What are RRGs?

Julius de Kempenaer developed Relative Rotational Graphs (RRG) in 2004 and thousands of investors use RRGs. *"Relative Rotation Graphs, commonly called RRGs, are a unique **visualization tool for relative strength analysis.** Chartists can use RRGs to analyze the relative strength trends of several securities against a common benchmark, and against each other. The real power of this tool is its ability to plot relative performance on one graph and show true rotation. We have all heard of sector and asset class rotation, but it is hard to visualize this "rotation" sequence on linear charts. **RRGs use four quadrants to define the four phases of a relative trend. True rotations can be seen as securities move from one quadrant to the other over time."** - Stockcharts*

What are TPA-RRG scores?

TPA recognizes the power of RRGs to highlight stocks and sectors moving in and out of favor, but also notes the shortcoming of having to examine many RRGs to decide where to invest. TPA has developed TPA-RRG Scores to be able to rank stocks and sectors in terms of relative strength. *TPA-RRG scores are constructed to focus on stocks and sectors as they move from negative to positive and positive to negative.* Scoring also allows ranking so investors can focus on the best and worst areas of the market.

How are TPA-RRG scores created?

TPA uses not only the **RS Ratio** and **RS Momentum** of each stock to make its forecast, but TPA also uses certain characteristics on each stock's RS to calculate its score. The following measures are used to calculate the TPA-RRG score:

1. **RRG ANGLE -** Represents the current position of the security on the RRG chart based on the points of the compass:
   - 0-90 Degrees = Leading Quadrant
   - 90-180 Degrees = Weakening Quadrant
   - 180-270 Degrees = Lagging Quadrant
   - 270-360 Degrees = Improving Quadrant

2. **RRG DISTANCE -** This number represents how far away the security is from the center of the RRG chart (ie the benchmark). One of the observations is that higher alpha comes from those components that make bigger arcs around the benchmark. We will ignore those closest to the center.

3. **RRG ANGLE ROC -** The Angle Rate of Change measures the distance of the angle of the current data point of a security, to the previous data point. The greater the value, the larger the distance between the two data points.

4. **RRG HEADING -** This is the direction that the arrow is pointing to (where the RS is headed), again based on the points of the compass, and is one of the most useful measures:
   - 0 degrees = North (up) - positive
   - 45 degrees = Northeast – less positive
   - 90 degrees = East (right) - positive
   - 180 degrees = South (down) - negative
   - 270 degrees = West (left) - negative

5. **RRG VELOCITY** This is the vector difference – or distance – between the last two data points on the line; with the longest having the highest relative momentum:

How investors can use TPA-RRG
1. The Sector analysis lets clients <u>focus</u> on the best and avoid the worst areas of the market
2. TPA-RRG ranks the entire Russell 1000 and provides the Top 20 and Bottom 20 stocks so investors can see the best and worst stocks to make sure they are <u>taking advantage of opportunities and not getting into trouble.</u>
3. We also look at the top and bottom stocks through a standard technical analysis to <u>avoid stocks that are overbought, oversold or at other technical trouble spots.</u>
4. Finally, we provide TPA-RRG Scores and rankings for the stocks in the most used 25 sector and subsector ETFs. This analysis is especially helpful for investors who are focused on <u>specific areas</u> of the market.

You can learn more about RRGs with these links:
<u>Relative Rotation Graphs (RRG) – explanation video</u>
<u>RRG – written explanation</u>

Included in the Weekly TPA-RRG Report
1. <u>The weekly TPA RRG Report will provide RRG Scores, Rankings, RRG and a RRG Video for:</u>
   - 25 Major Sector and Subsector ETFs
   - Top 20 & Bottom 20 stocks in the Russell 1000 - based on TPA's RRG and Trend-Range analysis

2. <u>The report will also include:</u>
   - TPA RRG scores and rankings for the *focus stocks* in the 11 major sectors ETFs and 14 major subsectors ETFs. *Provided in a separate PDF*

3. ***Finally, TPA will provide a weekly commentary on TPA-RRG Scores and Rankings***