Technical Analysis II

Wall Street Club
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Tools & Indicators

1. Volume
2. MACD (Moving Averages)
3. Support / Resistance
4. Fibonacci Retracements
5. RSI
6. Bollinger Bands

1. Volume

Volume

Represents **how many** stocks were **traded** in a given period of time, typically calculated for a trading day.

If I buy 100 stocks while someone sells those 100 stocks to me, the volume goes up by 100, not 200.

The volume of a stock is linked with its **liquidity**. If a stock has a high volume, it is more “active”, or more popularly traded. => It can be bought/sold easily.

Volume

It’s meaningful to compare a stock’s volume to its **average value** for a certain period of time (say, a few weeks).

This can be used to understand or predict how the stock’s price may move in the near future.

Volume spikes are often seen if ：

- A company is in the **news**
- It’s near **earnings** announcements
- There is a change in **analyst ratings**
- In case of **institutional buying**

Volume

Price	Volume	Expectation
Increasing	High	Bullish
Increasing	Low	Caution - Weak Hands Buying
Decreasing	High	Bearish
Decreasing	Low	Caution - Weak Hands Selling

Volume


Lululemon NASDAQ 142.24 +1.11 +0.79%
Volume:1.78M
Closed, Jan 16 16:00 EST
164.79
155.78
146.76
137.75
128.74
119.72
110.71
VOL
MACD
KDJ
RSI
ROC
DMA
FSTO
Sep 2018
Oct 2018
Nov 2018
Dec 2018
14.30M
1D
5D
1M
3M
6M
1Y
5Y
MAX
DAILY
WEEKLY
MONTHLY
1MIN

Volume


NSE 222.55 -0.55 -0.25%
Volume:1.62M
Open, Jan 17 11:18 IST
VOL
MACD
KDJ
RSI
ROC
DMA
FSTO
605.60
519.70
433.80
347.90
262.00
176.10
VS
Sep 2018
Oct 2018
129.31M
1D
5D
1M
3M
6M
1Y
5Y
MAX
DAILY
WEEKLY
MONTHLY
1MIN

2. MACD (Moving Average Convergence Divergence)

MACD

MACD : Moving Average Convergence Divergence

It's a **momentum** indicator based on simple or exponential **averages** of a stock's price. **Simple** : (p1 + p2 + ... + pn) / n ; **Exponential** : 0.5*p1 + 0.25*p2 + 0.125*p3 +...

The 12 day EMA and 26 day EMA of the closing price are calculated.

MACD = EMA(26) - EMA(12)

The plot of MACD is called the **"MACD Line"**. Even further, a 9 day EMA is calculated for the MACD itself. This is called the **"signal line"**.

The relative motion of these two lines is then interpreted.

MACD (Convergence)

Bullish Crossover :

MACD crosses **signal line**, going up. (Bullish Confirmation)

=> BUY

Bearish Crossover :

MACD crosses **signal line**, going down. (Bearish Confirmation)

=> SELL

MACD (Divergence)

When the MACD forms **highs or lows** that **diverge** from the **corresponding** highs and lows on the price, it is called a divergence.

A **bullish divergence** appears when the MACD forms two rising lows that correspond with two falling lows on the price. This is a valid bullish signal when the long-term trend is still positive.

When the MACD forms a series of two falling highs that correspond with two rising highs on the price, a **bearish divergence** has been formed.

MACD (Divergence)

3. Support / Resistance

Support / Resistance

Often, the price of a stock tends to not go above or below certain levels over a period of time. Identifying such levels can provide valuable estimates for **targets** and **stop loss**.

Support is a price level where a **downtrend** can be expected to **pause** due to a concentration of **demand** (**bullish pressure**). As the price of a security drops, demand for the shares increases, thus forming the support line.

Resistance is a price level where **uptrends** tend to **pause** due to a concentration of **bearish pressure**. As the price goes up, a resistance arises due to a “sell-off”.

Support / Resistance

Support / Resistance

Support / Resistance

Breakouts : If the price of a stock crosses or “breaks out” of the support or the resistance, it is easily identifiable. The loss can thus be contained by setting a **stop loss** in the following way :

Buying :

Stop loss = support

Selling / Shorting :

Stop loss = resistance

4. Fibonacci Retracements

Fibonacci Retracements

Fibonacci Numbers : 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233 ... and so on. The ratio between two adjacent numbers approaches **1.618** (golden ratio).

The inverse of this ratio is about **0.618**, i.e. $\mathbf{a_n/a_{n+1}}$

The ratio between two alternate numbers is 0.618*0.618 = **0.382**, i.e. $\mathbf{a_n/a_{n+2}}$

The ratio between every third number is 0.618*0.618*0.618 = **0.236**, i.e. $\mathbf{a_n/a_{n+3}}$

And so on.

But what do these numbers and ratios have to do with the stock market?

Fibonacci Retracements

For some unclear reasons (at least according to investopedia), if we draw **horizontal lines** at 61.8%, 38.2%, 23.6%,... **between two certain extremes**, the stock's price tends to show **reversals** at these intermediate levels.

Most commonly, the extremes that we choose can be set as the **support** and **resistance** for a stock's price. But they can alternately be chosen at major **troughs** and **crests** on the price chart.

These levels can be used to observe and identify trend reversals as well as set **stop losses** and **targets**.

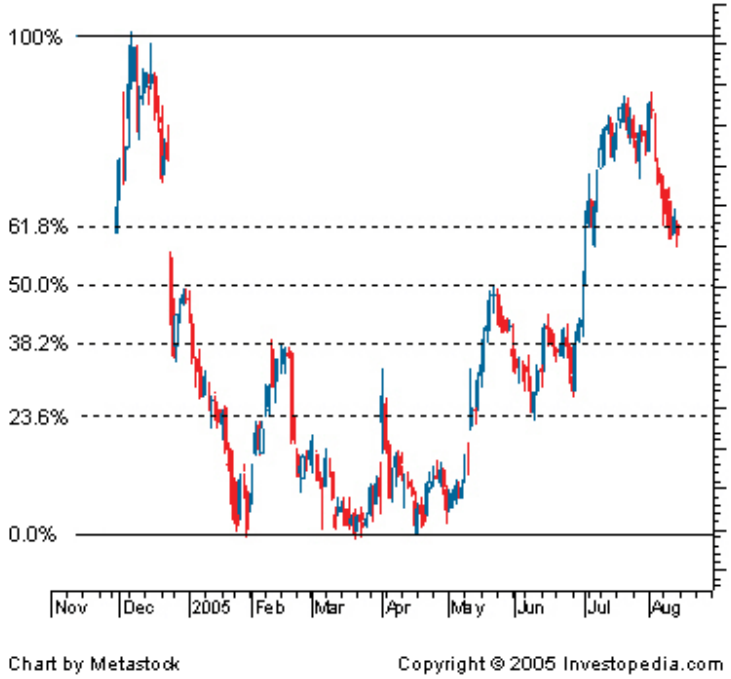
Fibonacci Retracements

As seen in the picture, the price tends to reverse or even linger around these levels.

* A **50% trendline** is included too due to its relevance to an assets price **continuing** a trend when it crosses a 50% mark.

The effectiveness of Fibonacci Retracements is slightly subjective. Many question the legitimacy of the indicator.

So how reliable is it?



Fibonacci Retracements

The ratios derived from the Fibonacci sequence are only the product of a mathematical irregularity. This is not inherently wrong, but it is can be uncomfortable for traders who want to understand the rationale behind a trading strategy.

Some argue that it's is a case of a **self-fulfilling prophecy**. Essentially, if enough traders are watching a stock's movement and using the same levels and indicators, the price action may actually reflect that fact.

That said, many traders find uses for Fibonacci retracements and have found success using them to place transactions within greater price trends.

5. RSI (Relative Strength Index)

RSI

RSI is a **momentum indicator** that measures the magnitude of recent changes in price (typically, the **last 14 days**). It evaluates the stock in order to identify overbought and oversold conditions.

It is an **oscillator** (a line graph which moves between two extremes) and can take values from 0 to 100.

$$\text{RS (Relative Strength)} = \frac{\sum (\text{+ve gain \%}) / 14}{\sum (\text{-ve gain \%}) / 14} \quad ;$$

$$\text{RSI} = \frac{\text{RS}}{1 + \text{RS}} * 100$$

RSI

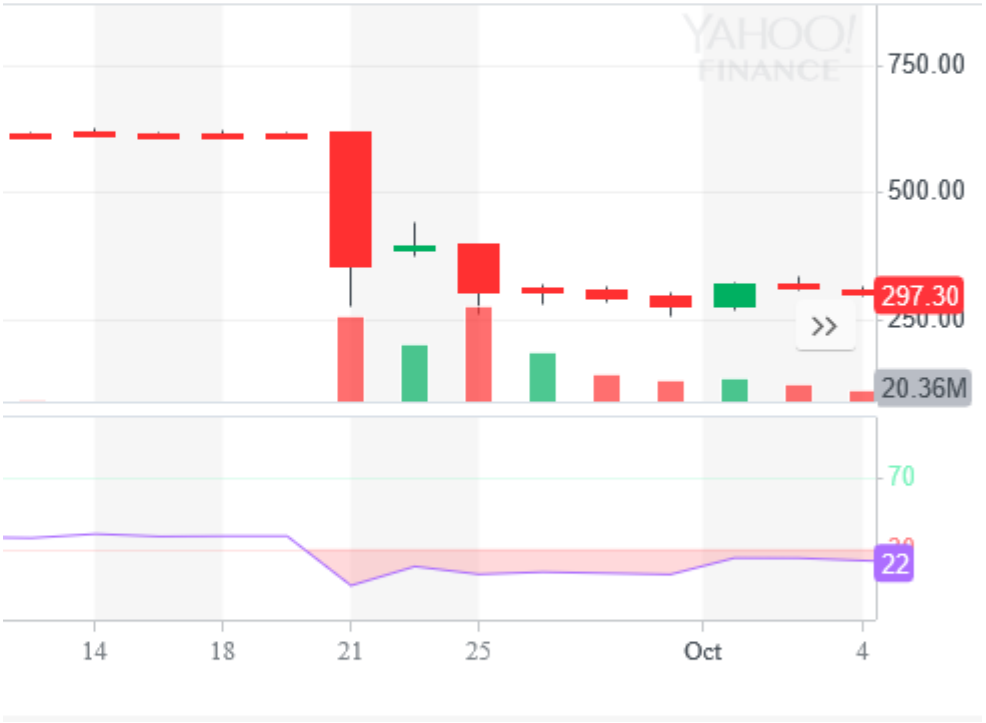
Overbought condition : Usually refers to a situation in which the stock's RSI is **above 70**.

Ideally, the security should be sold / shorted after the price begins its downwards movement.

RSI

Oversold condition : Usually refers to a situation in which the stock's RSI is **below 30**.

Ideally, the security should be bought / covered after the price begins its upward movement.



6. Bollinger Bands

Bollinger Bands

Bollinger Bands indicator is an oscillating indicator used to determine overbought and oversold levels. They are volatility bands above and below the 20 Day Simple Moving Average.

Middle Band : 20 Day Simple Moving Average

Upper Band : 20 Day Simple Moving Average + (Standard Deviation * 2)

Lower Band : 20 Day Simple Moving Average - (Standard Deviation * 2)

The upper and lower bands act as a trigger to initiate a trade.

Bollinger Bands

Overbought condition : Refers to a situation in which the stock's price touches the **upper Bollinger band**.

Ideally, the security should be sold / shorted after the price begins its downwards movement.

Bollinger Bands

Oversold condition : Refers to a situation in which the stock's price touches the **lower Bollinger band**.

Ideally, the security should be bought after the price begins its upward movement.

Q : When will Bollinger Bands generate false signals?

Further Reading

Further Reading

1. Dow Theory
2. VWAP (Weighted Price)
3. ADX
4. Money Flow Index
5. Ichimoku Cloud
6. Chaikin Money Flow

Strategy

Strategy

Don’t base any trade on a signal from just one indicator / pattern. Look out for as many as possible and see if they’re in **agreement**.

USE A SCREENER to find stocks where this^ is happening.

If there’s some **news** conflicting with the technicals, ALWAYS GO WITH THE NEWS, especially if it’s from a **reputable** source.

=> **Follow** the news. Use apps, newspapers and even **social media**. The quicker you react to the news, the **more profit** you’ll make. *“Buy on rumor, sell on news.”*

Always set a **stop loss** and a **target**.

Strategy

Don’t completely ignore the **fundamentals** of the stock. They provide a rough background about the same. Might come across some **red flags**.

Don’t be afraid to make losses. Can’t be right every single time.

Practice as much as possible. *“Only the game , can teach you the game.”*

=> Use a **simulator**, e.g. DSIJ, Moneycontrol - Moneybhai, Investopedia, etc.

* The math involved would be useful for (world)**quant.**

THANK YOU

HAPPY
TRADING!

References

- www.investopedia.com
- https://zerodha.com/varsity/
- www.webull.com, Webull App
- www.finance.yahoo.com
- www.moneycontrol.com