Relative Strength Index

Your Step-by-Step Guide to Profitable Trading with the RSI Indicator

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Introduction

I want to thank you very much and congratulate you for downloading the book, *Relative Strength Index–Your Step-by-Step Guide to Profitable Trading with the RSI Indicator.*

This book is the ultimate guide to profitable trading with Relative Strength Index.

In this book, you’ll learn what RSI is and how it’s calculated, you’ll learn how to use RSI to generate exact trading signals, you’ll learn step-by-step how to use RSI for trend trading and mean revision trading, and you’ll be walked through multiple complete real-world examples.

Thanks again for downloading this book, I hope you enjoy it!

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Chapter 1 – What Is Relative Strength Index?

When trying to determine the right time to buy or sell a financial instrument such as a stock or currency pair, it is important that you try to predict future movement. One of the most important aspects of this is understanding momentum – how strongly the instrument is moving up or down. While strong movement in a particular direction can show a likely trend, it can also indicate that the instrument is overbought or oversold.

RSI is one of the key indicators that technical traders use to measure momentum. RSI stands for 'Relative Strength Index' and is represented as a value that ranges between 0 and 100. Values above 50 indicate upwards momentum, while values below 50 mean that the momentum is downwards. The larger the distance from 50, the stronger the momentum. Values above 70 or below 30 indicate that momentum is so strong that the market is overbought or oversold.

Chapter 2 – How Does RSI Work?

RSI measures how often the market closes up versus closing down – and by how much. It is calculated using a relatively simple formula shown below:

$$RSI = 100 - 100/(1 + RS)$$

As can be seen from the formula, this will always yield a number between 0 and 100, provided that RS is a positive number. However, what exactly is RS? That is a little more complicated.

It is the average size of all of the up moves over the last N periods divided by the average size of all of the down moves over the same N periods. The best way of understanding this is by looking at a worked example.

Assume that you are going to measure RS for a stock over 9 days, using the close each day as the input to the formula. Here are the closing prices for those nine days, plus one more day at the start since you will need to know whether the price has closed up or down in any particular day.

2.10, 2.20, 2.30, 2.25, 2.27, 2.23, 2.28, 2.31, 2.3, 2.24

This can be used to calculate how much the price closed up or down in any given day as shown below:

0.10, 0.10, -0.05, 0.02, -0.04, 0.05, 0.03, -0.01, -0.06

This can then be used to calculate how much the price finished up each day, assuming that if the price fell in a particular day, then the amount that it rose was 0. This gives the following:

0.10, 0.10, 0.00, 0.02, 0.00, 0.05, 0.03, 0.00, 0.00

Similarly, the equivalent size of the price falls over the same nine-day period were:

0.00, 0.00, 0.05, 0.02, 0.04, 0.00, 0.00, 0.01, 0.06

Note that in this case we're only looking for the magnitude of the price drop, not the direction, and therefore all the values are positive.

If we take a simple moving average of the up movements and another SMA of the down movements, we end up with two numbers:

> AvgU = sum (0.10, 0.10, 0.00, 0.02, 0.00, 0.05, 0.03, 0.00, 0.00) / 9 = 0.32 / 9 = 0.03555555
> AvgD = sum (0.00, 0.00, 0.05, 0.02, 0.04, 0.00, 0.00, 0.01, 0.06) / 9 = 0.18 / 9 = 0.02000000

Dividing AvgU by AvgD gives us RS, which in this case is 1.77. Plugging this into the RSI formula we get:

> RSI = 100 – 100/(1+1.77) = 63.89

Therefore, in this case, the market has strong positive momentum but it does not appear that it is overbought at this point.

It is also worth noting that the difference between the total up moves and total down moves is 0.32 - 0.18, or 0.14, which is exactly what is expected since the price rose 0.14 in total during the period. However, RSI is not simply an indicator of how much the price rose or fell in total. For instance, consider the following two alternate scenarios, both of which lead to a 0.14 total rise in price.

Example #1

The price rose for 8 days out of 9, with a total rise of 0.15. It only fell for 1 day, and then only by 0.01. This gives an AvgU of 0.16666666 and an AvgD of 0.01111111. The RS is 0.16666666/0.01111111 or 15. The RSI is therefore 100 – 100 / (1+15) or 93.75. In this case, RSI is indicating that the market is very heavily overbought, even though the overall price rise was still only 0.14. This makes sense, since there has been an almost inexorable price rise over the last nine days with no real signs of resistance or pullback.

Example #2

The price rose for 4 days out of 9, with a total rise of 0.81. The price fell for 5 days out of 9, with a total fall of 0.67. In this case, AvgU is 0.09000000, and AvgD is 0.07444444. However, RS is now 1.21 and the RSI is 54.73. There is very little upward momentum, despite the total price rise still being 0.14 over the 9 day period. Again, this makes intuitive sense, since there has been a huge amount of volatility and a total rise of 0.14 becomes relatively insignificant compared to the large daily price swings.

From these two examples, it becomes clear that RSI does provide a strong indicator of market momentum that is only loosely coupled to the total price movement.

Additional Things to Understand about RSI

There are several other things to understand about RSI:

- First, if the price rises every day during the period, then AvgD becomes 0. In this case, dividing AvgU by AvgD leads to an undefined result (division by 0). In this case, RSI is defined to be 100.
- Second, while the easiest and most common method of calculating RSI involves taking simple moving averages, some variants use exponential moving averages. There is also a special averaging approach called Wilder's Smoothing Method that is similar to an exponential moving average but uses a different smoothing factor. This was invented by the creator of the RSI indicator and is named after him.
- Third, RSIs are not just calculated over 9-day periods. They can in principle be calculated over any period – for instance, an RSI calculated over 9 days is referred to as RSI 9, whereas one calculated over 14 days is referred to as RSI 14. In general, the longer the period, the more slowly the indicator responds to changes in price direction and momentum. RSI 14 is the most common look-back period and is the default on most trading workstations.

Chapter 3 – Mean Revision Trading

As mentioned earlier, one of the things that RSI can show is that the market is overbought or oversold – remember that 70 or above is overbought, while 30 or below is oversold. In fact, this was the original intent of the indicator and is the basis of mean revision trading.

In mean revision trading, traders are looking for a price reversal because the market is overbought or oversold. By definition, this is a contrarian strategy – the trader is going against the prevailing price trend. At its most basic, there are two trading signals.

Exact RSI Trading Signals

- If RSI is below 30, then wait for it to rise above 30 and then buy. Don't buy it when it is below 30, since the market can stay oversold for an extended period of time with the price continuing to fall. Once the indicator rises above 30, this may indicate that the selling pressure is starting to ease, and that the price may be set to rise.
- Similarly, if the RSI is above 70, then wait for it to fall below 70 and then take a short position. In this case, the dip in RSI indicates that buying pressure may be starting to ease.

When used in this way, RSI works about 75% of the time – whenever there is a price reversal. However, the amount that the price moves is highly variable and can be insignificant in many cases. Because of this, it is extremely important to manage risk carefully when taking positions based on these signals. If stops are not carefully placed or too much leverage is used, then large trading losses can occur. As with any position, if the price starts to move in the direction you were hoping for, use a trailing stop to lock in your profits.

A Real-World RSI Example

Here is a real-world RSI sell signal example.

Chapter 4 – Trend Trading

While RSI is often used to detect overbought and oversold conditions and trade against the current trend, it is worthwhile remembering that it is an indicator of strength. Because of this, traders also use it to trade with trends. The main difference with this approach is that different trigger points are typically used to signal buying and selling opportunities.

Specifically, there is no point in using 70 and 30, since as already discussed, these lead to price reversals in about 75% of cases. Instead, weaker trigger points are used, with the most common ones being 60 and 40. At these points, there is strong market momentum but the market is not overbought or oversold. 60 is used as a trigger point to take a long position, whereas 40 is used as a trigger for taking a short position.

This is completely the opposite strategy to mean reversion trading. Consider the case where there is strong upwards momentum. With mean revision trading, 70 is used as the signal to take a short position, whereas 60 is used as the signal for a long position with trend trading.

As with mean reversion trading, however, it is still important to put a proper risk management strategy in place. The risk is lower, since you are trading with the trend, but there is still a possibility of a price reversal.

How to Use RSI for Trend Trading Step-by-Step

The following is a short step-by-step guide to using RSI for trend trading. In this case, it looks at the case where RSI is indicating upwards market momentum.

1. Wait until a day closes and the RSI is above 60.
2. Take a long position at the start of the next day.
3. Put a stop loss in place. A good place to do this is at the low price for the last 10 days.
4. Continue to trail the stop loss at the 10 day low, adjusting it each day.
5. If you are stopped out subsequently, take your profits or losses at this point.
6. If the RSI falls below 40, then use this as a signal to exit your position.

In fact, if the RSI does fall below 40, you may want to take a short position. This is the other trading signal. The process here is exactly the reverse of the steps given above – take a short position, place your trailing stops at the 10 day high and exit manually if RSI goes above 60.

Chapter 5 – Tips, Techniques and Common Pitfalls

As mentioned previously, it is extremely important to have a proper risk management strategy when you are using RSI as a trading signal. This is particularly the case if you are using RSI for mean reversion trading, since you are trading against a trend. It is not unusual for RSI values to rise above 70 and then fall back several times in quick succession, and the same applies when it dips below 30. If this happens, you will probably end up with a number of small trading losses if you have a proper risk management strategy in place. If you don’t, you could end up losing a significant proportion of your capital.

Second, while RSI is a widely used indicator, it is not one of the most accurate ones, particularly if it is used for mean reversion trading. It is best employed in conjunction with other indicators that can be used to confirm signals. For instance, if RSI rises above 30 or falls below 70, these signals are made stronger if they are accompanied by high volumes or an increasing volume trend.

To reiterate, another thing to remember if you are using RSI for mean reversion trading is to avoid selling if the RSI is above 70 and avoid buying if the RSI is below 30. While these may clearly indicate that the market is overbought or oversold, RSI can remain at these values for extended periods of time. If you buy in at this point, you run the risk of taking a position contrary to a trend that will continue for weeks or even months. Again, this can lead to significant losses. It is only when the indicator reverses and goes below 70 or above 30 that you should use this as a signal.

Similarly, if your strategy is to follow a trend, don’t exit your position just because RSI goes above 70 or below 30. For example, if you take a long position when RSI rises above 60, there is no reason to sell when it hits 70. The market may be overbought, but the upward trend may still continue for a significant period of time. If you exit at this point, you will be leaving money on the table. Of course, you need to follow your position with trailing stops as discussed previously so that you do not end up giving back all your profits, but this is the approach you should take with any strategy that follows trends.

Finally, as with any strategy, you should not blindly follow a recipe and assume that it is going to work. First of all, there is no such thing as a guaranteed strategy and using RSI is no exception. Second, while RSI 14 is the most commonly used indicator, you may want to experiment with other RSI periods to see if they give you better results. In fact, this may depend to some extent on the particular markets that you are trading in – so do some research to see whether or not different RSI values have worked for other traders. Of course, when you do experiment, it’s a good idea to do this by analyzing historical charts or using a demo account if you are trading in the forex market. Don’t put your capital on the line if you have no idea whether a particular strategy is likely to succeed.

Chapter 6 – Final Notes

Trading using RSI is a relatively straightforward approach, and is fairly well suited to traders with a wide range of experience and abilities. There are two main strategies – mean reversion and trend trading, with trend trading being the less risky option.

However, the RSI indicator is not the most dependable indicator, particularly for mean reversion trading. It is often best used in conjunction with other indicators that create a confluence of signals. As a minimum, you need to make sure that you have a robust risk management strategy in place and then stick to it.

Another advantage seen by range traders is that when operating a long only range trading strategy they will not have a position and be ‘out of the market’ for long periods of time. This means that trading capital is available to be kept on deposit or used for other trading opportunities.

Conclusion

Thank you again for downloading this book!

You should now have the knowledge you need to get started trading with RSI.

The next step is to take action!

Finally, if you enjoyed this book, please take the time to share your thoughts and post a review on Amazon. It’d be greatly appreciated!

Thank you and good luck!

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