RSI Divergence

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Table of Contents

1. Introduction

The divergence between price action and the RSI is a very strong indicator of a market turning point. It can be used for swing trading as well as scalping.

After reading this PDF, you will be able to:

> ➢ Learn how the **RSI** indicator is **calculated**.
> ➢ Know what the **RSI divergence** means.
> ➢ Learn different **types of divergences** and how to use each one of them.
> ➢ Implement the **RSI trading strategy**.
> ➢ Understand **risk management** while trading the RSI strategy.

This is my best effort at explaining this to you. Please take out the time to study this tutorial. In case of any doubts, remember to post your questions in the comments section.

Love,
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RSI Divergence

2. What's RSI

While you don't need to calculate RSI manually, it's somehow useful to understand what exactly it is. This helps to prevent nonsensical uses of RSI.

The relative strength index (RSI) is a momentum oscillator that was first developed by the American mechanical engineer **J. Welles Wilder Jr.** also known as the father of technical indicators.
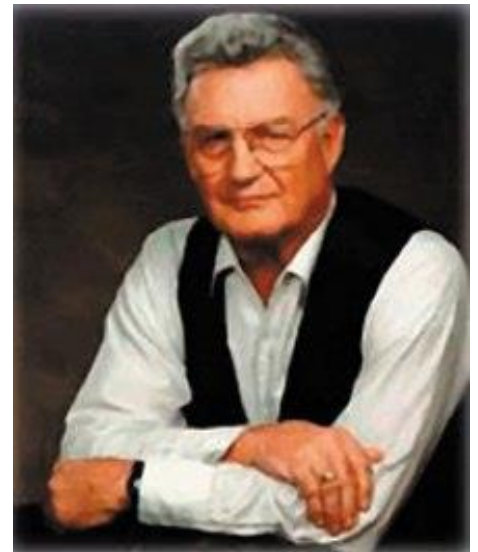

Figure 1. J. Welles Wilder Jr. 1990.

The RSI indicator was first introduced in his seminal 1978 book, "New Concepts in Technical Trading Systems".

As Mr. Wilder mentioned in his book, the equation for the RSI is:

$$RSI_1 = 100 - \left[\frac{100}{1 + RS_1}\right]$$

While:
$$RS_1 = \frac{Average\ UP\ close\ of\ 14\ days}{Average\ DOWN\ close\ of\ 14\ days}$$

For the calculation of the first RSI, we need the previous 14 day's close prices. This can be summarised in 6 steps:

1. Obtain the sum of the UP closes for the previous 14 days and divide this sum by 14. This is the average UP close.
2. Obtain the sum of the DOWN closes for the previous 14 days and divide this sum by 14. This is the average DOWN close.

RSI Divergence

3. Divide the average UP close by the average DOWN close. This is the Relative Strengh 1 (RS_1).
4. Add 1 to the RS_1.
5. Divide the result obtained in step 4 into 100.
6. Subtract the result obtained in step 5 from 100. This is the first RSI.

From this point on, to calculate the following RSIs, it is only necessary to use the previous average UP close and the previous average Down close, the equation will be:

$$RSI_2 = 100 - \left[\frac{100}{1 + RS_2}\right]$$

While:

$$RS_2 = \frac{\left(\frac{(Previous\ average\ UP\ close \times 13) + Today's\ UP\ close}{14}\right)}{\left(\frac{(Previous\ average\ Down\ close \times 13) + Today's\ DOWN\ close}{14}\right)}$$

This equation can be translated into the following 6 steps:

1. To obtain the next average UP close:
   Multiply the previous average UP close by 13, add to this amount today's UP close and divide the total by 14.
2. To obtain the next average DOWN close:
   Multiply the previous average DOWN close by 13, add to this amount today's DOWN close and divide the total by 14.

Step 3,4,5,6 are similar to the ones in RSI_1.
To obtain the following RSIs, we repeat the same process in RSI_2 .

For those of you who want more detail on the calculation of the RSI, please check Mr. Welles' book "New Concepts in Technical Trading Systems".

RSI Divergence

3. RSI Divergence

Note: The default time period for RSI is 14. You can use any time period that suits you. Only 14 candles should be taken into reference if the time period of RSI is 14.

In the examples below, I have zoomed in to a lower TF to show clearer divergences, hence more than 14 candles can be seen in the examples.

When price moves in a certain direction, the momentum oscillator should move in the same direction (and manner).

Eg. When Price makes a higher high, the momentum oscillator should make a higher high also. This is called convergence.

Figure 2. Example of an RSI convergence.

RSI Divergence

In rare occurrences, the momentum oscillator and the price don't follow a similar path. This phenomenon is called Divergence.

It occurs because the average change in the lookback period (the time period of the oscillator) is in a different direction as compared to the price.

Divergences are used to find potential reversals on high time frames or for swing/scalp opportunities on lower time frames.

I highly suggest you Join the Free Bitcoin Trading Master-Class Mentorship that I have set up with systematic learning lessons for all levels. It's completely free and will always be. I don't need your money. My mum gives me enough.

Link - https://t.me/EmperorbtcTA

RSI Divergence

4. Types of Divergences

1. Bullish Divergences

They are formed when the downtrend price move is going to reverse. The lows of the price and oscillator are not in sync. Useful in predicting the bottom.

To find bullish divergences, always look at the lows of the oscillator and the price. And don't look for divergences in a non-trending market.

a. Strong Bullish Divergence

The price makes a lower low but the oscillator makes a higher low. This means, although the price is decreasing, the overall average rate of change in the chosen period is increasing.
i.e. the sellers are not selling at the same momentum.

Figure 3. Strong bullish divergence example.

RSI Divergence

b. Medium Bullish Divergence

The price makes a double bottom and the oscillator makes a higher low. This means that at the same price levels, the momentum is increasing.

An illustration is presented below.

Double bottom

Higher Low

Figure 4. Medium bullish divergence example.

RSI Divergence

c. Weak Bullish Divergence

The price makes a lower low but the oscillator forms equal lows (or double bottom). This means, even though the price is decreasing the momentum is intact.

Figure 5. weak bullish divergence example.

RSI Divergence

d. Hidden Bullish Divergence

In a weird manner, the price increases, and the momentum oscillator value decreases. This signifies that even at a reducing momentum, there is enough buying interest to push the price up.

I personally don't trade this type of bullish divergence but here's an example.

Figure 6. Hidden bullish divergence example.

RSI Divergence

2. Bearish Divergences

Bearish divergences are used to find the tops, so remember to look at the Highs only.

a. Strong Bearish Divergence

The price makes a Higher High but the oscillator makes a Lower High. This means that even though the price is moving higher, the average momentum of the look-back period is decreasing.
This is a potential top signal.

Figure 7. Strong bearish divergence example.

RSI Divergence

b. Medium Bearish Divergence

Here the price makes a double top but the oscillator makes a Lower High. This means that at the same price level, the momentum has decreased.

This is one of my personal favourite setups.

Figure 8. Medium bearish divergence example.

RSI Divergence

c. Weak Bearish Divergence

The price makes a higher high but the oscillator makes a double top.
This means that the average momentum isn't ready to go up even as
the price goes up.

Figure 9. weak bearish divergence example.

RSI Divergence

d. Hidden Bearish Divergence

The price makes a Lower High but the Oscillator makes a Higher High. This means that the price is going down even after there's an increase in the average momentum in the lookback period.

Figure 10. Hidden bearish divergence example.

RSI Divergence

5. Divergence Strategy

Now that we have covered what divergence is, let's understand how to use it step by step.

Step 1: Mark out higher time frame levels, range high, range low or Fibonacci pullback areas.

Figure 11. Identifying the range.

Step 2: Go down to a much lower time frame as the price approaches key levels. Look for RSI divergence. Short a bearish divergence when the price approaches a vital level or range high from below.

Figure 12. Bearish RSI divergence.

RSI Divergence

Keep in mind that the RSI indicator considers candle closes, not candle highs/lows or wicks. Sometimes the price may form a higher high while taking wicks into account, but the candle close might not be higher.

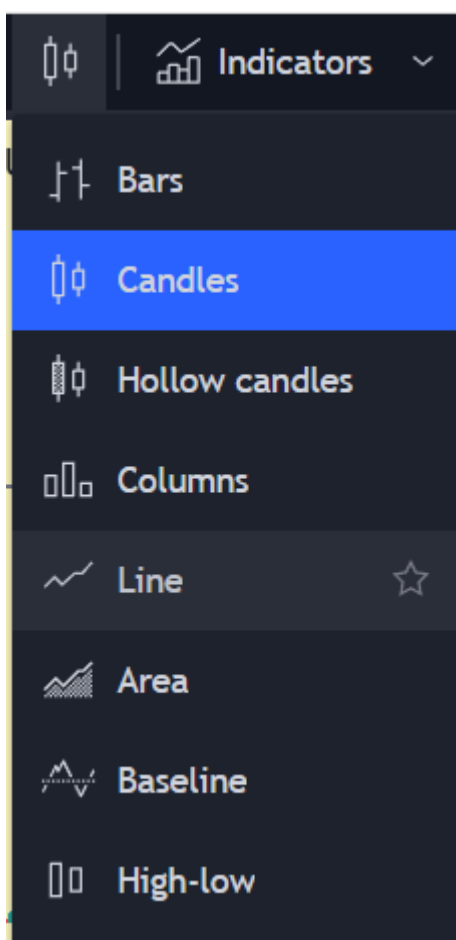You can select a line chart to help clarify this; the setting to go to line chart mode is as follows:
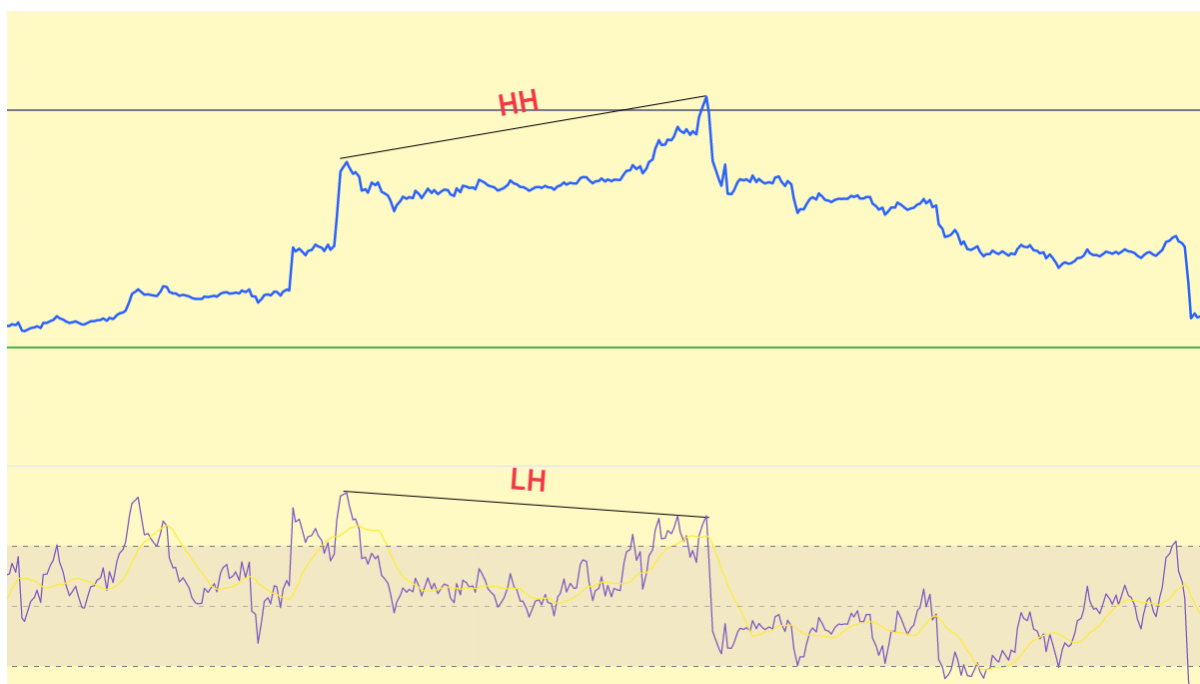

Figure 13. Line chart mode.

RSI Divergence

Figure 14. Bearish RSI divergence using a line chart.

You can now see how much clearer the divergence is compared to the previous candles chart.

Trade example 1:

Here's how you could have caught the top of the 2021 bull run using a daily strong bearish divergence.

Figure 15. Strong bearish divergence on BTC chart.

RSI Divergence

Now this is easy in hindsight, but you can't short every divergence, so how could you have known?

1) Daily time frame divergences are more powerful and relevant than smaller time frame ones.

2) Instead of using it as an entry trigger, we can use it to have a short bias.

3) Take entry as per the following:

Figure 16. Bitcoin trade setup.

RSI Divergence

Trade example 2:

This is an example of how to avoid bad trades. Not every divergence is an entry trigger or cause for a trade.

Figure 17. Bitcoin 4H chart.

It is important to look for strong support levels that still provide a reasonable reaction to price or even fib levels that are relevant.

Bullish divergences might occur throughout a downtrend, they provide some relief for price but unless you see a ChoCh or break of structure like in the previous example, there is no trade trigger.

You either break structure or form a range to be able to make use of divergence as an entry trigger in these cases.

RSI Divergence

6. Risk management

The targets and stop losses when using RSI divergence as an entry metric are based on price action. There can be multiple systems to place these; it is essential to note that divergence is used as confluence to existing trading systems or as an entry trigger at price points of "interest".

For example, an area of "interest" would be a support zone. You would typically look for longs at a support zone as the price is likely to bounce. An area of equal highs is also an area of "interest" as the price seeks liquidity. You would like to use that for shorts/selling (closure of a long is also selling).

This exact scenario was seen on Bitcoin in our consolidation range. (15m timeframe).
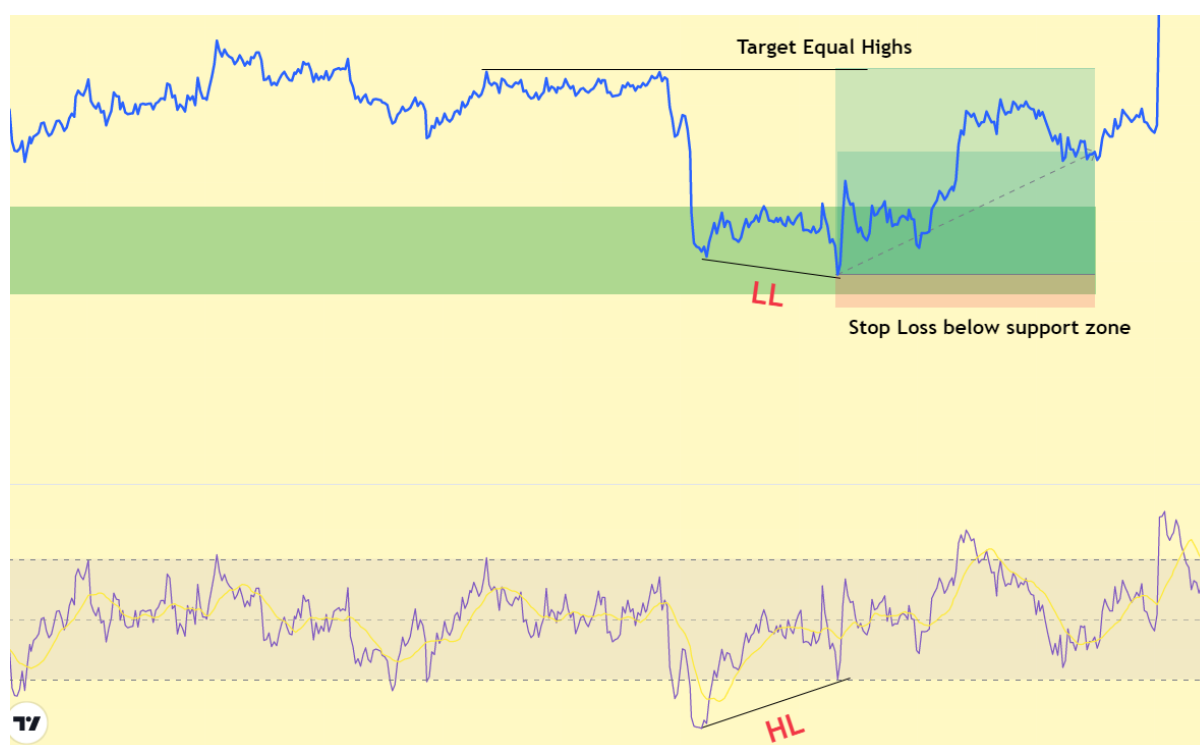

Figure 18. Bullish RSI divergence.

RSI Divergence

NOTE: The best way to make it work is to have entry triggers like divergence on the LTF while HTF levels or tools define your target and risk or stop loss placement to avoid getting stopped out by a few percent before the price follows your trading plan.

RSI Divergence

7. Conclusion

I hope this tutorial has helped you learn how the RSI indicator is calculated, what divergence between the price and RSI means, and how to implement RSI divergences into your everyday trading.

We have a lot more to learn in this mentorship series. This is my best effort at teaching you everything I know.

I encourage you to implement what you've learnt on as many charts as possible.

Thank you for your time. I appreciate the love and support this community gives me every day.

Love,
EmperorBTC