily

Score 100+ 0- Delta 68+ 32- Ave Delta 8+ 1-

Ticker	Group	TS	DTS	num	up%
RINTER	Rydex Internet (RYIIX)	100	0	10	20
RBANK	Rydex Banking Fund (RYKIX)	100	0	10	0
AIRTRAN	Air Transportation	100	0	9	22
RLEIS	Rydex Leisure (RYLIX)	100	0	10	0
RTRANS	Rydex Transportation (RYPIX)	100	(0)	10	10
RBASIC	Rydex Basic Materials Fund (RYBIX)	99	(0)	10	0
RTECH	Rydex Technology (RYTIX)	99	(0)	10	10
RHCARE	Rydex Health Care (RYHIX)	99	(0)	9	11
RELECT	Rydex Electronics (RYSIX)	99	1	10	20
RFINAN	Rydex Financial Services (RYFIX)	99	(0)	10	0
RESERV	Rydex Energy Services (RYVIX)	97	13	10	10
DEFEN	Defense & Aerospace	97	1	10	10
RBIO	Rydex Biotechnology (RYOIX)	95	(2)	9	0
RMETAL	Rydex Precious Metals (RYPMX)	94	11	9	0
RENERG	Rydex Energy Fund	93	32	10	30
RTELE	Rydex Telecommunications (RYMIX)	86	2	10	10
RRETAI	Rydex Retailing (RYRIX)	76	4	10	10
RUTIL	Rydex Utilities	73	7	10	10
RCONS	Rydex Consumer Products (RYCIX)	65	30	10	10

Figure 2. Daily Group Analysis report for 5/06/03. Note that Energy has highest DTS value.


Group Analysis Report
05/19/03 -- Daily

Score 100+ 0- Delta 5+ 95- Ave Delta 1+ 12-

Ticker	Group	TS	DTS	num	up%
RESERV	Rydex Energy Services (RYVIX)	100	(0)	10	0
RENERG	Rydex Energy Fund	99	(0)	10	0
RINTER	Rydex Internet (RYIIX)	99	(1)	10	10
RTELE	Rydex Telecommunications (RYMIX)	99	(1)	10	10
RMETAL	Rydex Precious Metals (RYPMX)	99	(0)	9	11
DEFEN	Defense & Aerospace	98	(2)	10	10
RUTIL	Rydex Utilities	96	1	10	10
RBASIC	Rydex Basic Materials Fund (RYBIX)	92	(4)	10	0
RBANK	Rydex Banking Fund (RYKIX)	90	(8)	10	10
RCONS	Rydex Consumer Products (RYCIX)	87	(5)	10	10
RBIO	Rydex Biotechnology (RYOIX)	86	(13)	9	22
RLEIS	Rydex Leisure (RYLIX)	83	(15)	10	0
RTECH	Rydex Technology (RYTIX)	81	(17)	10	0
AIRTRAN	Air Transportation	79	(13)	9	0
RFINAN	Rydex Financial Services (RYFIX)	75	(18)	10	20
RHCARE	Rydex Health Care (RYHIX)	65	(31)	9	11
RTRANS	Rydex Transportation (RYPIX)	48	(20)	10	10
RRETAI	Rydex Retailing (RYRIX)	45	(33)	10	20
RELECT	Rydex Electronics (RYSIX)	40	(30)	10	30

Figure 3. Daily Group Analysis report for 5/19/03. Note that Energy has moved up to #2 spot.