

# Relative Strength Index

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**Relative Strength Index** (RSI) serves as a measure of price stability within an equity, and though not being an outright measure of risk, RSI can be helpful for some investors. When RSI decreases, “risk” decreases, and when RSI increases, “risk” increases, at least in the traditional sense of risk. Given that we are using the term “risk” loosely, consider RSI as a moving indication of momentum, as it notes the strength of an equity’s pricing action. To those more inclined to using statistical analysis to measure equity performance, RSI is not based on any statistic, though I suppose we could refer to RSI as a descriptive statistic as in calculating RSI we are not really using probability theory nor anticipating much inferentially; we are merely considering price movement differently. As such, consider RSI as more of an indicator of price movement.

In practice, RSI serves to note when an equity is considered overvalued, or “over bought;” or undervalued, or “over sold.” The method works off moving mean gains and losses to create what is referred to as relative strength before it is turned into an index between 0 and 100. Again, there is no statistical merit to the measure, but RSI helps traders determine when to buy and when to sell; it is most beneficial to day traders as opposed to investors.

As previously noted, RSI runs from 0—100, with equities regularly scoring 40—60, and even 30—70, or so. Scores above 70 are considered over bought, and scores under 30 are considered oversold. The key to trading on RSI is to have a strong background estimating when a trending RSI score will move into a bullish trend, and when it may move toward a bearish trend. However, the method is problematic in that RSI may remain in limbo between an overbought position and oversold position for extended periods, potentially mandating that a day trader has monies tied to a specific equity for days with no real pricing movement. Likewise, RSI may also remain in overbought positions or oversold positions for extended periods, making trading decisions more difficult when using RSI alone.

At best, RSI allows traders to estimate price movement; as such, RSI is not a tool of which we routinely rely. Ambiguity within the indicator simply does not “indicate” well enough to support any reasonable reliability coefficient, at least not that we have calculated in our firm, albeit we would yield to a researcher who has conducted more research in this area than us, as RSI is simply not a tool we heavily rely upon for trading decisions.

As previously noted, RSI runs from 0—100, and traders elect to buy and sell based upon whether the index is at 30 or 70. However, in practice, it becomes difficult to know exactly when to buy and exactly when to sell, even despite this 30/70 rule. Perhaps a better way to approach the specific timing of trading decisions is to base trading decisions off the standard deviation of RSI. In our example on the following page,  $SD_{RSI}=11.2$ , meaning 68.2 percent of pricing movement occurs between a Low RSI of 51.2 and a High RSI of 73.6. Trading between this single standard deviation not only simplifies trading timing but helps to maximize profitability. Besides, there is no activity here below an RSI of 43, so waiting until RSI reaches 30 to sell mandates a loss in potential profit; such will always hold true, so trade on the standard deviation of RSI, not between 30 and 70 as it suggested by pseudo-scientists.

In our case, we made our first buy on or before the back end Low RSI of 51.2, then sold on the back end high after RSI moved back through its High RSI of 73.6. We bought again on the back end of RSI Low at 51.2, and held through the back end of RSI High, selling at 73.6. As such, we generated maximum profit with the least risk, and we did so without regard to pricing data, per se.

**Herbert M Barber, Jr, PhD, PhD** serves as the Managing Partner and Chief Investment Officer of Xicon Economics. Intersecting the fields of engineering, finance, econometrics, and statistics, Dr. Barber is an expert in computational financial economics as it relates to the management of random walk theory and navigation of constructs surrounding efficient market hypotheses, especially within assets operating under extreme uncertainty. For over 30 years, he has provided advisory, consulting, and management of large capital investments in the private and public sectors, totaling over \$125 billion. Additionally, Dr. Barber has published numerous scientific papers in refereed journals. Dr. Barber holds 5 academic degrees, including two research doctorates.

**Xicon Economics** provides investment research, financial and investment advisory, and asset management for corporations and investors. We conduct scientific and applied research coupled with advanced statistical and econometric analyses and modeling to render complex financial and economic decisions to ensure investments are realized. We concentrate our practice on increasing output on hedge funds and alternative investments.

