

# TRADING MASTERMIND

BECOME A TRADING EXPERT FROM SCRATCH

150+  
EXAMPLES

Crosses	MosPRIME
EUR T+1	43.7825 43.8003
EUR T+2	43.7822 43.8019
JPY	33.6266 33.6315
GBP	52.1335 52.1463
CHF	35.3788 35.3814
UAH	40.8302 40.8794
KZT	21.7845 21.7845
Spot	
RUB T+1	33.3436 33.3524
RUB T+2	33.3494 33.3586
RUB EBS	33.3445 33.3500
Basket EB	38.0330 38.0530
EUR	1.3132 1.3133

Crosses	MosPRIME
ON	6.270
1W	6.330
1M	6.500
3M	6.790
6M	7.110
O/N	6.500
1W	6.225
2W	6.275
1M	6.450
RIBOR O/N	5.770
RUONIA Rate	5.920
RUONIA Vol	64.430

Crosses	MosPRIME
Dow Jones	14937.48
Nikkei 225	13880.81
FTSE 100	6551.21
MICEX	1447.6
RTS \$	1367.78
RTS Standa	9808.71
Commodity	
Gold	1383.79
Silver	23.7105
Crude WTI	109.51
Crude Brent	115.86
Wheat	631.5
Sugar	16.84

17:04 FUTURES:Today announced the comple...  
17:04 Work:The RTS index has reached the y...  
17:04 The last week of the year is the right ti...  
17:04 The stock market showed steady growt...  
17:04 The volume of sales of the i-Fre compa...  
17:04 News:The MICEX consumer sector is u...  
17:04 Just stop and think: the 31 st of Decem...

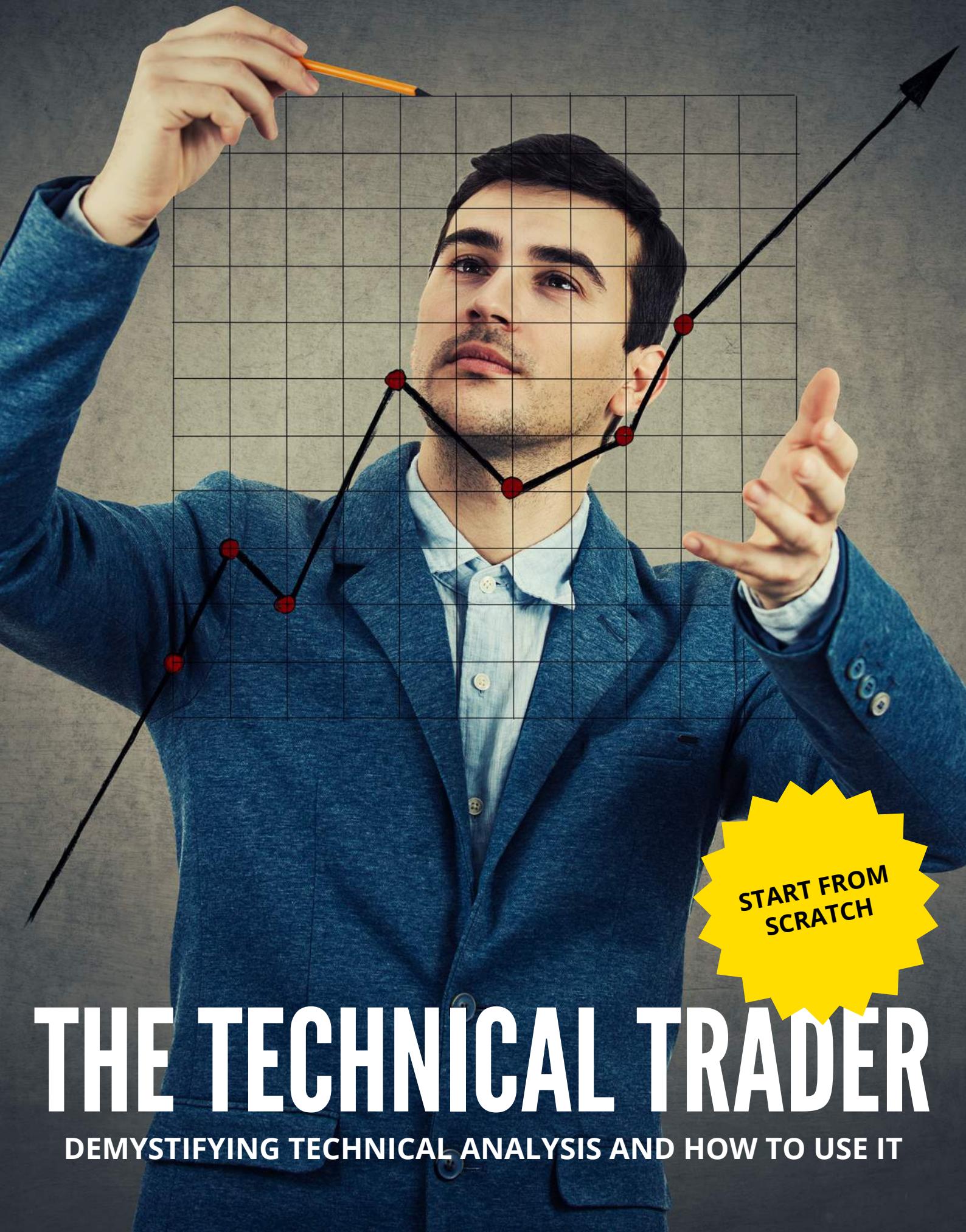
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- 26) BBB EUR TOD Market Dep
- 27) BBB EUR TOM Market Dep
- 28) BBB EUR TOD-TOM Mkt D
- 29) FXUS RUB FX Market Dep



Crosses	MosPRIME		FUTURES:Today announced the comple...	23) BBB USD TOD Market Dep
EUR T+1	43.7825 43.8003	ON	6.270	24) BBB USD TOM Market Dep
EUR T+2	43.7822 43.8019	1W	6.330	25) BBB USD TOD-TOM Mkt D
JPY				26) BBB EUR TOD Market Dep
GBP				27) BBB EUR TOM Market Dep
CHF				28) BBB EUR TOD-TOM Mkt D
UAH				29) FXUS RUB FX Market Dep
KZT				
Spot				
RUB T+1				
RUB T+2				
RUB EBS				
Basket EB	38.0330 38.0530			
EUR	1.3132 1.3133			

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# THE TECHNICAL TRADER

DEMYSTIFYING TECHNICAL ANALYSIS AND HOW TO USE IT

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# WELCOME ABOARD

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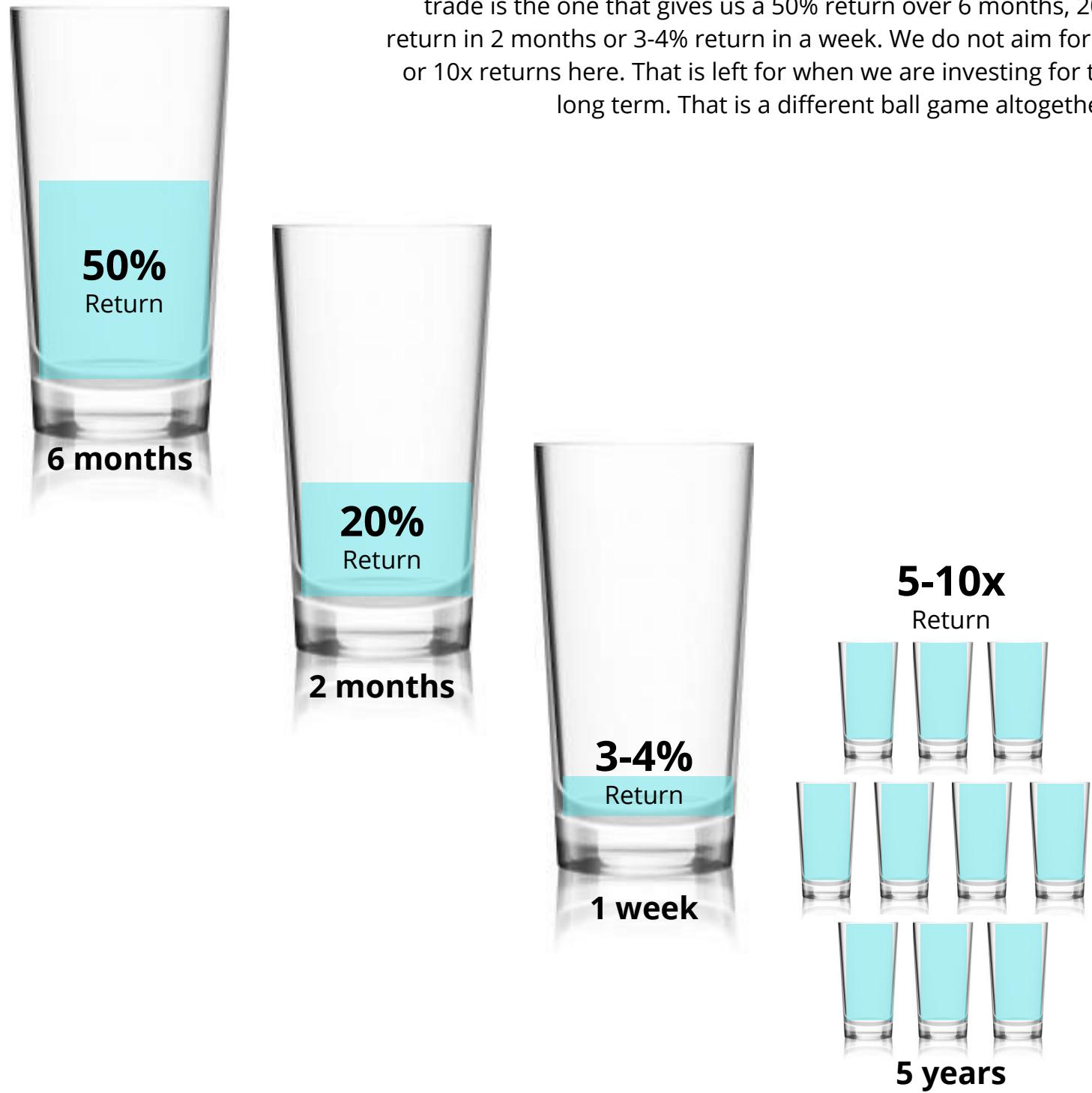
Welcome to this beautiful journey that you have enrolled for with us. A journey centred around trading in different listed assets – stocks, currencies and commodities. Not only will we decipher the world of trading but also learn to ace the same. We will create a trading system for ourselves and follow it religiously to have winner trades. By the end of this journey, we will be capable of putting together a self-sustaining system that manages profits and losses well.

Currently, we could be someone who is either entering the field of technical analysis for the first time or someone who has tried trading and burnt their fingers due to lack of proper training. This is our chance at redemption. We might as well be someone who has incurred major loss in trading and is looking to get back up and learn more and develop the trading system. NO matter the circumstances, this is the correct place. We will start from scratch to end about how to create a trading strategy that works.



We will focus on trading i.e. buying and selling assets for relatively shorter periods of time. The span can range from a few hours to a few months. We will generally stay away from long trading periods which may extend up to years.

We will learn to develop a system to buy assets at cheap prices and sell them at higher prices in a relatively short period of time. A good trade is the one that gives us a 50% return over 6 months, 20% return in 2 months or 3-4% return in a week. We do not aim for 5x or 10x returns here. That is left for when we are investing for the long term. That is a different ball game altogether.

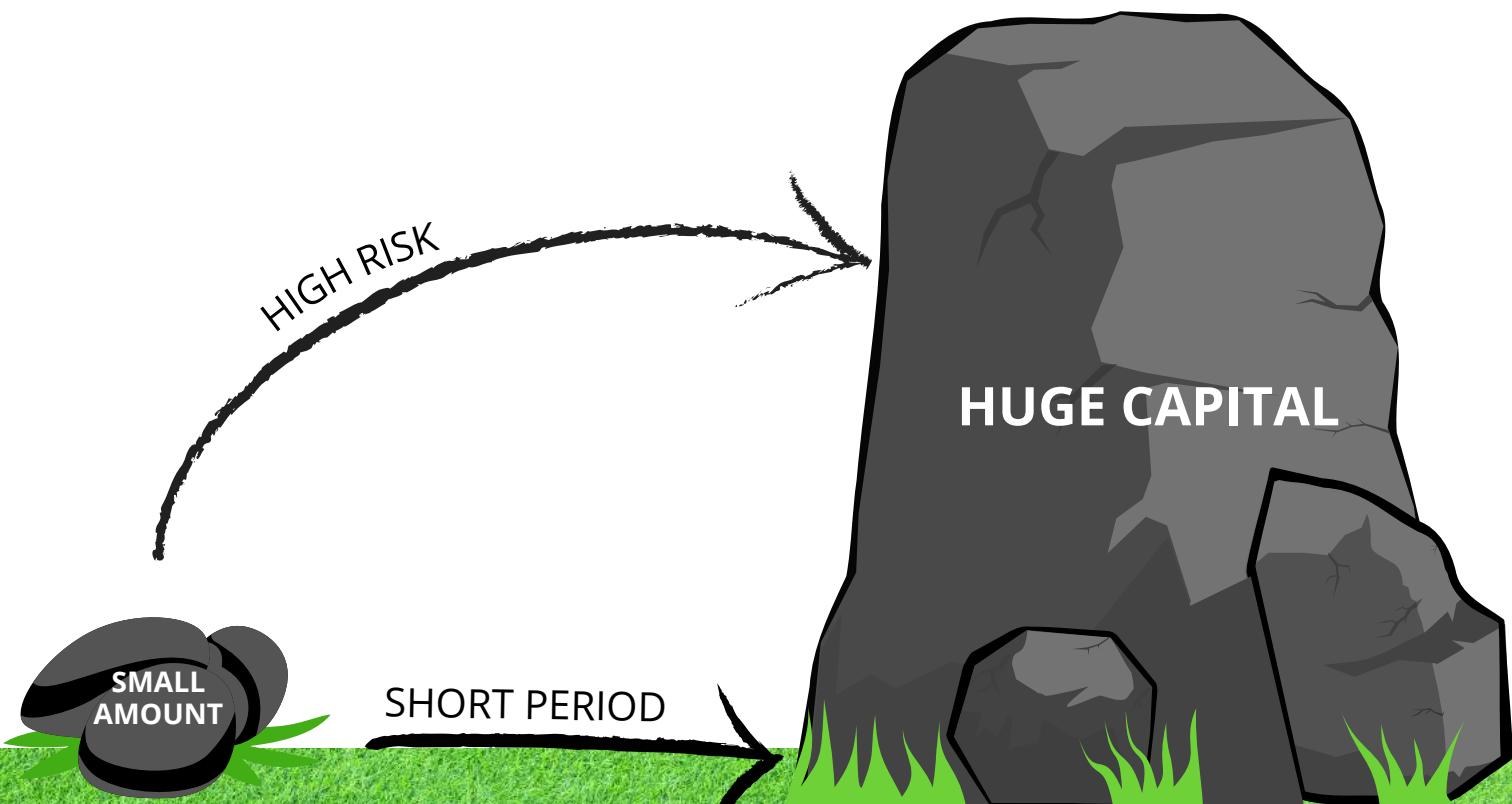


TECHNICAL ANALYSIS

FUNDAMENTAL ANALYSIS

We need to understand that investing and trading are two completely different subjects. Investing is more about decisions based on fundamental factors such as industry, competition, margins and so on. It requires thorough research. Trading, however, is purely based on price behaviour. We will be carefully observing price movements so that we can identify patterns. These patterns will help us predict the rise and fall in the share price.

If done well, trading can create a lot of capital for the trader by investing a very small amount in a relatively shorter span of time. In trading, we take additional risks to grow our capital at a relatively faster pace. It would be a grave mistake to trade with every penny that we own, and deploy only a part of it.



In this book, we will talk about tried and tested methods and tools that have been in use for a very long period of time. We will learn to use these tools and put them together to create a profitable trading system. A trader's success in the market is determined by the effort put into the creation and execution of the trading system and the degree of discipline.

## EFFORTS



## DISCIPLINE



# WHAT WE WILL LEARN

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In this set, we will first learn about technical analysis and its variation from fundamental analysis. We will then get introduced to different analytical frameworks to conduct technical analysis. We will understand candlestick patterns, chart patterns, indicators and oscillators and so on, to determine the price movements. Using this, we will create trading strategies. Then, we will back-test and evaluate whether a strategy is working or not. Finally, we will put together different strategies to create a winning trading system.

Once we have done all this, we will combine it with a proper risk management strategy. Risk management ensures that we do not risk our survival and have our capital get wiped off completely.



We have used the vending machine as a metaphor to explain the components of an efficient trading system

## TOOLS

Each can represents a technical analysis tool. The holders protects the cans



So far, we have seen a very rosy picture of technical analysis and trading. However, the truth is that trading is not a 'Get Rich Quick' system. If that had been the case, everyone would be rich by trading in assets. It requires a lot of effort, patience and discipline. It takes time to build a discipline and practice it religiously despite the ups and downs. A very large number of people who start in the field, quit after a while as they incur losses. Nevertheless, those who patiently stick to it are most likely to achieve great results.

Throughout our practice, we will make sure to not risk our survival in the market even for a second, no matter how attractive profits they offer. So, now that we have an idea of what we are getting into, we will stay disciplined, not skip steps and stick to the process. With this, let us get started with technical analysis.



# INTRODUCTION

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Without any further adieu, we will jump on to – What is Technical Analysis?

The entire field of decision-making in capital markets – equity, debt, currency etc. can be categorized under two broad methods, based on which all decisions of buying and selling are made. The two methods are-

## FUNDAMENTAL ANALYSIS

The fundamental analysis mainly refers to the investment decision-making process where analysts first understand the industry and business fundamentals of an investment. Then, they proceed on to take an investment decision based on these factors. Here the analyst is expected to understand topics such as competition, valuation, industry characteristics, financial ratios and so on. They must also conclude if they intend to buy or sell the asset.

## TECHNICAL ANALYSIS

Technical analysis is starkly different from fundamental analysis. Here, the analyst focuses on price and volume and the movement of the asset prices in the past. Then, conducts statistical operations on them. Taking them into account, they predict the direction of the price based on which they decide to buy or sell the asset. The analyst does not focus on the quality of the underlying asset and wants to profit from prices movement/fluctuations.

Difference	Fundamental Analysis	Technical Analysis
Meaning	Mainly deals with understanding the underlying quality of assets and then making a decision based on the quality.	Mainly deals with understanding the supply and demand of an asset in the market, and the resulting price behaviour, then making a decision.
Investment Philosophy	The focus is on finding high-quality assets that are relatively underpriced concerning its potential.	Focus is on finding assets that are popular at the moment and have strong positive or negative sentiments associated with them.
Focus of Analysis	Here, the analysis is conducted on competition, disruption threat, financial performance, quality of management, market demand and supply of the product and so on.	Here, the focus of analysis is on the trends in prices of the asset, volumes with which they are being bought and sold, statistical operations and so on.
Tools of Research	The analyst goes through the annual report, con call, financial analysis, management meetings, industry reports, on-ground research etc. before they conclude.	The analyst mainly spends time on charts and works to identify patterns on these charts, based on which, purchase and sale decisions are taken.
Duration	Fundamental analysis decisions are taken for long-term investments.	Technical analysis decisions are mostly short-term decisions, even though it is occasionally used for long term decisions.
Guiding Document	An investment philosophy is a guiding principle to take investment decisions.	A trading system is the underlying guiding principle behind such decisions.
Return Expectations	The analyst expects a multi-fold return over multiple years.	The analyst expects a small appreciation in a much smaller period.

# WHAT IS TECHNICAL ANALYSIS

Technical analysis is the study of demand and supply of an asset through an understanding of the changes in price and volume of trade of the asset. In other words, we will combine the trading volume with price movements for the analysis purpose. We will conduct a statistical analysis of the same which will provide us with the foundation for making the buy or sell decisions about the asset.

Here, we are least interested in the quality of the asset or what we are buying. If many others are buying the asset i.e. the prices are increasing and there are high volumes for the same, it shows that the market sentiment about the asset is positive, and therefore we buy the asset. We just expect the trend to continue and make a profit out of it. We are least interested if that is a major blue-chip company or a small and struggling company. Our entire focus is on identifying the trend rather than understanding the underlying reason for price movements. We will ride the increase or decrease till the time trend continues and exit when it comes to a stop.

To identify share price trends, we need to understand the price and volume history of assets. Also, we need to conduct a statistical analysis. We will be conducting most of the analysis using charts. Let's move on to the elements of technical analysis.



# THINGS TO KNOW

## FOCUS ON PRICE AND VOLUME

Technical analysis is the study of demand and supply of an asset. We want to own assets that are high in demand and low in supply and want to sell assets that have lower demand and higher supply. Price and volume are the best representatives to understand demand and supply of an asset and therefore, technical analysis in a way becomes a study of price and volume of an asset.



**MORE BUYERS**  
High Demand

↔  
High Demand leads to  
increase in price & volume



**LESS SELLERS**  
Low Supply

WANT TO OWN THE ASSET



**LESS BUYERS**  
Low Demand

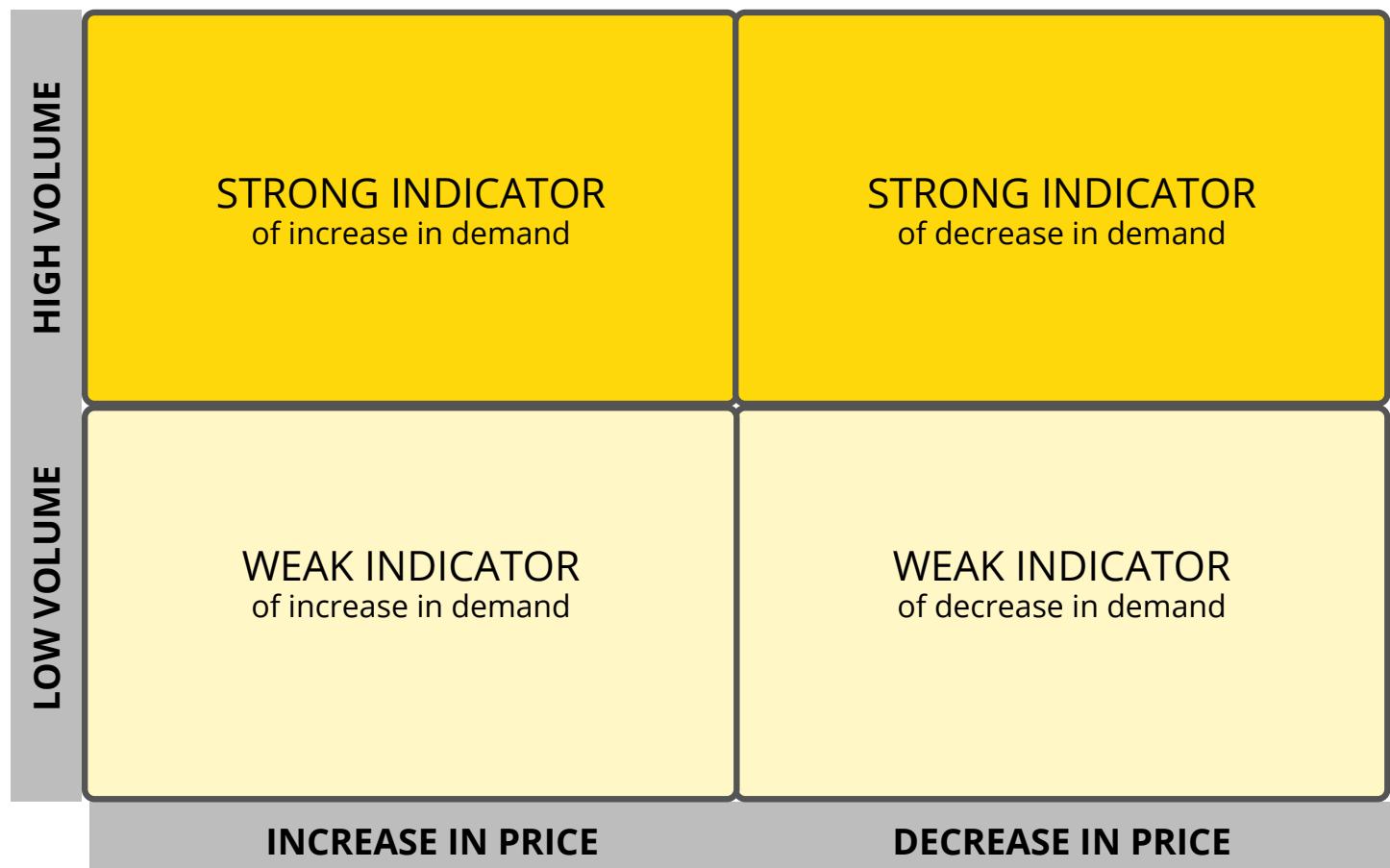
↔  
Low demand leads to  
decrease in price & volume



**MORE SELLERS**  
High Supply

WANT TO SELL THE ASSET

When prices are increasing and with heavy volumes (more people are buying), it indicates that the asset has a relatively higher demand at the moment. When this characteristic sustains for a while, we can say that the asset has a sustaining demand and we can expect it to continue. Hence, we purchase the same. If the prices are increasing but with low volumes (fewer people are buying), we anticipate that the stock does not have a high quantity of buyers at the moment and the trend is therefore not strong. The reverse of these circumstances is also true.



We combine these with statistical analysis to increase our conviction of the prediction. Some people depend more on price and volume behaviour whereas others depend more on the statistical analysis. Irrespective of what strategies one uses, all of the technical analysis is built around price and volume data.

# IT IS BUILT AROUND STATISTICAL OPERATIONS

CANDLESTICK PATTERNS

INDICATORS

OSCILLATORS

CHART PATTERNS

TRENDLINES & CHANNELS

We saw that technical analysis is mainly concerned with price and volume data of assets. However, various operations and calculations are conducted with these parameters to come to conclusions and take actions. Given beside are the different kinds of statistical analysis that are conducted.

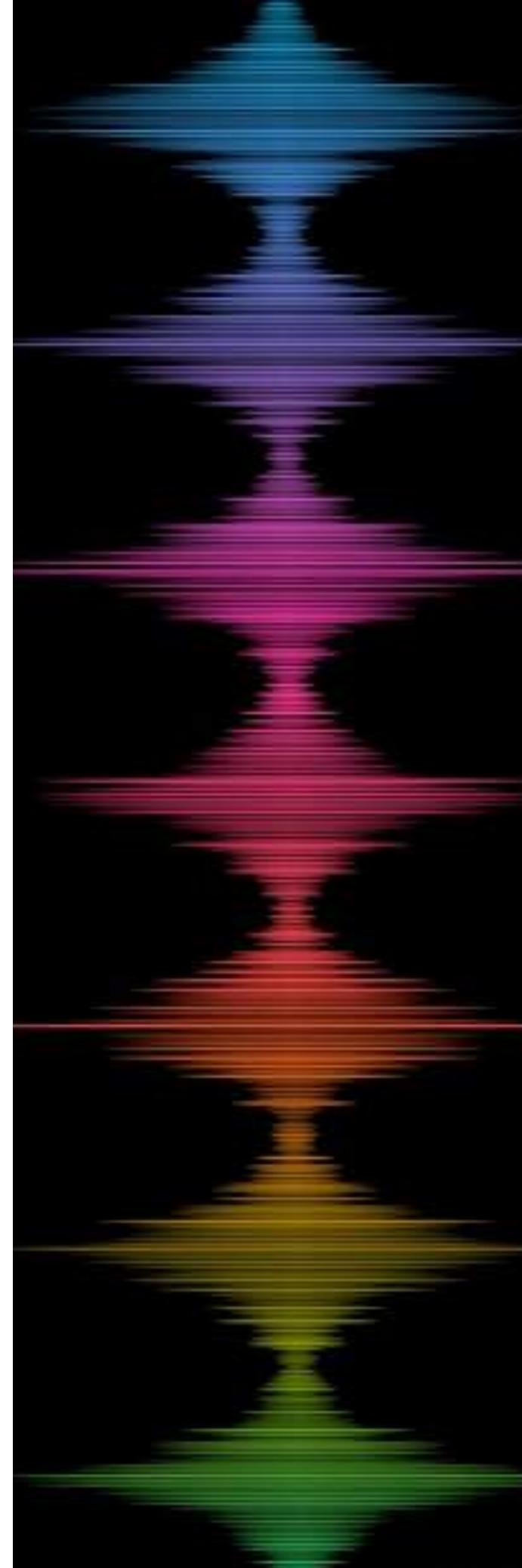
Reaching conclusions require extensive analysis deploying various operations. A lot of people are confused into thinking they need to be extremely good with statistics to conduct technical analysis. However, this is very far from the truth. When we deal with technical analysis using charts and auto-built indicators and oscillators, we do not need to know the sophisticated statistics behind each indicator. For this, we assume that the person has zero statistical background and they should be in a position to get started with technical analysis.

Each tool that we will discuss going further, has a statistical meaning attached to it. It is not required for one to understand the statistical calculation of each tool. However, it is recommended for those who are willing to create a career in technical analysis to understand the statistical calculations.

# TECHNICAL ANALYSIS IS DEPENDENT ON REPEATING PATTERNS

Technical analysis assumes that patterns that have played out in the past, will repeat themselves. So the focus is on finding situations where similar circumstances have occurred. All the calculations and price-volume data assume that the patterns will repeat themselves going further.

A system is created around this, and at times when the system holds and the pattern repeats itself, the analyst or the trader ends up with a profit. At other times when the pattern does not repeat itself, the trader ends up with a loss. The math of the system should make sure that it sustainable in itself. We will see all this in the later stages, going ahead.





## TECHNICAL ANALYSIS IS ABOUT CUTTING DOWN NOISES

Technical analysis in a pure sense is about cutting down noise and focusing on pure price and volume data. Analysts often try to combine 'What' with 'Why'. This means if they see a certain trend in price and volume data for an asset, instead of purely focusing on 'What' the trend is, the mind starts to ponder on 'Why' it is the trend. There may or may not be an answer to this every time.

All the pondering and overthinking is certainly a recipe for disaster in this field. Technical analysis is about cutting down noises and purely focusing on price and volume data and factors influencing it directly. It is the ability to call oranges, 'oranges' without letting the brain over-think. Technical analysis is mentally very consuming and can easily lead to overthinking and mistakes.

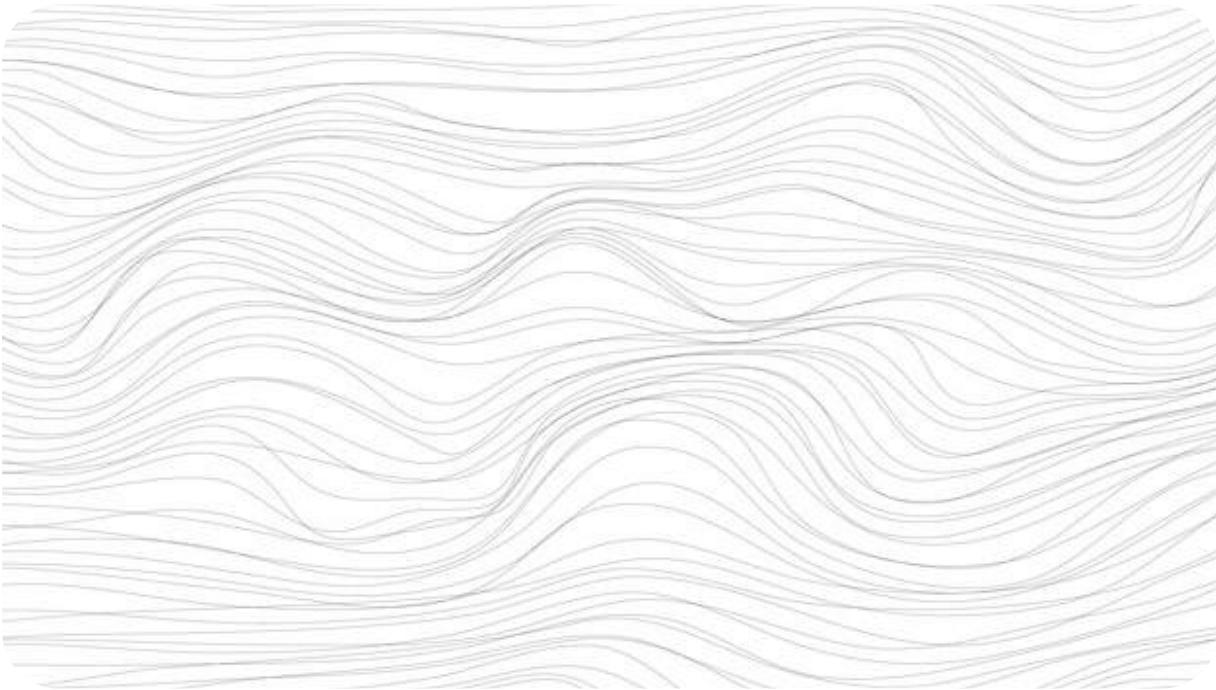
# **PRINCIPLES OF TECHNICAL ANALYSIS**

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There are certain principles when it comes to technical analysis that we need to keep in mind. These were first discussed by Charles Dow which then became the base for what later came to be known as the Dow Theory. The three basic principles of technical analysis are -

## **HISTORY NEVER REPEATS ITSELF, BUT IT ALWAYS RHYMES**

Technical Analysis is built on the principle that what has happened in the past will not exactly repeat itself, but will rhyme i.e. will have similar patterns if not exact patterns. Technical Analysis says that when similar circumstances arise in terms of how price and volume are behaving and how different indicators are behaving, the asset prices going ahead will move in a pattern that is similar to what has been the case in the past.



# TRENDS ARE BASED ON SENTIMENTS

As per, technical analysis, the market has a sentiment for each asset. The strength of the sentiments may vary and based on these sentiments, asset prices move in trends. The trend changes when the sentiment about the asset changes.

With technical analysis, the aim is to understand the sentiment behind an asset by studying its price and volume behaviour. Hence, prices of assets move in trends – upwards or downwards, and these trends are based on the sentiments – positive or negative



# MARKETS ARE SUPEREME

Under technical analysis, the markets are supreme. The market refers to a total of all the buyers and sellers participating in any kind of transaction. All buyers and sellers may have opinions and feelings about each asset and together they determine the collective market 'sentiment' behind the asset. At any given moment, the asset price will reflect everything i.e. emotions, competition, earnings, potential growth, inventory levels etc.

We will never try to fight the market prices and trends by going against the same. This means, when market data shows an asset is in momentum or it is following a particular trend, we do not want to fight it by going against the market because they are reflecting all the above-mentioned factors.

Market discounts everything and all news and actions are reflected in the asset price. No individual or system is above the market and at the end of the day, the market determines whether our strategy and systems are working or not. The market will reward us when our systems are correct and punish us when they are wrong. The market is supreme and is the ultimate decision-making authority.

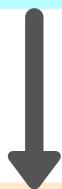


# HOW IT WORKS?

1

## MARKET REFLECTS ALL FACTORS

Technical analysis begins with one of the principles discussed earlier. It begins with the assumption that all the information, news, responses, actions, fundamental factors, market sentiments etc. are reflected in the prices at any given point in time.



2

## UNDERSTAND THE MARKET WITH PRICE-VOLUME DATA

We then analyze price and volume data. We conduct statistical operations, read the charts and use various combinations of oscillators, indicators, candlestick patterns and so on. We will conduct these operations to understand the market sentiments reflected in the price and see if we can take any action based on what we infer from this data.



3

## TAKE POSITIONS BASED ON PAST PATTERNS & INDICATORS

Based on our analysis and the patterns observed in the price and volume data, we take positions (i.e. buy or sell assets) in the market. We expect that history will at least rhyme if not repeat itself and in the future, the asset prices will move in the direction that we would predict them to. We will not be accurate every time and the asset prices in a different direction.

# 4

## REQUIRES A SYSTEM

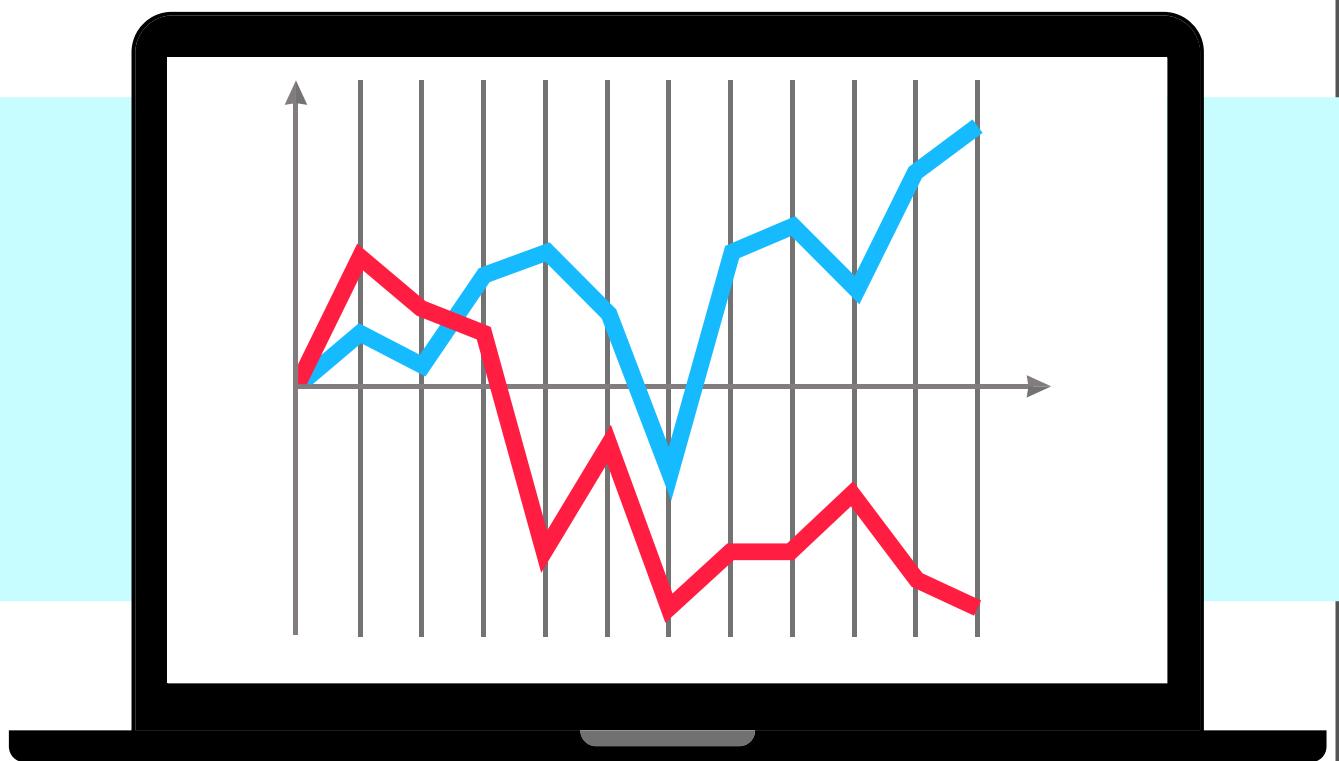
Based on the above method, we take individual calls in the market. However, to reduce the effect of our psychology and randomness and to make a profit sustainably, we need to have a systematic approach rather than taking individual calls as discussed above. So, based on the patterns and trends, we create a system which defines the rules when we enter a trade and when we exit one. The strategy and system are then checked by backtesting – we will see how often we are right, how often we are wrong, how much we win when we are right, how much we lose when we are wrong, what the maximum drawdown is(the fall in the portfolio value)and so on.

So, this is how broadly technical analysis and the system of trading around it works. There are applications of the same in multiple asset classes, some of them being very complicated. However, the underlying approach remains the same. The focus of analysts is on how well they can analyze the asset prices and volume, how they define entry and exit rules and largely, how well they can create a system. Let us begin with understanding the charts and the tools used to conduct the analysis.



# CHARTS

We just saw that technical analysis is the study of data about price and volume of an asset-based on which we conduct statistical analysis to identify any trends that would help us in taking decisions regarding buying and selling of assets. Back in the days, all this was done manually or using a tabular representation. However, the same data can now be represented in a graphical manner which will help us understand trends better and makes decision making more convenient.



Instead of doing it manually or in a tabular manner, we conduct this analysis in a graphical manner so that analysts can better picture the same and conduct analysis on the same. All that is done in a chart can also be done using Tabular representation as well, but many patterns will go unnoticed in the process. As a result, charts is the standard way how Technical Analysis is done and based on actions, decisions are taken.



One who looks at these charts for the very first time could naturally get intimidated and overwhelmed and perceive it as intricate. However, that should not be the case. Charts are relatively simpler to comprehend and it will take an average person merely a week to recognize every element on them. However, it is an art to be able to read charts and identify patterns efficiently. There is a multitude of techniques to read charts and with years of considerable practice and experience, one becomes an expert at it.

Let us take a look at a few charts to decipher what a typical chart looks like, the different elements of the same and so on. We have shown charts with different indicators. The charts here are a representation of the typical ones and we will deal with them in a detailed manner without getting intimidated. This will just make reading charts a piece of cake for us. Right now, we will focus on the translation of data into a graphical representation.

Published on TradingView.com, January 11, 2021 15:24:47 IST  
NSE:KOTAKBANK, D 1937.15 ▼ -33.55 (-1.7%) O:1960.00 H:1966.90 L:1935.40 C:1937.15

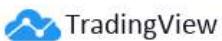


 TradingView

This is a plain vanilla price and volume chart. The chart shows price data through the line graph and the volume data using the bar graph plotted on the horizontal axis. Those marked as 'E' refer to the events faced by the company.

Published on TradingView.com, January 11, 2021 15:28:14 IST

NSE:RELIANCE, D 1897.95 ▼ -35.75 (-1.85%) O:1938.80 H:1938.80 L:1892.50 C:1897.95



This is a simple price-volume chart. It has a pattern line marked, we can mark a series of such lines to understand the trend, direction and channel in which price is moving. All this is only possible through charts.

ZebraLearn published on TradingView.com, January 11, 2021 15:30:40 IST  
NSE:HDFCBANK, D 1452.60 ▲ +20.95 (+1.46%) O:1450.00 H:1464.90 L:1436.30 C:1452.60



TradingView

This is a price-volume chart that has two indicators – RSI and Stoch RSI. A single indicator or a combination of more than one indicators are used to generate buy and sell signals, based on those we make decisions.

ZebraLearn published on TradingView.com, January 11, 2021 15:33:59 IST  
 NSE:ONGC, D 102.55 ▲ +1.90 (+1.89%) O:101.50 H:102.90 L:98.05 C:102.55



This is a price-volume graph that denotes moving averages. [This technique combines the use of a moving average (MA) with relative strength (RS). It is based on selecting a stock that performs better over a given period than the related index, and that this stock exceeds its (mostly long-term) MA.]

So, we see how charts look. These are simple graphical representations of price and volume. Statistical analysis is visually conducted on top of them to facilitate decision making. Charts will form the basis of all different kinds of analysis done going further.



# TOOLS TO USE

The technical analysis mainly requires a charting tool, where we can obtain charts from and conduct our analysis. Numerous charting tools are being offered by various service providers. However, the tool to be chosen is based on one that supports most number of indicators, oscillators and also, supports all the functions that we intend to use in our analysis. The tool we select should provide the highest flexibility to conduct operations that we intend to do. We will find both paid as well as free technical analysis tools.

Here, for our analysis, we will use either of the two – [Tradingview.com](https://www.tradingview.com) or [www.chartink.com](https://www.chartink.com).

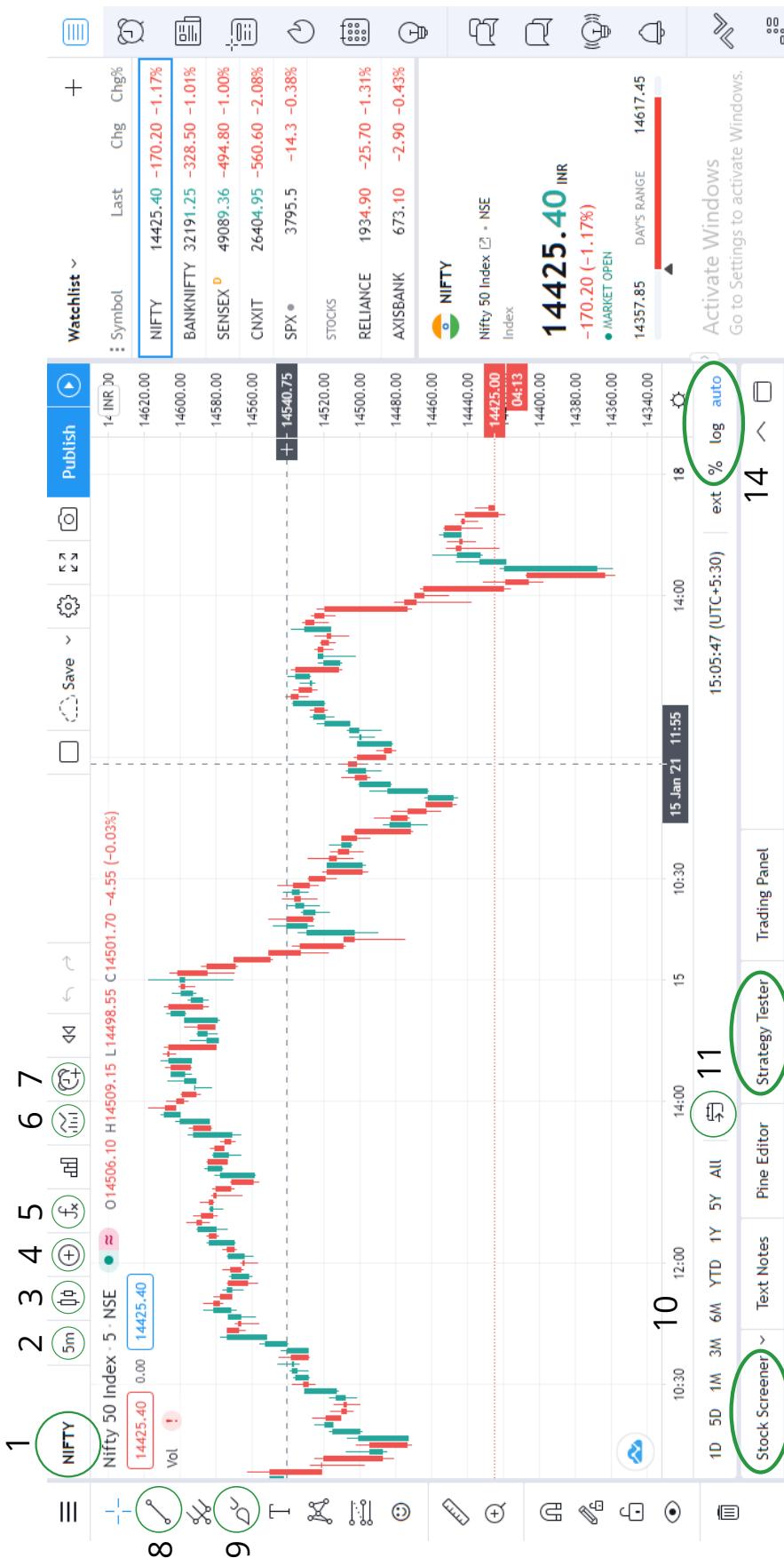
Tradingview.com is an excellent tool that allows maximum flexibility to conduct our analysis. However, Tradingview requires payment as well. For anyone looking to professionally build a career in the world of technical analysis, we would recommend them to go ahead with Tradingview. On the other hand, for hobby traders, they can use the free website i.e. [Chartink.com](https://www.chartink.com). These are great to start when we are doing things manually. (We are not tied-up with any of the institutions mentioned here).

Automation is becoming a major practice in the field of technical analysis. With the advent of algorithmic trading, where pre-determined algorithms initiate a trade based on conditions, many elements of technical analysis are being automated. Automation is, beyond the scope of this book set and course, as they require a completely different skill-set. When a trader begins automation, they will need advanced tools that will need to be paid for.

As beginners, we must practice the art manually using the above-mentioned tools for at least 6 months. If we move ahead with automation from the very start, we will never understand what is happening in the back-end. Practising manually enhances our ability to create trading strategies and a system.



# TRADING VIEW



This is the interface of the Tradingview. Log on to the [www.tradingview.com](https://www.tradingview.com) and click on 'Charts' in the navigation bar. We can access such a page for any listed stock on the platform for free. The interface offers multiple options and features for us to use. We have marked the important elements on the interface. Here, we will decipher every marking that we have done on the interface, their offered features and utilization. The numbered features correspond to the adjoining numbers in the description below. So, let us get started and understand TradingView in greater detail. Even if someone uses a tool other than these, it should have similar features in a different user interface which the user will be able to figure out after giving it some time.

# 1

## SYMBOL SEARCH BAR

This is the bar where we can access the graph for any asset, we intend to see the chart for. We see that we can see charts for multiple classes – stocks, futures, foreign exchange, CFD (contract for difference), crypto-currency, indices and economy. Also, we can access such data for assets across multiple countries. Thus, we will search for the desired asset chart (Gold Prices, Reliance Shares, Nifty ETF and so on) here. Every asset is denoted by a symbol, which can be in the form of letters or numbers. For example, Reliance Power is denoted by RPOWER, while Reliance Infrastructure is denoted by RELINFRA. That is why we call it a ‘symbol’ search bar. We can type in the symbol or the complete name of the asset. A pop-up opens up when we click on the same to search for assets of our interest.

### Symbol Search



NSE:NIFTY

÷ - + × ^ 1/

All

Stock

Futures

Forex

CFD

Crypto

Index

Economy

NIFTY	NIFTY 50	index NSE	
> NIFTY	S&P CNX NIFTY INDEX FUTURES	futures NSE	
BANKNIFTY	NIFTY BANK	index NSE	
CNXIT	NIFTY IT	index NSE	
CNXAUTO	NIFTY AUTO	index NSE	
CNXMETAL	NIFTY METAL	index NSE	
CNXFMCG	NIFTY FMCG	index NSE	
NIFTYFINSRV25_50	NIFTY FINSRV25 50	index NSE	
CNXPHARMA	NIFTY PHARMA	index NSE	
NIFTYJR	NIFTY NEXT 50	index NSE	

Simply start typing while on the chart to pull up this search box



Go to

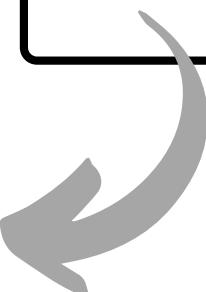
MINUTES
1 minute
3 minutes
<b>5 minutes</b>
15 minutes
30 minutes
45 minutes
HOURS
1 hour
2 hours
3 hours
4 hours
DAYS
1 day
1 week
1 month
RANGES
1 range
10 ranges
100 ranges
1000 ranges
1      minutes <input type="button" value="▼"/> Add



## BAR TIME DURATION

We will learn about candlesticks and the chart has a duration based on which it is built. For instance, a 1-day chart will denote price changes with 1 day as unit time and volume of trade over 1 day and many such periods will be reflected. For a 2 hour chart, all price changes and volume will be reflected with 2 hours as a unit. So every candlestick will represent 2 hours.

This is where we can change the duration of time reflected in each bar. For intraday trading, we use smaller time durations - 5 minutes, 10 minutes or so and for longer-term trading strategy, we use longer bar time duration i.e. 1 day or 1 week.





# 3

## TYPE OF GRAPH

We can use different types of graphs on the charts. We can use candlesticks, heikin ashi, simple line, area under the line or baseline based on the strategy that we are using. So, we can access different types of charts from here. One must open a trading view here and experiment with all these varieties to test them out.

# 4

## COMPARISON SYMBOL

We can compare between two assets to understand the difference in the prices of the base asset (the asset under management on the initial date) and other assets. We can compare prices of stock with those of its competitors, sectoral index and Nifty and Sensex. Here, we have added an image of how comparative price movement of various assets together looks like. This button is used to add new charts to compare it with the base asset.

ZebraLearn published on TradingView.com, January 12, 2021 14:23:54 IST  
NSE:RELIANCE, 1D 1952.30 ▲ +55.05 (+2.9%) O:1903.00 H:1956.10 L:1899.90 C:1952.30



TradingView

# STRATEGIES

# 5

We discussed how we conduct statistical analysis on the price and volume data to arrive at purchase or sales decisions about the same. We also saw how these calculations are done graphically. We build strategies using 'indicators and oscillators' to conduct such an analysis. Clicking on this button will reveal a pop-up where we will find these indicators. We see that there are certain in-built strategies, indicators, candlestick patterns and also, a public library of strategies created by others and are popular. We will use this on our chart to make decisions.

## Indicators & Strategies

Search

-  Built-ins
-  Candlestick Patterns
-  Public Library
-  My scripts
-  Volume Profile

- | SCRIPT NAME                  |
|------------------------------|
| Accumulation/Distribution    |
| Advance Decline Line         |
| Advance Decline Ratio        |
| Advance/Decline Ratio (Bars) |
| Arnaud Legoux Moving Average |
| Aroon                        |
| Auto Fib Retracement         |
| Average Directional Index    |
| Average True Range           |
| Awesome Oscillator           |
| Balance of Power             |
| BarUpDn Strategy ↓↑          |
| Bollinger Bands              |

## DEFAULT TEMPLATES

Bill Williams' 3 Lines

Volume, Moving Average x 3

Displaced EMA

Volume, Moving Average Exponential

MA Exp Ribbon

Volume, Moving Average Exponential x 8

Oscillators

Volume, Stochastic RSI, Relative Strength Index,  
Commodity Channel Index

Swing Trading

Zig Zag, Pivots, Pivots HL, Vol

Volume Based

Volume, Commodity Channel Index, On Balance  
Volume, Rate Of Change, Chaikin Money Flow



## INDICATOR TEMPLATE

Once we have imported all the indicators and customized the chart as per our requirement, we can save it as a custom template over here. We can then apply these templates to all the assets that we analyze and without repeated effort, we can access all of it. One can also use pre-built templates if it serves their purpose.

# 7

## Create Alert on NIFTY



Condition

NIFTY

Crossing

Value

14247.95

Options

Only Once

Every Time

Expiration time

2021-02-25



18:28



Open-ended

Alert Actions

Notify on App

Show Popup

Send Email

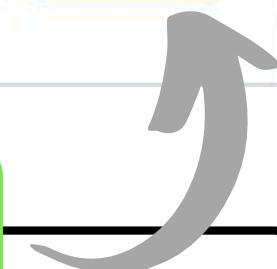
Webhook URL

More Actions

Cancel

Create

## CREATING ALERTS



It is impossible to track all the assets when they cross certain important price milestones or a particular level of resistance. We either have to do it manually which is very time-consuming or use algorithms which is very expensive. To find the middle ground, we can create alerts which will notify us whenever a stock performs a certain way based on our pre-defined rules. We can create these rules and alerts over here.

# 8

## TRENDLINES

A very large part of technical analysis deals with pure price movement and patterns created by asset price. To observe these things better, we have to interact with the chart and create patterns. We can use this tool to create trendlines, channels, triangles, chart patterns etc on the chart. We will keep it simple and deal mainly with plain lines. These will come in handy later on when we discuss chart patterns.

	<b>Trend Line</b>	Alt + T
	<b>Info Line</b>	
	<b>Trend Angle</b>	
	<b>Anchored VWAP</b>	
	<b>Horizontal Line</b>	Alt + H
	<b>Horizontal Ray</b>	
	<b>Vertical Line</b>	Alt + V
	<b>Cross Line</b>	Alt + C
	<b>Arrow</b>	
	<b>Ray</b>	
	<b>Extended Line</b>	
	<b>Parallel Channel</b>	
	<b>Disjoint Channel</b>	
	<b>Flat Top/Bottom</b>	
	<b>Regression Trend</b>	



# 9

## MARKING TOOLS

We will also need marking tools to mark our thoughts that led to a certain decision. These tools also come in handy to create custom lines and shape for better analysis and of the patterns that enable better decision making. These tools are general and do not apply to any specific method of technique. We can use them in general wherever we find it suitable.



### Brush

 Highlighter

 Path

 Rectangle

 Rotated Rectangle

 Ellipse

 Triangle

 Polyline

 Curve

 Double Curve

 Arc

# 10

## TIME PERIOD FOR CHART

Charts are read over a particular period of time. Some people read charts for multiple years whereas others focus on only a few days. All this depends on the strategy and system followed by the analyst. So here, we can regulate the length of the time period we would want to see the chart for – 3 months, 6 months, 1 year and so on.

## GO TO DATE & TIME

We use this button to go back to charts as they looked on a particular date. Suppose we want to go back to how charts looked in September 2008 (beginning of financial meltdown), we use this instead of scrolling 12 years worth of data. This will aid us when we go ahead and practice our strategies on paper.

# 11

# 12

## STOCK SCREENER

It helps screen all stocks and comes up with the names of stocks that meet the specified criterion. For instance, companies meeting 3 months high, will be shown in a list here.

We can also screen based on technical indicators and change the filters mentioned and come up with the list required.

The screenshot shows a software interface for a 'Stock Screener'. At the top, there are tabs for 'Stock Screener' (selected), 'Text Notes', 'Pine Editor', 'Strategy Tester', and 'Trading Panel'. Below the tabs are several buttons: 'Overview' (highlighted in blue), 'Performance', 'Valuation', a download icon, a dropdown for '1D', a flag icon, a search icon, a 'Filters' button with a notification count of 1, and a 'Most capitalized' dropdown. A large search bar labeled 'TICKER' contains 'RELIANCEPP.E1' and '3 ITEMS'. The main table has columns: LAST, CHG %, CHG, RATING, VOL, MKT CAP, P/E, EPS (TTM), and EMPLOYEES. The 'MKT CAP' column is currently selected. The table lists four rows for RELIANCE INDUSTRIES LTD. with the following data:

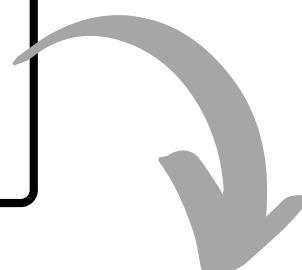
TICKER	LAST	CHG %	CHG	RATING	VOL	MKT CAP	P/E	EPS (TTM)	EMPLOYEES
RELIANCEPP.E1 RELIANCE INDUSTRIES LIMITED	1077.25	-7.88%	-92.10	▼ Sell	2.405M	12993.6B	18.44	63.64	195.618K
RELIANCEPP RELIANCE INDUSTRIES LTD	1076.10	-7.92%	-92.55	▼ Sell	122.783K	12993.6B	18.43	63.64	195.618K
RELIANCE RELIANCE INDUSTRIES LTD.	1939.70	-5.36%	-109.95	▼ Sell	1.346M	12993.6B	32.32	63.64	195.618K
RELIANCE RELIANCE IND	1941.00	-5.30%	-108.60	▼ Sell	25.017M	12993.6B	32.32	63.64	195.618K
TCS	3200.00	0.00%	+0.00	▼ Buy	107.042K	12995.2B	30.20	63.74	195.739K

# STRATEGY TESTER

# 13

TradingView allows us to test certain pre-defined strategies in the environment, asset classes and stocks that we are looking to apply. TradingView back-tests the strategy and tells us about the historical drawdowns, profits and losses.

We can also manually code our strategies to test the same. However, that will not be within the scope of this course here.



## Indicators & Strategies

X

Search

### Built-ins

- Candlestick Patterns
- Public Library
- My scripts
- Volume Profile

### SCRIPT NAME

- Accumulation/Distribution
- Advance Decline Line
- Advance Decline Ratio
- Advance/Decline Ratio (Bars)
- Arnaud Legoux Moving Average
- Aroon
- Auto Fib Extension
- Auto Fib Retracement
- Average Directional Index
- Average True Range
- Awesome Oscillator
- Balance of Power
- BarUpDn Strategy ↓↑
- Bollinger Bands

Act  
Go t

# LOG SCALE & PERCENTAGE SCALE

Going forward, we will understand the difference between percentage scale and log scale and their uses. A log scale is functional when we are dealing with manifold price changes or a long duration of time. Unless otherwise mentioned, we will keep our default settings in all charts to percentage method i.e. we will keep the log scale off.

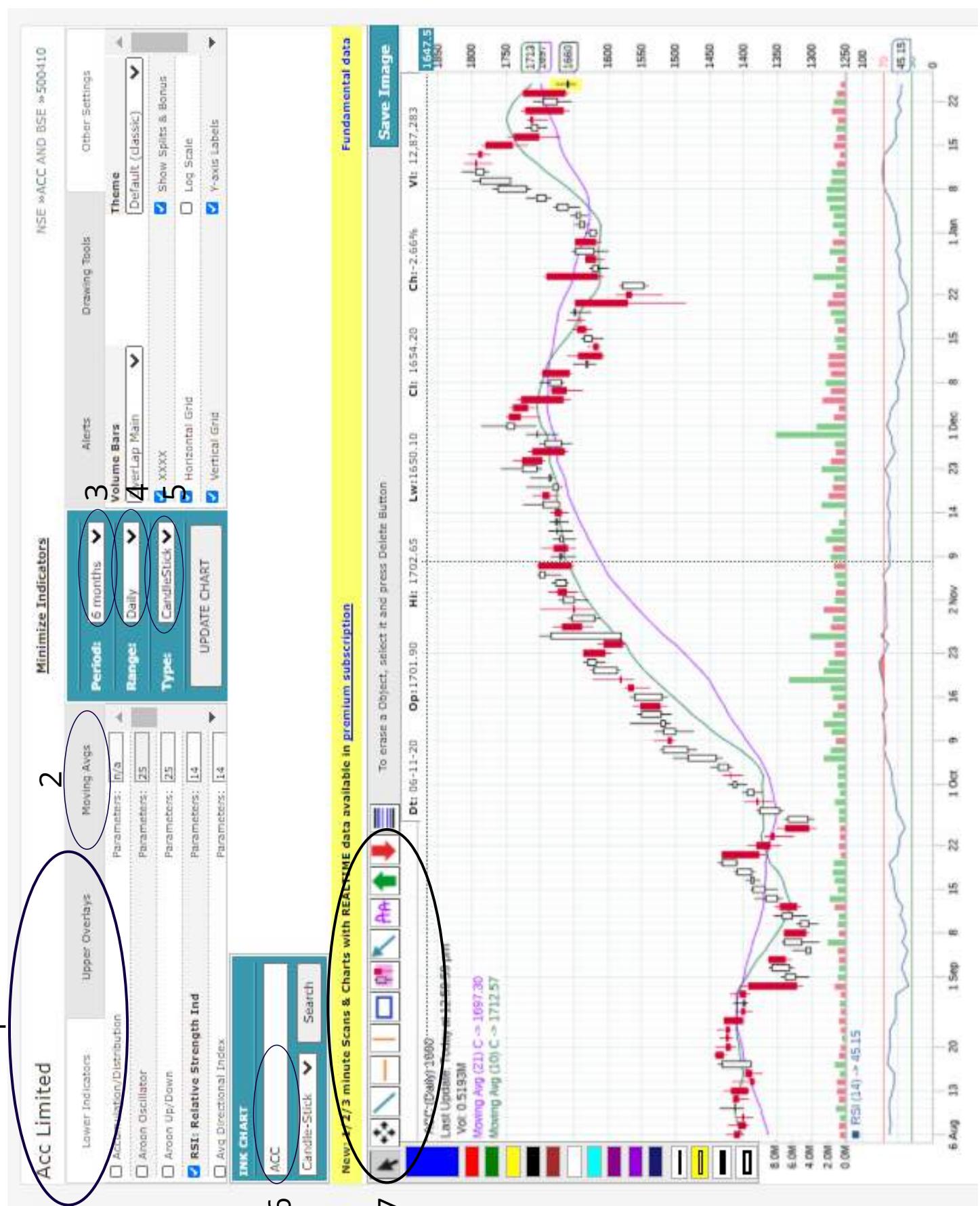


With this, we have covered a majority of the TradingView important features. There are a few other buttons and features offered on the platform. Nevertheless, we will not be using them since they contribute to a lot of noise in our strategy.

As a result, going ahead, when our basics are strong, we will learn and use other advanced features. For now, the ones we have covered are more than enough to conduct our analysis.

We should stop here for a while and explore the interface of TradingView. We must try out and experiment with different features on the platform. We might not understand all parts of it, but it will become clearer as we go ahead. Let us take a look at the second tool - Chartink.com

# CHARTINK



# INDICATORS & OSCILLATORS

We saw how indicators and oscillators help us better understand charts and make informed trading decisions. This is where we can access indicators and oscillators on ChartInk. These get added to charts automatically when we select them. We can also change its attributes over here, which we will understand as we move ahead. Lower Indicators are those indicators that are added below the chart separately whereas upper overlays are those indicators that get built over the chart.

Lower Indicators	Upper Overlays	Moving Avgs
<input checked="" type="checkbox"/> <b>Accumulation/Distribution</b>		Parameters: n/a
<input type="checkbox"/> Aroon Oscillator		Parameters: 25
<input type="checkbox"/> Aroon Up/Down		Parameters: 25
<input checked="" type="checkbox"/> <b>RSI: Relative Strength Ind</b>		Parameters: 14
<input type="checkbox"/> Avg Directional Index		Parameters: 14

Lower Indicators	Upper Overlays	Moving Avgs
<input type="checkbox"/> Bollinger Band		Parameters: 20,2
<input type="checkbox"/> Parabolic SAR		Parameters: 0.02,0.0
<input type="checkbox"/> Donchain Channel		Parameters: 14
<input type="checkbox"/> Supertrend		Parameters: 7,3
<input type="checkbox"/> Ichimoku clouds		Parameters: 9,26,52

02

## MOVING AVERAGES

Moving average is the average of last X days of the stock. For instance, '10-day moving average' averages the stock price of the last 10 days. These moving averages are used to conduct analysis and generate buy and sell signals. These moving averages can be accessed from here.

03

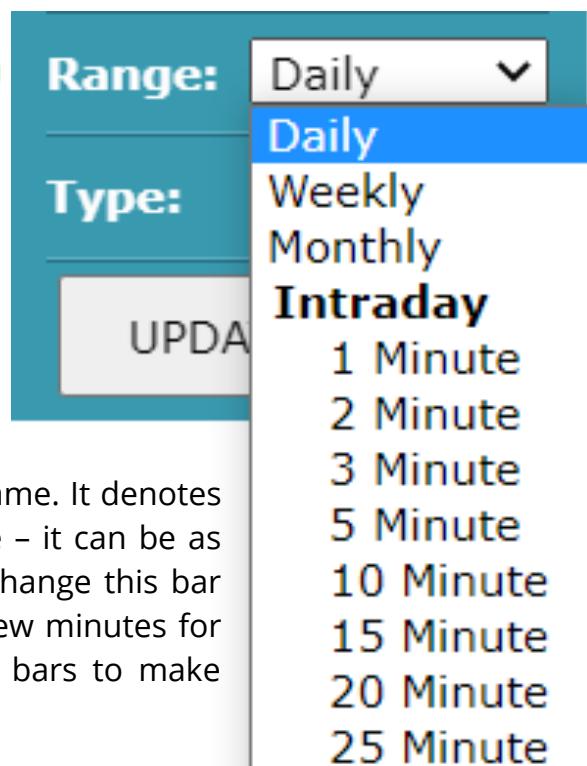
## PERIOD OF ANALYSIS

Period of analysis again is the same as time horizon that we discussed earlier while understanding TradingView. It refers to the time period for which we want to see the analysis. We can see charts for a few months or a few years depending on our strategy. We can change and alter the period of analysis using this.

# 04

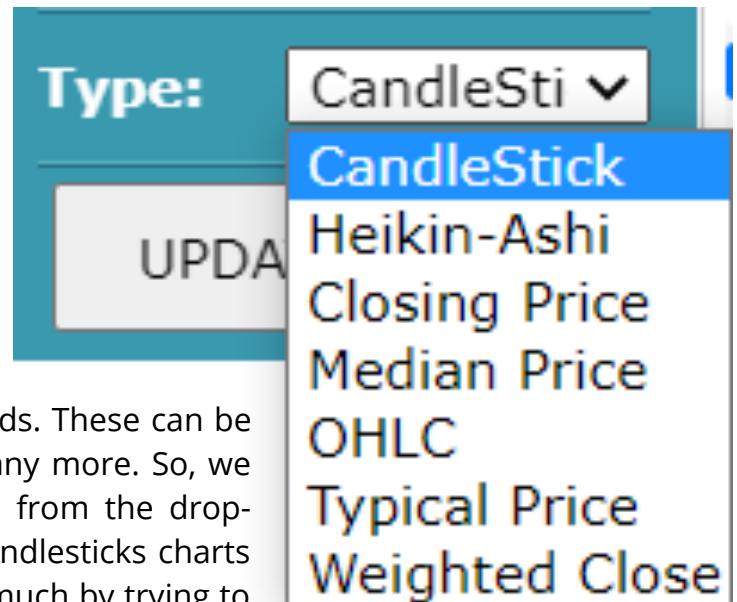
## RANGE

We saw earlier that each bar denotes a certain time frame. It denotes price change and volume in that particular time frame – it can be as low as one minute and as high as one year. We can change this bar time duration based on our strategies. We will use a few minutes for intraday and short term trading and day and weekly bars to make longer-term trade decisions.



# 05

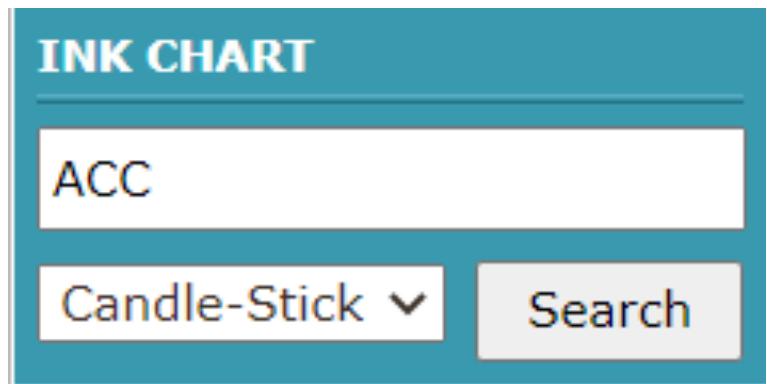
## TYPE OF CHART



We saw that the charts can be of multiple kinds. These can be candlesticks, Heiken Ashi, line graphs and many more. So, we can select the kind of chart we would need from the dropdown here. We will mostly be dealing with candlesticks charts and line charts. We will not complicate it too much by trying to use all kinds of charts.

# 06

## NAME OF STOCK

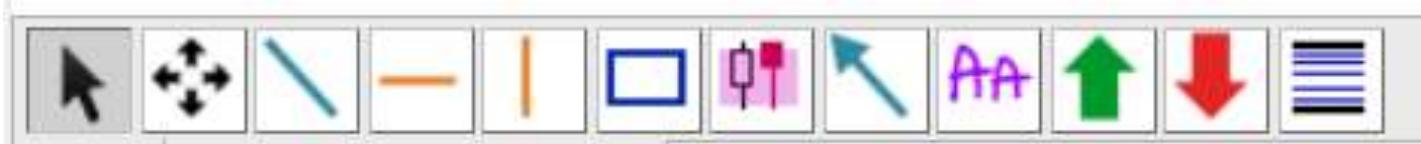


We can select the asset that we want to see the chart for. ChartInk only supports Indian listed stocks. We will go through different stocks and charts to identify trading opportunities going ahead.

## MARKING TOOL

We will use all these tools to interact with the chart and mark on them. We will use the lines, boxes, and markers to identify trends in the charts and conduct our analysis accordingly. We will also use these to take notes on the chart that will help us when we revisit and re-evaluate our trade.

# 07



# THE CANDLESTICK TRADER

HOW TO FIGHT BULLS AND BEARS  
USING CANDLESTICK PATTERNS

10+ PATTERNS  
30+ EXAMPLES

ZEBRA LEARN

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# CANDLESTICKS

# INTRODUCTION

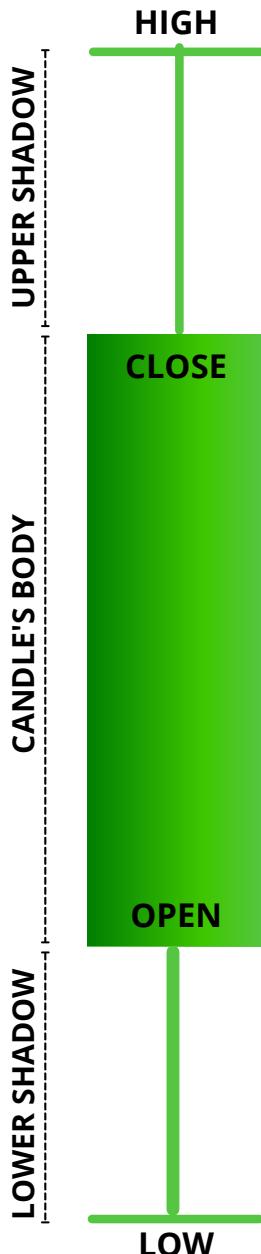
The candlestick method refers to a style of financial chart reading that is used to understand the price movement of assets, and derivatives or currency. Each candlestick is built using a fixed time-frame which can be a minute, 5 minutes, an hour, a day or any custom period of time. Each candlestick is built using the high price, low price, opening price and closing price during that defined time period. We will have a very detailed take on candlesticks and create candlesticks ourselves too in this section.

Candlesticks were developed in Japan in the 18th century for rice trading and were introduced to the Western world later. Since then, they have become a fundamental tool of technical analysis and is one of the simplest ones.

This is typically how candlesticks look and they come in two colours – red (Bear Candle) and green (Bull Candle). When we see a chart, we will see a series of such individual candles and we will try to understand the pattern created by them. Each candle represents a fixed period. If we are using a 1-hour candle, 8 such candles will be created for an 8-hour trading session.

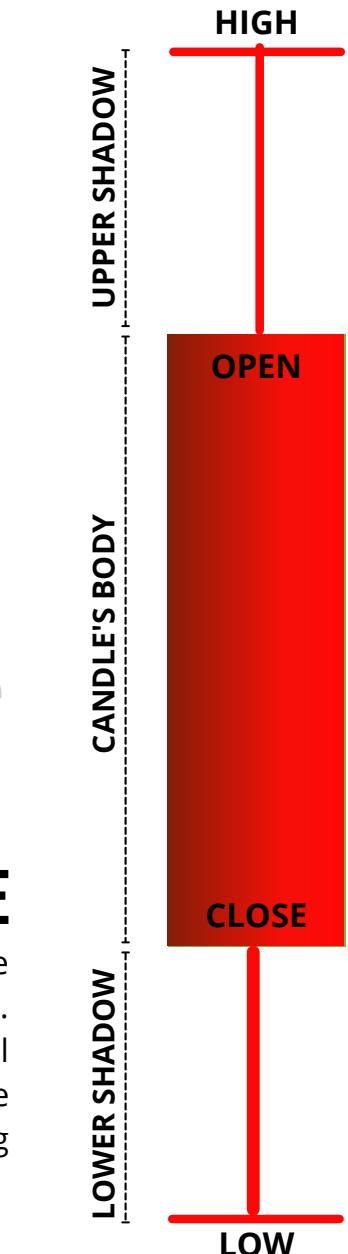
A series of such candles are studied to understand the behaviour of the price of the underlying asset.





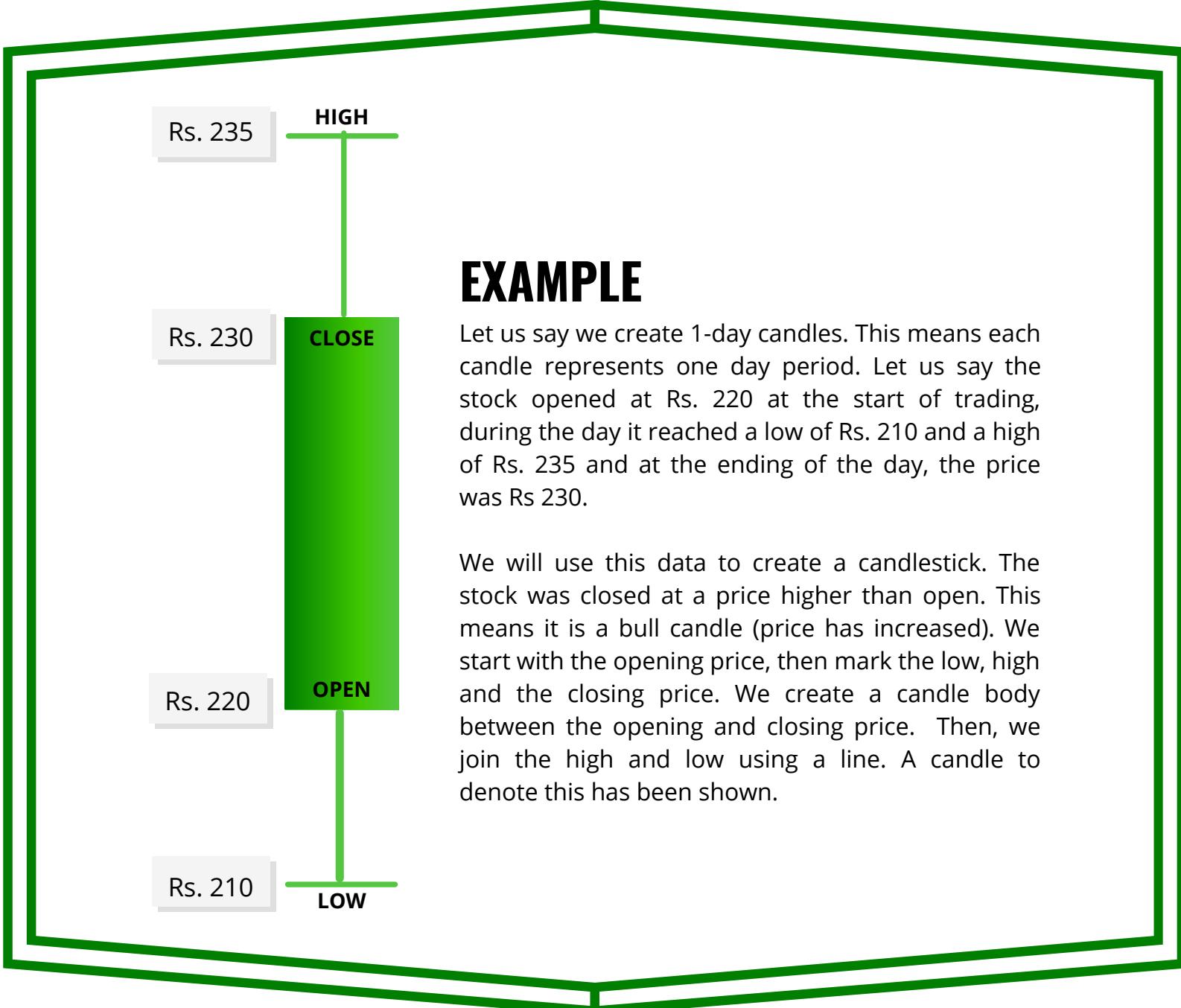
## BULL CANDLE

When the closing price is higher than the opening price i.e. the price has increased in the session, we can say that it will form a bull candle. Such candles are coloured green. So, going ahead whenever we see that the candle is green, we will know that the price has appreciated and the lower end of the candle's body is the opening price and upper end is the closing price.



## BEAR CANDLE

The second candle is a bear candle. Here, the price decreases in the time period and are coloured in red. Going ahead whenever we see a candle in red, we will know that the upper end of the candle body is the opening price whereas the lower end is the closing price.



# HOW TO CONSTRUCT CANDLES



We will start by finalizing a time frame i.e. the time duration reflected in each candlestick. After that, we will identify the open price, high price, low price and close price. If it is a live chart i.e., the market is still on, then, the current price is considered as the close price for the latest candlestick.



Next, we will mark the open price on the chart with time being on the X-axis and price being on the Y-axis. Match the time frame and the price chart when building candlesticks.



Next, we will mark the high and low price on the graph and draw a line through them as the candle body will lie somewhere between this range.



Next, we will mark the close price or the live price and build the candle's body between the open and close price.

Identify whether it is a bear candle or bull candle and colour accordingly. This way we will have created one candle. We have to create a series of candles to understand trends and patterns so that we can make a decision based on them.

It is advised to create a few candlesticks manually using the data available on the BSE website regarding the day's prices for various stocks. We will together create candlesticks for around 20 companies to get a good hang of it. In real life, we will hardly be creating candlesticks ever. These can be accessed on the tools that we discussed earlier. Most of our attention will go towards reading and interpreting candlesticks and taking decisions based on our interpretations.





 TradingView

In practice, we will never be creating Candlesticks. In fact, we will access data for candlesticks using the charts and use them to conduct analysis. This is typically how candlesticks look in a chart. An individual candlestick means nothing in itself, but it is the pattern that we study and derive conclusions. The art of reading candlesticks is in understanding the patterns hidden in them. For practice, we will stop here and estimate the High, Low, Open and Close price for each of the candlesticks shown in the chart.

NSE:RELIANCE, 1D 1957.05 ▲ +59.80 (+3.15%) O: 1903.00 H: 1960.00 L: 1899.90 C: 1957.05



 TradingView

This is another example how charts look. This is exactly the same as previous, only difference is that the time period for which data is used is longer in this case. We select the length of time period based on our strategy and preferences. So, we have understood how Candlesticks are created and how they work. Next, let us understand different patterns that exist in candlesticks and how we use them to make technical analysis decisions.

# BULLS V/S BEARS

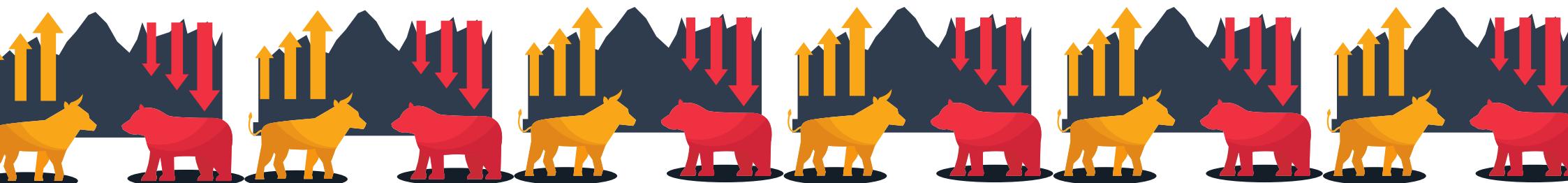
Let us take a quick detour and understand the composition of the market and the creation process of candlesticks. The market for any asset contains two kinds of participants – Short (Bear) and Long (Bull).

Bears refer to those people who benefit when the price of the asset goes down. They bet against the asset i.e. the price of the asset will fall. Bulls are those people that benefit when the price of the asset goes up. They bet for the asset i.e. its price will increase. Bears profit at the expense of bulls and vice versa.

Short term price movement of any asset can be compared metaphorically to the brawl between bears and bulls. At some points, the bulls are in charge and more powerful than the bears (price increases during this phase) and during other times the bears are in charge over the bulls (the price of the asset falls in this period). So, this constant fight between bears and bulls is what determines the short term movements and fluctuations in the price of assets.

Next, we will look into the impact of the fight on candlesticks and our analysis of the same. So, we can say that candlesticks are a pictorial representation of the constant tussle between bears and bulls. It represents the behaviour of the two and portrays who is gaining power and losing power. As we saw earlier, when similar circumstances arise, we expect the future to rhyme with the past if not be an exact copy of the past. Thus, we will take positions based on the behaviour of bears and bulls in the market.

We will now understand the candlestick patterns and their benefits, comprehend the behaviour of bulls and bears and the market psychology that influences the candlestick patterns.





# CANDLESTICK PATTERNS

One candlestick by itself shows very little other than data restricted to merely one period. We cannot do much depending on the reading from just one candlestick. As a result, we will now put together multiple candlesticks in a sequential format and then try to understand the candlestick patterns.

Multiple candlesticks together form patterns and they show the behaviour of the market over the period of time and therefore help us make decisions. These patterns reflect the psychology of the market. Most of these patterns repeat themselves over and over again and therefore give us some sense of predictability about the trading decisions to be taken.

We also saw that these patterns should not be seen as mere patterns on the graph, but the behaviour of bulls and bears that they represent is to be focused on more. The ultimate objective of candlesticks or technical analysis, in general, is to identify the one with the upper hand at the moment i.e. the bulls or the bears, and then try not to be on the wrong side. This is what we will do to understand candlesticks patterns as well.

There exists a very wide variety of candlestick patterns. We will understand the most commonly used ones. With more and more practice, one will be able to identify with many patterns. Also, it is impossible to use all the patterns to make decisions. As we move forth with it, we will be coming up with strategies based on only those patterns we are comfortable with.



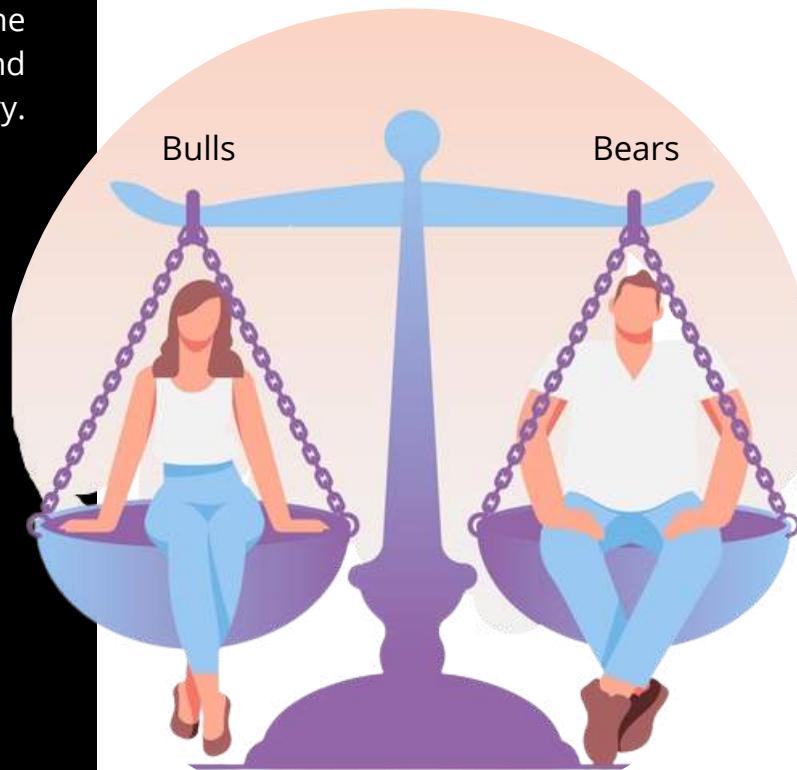
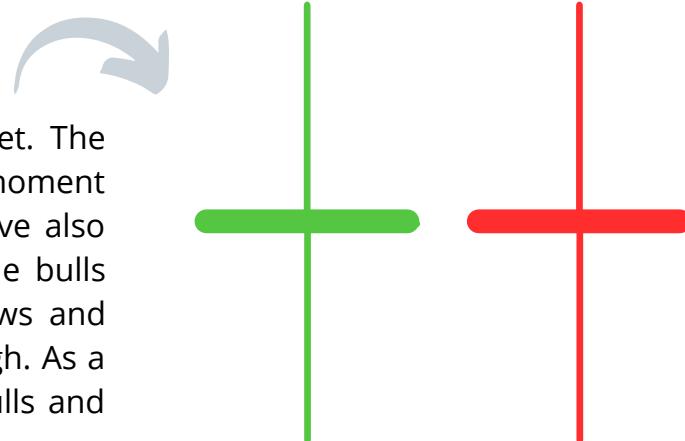
# Pattern 1 DOJI

Doji is a pattern formed by a single candlestick in which the opening and closing price of the candlestick intersect resulting in a very short body. The upper shadow and lower shadow are present along with a very thin candle body.

We see in the sample image below that the Doji candlestick has a really small candle body and a relatively larger upper and lower shadow. The length of various upper shadow and lower shadow can vary.

## WHAT IT INDICATES?

Doji is a signal for uncertainty in the market. The bulls and bears have similar strength at the moment as both now have conceded space. They have also recovered from the other in the market. The bulls were able to get back from the period's lows and bears were able to get back from period's high. As a result, Doji signifies a market where both bulls and bears have equal hold.



## HOW TO USE?

Doji is a signal for a trend reversal in the market. For example, when a market is in a strong uptrend, it means that the bulls have more power at the moment. However, when the bears form a Doji here, it means that the bears are gaining back market power. If this continues, the bears will soon have more power over the market than the bulls and a reverse movement of the price will begin.

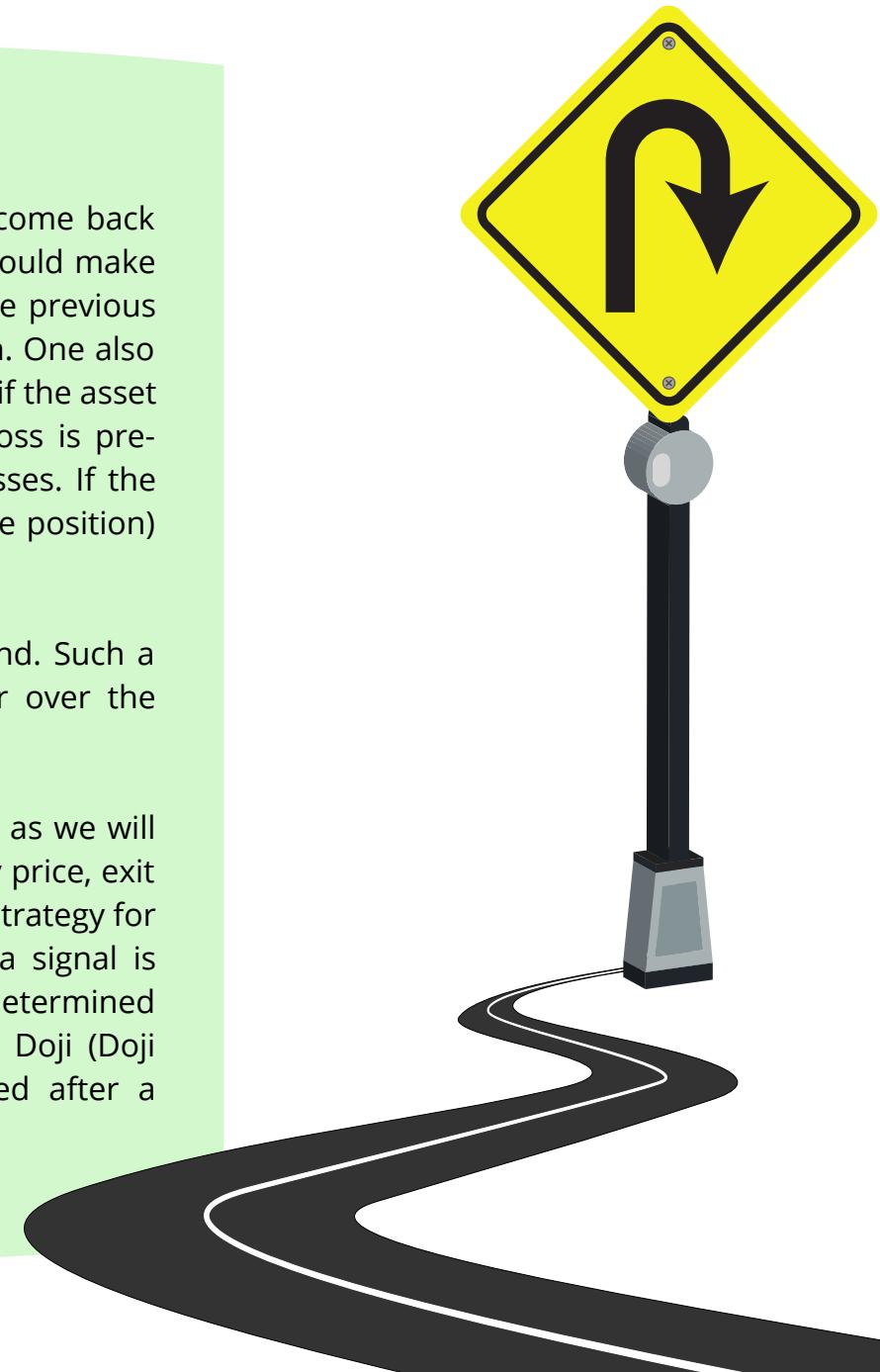


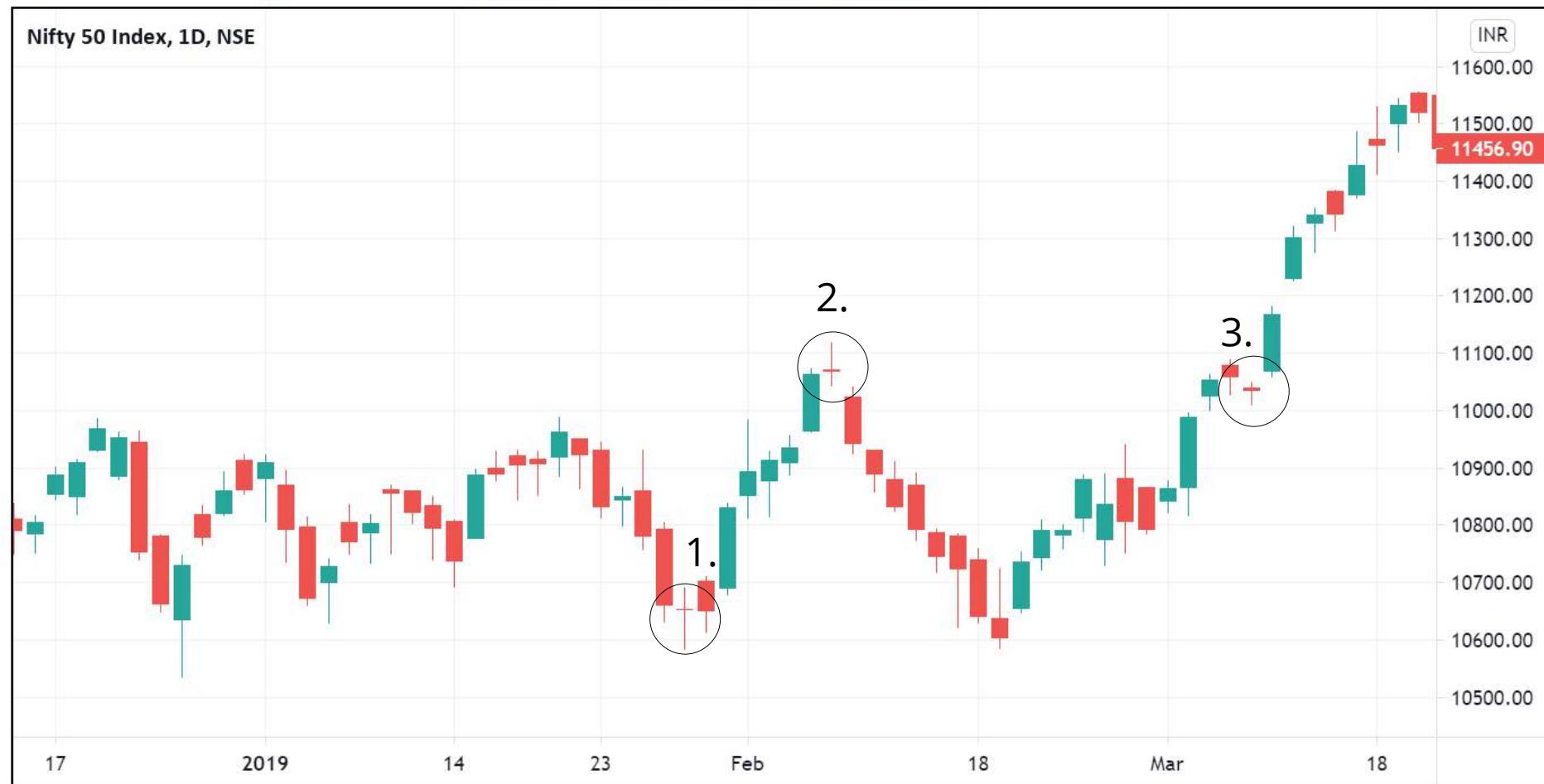
## HOW TO TRADE ?

There is a possibility that even after the formation of a Doji, the bulls may come back stronger and get the hold of the market. So, to participate in a trade, one should make an entrance if the price in the next period opens lower than the close of the previous period. The analyst can short the same i.e. benefit when the price goes down. One also needs to fix a stop loss. The stop loss can be the high of the previous day and if the asset price goes above that, we will square off the trade with a loss. The stop loss is pre-determined and it is the level beyond which we are not ready to accept losses. If the price breaches that level, we will accept the loss, square the position (exit the position) and move forward.

We can use the same when a Doji is formed in a market during a downtrend. Such a scenario shows that for the time being, bulls have regained some power over the market. If they make a comeback a reverse trend is started.

Traders can combine the same with multiple other indicators and oscillators as we will see going ahead and create a strategy for the same. They need to fix an entry price, exit price and a stop loss for each strategy. They will need to fix an entry and exit strategy for each of the candlestick patterns. Also, one cannot act simply every time a signal is generated. Selective trades have to be entered which meet all the pre-determined conditions and we have conviction. There are two kinds of Doji – Bearish Doji (Doji formed after an uptrend to signal reversal) and Bullish Doji (Doji formed after a downtrend to signal a reversal.) Let us see examples for both these.





TradingView

1. This is a bullish Doji. We see that it comes towards the end of a downtrend and signals a strong reversal that does take place. We would have entered the trade when the price opened higher than the close of Doji, the next day.
2. This is a bearish Doji. Again, we see that it comes at the end of an uptrend i.e. it ends bulls grip over the market.
3. This was supposed to be a bearish Doji. However, the bulls continued their power over the market and as a result, the trend continued. This is a false candlestick pattern. We would have avoided entering a trade as the open price on the next day was not lower than the close price of the Doji candlestick.

NSE:HDFCBANK, 1D 1471.55 ▼ -9.45 (-0.64%) O:1492.90 H:1496.90 L:1469.50 C:1471.55

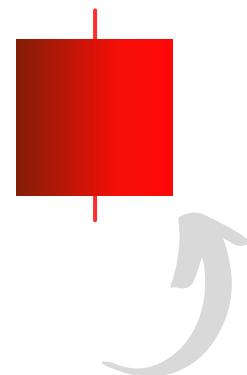
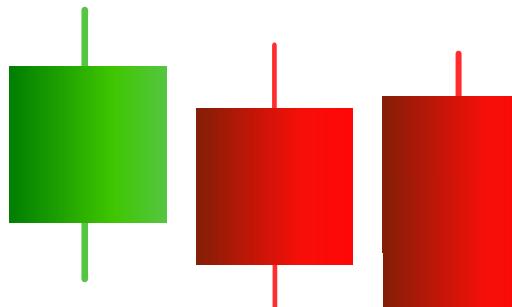


 TradingView

1. This is a bullish Doji. This is formed at the end of a downtrend. This might have been a false Doji in case the price pattern had not reversed.
  2. This is a bearish Doji. Again, we see that it comes at the end of an uptrend i.e. it ends bulls' grip over the market.
  3. This is a Bearish Doji as it follows an uptrend. It comes at a time when bulls had a grip over the market.
- Here, we enter the trade as the open price on the next day is lower than the close price on Doji stick. We will fix the 'high price' on the Doji candle as the stop loss. We can change this going ahead as per our preferences.

## *Pattern 2* GAP UP & GAP DOWN

This is a straightforward pattern where the market opens with a gap that is significantly higher or lower than the previous day's closing and candle.

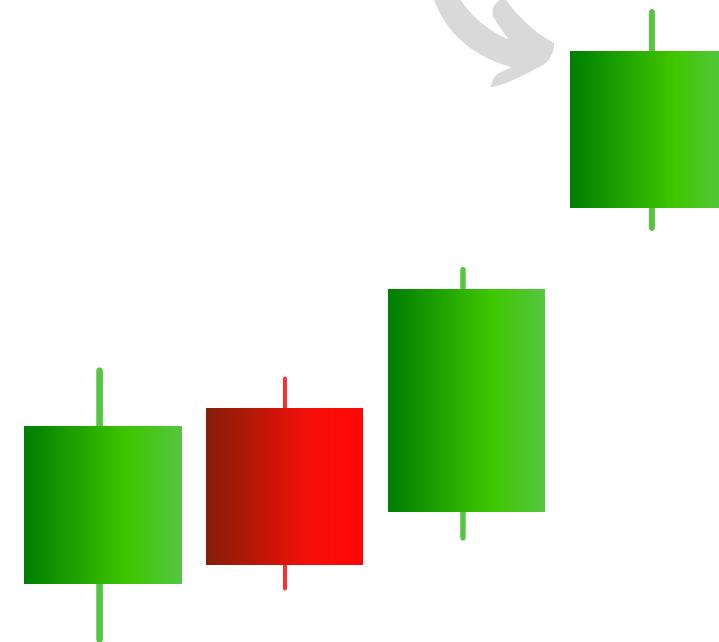


### GAP DOWN

Gap downs occur when the open of the market is significantly lower than most of the previous days' candle body. This happens when bad news hits the market after the trading hours.

**GAP UP**

In case of gap up, the open for the next day is higher than the candle body of the previous day by a significant margin. This indicates that the bulls have solid control over the market if a gap up occurs amidst an uptrend. Gap ups are common when the good news about the asset hits the market post market hours.



## HOW TO USE ?

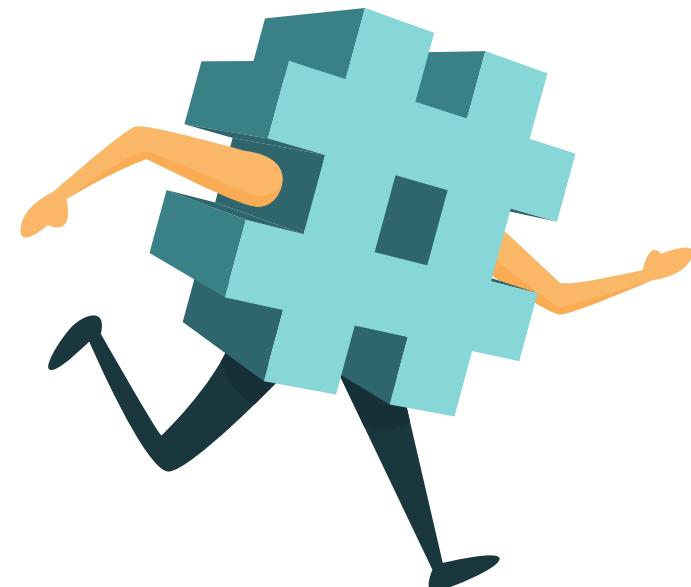
Gap ups and gap downs have no meaning of their own in terms of trends and could take place over one-time news. Also, the market begins to exhaust itself after a few gap ups and gap downs. As a result, these should not be used to initiate any new trade assuming a high possibility of profit booking.

When we hold a particular asset, gap ups and gap downs should be helpful, as they reflect the strength in the trend and implies that we should continue holding the position. Beyond this, as discussed Gap Ups and Gap Downs should not mean anything in terms of initiating a trade.



## HOW TO TRADE ?

There is a minor possibility of a profit booking if we follow a gap up. As a result, we will not initiate any new trades based on gap ups and gap downs alone. These can be combined well with other indicators to enter a trade. Let us see examples of gap ups and gap downs and their appearance when in practice.





TradingView

1. This is a gap down. Bears have a strong grip over the market and the downtrend has continued after the gap down as well.
2. This is the second gap down in a period of 4 sessions. This indicates that the market is in the strong grip of the bears and we shall continue holding any short position if any. The bears have exhausted themselves after this as two-gap downs have occurred.
3. This is another gap down. This also is a gap down Doji. It shows that the bulls' grip is not completely out of place. We see how different patterns can appear together.

NSE:HDFCBANK, 1D 1473.50 ▼ -7.50 (-0.51%) O:1492.90 H:1496.90 L:1469.50 C:1473.50



 TradingView

1. This is a bullish gap i.e. gap up. The company had announced an event that could have potentially caused the gap up. Hence, gap ups and downs are not suitable for initiating new positions.

NSE:KOTAKBANK, 1D 1888.75 ▼ -14.70 (-0.77%) O:1911.00 H:1911.00 L:1883.25 C:1888.75



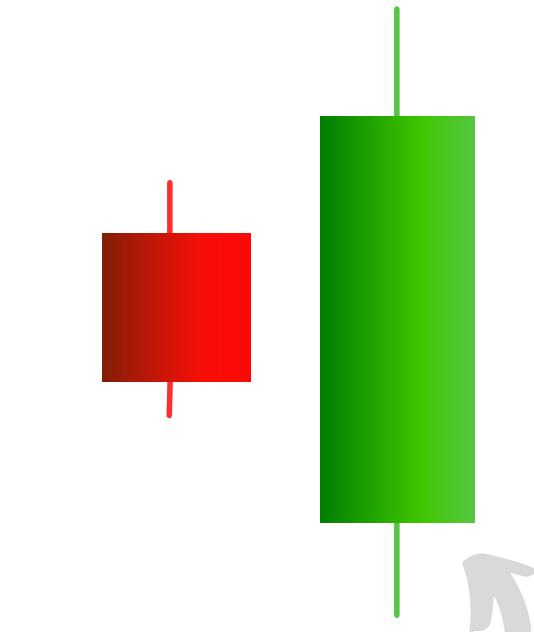
1. This is a gap down. We will not take any new trading positions based on these. However, we will continue to hold any short position that we have.
2. This is a gap up. We will continue holding any long position that we have at this moment.

With this, we end our discussion on gaps. We will make sure to practice these enough going ahead.

# *Pattern 3*

## ENGULFING BULL & BEAR

The 'Engulfing Patterns' are two candlestick patterns. Here, the first candle is engulfed by the second candle. This means that the second candle's body completely shadows the first candle's body.

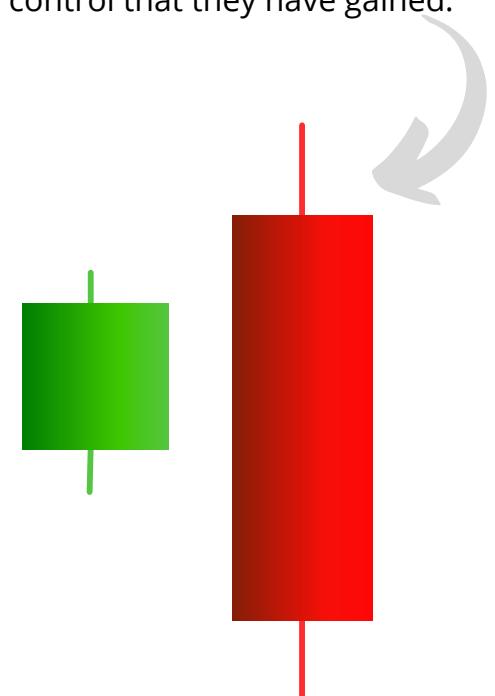


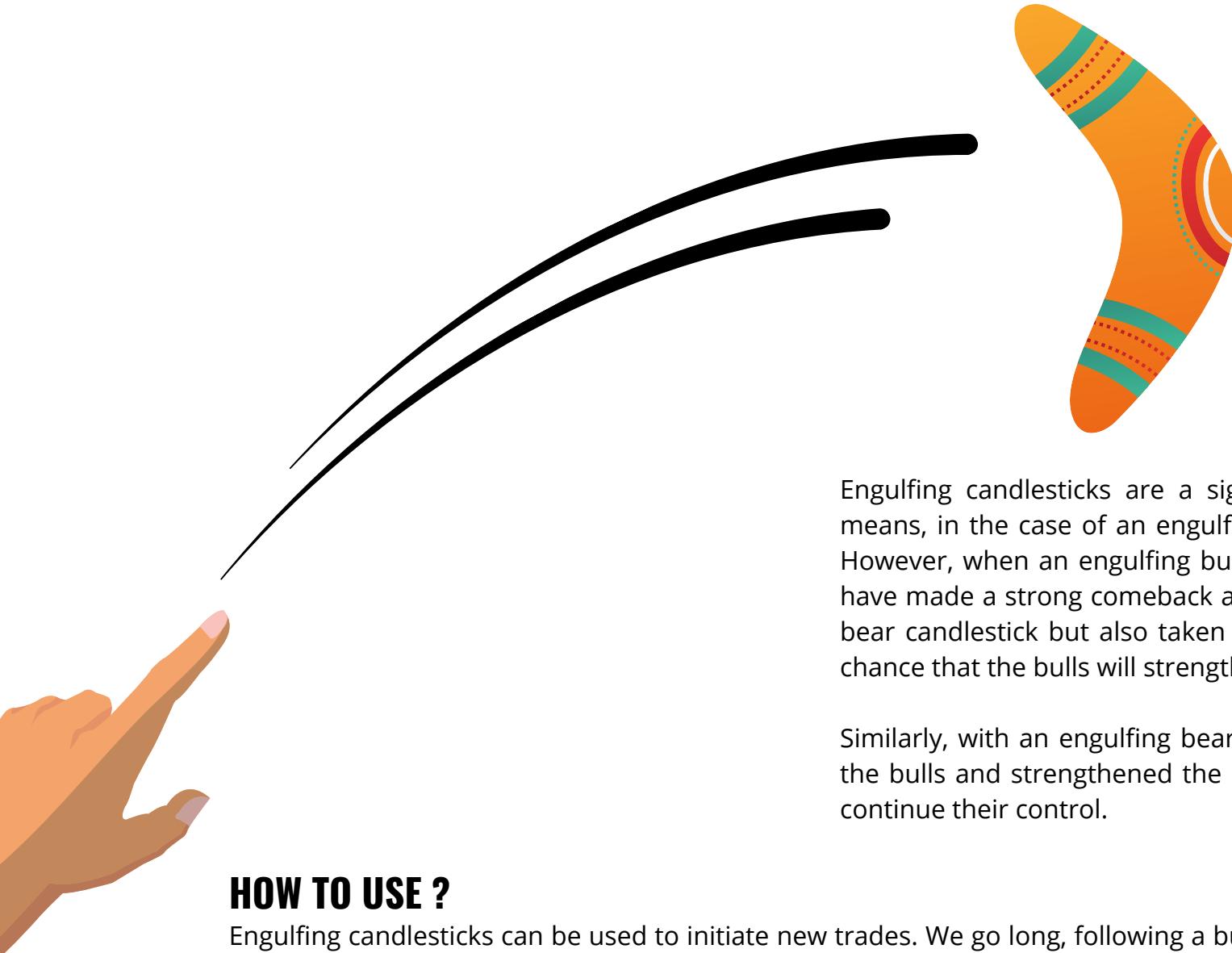
### ENGULFING BULL

Bull Engulfing candlestick pattern is formed when the general trend is downward, and then a bull candle engulfs a bear candle completely. The bull candle's body will completely cover the bear candle's body.

### ENGULFING BEAR

Bear Engulfing Candlestick pattern is formed when the general trend is upward. A bear candle completely engulfs a bull candle and we expect the bears to build on the control that they have gained.





## WHAT DOES IT INDICATE?

Engulfing candlesticks are a signal for a strong reversal in trend. This means, in the case of an engulfing bull, the pre-existing trend is bearish. However, when an engulfing bull candle appears, it implies that the bulls have made a strong comeback and as a result, have not only reversed the bear candlestick but also taken control over the market. There is a good chance that the bulls will strengthen their grip on the market going ahead.

Similarly, with an engulfing bear, the bears have taken control back from the bulls and strengthened the same. As a result, we can expect them to continue their control.

## HOW TO USE ?

Engulfing candlesticks can be used to initiate new trades. We go long, following a bullish engulfing candle and short, following a bearish engulfing candle. We expect the trend to reverse following these candlestick patterns and thus, we will initiate this trade. At times, the trend will not reverse and we will have to settle for losses, but otherwise, we will be able to book profits. This will be taken care of when we talk about a systematic approach to trading.



## HOW TO TRADE ?

When we see an engulfing pattern, we will take long or short positions according to the type of pattern formed. We will define a fixed entry point and a stop loss to enter into the trade. This is a subjective decision and one develops this with practice. An ideal point to enter can be the open price of the very next day following the engulfing candle and the stop loss could be the high of engulfing bear candle or low of engulfing bull candle depending on the pattern and the trade.

One can also combine this with other candlesticks patterns, oscillators, and indicators to come up with custom strategies. However, we will never enter a trade where the conditions for exit and stop losses are not pre-determined.

NSE:KOTAKBANK, 1D 1888.30 ▼ -15.15 (-0.8%) O:1911.00 H:1911.00 L:1883.25 C:1888.30



TradingView

- 1.1. We see that this is an engulfing bull candlestick pattern. The candle has a low that the candle body of the engulfing bull completely covers the previous day's candle body.

A reversal has followed the same.

NSE:NIFTY, 1D 14599.65 ▲ +36.20 (+0.25%) O:14639.80 H:14653.35 L:14585.80 C:14599.65



 TradingView

1. This is an engulfing bear pattern. Here, we see that the trend is reversing itself following the candle. We can say that the bears have taken control over the market and we can initiate a new trade.

2. This is an example of 'Engulfing Bull'.

NSE:BANKNIFTY, 1D 32515.80 ▲ +176.80 (+0.55%) O:32546.60 H:32683.50 L:32413.60 C:32515.80



 TradingView

1. This is an engulfing bear. The bears did take control and this was followed by a gap down as well. However, the bulls quickly got the control back and most likely, in this case, we would have taken a small loss.
2. This is an engulfing bear. We see that the bears did gain control and the prices fell lower. We can combine this with other patterns to create our strategy.



 TradingView

1. This is an engulfing bull. We see a mild trend reversal following the same. However, the bears got the control back soon and the downward journey continued.

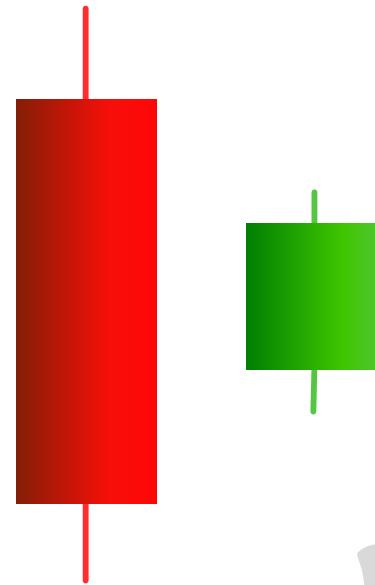
This way, we will have to read the charts in a very custom manner. We will always see this as a battle between bulls and bears and part with those who are winning at the moment.

With this, let us move on to the next candlestick pattern.

## *Pattern 4*

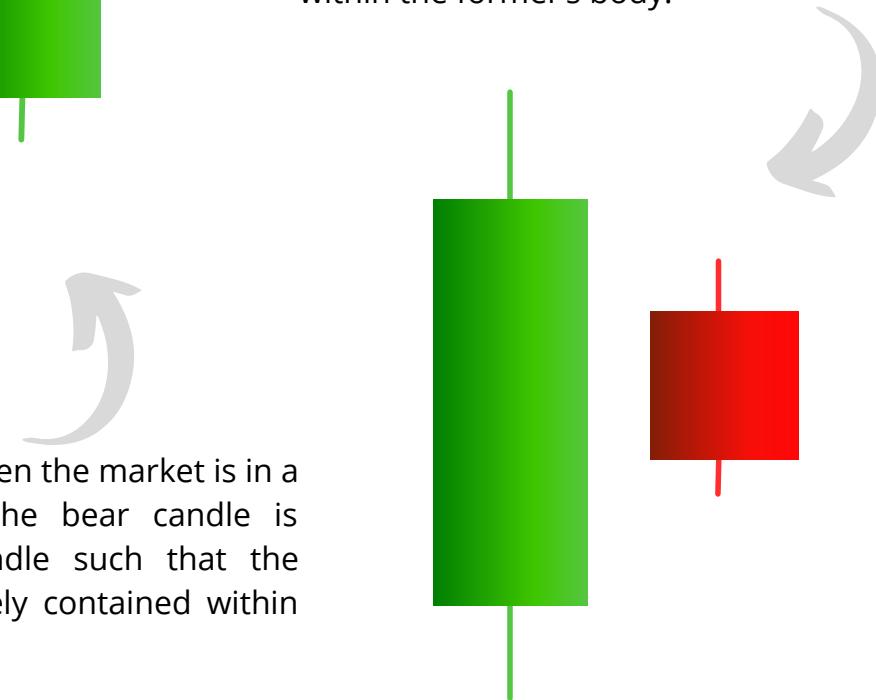
# HARAMI BULL & BEAR

The 'Harami' is again a two candlestick pattern that can be formed in two types—bull and bear. Here, we have the first candle that reflects the trend that currently exists in the market (bull candle for bull trend and a bear candle for a bear trend). The second candle's body is completely contained within the first candle's body and is in an opposite direction. This means that the open and close of the second candle falls within the range of previous day's open and close range.



### **HARAMI BULL**

Bull harami is formed when the market is in a bear trend and then the bear candle is followed by a bull candle such that the latter's body is completely contained within the former's body.



### **HARAMI BEAR**

Bear harami is formed when the market is in a bull trend and then the bull candle is followed by a bear candle, such that the latter's body is completely contained within the former's body.

## WHAT DOES IT INDICATE?

Harami candlestick patterns are a signal of a trend reversal in the market. This is because, in the case of a harami bear, the bulls were in complete control of the market, but the bears have not only just managed to stop the ascend of bulls but also managed a bear candle for themselves. This shows signs of the bulls wearing out and bears gaining control. We expect the bears to build on this and increase their control of the market.

The opposite of the same is also true for harami bull. However, here the transition of control is from bears to bulls. We expect the trend to reverse here. However, in practice, we will also see a lot of falls in harami on both sides. Segregating the true and the false ones is what art is about.

## HOW TO TRADE?

We expect the trend to reverse once a harami candlestick pattern is formed. We will short the asset when a bear harami is formed and long the market in case of a bull harami. For a bear harami, we will take a position in the next session following the formation of harami, if the price opens lower than the harami candle's close price. We can have the stop loss as the high price of the bull candle just before the harami. The reverse of this is also true for bull harami. This way we define our entry strategy, stop losses, and exit circumstances.

A trader could use all his custom preferences here about when he would like to enter a trade and there is no such hard and fast rule bounding him. The above-mentioned rule is just a general suggestion. There is no limit to how creative one can get here and whatever makes their system work should be done.





 TradingView

1. This is a bullish harami. The second candle is completely contained within the range of the previous bear candle. The bulls have managed such a candle after bears having complete control over the market, which indicates a reversal in the market. A trader may enter a new trade over here, based on the entry, exit, and stop-loss rules they have defined for themselves.

NSE:KOTAKBANK, 1D 1883.70 ▼ -19.75 (-1.04%) O:1911.00 H:1911.00 L:1881.55 C:1883.70



TradingView

1. This is a bullish harami again. A trader can take a long position following this based on his strategy.
2. This is a bullish harami. Here, again we can expect a reversal going ahead. The bulls can go long here based on their strategy.



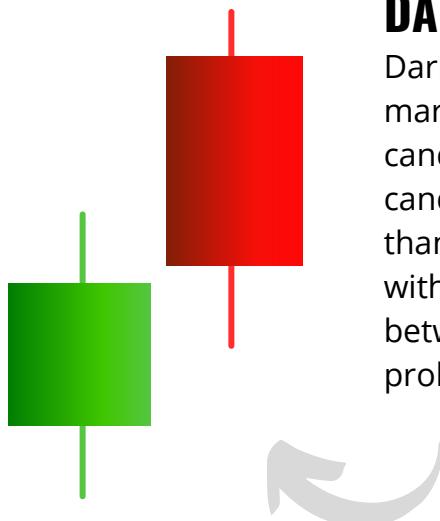
TradingView

1. This is a bearish harami. The candle body of the second candle is completely contained within the range of the first candle. We can expect a reversal here and the trader can go short based on their exit and entry strategy.
2. This is a bullish harami as the second candle is contained within the first candle's body.

This is how harami looks and works. They indicate strong reversal and we can initiate trades based on these candles.

# *Pattern 5*

## DARK CLOUD COVER & PIERCEING

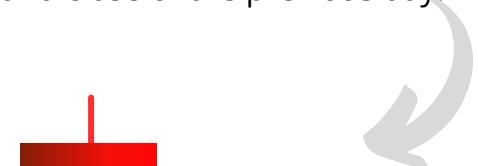


### DARK CLOUD COVER

Dark cloud cover is a two candle pattern. Here, the market is in a bull trend and forms multiple bull candles. Following one such bull candle is a bear candle such that the open of the candle is higher than the previous candle's body but the close is within the range of the previous candle's body i.e. between the open and close. This indicates a probable trend reversal.

### PIERCEING

The bull version of the same is called a piercing. The market here is in a bear trend and following one of the bear candles is a bull candle such that it opens below the previous day's close but closes between the open and close of the previous day.



## WHAT IT INDICATES ?

Dark cloud cover as the name suggests indicates a trend reversal from bull to bear. We see that the market was in a bull trend and building on that, the asset price opened at a higher price in the next session as well. However, the bears were able to drag the market despite the open to a lower level. As a result, we see the bears gaining significant strength and expect them to build on it and as a result, the trend should reverse. Piercing is the bull version of the same. Here, we can expect the control to shift from bears to bull as the bulls have been able to recover the prices to relatively higher levels despite the control from bears.

## HOW TO TRADE ?

We will short the asset following dark cloud cover as we expect the bears to get greater control over the market. In the case of piercing, we will long the asset.

In the case of the dark cloud, an analyst can take a position based on the next day's prices i.e. short the same if the asset prices open lower than the previous day's prices. They can also take the position towards the end of the period when the dark cloud cover formation has been formed.

A stop-loss will also be needed. The same can be high or open of the dark cloud candlestick. These are subjective decisions based on the strategy adopted by the analyst and the trader. The same can be followed on the lower side when a piercing formation is created and we can initiate a trade based on the same.





 TradingView

1. This is a dark cloud cover formation. The second candle covers the previous candle partially with a closing in between the previous candle's body. We see that this is a strong reversal signal that the bears have been able to get back market control despite a higher opening on the second day.

NSE:RELIANCE, 1D 1941.90 ▼ -15.15 (-0.77%) O: 1963.55 H: 1974.95 L: 1938.00 C: 1941.90



 TradingView

1. This is a piercing candlestick formation. We see that the second candle opens below the previous day's closing and the bulls were able to get it back to close higher. This indicates a strong reversal. A trader can initiate a trade here based on their entry, exit and stop-loss strategy.

NSE:NIFTY, 1D 14535.50 ▼ -27.95 (-0.19%) O: 14639.80 H: 14653.35 L: 14526.10 C: 14535.50



 TradingView

1. This is again piercing candlestick formation. This suggests a strong trend reversal.



 TradingView

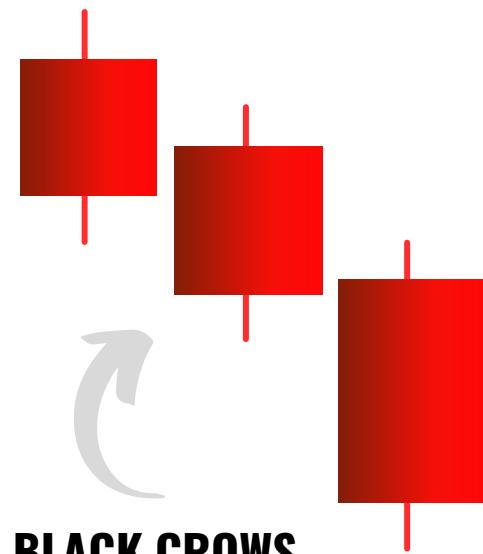
1. This is another piercing candlestick pattern. We see this to be a reversal indicator as well. This is how dark cloud cover and piercing candlesticks look. They are a bearish and bullish version of the same formation. These are used to identify reversals. An analyst can initiate trade based on these and their strategy. The key is to practice more and spot such candlesticks while they are being formed. Let us now move ahead and understand the next candlestick pattern.

*Pattern b*

# THREE BLACK CROWS & THREE WHITE SOLDIERS

## THREE WHITE SOLDIERS

Three white soldiers are the bullish version of the same formation. Here, we have three bullish candlesticks that are formed and the close of the second candle is higher than the close of the first candle and the close of the third candle is higher than the close of the second candle.



## THREE BLACK CROWS

In three black crows, there are three continuous bear candles in successive formation, in a way such that the close of the second candle is lower than the close of the first candle and the close of the third candle is lower than that of the second candle.



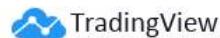
## WHAT IT INDICATES ?

Three black crows and three white soldiers indicate a trend in the market. They re-affirm who has control over the market currently. They do not show any signs of reversal. Three black crows indicate that the market is in very strong control of the bears. Hence, the asset price is in a position to fall in such an unopposed manner. Three black crows often follow a piece of significant news in the market. It shows that currently, the bulls have no control over the market. Three white soldiers indicate the opposite. It shows that the market is in the control of the bulls and currently the bears do not find a standing.

## HOW TO TRADE ?

Initiating a new trade based on Three Black Crows and Three White Soldiers is always a dangerous idea. The reason for the same is that after forming a Three Black Crows, the bears have used a lot of their control and there is a good chance for them to exhaust themselves. Also, there is a chance of strong reversal as the Bears have used their resources and the Bulls might come back with great force and the Bears will not have the resources to oppose them. Also, there can be a strong reversal due to profit-booking by Bears. As a result, we will not initiate a trade following three black crows or three white soldiers. Instead, if we have a position and one of these is formed, we will hold on to the position and it should re-affirm to us the same.

NSE:RELIANCE, 1D 1938.80 ▼ -18.25 (-0.93%) O:1963.55 H:1974.95 L:1918.45 C:1938.80



1. This is three black crows formation and the close of each candle is lower than the previous close. The bears have great control over the market here.
2. This is again three black crows. We see that the close is lower than the previous one and also there is a gap down. This shows a bear grip over the market.

Also, it is evident that initiating a new trade following these is a risky proposition as the bears might have exhausted themselves and the trend might see a strong reversal.

NSE:RELIANCE, 1D 1938.80 ▼ -18.25 (-0.93%) O:1963.55 H:1974.95 L:1918.45 C:1938.80



TradingView

BSE\_DLY:SENSEX, 1D 49492.32 ▼ -24.79 (-0.05%) O:49763.93 H:49795.19 L:49073.85 C:49492.32



 TradingView

1. This is three white soldiers. We see that the market is infirm bull control. We will not take any trade following such formation. However, if we had a long position, we will hold on.
2. This is again three white soldiers which shows that the market is in great control of the bulls.
3. These are three black crows. We can see that these are preceded by Doji and gap downs. So, there is a good chance a trader was short here and if one had a position here, they should hold on the same.



 TradingView

1. This is another example of three white soldiers. We see how the close of each candle is higher than the previous candle. With this, we will try and identify more such patterns on our own in different charts.

- 
- 1 EVENING STAR**
  - 2 MORNING STAR**
  - 3 HAMMER**
  - 4 INVERTED HAMMER**
  - 5 KICKING PATTERN**
  - 6 DRAGONFLY**
  - 7 ABANDONED BABY**

& SO ON.....

## OTHER PATTERNS

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We have just concluded our discussion of various candlestick patterns. There are numerous other candlestick patterns that one can learn. We have covered the ones that will be most commonly used. However, there is a wide variety of such patterns –

We have covered most of the important ones in our discussion so far. One can create a well-functioning strategy using just these. So, for any beginner, it is a must to keep it simple and stick to the candlestick patterns that have been discussed so far. However, as they go advanced, they will be in a position to learn more about other patterns as well. Candlestick pattern-based trading is more about practicing it rather than being more knowledgeable about it.

Here, we have covered the most important candlestick patterns. Let us practice these in detail, get fluent in them, apply them in paper trading and real markets. We can go back to learning more advanced candlestick formations at a later stage.

# SYSTEMATIC APPROACH TO CANDLESTICK PATTERNS

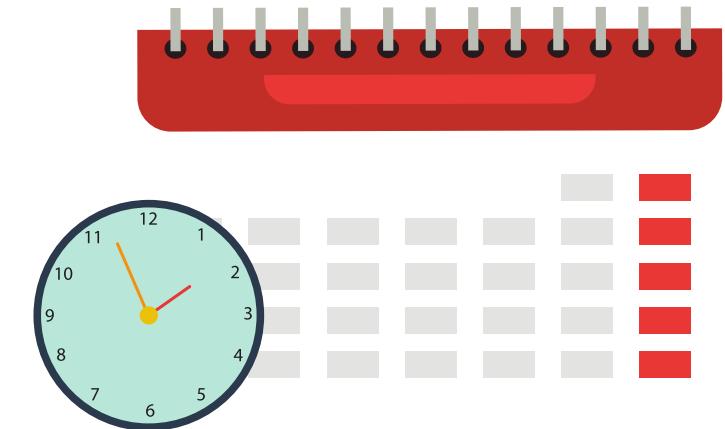
It is a common occurrence for those starting with technical analysis and trading to get extremely excited after making a good profit and extremely dejected after making a loss, even if a small one. However, according to the workings of technical analysis, we are relying on history to repeat itself when certain formations and patterns are being created. At times, the patterns do repeat themselves and at other times, the patterns simply do not repeat and we end up with a loss.

It is impossible to be invested in technical analysis and trading, without incurring losses. If someone only had profits for each time they traded, the world's richest person would have been a technical analyst. We will have profitable as well as loss-making trades. One large profit or loss does not necessarily mean anything; it can be pure luck too at times. So, instead of focusing on individual trades, we will focus on a systematic approach to trading. We will focus on a lot of factors and determine the progress of our system, i.e. if we make a profit or a loss on a systematic basis (over a length of time instead of individual trades). The trading system is a set of strategies with defined entry and exit circumstances and risk management practices in place that finds it very difficult to make sustainable profits in the market. There is no way to backtest their assumptions.

## TIME OF EACH CANDLE

The very first thing that we will do is, determine the period that will be reflected in each candlestick. We saw that each candlestick can depict a variable time frame – ranging from a few minutes to even a month.

We will match the time period in each candle with the average trade period we are looking at. If we are looking at intraday trading (buying and selling within the same day), we will mostly deal with candles with a time period of 5-15 minutes. For a few days, it is 1-day candles. For holding 1-2 months, we can use daily or weekly candles. Monthly candles are used when the time frame is even longer – more than 3 months.



## ENTRY STRATEGY

The next thing that we will determine for every strategy is its entry point. We have to identify the circumstances under which we would want to enter the trade if we decide to opt for the same. The fewer decisions to make, the better it is. For instance, let's say we are to make an entrance if there is an engulfing bear if the price next day opens lower than the engulfing bear candle's close. We will try to be as specific as possible and with time, we will fine-tune our entry strategy to make our trades even more efficient.

## EXIT STRATEGY

Determining an exit strategy means examining the circumstances under which we will exit our trade and it can either be a profit or a loss. We will never enter a trade where we do not have an exit strategy worked out.



A common mistake for beginners is to figure out an entry strategy, but leave the exit strategy on gut feeling or circumstances. This makes holding a profitable trade extremely difficult. So, we will always have a pre-defined exit strategy. For instance, we may enter based on candlestick patterns and then exit based on moving averages action. We will fixate on our exit strategy and follow it through, no matter profit or loss. This will reduce the impact of emotions to a great extent in our system. We need to know that emotions are the enemy of profitability in a trading system.



## STOP LOSSES

Stop Loss refers to the limit to which we are willing to take maximum losses. Let us understand this better with examples. When we buy a stock at Rs. 100 and fix a stop loss at Rs. 95, we are limiting the losses that we can incur to Rs. 5. In this case, if the stock prices fall to Rs. 95 or lower, it will automatically be sold off irrespective of what our exit strategy says.

Similarly, when we short a stock at Rs. 100, and have a stop loss at Rs. 105, this means if the price goes above Rs.105, our position will be squared off (settled) and our maximum losses will be limited to Rs. 5.0

## HIT RATIO

Hit ratio is the number of correct or profitable trades that we enter out of the total number of attempts in a fixed time frame. Let us say, based on a strategy, we entered 34 trades in the last 12 months, and of these, we made a profit 14 times and a loss 20 times. So the hit ratio is 41% ( $14/34 \times 100$ ).

Now is this good or bad? It may look bad, but this is when our system-based thinking comes into the picture. We will combine the average profits of profitable trades with average losses of loss-making trades. This will tell us if our system is profitable or not.



### PROFIT WHEN RIGHT

The next element that we need to examine is the average profit we have made out of the trades that we have entered. This indicates the average profit we have made. Let us assume, 14 profitable trades were made out of 34. The amount has to be calculated after deducting for brokerage and trading costs. Let us say, we made an average of Rs. 15,000 per profitable trade in the past 12 months.

### LOSSES WHEN WRONG

In this case, the system has incurred 20 loss-making trades. Let us say, on average they lost Rs. 2,000 per trade. In this case, it is an excellent system because the system makes Rs. 15,000 when profitable and loses Rs. 2,000 when wrong. It is right  $14/34 = 41\%$  of the time. This looks like an excellent system.

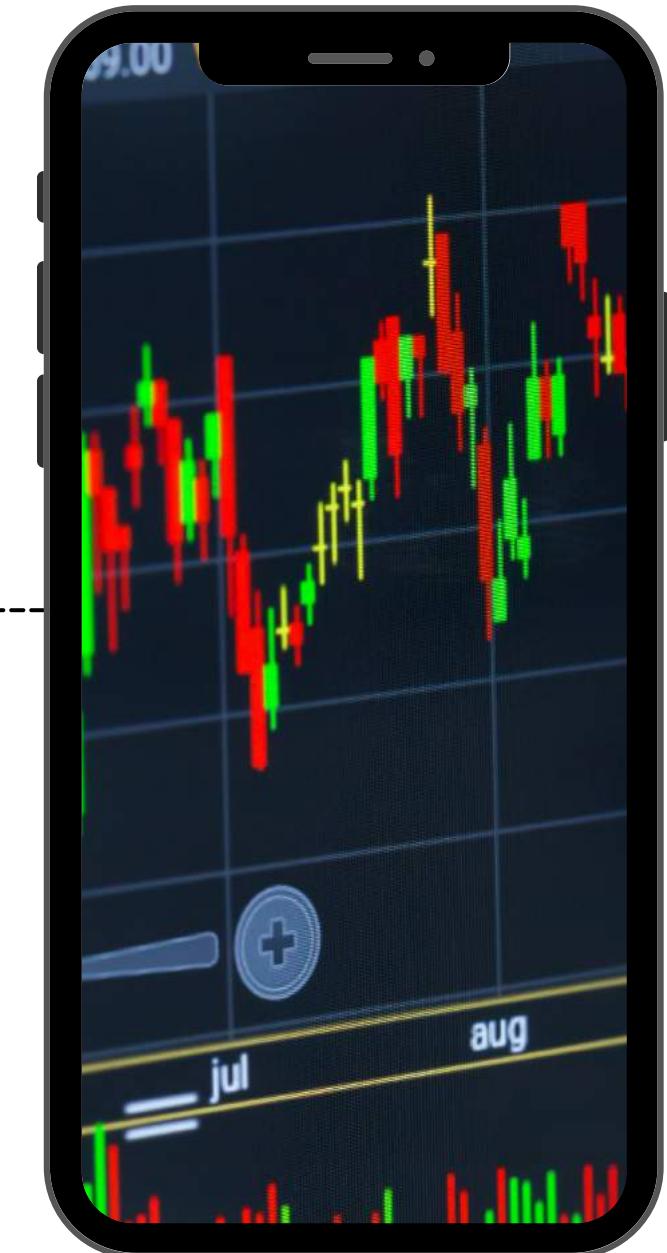
However, if the average loss was also Rs. 15,000 too, we could say that this is a horrible system because, over a longer period, the system will lose money. So, combining the hit ratio with the amount we make and lose in case of profitable and loss-making trades, will create a system that is backed by data. We will learn more about these going ahead in much greater detail.

## TIME OF ENTRY

Another major decision to be made when dealing with candlesticks is to fixate on a time for entering the trade based on the candlestick formation. So, we can either enter a trade at open of a new candlestick or close of the previous one. It is very difficult to trade in between a current candlestick as we are unaware of the shape it can take.

While using a daily weekly candlestick pattern, we would suggest a trade on close i.e. just before the market closes so that we have entire data based on which we are making a decision. In case we enter the trade the next day at the opening price, we are missing out on any gaps that might be present between candles, but we are taking less overnight risks.

Also, we will not indulge in any new trade through the candle duration as it could make false moves. This means every Doji looks like a trend continuation and a reversal at some point of the day before it is converted to a Doji. Every engulfing bear looks like a gap up on open. As a result, to avoid such false moves, we will only enter and exit at the end of the candlestick duration or beginning of it. However, the final choices for the trader to make.



# SUITABILITY

Candlestick pattern-based trading is not suitable for all securities. We are trying to understand the balance of power between bears and bulls in the market and recognizing the one with more control at the moment. This only makes sense when no single individual or group can influence the asset price on their own. As a result, we should apply candlestick patterns only on indices, large-cap companies, commodities and currency exchange. No single person can influence these asset prices and as a result, we get a reliable picture of balance between bulls and bears and their control over the market.

On the contrary, in small-cap companies and few mid-cap companies, a significant investor or promoter can affect the prices and as a result, we do not understand the correct balance between bulls and bears. Therefore, we will not use candlestick patterns on smaller companies where one individual can influence the prices.



# PRACTICE FOR CANDLESTICK PATTERNS

More than our knowledge on the said topic, what is of greater significance is our application of the same. For anyone who is not well-versed with candlestick patterns, it will take time to get a hang of the same and meanwhile, they will have made pretty expensive mistakes in the market.

Hence, we will practice considerably on the historical data to understand the working of candlesticks their patterns. We expect a learner to spend 2 hours reading about candlestick patterns in the book, but then at least 20 hours should be spent on applying the same to the past data. That is where one gains confidence from and corrects the areas of mistake. So, each one of us will spend an enormous amount of time in following the practice steps below.



**READING - 2 HOURS**



**PRACTICE - 20 HOURS**

1

1. Open a chart for Nifty and use the go-to date option and go to 01 January 2000 on Tradingview.

2

2. Zoom in on the chart with 20-25 candles on the screen. We will use daily candlesticks, to begin with. We can experiment with other timeframes later.

3

3. Now, we will drop the mouse and use the arrow keys. Every time, we press the 'Right' key, we move one day forward and one new candlestick is added to the series.



4

Now, get a pen-paper or do this in excel. We will begin from 01 January 2000 and keep going right as if the prices are moving real-time. Now, we will mark all the candlestick patterns that we observe and write down on pen-paper about the trades that we might have taken based on candlestick formation. We will focus on the right-most candle of the screen and make our decision based on what we would have done if something of this sort were to happen today.

We will practice on the data that was available in the past.

The key is, to be honest, and not look beyond the succeeding candle till the time we have made our decision.

We will go ahead, one bar at a time –making our decisions. This way we will go one by one from 01 Jan 2000 to the current date and at the end see our year on year performance.

5

We will repeat such a practice with other larger companies or else with other indices or commodities, to trade and understand our progress.





Such practice will take hours and days of effort. However, such practice will also make sure that we are completely fluent in candlestick patterns. We will see how it is always easier to see patterns in hindsight, but when we try to understand this with a future-looking perspective, they do not always work the way they are supposed to.

It is only through such practice that we can make sure that we are ready to take active positions in the market and not go to the market under-prepared only to end up paying huge tuition fees in the form of losses. Move to the next analytical tool after practicing this.



PRICE & VOLUME



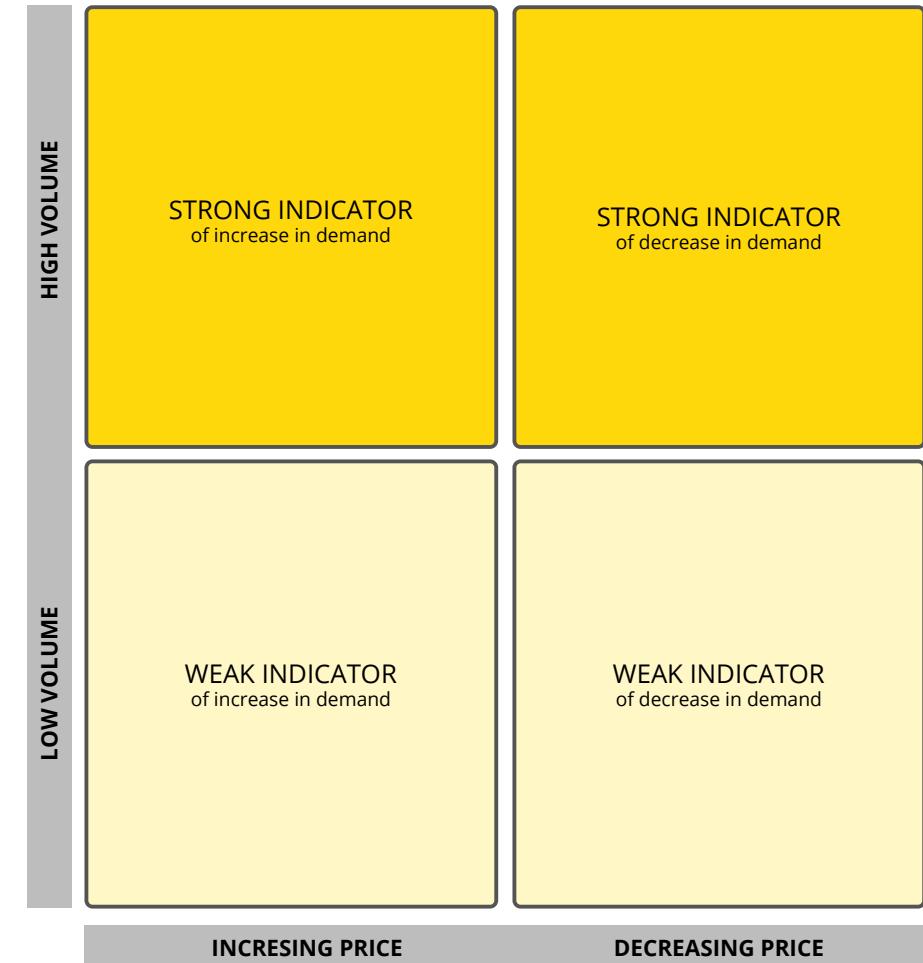
One of the most age old technical analysis tool is the simple tool of using Price and Volume data together. The simple yet powerful tool gives us very strong signals about the direction in which the asset price is moving. A sudden jump in volume with closing price moving in any particular direction gives a strong indication about the trend. Either it is associated with news or else it can mean strong indications about the trend.

When there is a sudden increase in volume and it is not clearly associated with a news very specific to the asset, we can use volume jumps as reliable signals for strong trends. Whenever there is a price increase with very heavy volume, we can say that at the moment the Bulls have a very firm grip over the market and the volume is validating that. We can expect in such a scenario that the Bullish trend will continue as there is immense Buying pressure for them.

Similarly, when there is sudden jump in Volume and is accompanied with falling asset prices, it means that the Bears have firm grip over the market. In such situation, if we are long on any particular asset, we should immediately square off our position as the Bears are expected to exercise control over the market. We see how Volume data is being used to validate the strength of the movement.

We see that such price and volume data does not give us clear and Entry and Exit signals. We will never take any trades purely based on this data. However, we will use these to validate the strength of movement using other indications. We will use these to square off our positions in case there is a movement in the opposite direction and we will use these to increase our conviction on positions that we are holding and hold them even longer. Pure price and volume data is one of the most fundamental data around which entire technical analysis is built. Let us see how they look in practice.

# PRICE & VOLUME



NSE:PARAGMILK, 1D 121.60 ▲ +1.75 (+1.46%) O:120.95 H:122.60 L:120.35 C:121.60



 TradingView

We see that the sudden increase in volume along with Bullish Movement indicates very strong Bull grip over the market. We will square off our positions if we are short on such assets. We will continue to hold long with added conviction if we are long on this asset using other indicators. However, we see we cannot enter any trade solely based on Volume Data.

NSE:MINDTREE, 1D 1681.90 ▲ +18.35 (+1.1%) O:1700.00 H:1760.00 L:1664.15 C:1681.90



These are all examples of volume increases. We see that in the first instance, if we were long the asset which is very likely, we would have instantly squared off the position. Second time around, we would have continued to hold our short position. Third time around, we see that we will not take any trade based solely on volume jump. We will hold if we were Long on the asset. Also, we will check if there was any news around this date that affected the company directly.

NSE:MINDAIND, 1D 415.50 ▲ +9.25 (+2.28%) O:406.25 H:417.45 L:406.25 C:415.50



TradingView

This is yet another example of Volume Jumps. We will continue to hold our long position with greater conviction if we had one here using other indicators.

NSE:MOLDTKPAC, 1D 326.75 ▼ -1.45 (-0.44%) O:334.00 H:348.80 L:320.55 C:326.75



We see how Price and Volume data is sending the occasional mixed signal. We will not be able to act on this data in any material manner. We can use volume data along with almost any other indicator or analytical tool to understand the strength of the trade. Volume data's primary role is purely to understand the strength in the direction. With this, we end our discussion of Price-Volume data. One of the simplest yet most powerful analytical tools to conduct Technical Analysis. Let us now move on to next analytical tool.

# MOVING AVERAGES EXPLAINED

HOW TO TRADE USING  
MOVING AVERAGES

20+  
EXAMPLES

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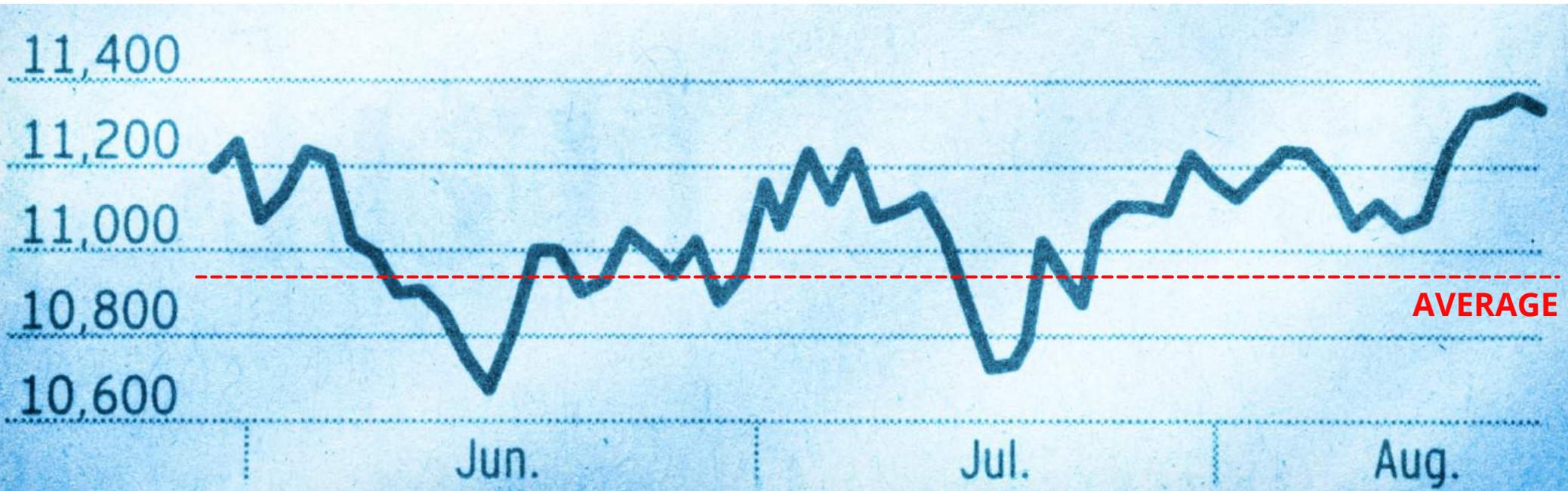
# MOVING AVERAGES



# INTRODUCTION

The next analytical toolset that we will be talking about is “Moving Averages”. We will learn to use moving averages to conduct technical analysis and to create trading strategies.

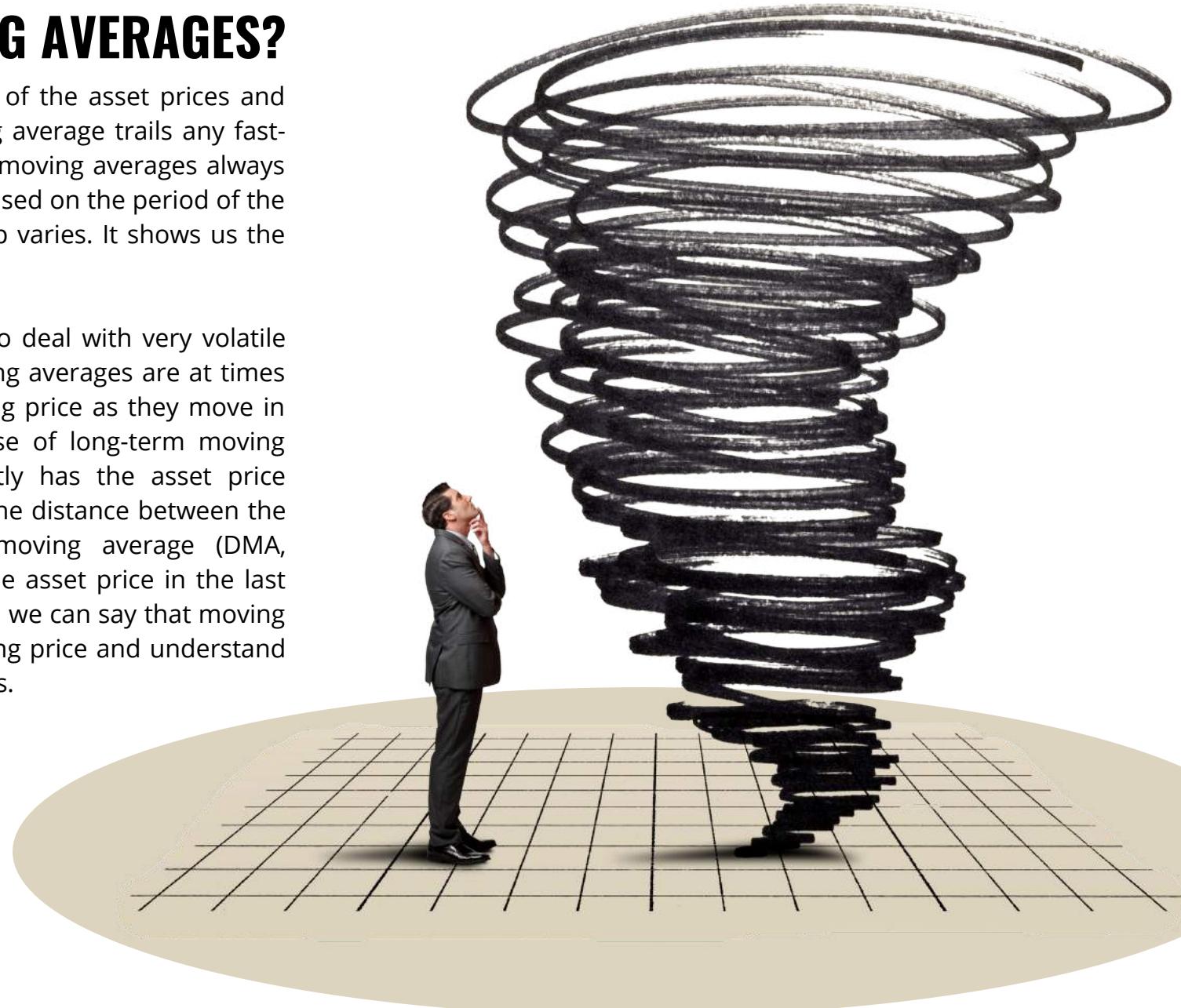
The new entries keep on adding themselves automatically and the last entries keep deleting themselves and hence, the name ‘moving averages’. For instance, a 10-day moving average is an average of the last 10 days' closing price. Now, when a day passes, a new closing price is added and the 10th days' closing price is removed from the moving average. This means it is a rolling average of the last n number of periods. We can have a moving average for any number of periods. We can have moving averages for 4 periods, 9 periods, 20 periods, 50 periods, and so on. The ones that we will use depends on our typical holding period for that asset.



# WHY DO WE USE MOVING AVERAGES?

Moving averages smoothen the volatility of the asset prices and give us a stable line to deal with. Moving average trails any fast-moving trend on either side. As a result, moving averages always try to catch the latest closing price, and based on the period of the moving average, the speed of catching up varies. It shows us the trend in the asset price.

Without moving averages, we will have to deal with very volatile closing prices of assets. Short term moving averages are at times used as an alternate for the actual closing price as they move in line with the closing price. We make use of long-term moving averages to understand how significantly has the asset price moved in the time period. For instance, the distance between the actual closing price and a 200-day moving average (DMA, henceforth) denotes the movement of the asset price in the last 200 sessions i.e. approximately a year. So, we can say that moving averages are used to smoothen the closing price and understand the trend of the asset price in longer terms.



# TYPES OF MOVING AVERAGES

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## SIMPLE MOVING AVERAGE

SMA is a moving average calculation method where each observation or closing price is given equal weightage. This means, for a 10-day moving average, each day is given equal weightage. It is the traditional method to calculate simple averages and it gives a true picture of the existing trend.

## WEIGHTED MOVING AVERAGE

WMA is a moving average calculation method where the recent closing prices are given higher weightage than the older ones. Assigned weights increase linearly. This means, in a 10-day WMA, day 1 will have 10 times more weightage than day 10. Weighted moving average moves faster and it can follow the closing price at a faster pace.

## EXPONENTIAL MOVING AVERAGE

EMA is a moving average calculation method where the recent closing prices are given more weightage than the older ones. Assigned weights increase exponentially. This means, in a 10-Day EMA, day 1 will not just be 10 times more weighted than Day 10 but much higher. The difference is exponential. EMA moves the fastest and can follow the closing price at a much faster pace.

Now we have to figure out the one to be put to use. We will rarely be using WMA and will majorly rely on SMA and EMA. The difference between EMA and SMA is sensitivity. EMA reacts much quicker to price changes as compared to SMA. As a result, it is relatively more volatile whereas the SMA is much more stable.

Traders will develop their preferences going ahead and choose between SMA or EMA. As a general rule, for short term holding period, we will use exponential moving averages as they handle volatility better and for longer-term holding period (more than a week), we will use simple moving averages. However, these are random suggestions and no fixed rules and a trader will develop their preferences going ahead.

## SUITABILITY

Moving averages are suitable for all kinds of assets – indices, large-cap, mid-cap, small-cap, currency, commodities and many more. However, trading decisions purely based on moving averages shall be restricted to indices and large caps because small-caps and the mid-cap trend can be at times managed by promoters and significant investors.

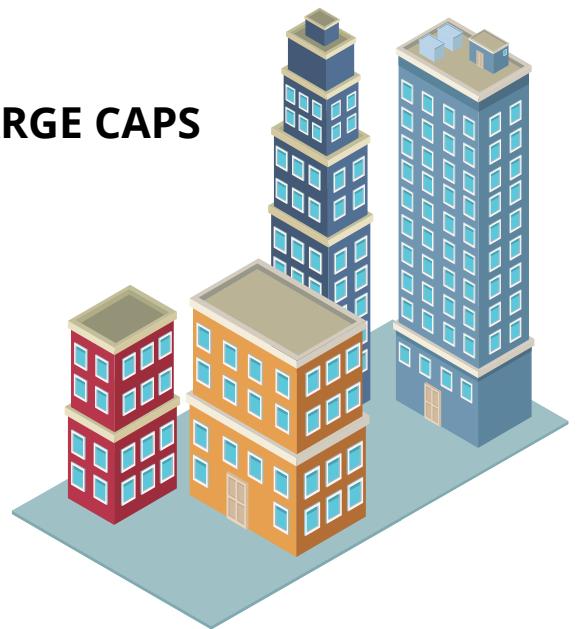
We will combine moving averages with other analytical tools too to create positive signals about the same. If used well, moving averages is a really powerful way to conduct technical analysis for assets.



### INDICES

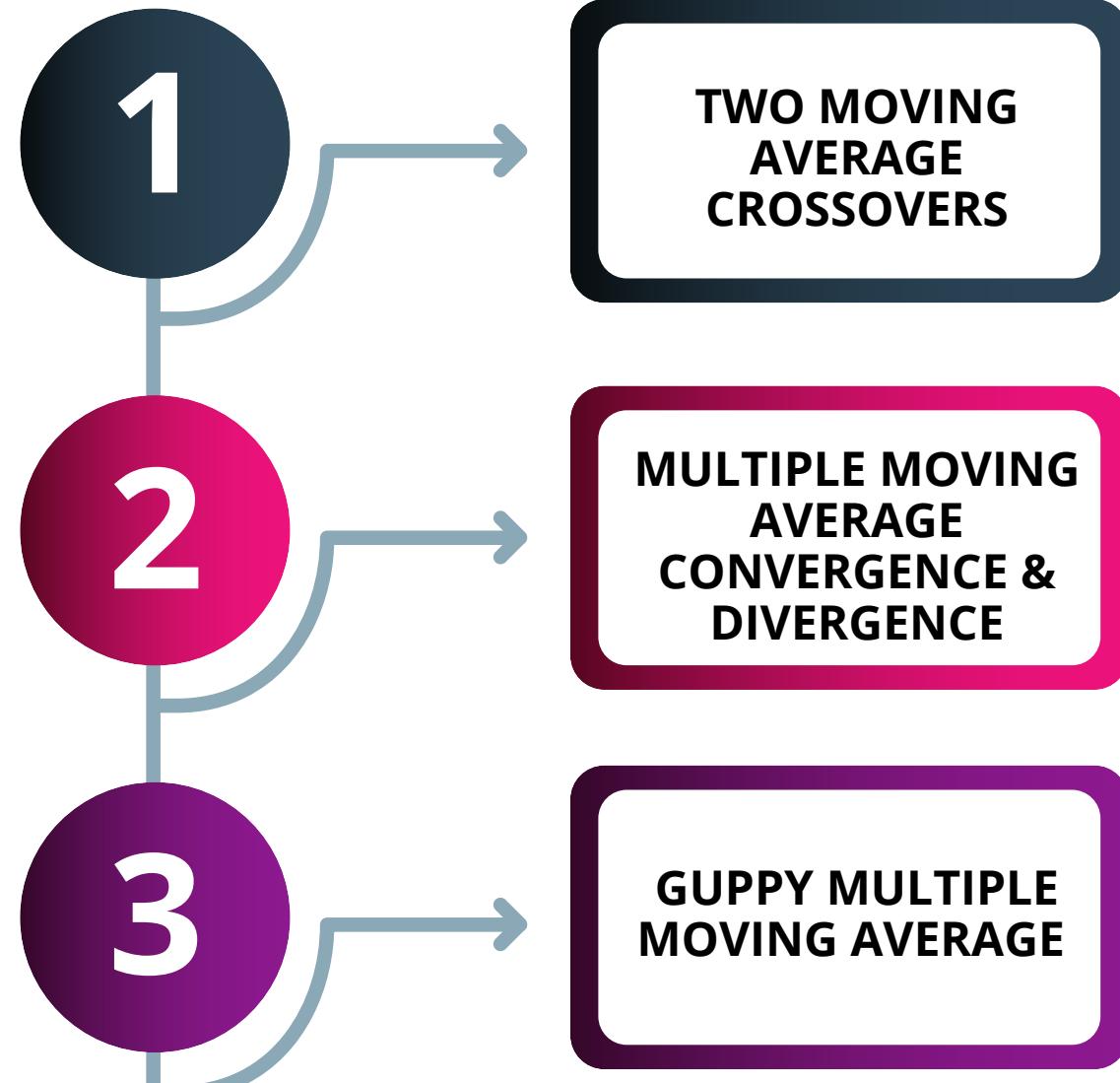


### LARGE CAPS



# HOW DO WE USE MOVING AVERAGES?

We can use moving averages in more than one way to determine our entry and exit points in an attempt to create a system. We will mainly be using three methods:



# 1 TWO MOVING AVERAGE CROSSOVER

In keeping with this method, we will consider 2 different moving averages, one long term, and another short term. Whenever they cut each other, we will treat those points like entry and exit points.

The idea here is that the short term moving average follows the closing price closely whereas the long term moving average follows the closing price relatively slowly. As a result, when the short-term moving average is above the long-term moving average, we can say that in the recent past, the asset price has been more than the longer-term average and as a result, the asset seems to be in control of the bulls.

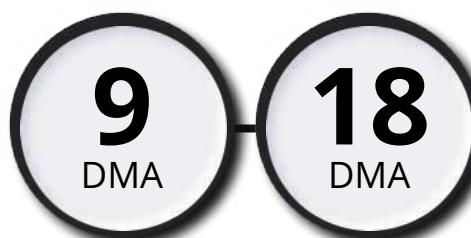
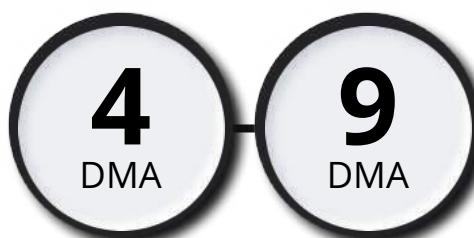


# HOW TO USE THIS?

When a short term moving average, let us say 50 DMA cuts 200 DMA from the downside, that means the asset price is in an uptrend and the recent history it has averaged more than the long term. As a result, we will use this crossover, where a short term MA cuts long term MA as bullish crossover and this can potentially be an entry point for a trader.

Conversely, when a short term moving average cuts long term moving average from the upside, then the asset price in a downtrend. Let us say 50 DMA cuts 200 DMA from the upside and now the long term average is higher than the short term average price of the asset. This acts as a sell or short signal for the trader. Such a crossover is called bearish crossover.

We can have multiple combinations of lengths of moving averages, for which we can experiment with crossovers to settle on one that works the best for a given asset. Some of the common lengths of moving averages are – 4DMA, 5DMA, 9DMA, 18DMA, 45DMA, 200DMA. We can try any permutation of these common ones and understand the price movements.



Some of the common lengths of Moving Averages are – 4DMA, 5DMA, 9DMA, 18DMA, 45 DMA, 200DMA. We can try any permutation of these common ones and understand more about how the asset price is performing. Some of the common moving average combinations for Crossovers are as follows.

The selection of the length of the moving average is based on the average holding period of trade that we generally submit. For someone who has a holding period of a week, a 4DMA and 9DMA might work better. For a month, 18DMA and 50 DMA might work. However, there are no fixed rules.

One of the most effective moving average crossover pair is 9DMA and 45DMA. However, there are so many others and a trader or learner is better off to experiment with the same and infer what works best for them.

# HOW TO CHANGE SETTINGS ON CHART?

We will now talk about changing the length of different moving averages on TradingView and ChartInk. On ChartInk.com, we will select the moving averages option on the top left and then select the checkboxes to make them appear. Upon changing the parameters in the adjoining box, the numbers here will denote the length of the moving average. A parameter of 50, will mean a 50DMA and a parameter of 20 will mean a 20DMA.

Next on TradingView, we will go to functions where we can add indicators and oscillators. Here we can search and add moving averages on the chart. Once we have a moving average added to the chart, its details appear on the top left corner of the chart. Clicking on the small settings button at the top left corner of the chart will open a pop-up box where we can make changes to the length of the moving average.

## LAGGING INDICATORS

Moving averages react to price changes with a delay as they require some time before they can catch the last closing price. As a result, with moving averages, we will see that a few pairs of moving averages produce delayed signals i.e. they act as lagging indicators. This is particularly the case with long term DMA crossovers, for instance with 50DMA and 200DMA.

Certain other pairs produce less delayed crossovers. As a result, it is an art for the analyst to create a system that ensures that the moving average pair in use does not produce delayed or lagging signals. An analyst should spend time experimenting with different time frames in moving averages and check if their crossovers create reliable signals for the time frame that they are looking to trade.

# MOVING AVERAGES DO NOT WORK SIDeways

Moving averages do not work in a sideways market and can lead to losses if we trade based on the same. Volatility in asset prices works well for trading using moving averages. As a result, we will avoid trading using moving averages in a sideways market.

It would be difficult to identify sideways markets until we have incurred losses. So, an analyst will have to work out a system that takes into account the volatility before initiating a trade. For instance, one could check if, in the last  $n$  number of periods, the moving average has occurred more than once. Here,  $n$  number of periods refer to the period of the long term moving average. Another method is to combine with some indicator that shows volatility. There is no right or wrong answer here. An analyst needs to get creative and then back-test the assumptions that they are making. This is where it takes a lot of time and effort to create a system that works.

Now that we have learned about moving averages in detail, let us now move ahead and look at examples for different crossovers.





TradingView

This is an example of Moving Average crossover. We have used two EMA i.e. 9 day EMA and 45 Day EMA. Firstly, we can see how Moving Averages work. They stabilise the rough nature of closing prices across and instead produce a smoothed line. We see that whenever the 9 DMA crosses 45 Day EMA from bottom, it creates a Bullish crossover which is a Buy signal. When the reverse happens, it creates a Sell Signal.

NSE:HDFCBANK, 1D 1503.85 ▲ +20.75 (+1.4%) O:1491.80 H:1511.65 L:1467.00 C:1503.85



TradingView

This is another example of 9 DAY EMA and 45 DAY EMA. We get Buy and Sell signals using these. We can create an entry and exit strategy around these. We can use combination of any two moving averages and see what is working for the strategy that we are trying to create.

NSE:LOKESHMACH, 1D 41.25 ▲ +1.95 (+4.96%) O:40.40 H:41.25 L:38.00 C:41.25



TradingView

This is yet another example of 9 Day Moving Average and 45 Day Moving Average. In all the three charts that we have seen so far, the asset price has been in a trend and hardly in sideways movement. Let us see how the same looks when there is sideways movement in the asset price.

NSE:NIFTY, 1D 14521.15 ▲ +239.85 (+1.68%) O:14371.65 H:14546.05 L:14350.85 C:14521.15



 TradingView

This is an example of sideways movement and the kind of pattern it creates using Moving Average Crossovers. We see that it creates a lot of frequent Buy and Sell signals. An analyst needs to create a system such that they can filter out such sideways movement of the asset prices. Moving Averages and Crossovers do not work well in such sideways market. Acting purely based on these will create multiple loss making trades in sideways markets.

NSE:KOTAKBANK, 1D 1887.00 ▲ +40.05 (+2.17%) O:1856.10 H:1892.00 L:1845.25 C:1887.00



This is another example of sideways market. Here again, we can see that the two moving averages have crossed 6 times in the marked time frame. This will create losses on each of the trade. As a result, a volatility filter will be very handy here to avoid such a market completely. An analyst needs to experiment with what works well for them and accordingly create an entry and exit strategy.

NSE:L\_TFH, 1D 107.10 ▲ +7.55 (+7.58%) O:100.50 H:108.80 L:100.20 C:107.10



TradingView

This is yet another example of sideways market. We see how Moving Averages and Crossovers work great in trending markets whether it be downtrend or uptrend. However, in sideways market, they do not work one bit and lead to losses. It is not always possible to identify sideways market when they are beginning. However, we will not repeatedly trade in the same and have multiple losses.



 TradingView

As we discussed earlier that we can have crossovers for any period of time in the moving average. Here we can see that we use two moving averages – 50 DMA and 200 DMA. These are relatively longer term moving averages. The crossovers of these also create buy and sell signals. So, an analyst should work on their trading style and strategy and accordingly decide on the length of the Moving Averages that they intend to use for crossovers. Also, we see that the buy and sell signals on the chart are very delayed and as a result, if we take an entry and exit based on these signals, we will most probably incur losses.

NSE:DLF, 1D 289.00 ▲ +11.85 (+4.28%) O: 279.50 H: 299.50 L: 278.70 C: 289.00



 TradingView

This is again a 50 DMA and 200 DMA crossover chart. We see how Bullish and Bearish crossovers are occurring. We also need to notice that the signals created here are again delayed. That is in fact the case with 50 DMA and 200 DMA almost always that the signals are so delayed that we will end up buying way after the trend has reversed and at times even at the peak of the uptrend too. Because of the delay in taking the decision, we will incur losses unless there is a very strong trend in the asset price. As a result, it is very difficult to make such systems work if the signals are delayed.

NSE:DLF, 1D 289.00 ▲ +11.85 (+4.28%) O: 279.50 H: 299.50 L: 278.70 C: 289.00



 TradingView

This is yet another Crossover pattern. We see 9 Day EMA and 18 Day EMA crossover here. We see how it creates great entry and exit signals in trending markets. We also see that these do not work in sideways markets. We also see that the signals are not too delayed to act upon. As a result, we see that these crossovers are not lagging. Now whether or not do they fit our trading system, we will back test the same and understand if it is systematically performing well or not.

NSE:DLF, 1D 289.00 ▲ +11.85 (+4.28%) O: 279.50 H: 299.50 L: 278.70 C: 289.00



 TradingView

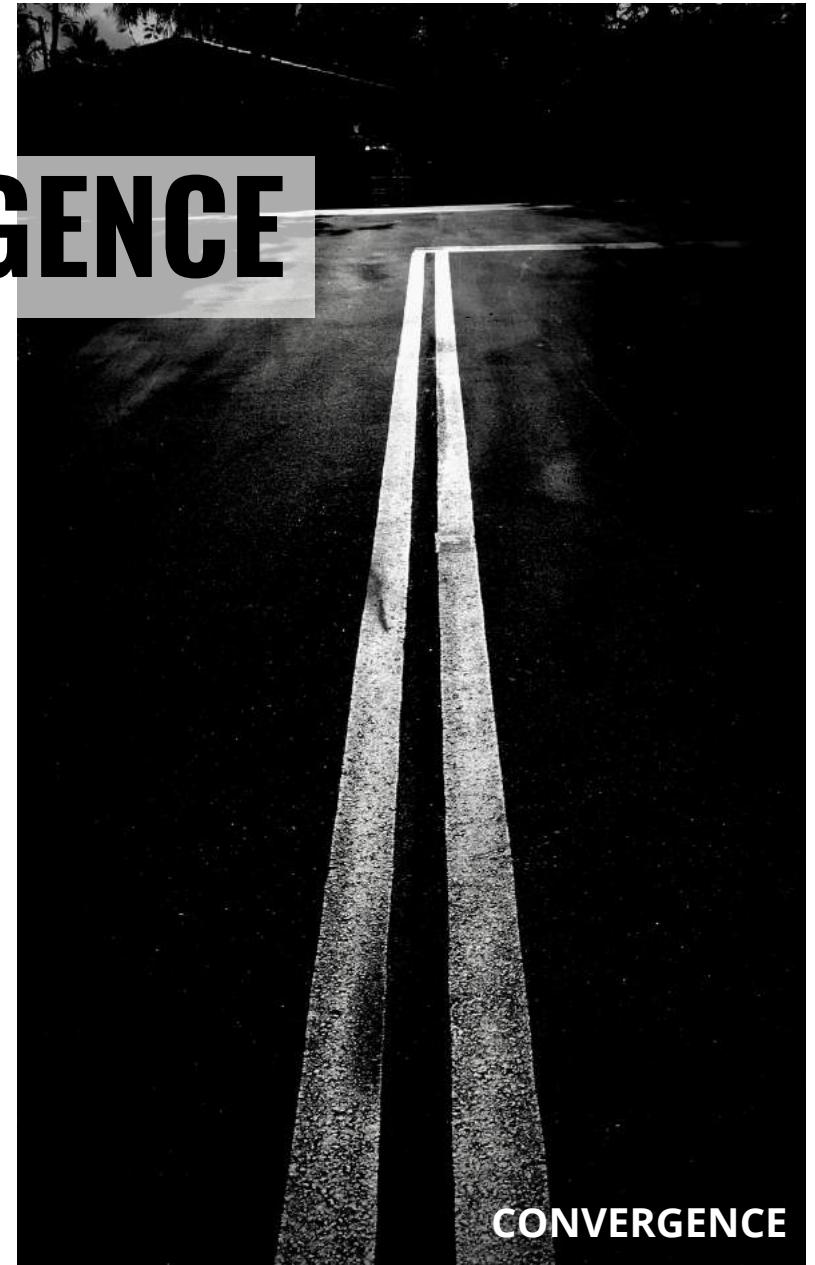
This is yet another example for crossovers not working well in Sideways market. The false crossovers created in this phase, lead to poor returns. With this, we have discussed how we can use Moving Averages and Crossovers to create entry and exit signals. We also see that the key now is in experimentation and creating a system that works. It takes a lot of time and effort and practice. A beginner is better off putting as much time in practice as possible. This will make them fluent in spotting subtle parts of chart reading.

# 2

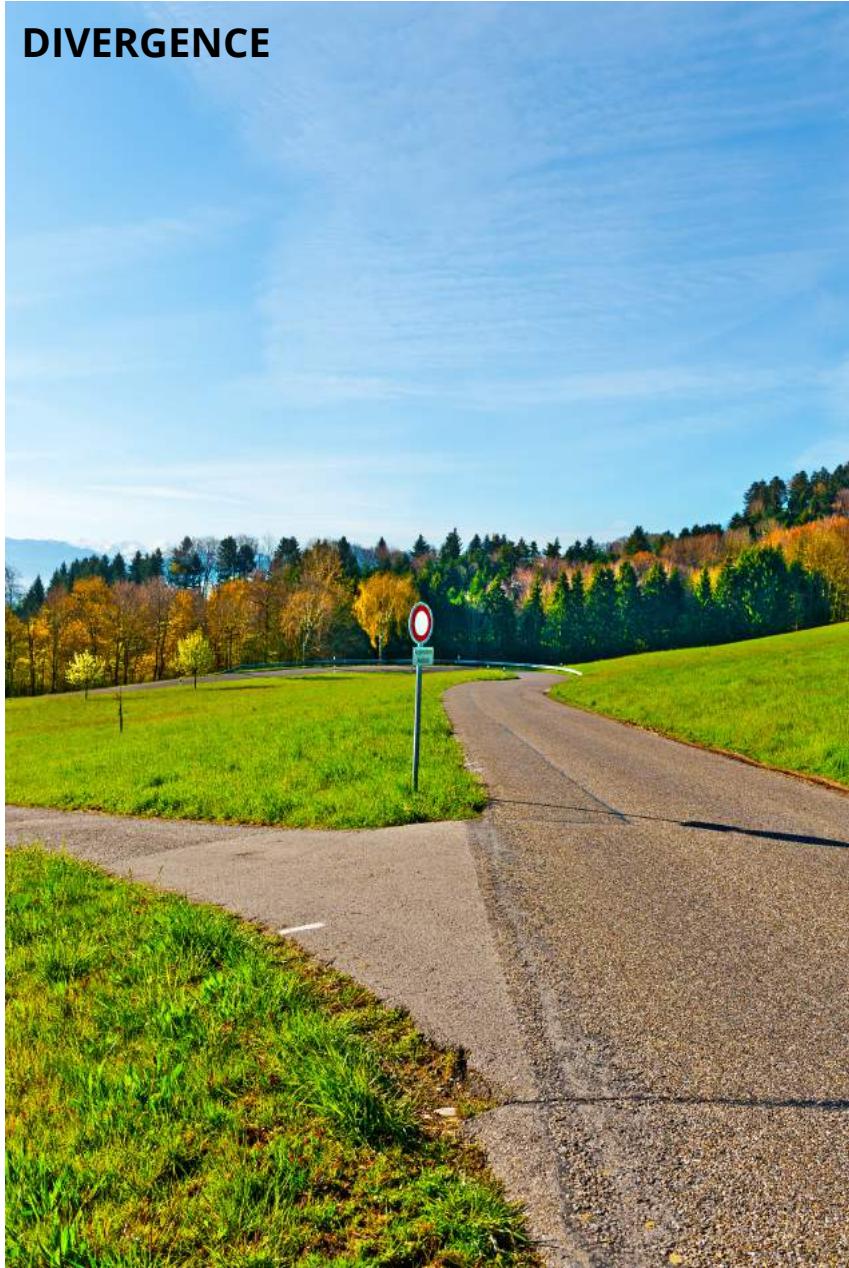
# MULTIPLE MOVING AVERAGE CONVERGENCE & DIVERGENCE

With this, we come to the next method of using moving averages i.e.moving average convergences and divergences, based on which we will generate trading signals.

We will take multiple moving averages in the likes of 5DMA, 9DMA, 18DMA, 50DMA, and 200DMA. We will see that in periods of sideways markets (a sideways market, or sideways drift, occurs where the price of a security trades within a fairly stable range without forming any distinct trends over some period of time), all these moving averages come together and the gap between each of them is very minimal. We can say that all the moving averages 'converge' together. When such a pattern occurs, it is called a convergence of different moving averages. At times, 200 DMA will not be a part of this and all other moving averages will come together and be a part of the same. Such cases are also an example of moving average convergence.



## DIVERGENCE



Convergence can be seen as the first step before the asset makes a move in one of the directions. Whenever the asset price makes a big move in any particular direction, the short-term moving averages start to follow the same whereas the longer-term moving averages take time before they react. As a result, the distance between short-term moving averages and long-term averages begins to increase and they 'diverge' from each other. This is called a moving average divergence. Such divergence means a big move by the asset price in either direction.

As a result, whenever moving averages converge, we will keep a keen watch on that particular asset and look for early signs of divergence. We can recognize the early signs of divergence when the short-term moving averages start to break away from the convergence and move in either direction. If they start to run away on the lower side of convergence, we can see that as a short signal whereas we see divergence on the upper side of the divergence as a long signal.

We will also see that convergence and divergence will create a lot of false signals which will lead to small losses. However, these shall be met by the profits made in case of actual divergences. Also, systematic back-testing will make sure that we check if the system is working or not.

A major drawback of convergences and divergences is that it does not present any specific entry point like crossovers. We enter the trade whenever we gather enough conviction that this is a divergence that is playing out. But, divergences do not give an exit signal. As a result, we will combine this with other indicators and tools to design an exit strategy.

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This is typically how moving average convergences and divergences work. We see that during the sideways movement, all the different moving averages come together i.e. they converge. On spotting this, we will closely monitor the asset price and when the shorter-term averages started to move away, we could see that as a divergence. In this case, the divergence was towards the lower side, so it created a sell or short signal for us. This is the systematic way of the functionality of convergences and divergences.

MA (4, close, 0)  
MA (9, close, 0)  
MA (18, close, 0)  
MA (50, close, 0)



This is another example of convergence and divergences. We have used 4 DMA, 9DMA, 18DMA, and 50 DMA here. We see that same play out in multiple phases.

1. Beginning June, all the asset prices start to come together i.e. converge with one another.
2. The short-term moving averages start moving upwards creating a false divergence signal. We might have gone long here as the move is significant and ended up with a small loss since the trend reverses.
3. The moving averages again come back together and create convergence. This is then followed by divergence on the upside and we would have gone long at this divergence too and this time we would have booked profits.

This is how we see false moves that can create small losses at times here as well. We do not need to be afraid of losses if it is part of a systematic approach. In this case, it was systematic and that is why this fine.



1. We see a convergence here when multiple moving averages are coming together. We see that the shorter-term averages are breaking out on the upside and as a result, this is a bullish divergence.
2. We see the moving averages again coming together. This time they are breaking out on the lower end and as a result, this is a bearish divergence.
3. The moving averages are again converging and then they are diverging on the bullish side. This is a good sign to go long as the shorter-term moving averages are moving upwards. If this is a false move, we will end up with a small loss but if this is truly a divergence, we will have a bigger profit in the trade.



1. The convergence as all moving averages are coming together. We can short the asset when the short term averages start to move down. We also see that there is no such clear exit strategy and as a result, we will have to figure one out.
2. This is again a convergence and then the asset seems to be forming bullish divergence. This is real-time and when such a pattern is formed, we can consider going long the asset.  
If the move is a false move, we will have a loss.

# 3

## GUPPY MULTI MOVING AVERAGES

The third method to use the moving averages will be in the form of an analytical tool 'Guppy Multi Moving Averages'. Here, we combine a set of multiple short term and long term moving averages and come up with trading signals based on their intersections. We will have 2 sets of moving averages – one short term set and another long term set. Each set has 5 or 6 moving averages. When short term set of moving averages crossover the long-term set from below, it is a bullish crossover and this indicates a long or buy signal. At the same time, when the shorter-term set crosses the longer-term set from above, it is a sell or short signal. The same has been shown in the charts that follow.

We see that GMMA is a set of multiple moving averages. An analyst can use custom values for the moving averages. However, typical values in short term moving average set are – 3, 5, 8, 10, 12, and 15 periods. The longer-term set has the following values for the variables - 30, 35, 40, 45, 50, and 60 periods. When these two sets crossover, they are used to generate entry and exit signals. Also, when we say crossover, we are referring to the crossover of the entire set and not just the intersection of a few lines.



# BENEFITS OF GMMA OVER MOVING AVERAGE CROSSOVERS

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## LESS FALSE MOVES

Guppy multiple moving averages require the entire set of short term moving averages to cross the entire set of longer-term moving averages. This crossing takes a few sessions and requires a strong underlying trend rather than some random crossovers. In case there is a false move, by the time the entire sets cross each other, the false move would have fizzled out. So, it gives enough time for false moves to revert as the crossovers will require a few sessions.

As a result, GMMA produces much less false moves as compared to a simple two moving average cross-over which produces false moves on even smaller movements.

## AVOIDS SIDEWAYS MARKET

GMMA helps us be better prepared for a sideways market. This is because each set of moving average produces convergences and divergences in themselves too.

We say that the moving averages are in convergence when the gap between different averages, in the long term set of moving averages, is low. We will refrain from initiating any new trade when the long term moving average is in convergence. This will help us avoid the sideways market. We will be seeing this with examples very shortly.

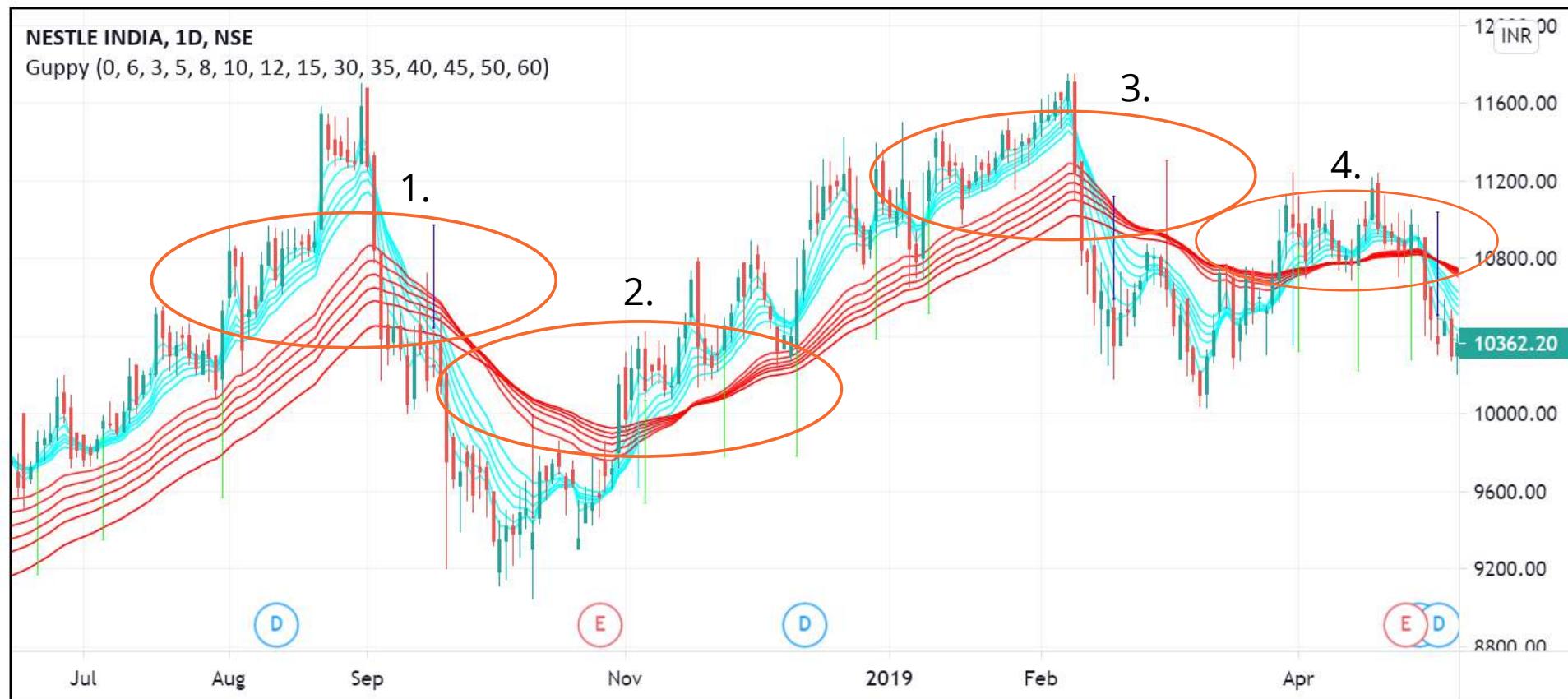
This is how we will be using GMMA to generate trading signals. This should take nothing away from the two moving average crossovers. They have different utility and place in the trading system. On the flip side, GMMA also has few demerits. It does not indicate a fixed entry and exit point as the crossovers are not always definite. Secondly, it offers a slightly delayed exit when we are in a trade. These will be better understood by the analyst upon practice. They will be able to understand the subtle parts and differences upon practice. Let us look at multiple GMMA charts.

NSE:PIIND, 1D 2230.20 ▲ +26.65 (+1.21%) O:2210.20 H:2249.45 L:2205.00 C:2230.20



 TradingView

This is how GMMA looks in motion. We see that the red set of moving averages is the long term set whereas the one in blue is the short term set of moving averages. The length of the period for each moving average is different and as a result, we get something like this for GMMA. We can search for 'Guppy' in the functions bar on TradingView to get this. We see that at the highlighted place, the short term set cuts the long terms set from below and therefore, this indicates a buy signal for an analyst.



TradingView

1. The short term set is crossing the long term set from above. As a result, this is a bearish crossover and is a short signal.
2. Here the short-term set intersects the long-term set from below and therefore this is a bullish crossover and a buy signal.
3. This is again a bearish crossover and is a short indication.
4. The short term set cuts the long term set from below. However, the long term averages have converged at the time of crossover. As a result, this indicates a sideways trend and we will avoid such a trade.



TradingView

1. We will avoid any trade when the long term moving average set is in convergence. Convergence means all red lines come together to form one thick red line instead of individual lines. Here, we see there is a convergence and therefore avoid this trade. In hindsight, this might have led to a missed opportunity but sticking to the system is the key.
  2. This is a bearish crossover. The long term set converges but after the crossover is done. Hence this can be considered to be a bearish crossover.
  3. We will avoid this trade as the long term set has again converged at the time of crossover.
- In each of the cases, GMMA does not give an exact entry point but a rough zone. Also, it often gives too delayed exit at times. So, we can combine it with other tools to determine the exit strategy as well.



 TradingView

The long-term averages here have again converged and as a result, we will avoid such crossovers. Therefore, GMMA is much equipped to help us avoid sideways markets. Also, for crossovers, all the six lines of short term set have to cross all the six lines of the long term set. This minimizes the ability of false movements to mislead us. These are the major benefits of GMMA as we had discussed earlier.

NSE:BRITANNIA, 1D 3601.25 ▼ -6.60 (-0.18%) O:3628.75 H:3649.85 L:3587.00 C:3601.25



TradingView

This is yet another example of long term set of moving averages converging together and thus indicating sideways market. We will avoid most of these trades. In doing so, we will also miss the larger upside that comes up later. We will not try to benefit from every opportunity. The reason being, we will never know for sure when the move is a trend and when it is false and thus, avoid such risky opportunities.



 TradingView

These are all examples of the convergence of long-term averages. We will not take any action over here as, despite the crossover, the market is in sideways movement.

With this, we end our discussion on GMMA and moving averages. A beginner should exclusively focus on practice. They must go through hundreds of charts and try looking for each of these and practice in the same way we did for candlesticks, one candlestick at a time until they acquire the efficiency in using moving averages. Practice, Practice, and Practice! There is no other way to become a good trader.



# GUIDE TO INDICATORS & OSCILLATORS

10+ METHODS TO IDENTIFY  
WINNING TRADES

30+  
EXAMPLES

ZEBRA LEARN

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# INDICATORS & OSCILLATORS



# INDICATORS

Statistical tests are conducted on price and volume data of assets based on which certain values are obtained. These values are called indicators because they indicate the price characteristics of the asset. These indicators are free-flowing and can take any value based on the statistical test. There are various indicators and a particular value for each type of indicator can mean a potential buy or a sell signal.

# OSCILLATORS

Similar to indicators, oscillators are also statistical tests and certain values are obtained based on the price behaviour of the stock. These values send potential buy or sell signal. The major difference between an oscillator and indicator is that the latter can move freely and take any value, whereas oscillators move within a fixed range and go high and low within the same range.



PENDULUM OSCILLATION

Indicators and oscillators break down the price and volume data, conduct mathematical operations on them, and give us a value. We can also see the past behavior of that value. Comparing the current values and the past values, we can understand whether bears have a grip over the market or the bulls and hence derive entry and exit decisions.

Conducting mathematical or statistical operations can get very overwhelming and scary. Well, the good news is that we will not be conducting any of these operations on our own, but will deal with them in the form of charts using TradingView and ChartInk. We focus on understanding how to read them and take decisions based on the trends formed. However, it is strongly suggested that going down the line, one puts in the effort to understand the math and calculation behind the indicators that they use the most.



# Also,

We will focus on common indicators and oscillators. We cannot blindly rely on any one indicator or oscillator. We will combine multiple of these, along with candlesticks, moving averages and so on to create a complete enter and exit strategy.

So, let us now get started with understanding the different types of Indicators and Oscillators and how these can be used to get Buy and Sell signals. So, let us get started.

# 1 ACCUMULATION & DISTRIBUTION INDICATOR

Whenever an asset is being bought by a specific buyer or a small group of buyers repeatedly, it is said that the asset is being 'Accumulated'. The intentions of the buyer can be anything, i.e. long term investment, sale in near future at profit, etc. Irrespective of the intentions, there is a possibility that the buyer will come back and buy the stock in higher quantities again. In the case of accumulation, two things happen –the price of the asset goes up and this happens at high volumes.



On the other hand, when the asset prices go down and do so at higher volumes, we can say that the same is being 'Distributed'. The reason being, the ownership is now moving from a concentrated buyer or buyer group to general people who have much lower buying capacity.

The accumulation/ distribution technical indicator takes into account the volume and price movements which tells us if the asset is being accumulated or distributed. This means if the asset price is increasing and the indicator value is also increasing in a similar fashion, the asset is being accumulated and a specific buyer or group of buyers, who are buying in higher quantities repeatedly might be responsible for this. At the same time, if the asset price is increasing but the indicator value is not increasing, it shows that the buyer is not backed by high volumes and as a result, it is unlikely that the price increase will sustain itself for a considerable length of time.

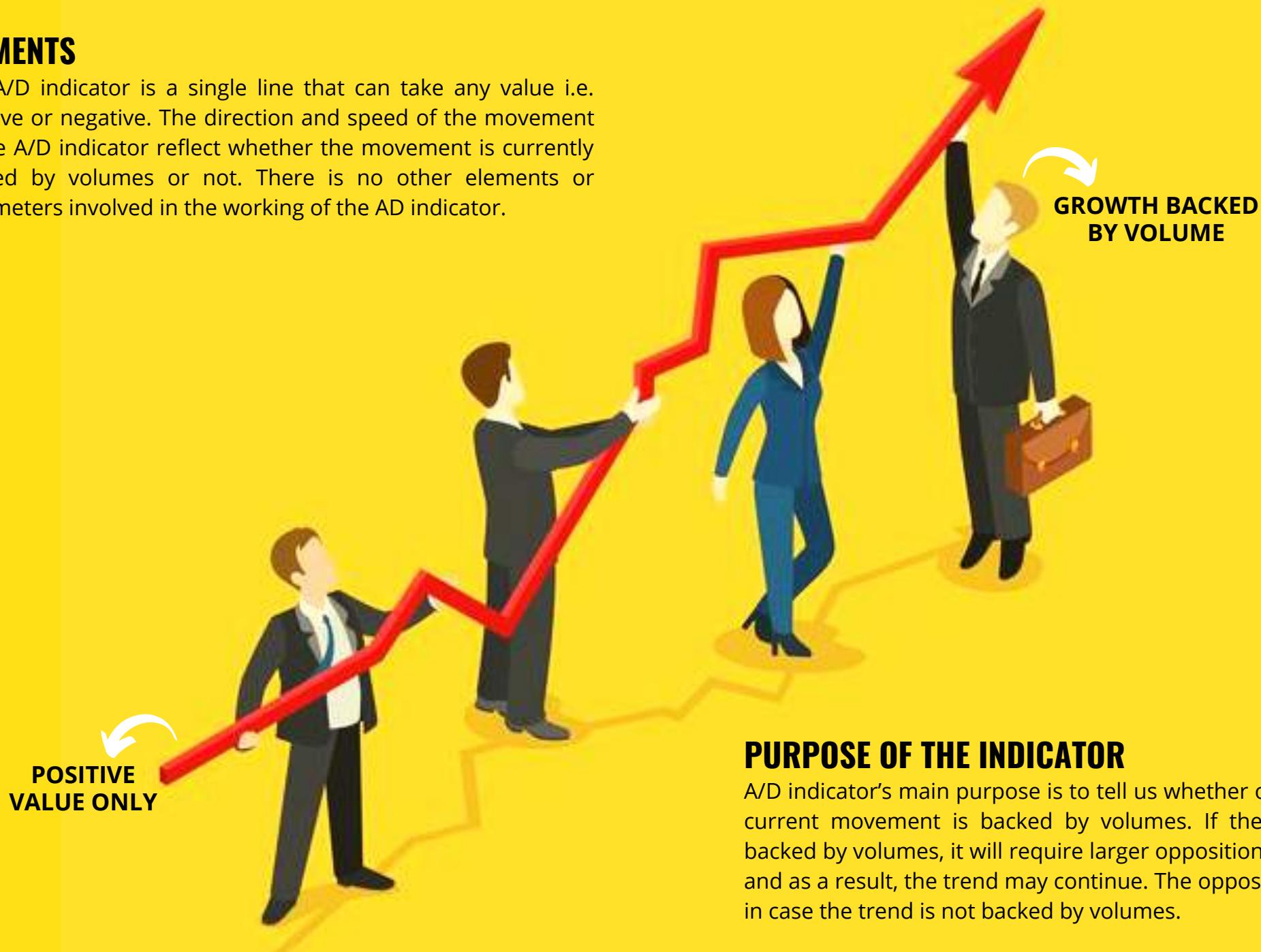
On the contrary, if the asset price is declining and the A/D indicator is decreasing, then we can say that the asset is being distributed. The asset does not have buyers to support the asset and sellers are selling in higher volumes. As a result, the asset's price decline may continue for longer. However, if the asset price is declining but A/D indicator is flat or upwards, then it shows that the trend might reverse soon as the decline is not backed by volume.

So, this is what A/D indicator points out the volume and if they are associated with a price decline or a price increase of the asset. We will want to be on the side where the volumes are higher because the chances of sustained movement in that direction are much higher.



## ELEMENTS

The A/D indicator is a single line that can take any value i.e. positive or negative. The direction and speed of the movement of the A/D indicator reflect whether the movement is currently backed by volumes or not. There is no other elements or parameters involved in the working of the AD indicator.



## PURPOSE OF THE INDICATOR

A/D indicator's main purpose is to tell us whether or not the current movement is backed by volumes. If the trend is backed by volumes, it will require larger opposition to revert and as a result, the trend may continue. The opposite is true in case the trend is not backed by volumes.

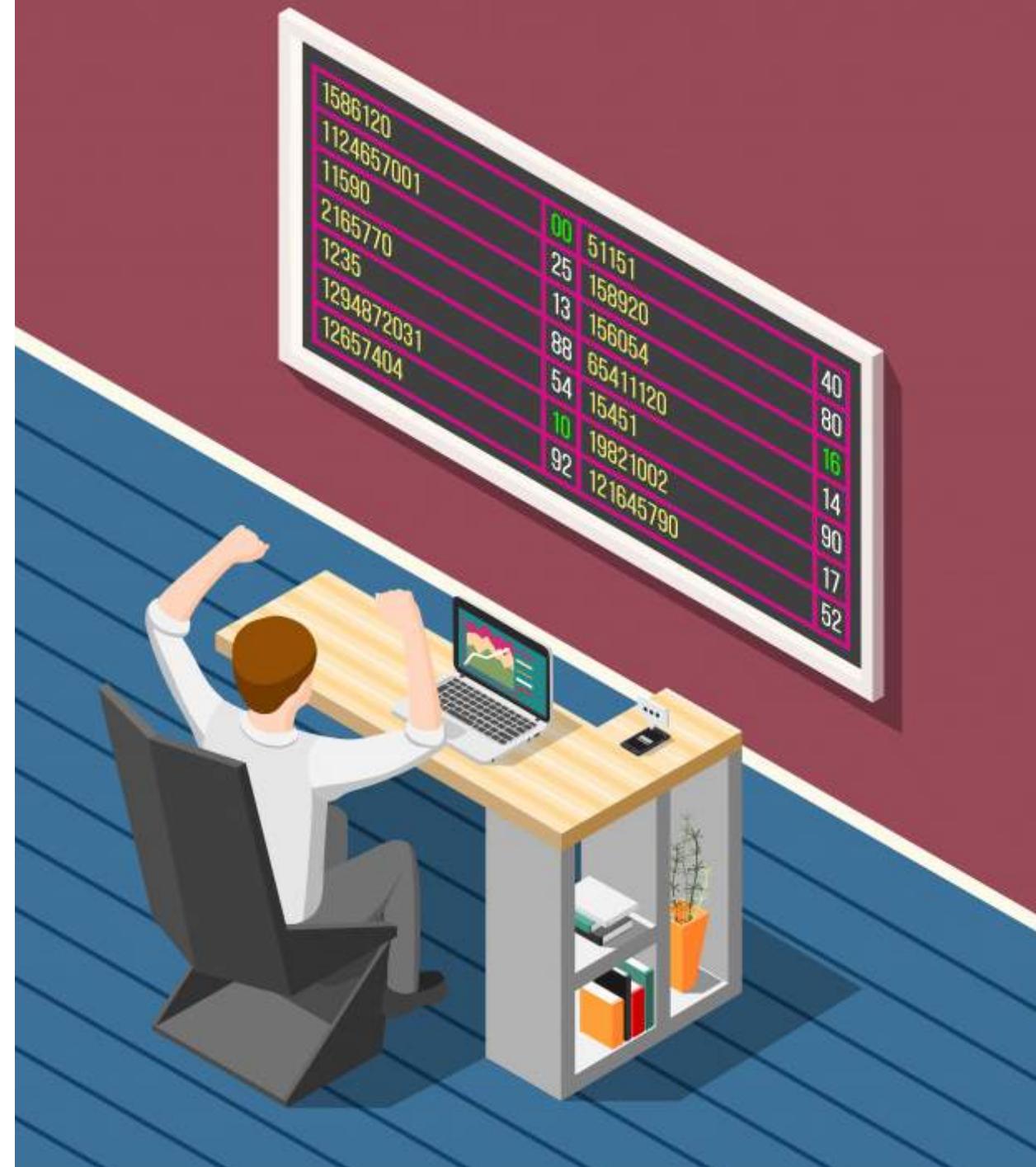
## HOW TO TRADE?

To trade, we will look for divergences between price movement and A/D indicator. When the price is increasing but the A/D indicator is flat or is south, we can say that the increase is not backed by higher volumes and can revert soon. So, we will keep an eye on the asset price, if it shows any sign of reversal and enters a trade accordingly.

So, we will not accept any trade solely based on A/D indicator. However, it can be used as a leading indicator. We can track wherever divergences are being formed and then enter a trade based on other indicators when we get reversal signs. This is one of the ways to use A/D indicator. An analyst can get creative, look for other ways to use the same, and then backtest to validate their hypothesis.

## SUITABILITY

'Accumulation/ Distribution Indicator' is most suitable for large caps and indices. We will avoid small caps and mid-caps as a single participant's actions can influence the entire chart and behavior significantly.





This is how the A/D indicator looks like in practice. A positive value indicates the association of more volume with the upwards trend and a negative value tells us that a higher value is associated with negative prices. Here we will get signals based on divergences between the direction of A/D indicator and the price. In the highlighted zone, despite the indicator heading upwards, the prices are decreasing, thus showing a divergence. As a result, we shall now track the asset for a reversal and use other indicators to enter the trade.



We have marked wherever the A/D indicator crosses the zero line. This means that the volume has shifted between the bearish candles and bullish candles. Hence, it should boost the analyst's confidence to take trades accordingly. These should not be used as indicators. This is another way to use A/D indicator in our trading system.



This is yet another example of A/D indicator. There are no divergences between price and A/D line in this case. However, we can use the same to take trades based on whether A/D is positive or not. We can take trades then using other indicators. This is how we will use A/D indicator. An analyst will get fluent with the same based on the practice they put into it. It is advised that they spend time experimenting with the indicator on multiple charts to understand more about it. With this, we end our discussion for the first indicator. Let us now move to the next indicator.

# 2 AROON OSCILLATORS

Aroon Oscillator is a technical oscillator that focuses on the price movement that represents the direction of the trend in the prices besides focusing on the strength of the movement. In the A/D indicator, we used volume to understand the strength of the trend. However, in the case of Aroon oscillator, we will use the time between consecutive highs and consecutive lows to understand the strength of the trend. Aroon oscillator is built with the assumption that strong up-trends will create new highs very regularly and strong down-trends will create new lows frequently.

A statistical operation is conducted to come up with a value of Aroon up and Aroon down which shows the strength of uptrend and downtrend respectively. The difference between Aroon up and Aroon down forms the Aroon oscillator. So, in simple terms, Aroon oscillator is the difference between the strength of the uptrend and strength of the downtrend. The oscillator moves within the range of 100 and -100. A positive number in oscillator means that the uptrend is more powerful than the downtrend and a negative number means that the downtrend is more valuable than the uptrend.





## HOW IT WORKS?

A period is fixed for the Aroon oscillator. We can fix this by changing parameters in the Chartink or Tradingview interface. By default, the period is set for 25. So, an Aroon up of 50 will represent the achievement of a new high in the last 50% of the periods i.e. in last 12.5 (50% of 25) days whereas an Aroon up of 0 will mean that the price has never gone higher than what it was at the start of 25 days. An Aroon up of 100 means that a high has been formed very recently. The same is true for Aroon down as well. Also,  $\text{Aroon up} = 100 - \text{Aroon down}$  and vice versa. So, we will subtract Aroon down from up and obtain the Aroon oscillator value. Higher the Aroon oscillator value, higher is the strength in an uptrend and vice versa.

## ELEMENTS

The single Aroon oscillator line is the core element that we will be dealing with. Secondly, Aroon oscillator is the difference between Aroon up and down. We cannot see these lines here, but upon enabling them separately, we will be able to see them. These are important as they indicate the strength of the upside and downside of the same. Lastly, we can change the periods that we intend to take into consideration. For instance, we can change the periods to 50 or even higher, all based on our trading timeframe.

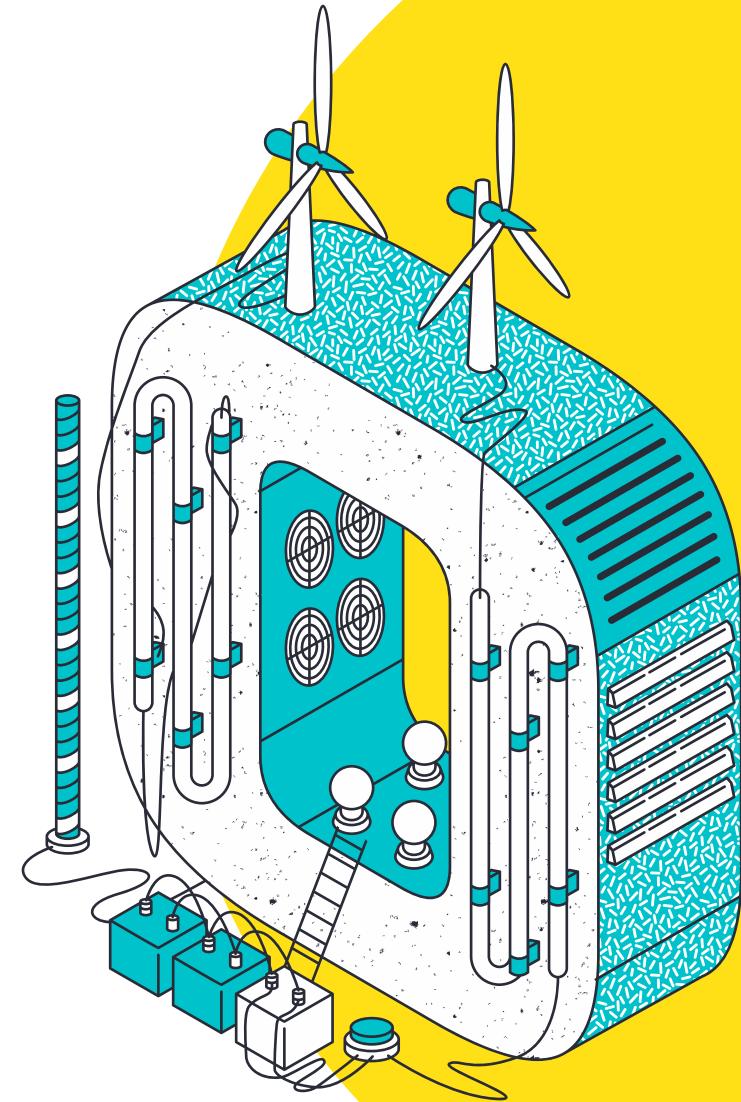
## TRADING SIGNALS

Aroon oscillators enable us to submit trades solely based on these. We can enter a trade whenever the oscillator crosses the 'Zero' line i.e. it goes from negative to positive or positive to negative. The Aroon oscillator becoming positive is a bullish sign that indicates the Aroon up becoming more powerful than Aroon down. When Aroon oscillator becomes negative from positive, it shows that Aroon down is becoming more powerful and it is becoming a bearish or sells signal.

When Aroon oscillator is at zero, it means that Aroon up and down are same i.e. uptrend and downtrend is in the same strength.

## SUITABILITY

Again, we will use most of the indicators on indices and large-cap stocks only. We will not use in mid-caps and small caps generally. Finally, these decisions are to be made by the analyst while preparing their strategy and system for trading.





This is how Aroon oscillator looks like in real life. It oscillates around zero. Every time it becomes positive from negative, it is a buy signal and every time it becomes negative from positive, it is a sell signal.

Aroon oscillator is one of the efficient indicators. We can change the time frame for the same. Here, we use 25 periods as the time period which is also the default setting.



The arrows that we have marked in red are the sell signals and those in green are the buy signals. We see that Aroon oscillator performs well in trending markets.

We will have to combine them with other indicators such that we can avoid the sideways market.

Every time it crosses the zero line, it produces a trade signal that we can act upon.



Analysts will backtest the same regarding its performance and application in their strategy. Aroon oscillator can be relied upon to generate trading signals. However, different analysts have a different experience with different indicators based on how they use them.

# 3 RELATIVE STRENGTH INDEX

Relative strength index is a technical oscillator that indicates the point in time when the asset is overbought or oversold and when the trend can be expected to have a reversal. It is calculated based on recent price changes and its value moves between 0 and 100. An oversold situation indicates that a reversal can be expected and the asset price should start moving back up soon. An overbought situation indicates that a reversal can be expected in near future.

To calculate RSI, a statistical operation is conducted where we first fixate on a fixed time frame based on our trading practices and average holding period. By default, it is set at 14 periods. Next, periods of positive and negative price movement are segregated. Then the average gain and loss are calculated for the set of periods. Using the average gain and loss, a mathematical operation is conducted to derive the RSI value. Hence, average loss and average gain in the specific time period become the major factors that affect RSI.



## HOW IT WORKS ?

We just saw that we get a value between 0 and 100. When the RSI value is below 30, it is said to be in the oversold zone and when it is above 70, it is said to be in the overbought zone. When the RSI is between 30 and 70, we can say that it is in the normal trading zone. But whenever RSI enters the overbought or oversold zone, an analyst can actively start tracking the asset hoping for a reversal confirmation using other indicators.

## ELEMENTS

RSI mainly has two components that an analyst needs to deal with. First, the RSI line itself. the behaviour of the RSI graph determines the trend, its strength and the momentum in the asset. Second, time period. To change the time period, we will need to make changes in the 'Parameters' option on ChartInk and 'Settings' option on Tradingview.

## TRADE SIGNAL

RSI by itself does not give reliable signals to buy or sell an asset. At times, despite being overbought, the bulls may have a strong grip over the market due to which the trend might continue for a while. Even after entering the overbought zone, the asset may stay in the zone for a while and anyone who goes short expecting a reversal might incur significant losses. The same is true on the other side as well. The asset can remain in the oversold zone for quite some time. As a result, RSI cannot be used to generate buy and sell signals.

RSI should rather be seen as an early indicator of an upcoming reversal. Whenever an asset enters the overbought or oversold zone, the analyst should start actively tracking the asset. However, they must confirm the reversal with other indicators as well before entering into any trade. RSI works well in combination with other tools to conduct our analysis.

## SUITABILITY

RSI is suitable on large-cap, indices, currencies and commodities. Analysts use it on small-cap and mid-cap too with varying degrees of success. Thus, the application of the RSI depends on the combination in use.

NSE:KOTAKBANK, 1D 1846.95 ▼ -16.95 (-0.91%) O:1870.50 H:1872.25 L:1838.85 C:1846.95



TradingView

This is how RSI looks. It is an oscillator that moves between 0 and 100. The general zone in which it moves is between 30 and 70. This zone has been shown in blue on the RSI graph. Whenever RSI indicator moves out of the coloured zone, it goes into an overbought or oversold category. Whenever it enters these categories, we can expect a reversal around the corner.

NSE:NIFTY, 1D 14281.30 ▼ -152.40 (-1.06%) O:14453.30 H:14459.15 L:14222.80 C:14281.30



 TradingView

RSI enters the oversold zone i.e. less than 30, around March. There was an instant reversal at this time and the prices reverted. Combining with other indicators a profitable long signal would have been generated over here. After November, RSI entered the overbought zone i.e. more than 70. However, as expected a reversal is due but is not instant. The RSI has been in the overbought zone for a while and has not yet reverted. Any trader who shorts purely based on RSI would have made significant losses here. This is why we use other indicators to confirm entry and exit when using RSI.

NSE:MINDAIND, 1D 406.25 ▲ +1.00 (+0.25%) O:412.00 H:413.00 L:402.40 C:406.25



TradingView

The RSI entered the oversold zone and even after entering the same, the prices went substantially lower. This is why we cannot make trades based on RSI solely. The second time around when it entered the overbought zone, the reversal was fairly quick. The third time around when the RSI enters the overbought zone, that it sustained there for quite some time. It is a good leading indicator for upcoming reversals. However, we will use RSI in combination with other indicators and oscillators.

NSE:MINDAIND, 1D 406.25 ▲ +1.00 (+0.25%) O:412.00 H:413.00 L:402.40 C:406.25



 TradingView

We see that we can experiment with RSI and many other indicators in terms of time period that is included in calculation. For instance, here we see that we have changed the time frame of RSI from 14 periods to 11 candles. Changes in time period of candles at times changes the timing when the signal is received. However, shortening the time period gives more volatility and false moves. Increasing the length gives more stability but lagging indicator at times. So, we will decide upon a length based on our strategy. With this, we end our discussion on RSI. Lets move to the next indicator.

# 4

# AVERAGE DIRECTIONAL INDEX

An Average Directional Index is a three-line technical indicator that is used to understand the direction of the movement of the asset price and the strength of the trend. The three lines that are included in the average directional index are – ADX line, Positive Directional Index Line (+DI) and the Negative Directional Index Line (-DI). The ADX line denotes how strong the trend is and the +DI and -DI lines indicate the direction of the trend. These together form one of the most effective technical indicators.

The directional index is calculated using relatively complicated mathematical operations. We can determine the period of time for which we need the ADX to be calculated. We can play around with the time period and understand what it does to the signals and the shape of the three lines.

## AVERAGE DIRECTIONAL INDEX

### ADX LINE

### POSITIVE DIRECTIONAL LINE

### NEGATIVE DIRECTIONAL LINE

ADX always has a positive value and a value greater than 25 represents strength in the existing trend. A value of less than 25 indicates low strength in the existing price trend.

The +DI and -DI are used to understand the direction of the trend. If +DI is greater than -DI, we can say that the bullish trend exists in the market and if the -DI is greater than +DI, we say the bearish trend is prevailing in the market. Together, the three lines inform us of the prevailing market trend and its intensity.

## ELEMENTS

We see there are four elements in an ADX indicator. The first and most important element is the ADX line itself which reflects the strength of the trend. Next, +DI line and -DI line which shows the direction of the trend. Lastly, the time frame i.e. the number of periods reflected in the ADX. We can change the periods used to calculate the time frame.

## SUITABILITY

Again, ADX can be used across for assets and stocks of all sizes. However, true effectiveness will only be understood when a person backtests their strategy and understands if they are working on a particular kind of asset or not.

## TRADING SIGNALS

ADX is one of the powerful indicators that are capable of generating buy and sell signals. So, firstly, we will understand the strength of the trend. We will only accept a trade based on ADX if the trend has strength in it i.e. when ADX is greater than 25. The higher the ADX is, the stronger is the trend and the better will it be to accept a trade as the trend will more likely continue. Once the ADX levels are greater than 25, we will use crossovers of +DI and -DI to generate buy and sell signals. Whenever the +DI intersects the -DI from the bottom with  $ADX > 25$ , we will go long the asset. On the other side, when +DI intersects -DI from the top with  $ADX > 25$ , we will go short the asset. However, using ADX comes with two shortcomings. First, ADX is not always great with a sideways market. When a sideways market exists, and the trend is weak, we will be protected from entering into a trade because the ADX line will fall below 25. During this time, we will see a lot of crossovers, but ignore them. Second, ADX signals create a lot of false signals. So, we will have to work out solutions to deal with the same in our system.



This is how ADX typically looks. We see in the chart that the Green line is the +DI line, -DI line is the red one and the Blue line is the ADX line. We saw that, whenever ADX line is less than 25 at the time of crossover, we will not take that trade. The pink line represents the level of 25. So, whenever Blue Line is below the pink line, we will not take the trade. In this case, we would not have taken any trade before October 8, as that is when the ADX line crossed the pink line and was above the required level of 25. This way, we avoid low volatility sideways market. Also, we see that the +DI and -DI have not crossed over since October 8. As a result, there are no trading signals on this particular chart.



We see that this is an example of a trending market. However, when the trend started, there were multiple crossovers in a short period in the month of September. Also, the ADX was less than 25. As a result, we would have missed out on the trend. However, now we see that there is a crossover between +DI and -DI in January and the ADX is greater than 25. This is a sign that the trend might be reversing. This was a good indicator to short the asset few sessions ago. We see that the Bearish crossover created an opportunity and we could have shorted the asset. This is typically how ADX produces Trade signals.



This is an example of sideways market post the decline. We see that there are lots of crossovers between the +DI and -DI in this period. We see that there are many positive and negative false movements between the RSI. Whenever such a pattern arises when there are multiple crossovers in a very short period of time, we will avoid trading based on them even if the ADX is greater than 25. In this case, we see that the ADX is also lower than 25. This is how ADX protects us from sideways market in many ways. It protects us from taking the trade when the directional movement does not have momentum.



There is a crossover in early November. The ADX is greater than 25 and therefore we can treat these as a signal. There was a bullish crossover and in hindsight, this would have made us good profits. The second phase takes place in late December when we come across a lot of continuous crossovers. We might have entered the trade and incurred a loss. But, ADX levels would have made sure that we do not repeatedly take trades for each crossover as ADX dipped significantly. Lastly, we see there is a bearish crossover. This would have been a perfect short signal. However, we see that the ADX levels are less than 25. As a result, we will not enter this trade as this might again be a false move as the directional movement has no strength in it. A beginner is strictly advised to look for such patterns in multiple other charts to understand these better. Let us now move to the next indicator.

# 5 BOLLINGER BANDS

Bollinger Band is a technical indicator that creates a border around the closing price of the asset based on its volatility and then inferences are drawn based on the width and behaviour of these lines along with the closing price. Bollinger Bands are one of the most effective ways to understand the volatility of an asset's price. The width of the bands determines the volatility of the prices at the moment and its proximity to the closing price helps us make buy and sell decisions.

To construct Bollinger bands, we begin with the closing price and the simple moving average of the closing price for the last N number of periods. Then we create the bands on the upper side as well as the lower side for which distance is calculated based on standard deviations. The Bollinger bands generally are 1, 1.5 or 2 standard deviations away from the simple moving average. For beginners, the standard deviation is a statistical measure of variability/volatility. More volatility in the observations (closing price in this case), higher will be the standard deviation.



## HOW IT WORKS?

In periods of less volatility, the standard deviation decreases and as a result, the width of the Bollinger band decreases. In periods of higher volatility, standard deviation and thus the width of Bollinger bands increases. This way, Bollinger bands help us understand the volatility of the recent asset price. The closing price of an asset is expected to stay within Bollinger bands and whenever they move out, it is expected to reverse and come back within the bands. The proximity of the asset price from these bands helps us make inferences.

## ELEMENTS

The Bollinger bands begin with a Simple Moving Average of the closing price. The Bands are calculated around a simple moving average. The second element is the time horizon for which we will calculate the SMA and the Bollinger bands. We can change the length of the time period by altering the parameters. The next two elements are the upper band and the lower band. We will use these to make decisions. Lastly, we have to pick the deviation of the bands – 1 standard deviation, 1.5 standard deviations or 2 standard deviations. The width will depend on our use of the Bollinger bands and our strategy's requirements.

## TRADING SYSTEM

Bollinger bands do not produce very reliable trading signals independently. However, they can be used with other indicators in a variety of different ways. First, the closing price is expected to stay within the bands. As a result, the Bollinger bands can be used to determine profit targets when accepting a deal using other indicators.

Next, whenever the width of bands goes down significantly, it means that the asset is also somewhere near the convergence of moving averages. We can combine the two, look for the divergence in moving averages and after confirmation with Bollinger bands, enter a trade. Lastly, whenever prices move out of Bollinger bands, we can expect a reversal. We can expect to benefit from this reversal. So, we can look for reversal confirmation using other indicators and then enter a trade.



This is how Bollinger bands look in practice. This is a 2 standard deviation Bollinger band. We see that there is a line running through the centre of the shaded area. That is the simple moving average. The two boundaries on the sides are called Bollinger bands. These are belts and the closing price is expected to stay within these bands. The width of these bands is changing. They change based on the volatility that exists in the closing prices in the recent past. During March and April, when the asset was in a strong trend, the width of Bands shot up instantly. However, following that as the sideways market emerged, the width of the bands went down significantly showing low volatility. Whenever the prices go outside the bands, there is a reversion happening and the price returns to the bands. As we discussed, the closing price hitting these bands is used for profit-booking by many analysts.



There is an upcoming reversal around the corner whenever the asset price has touched either side of the Bollinger bands. As a result, Bollinger bands act as a good leading indicator for upcoming reversals. Bollinger bands give no clear signals or entry and exit points. Thus, we say that Bollinger Bands do not give clear trading signals on their own. We will have to combine them with other indicators. Another problem with Bollinger bands is that when closing price touches one of the bands, it can stay there for a while if the price momentum continues. This is because the bands also adjust as per the direction of the trend. So, as the asset price increases, the band also goes up and as a result, the closing price remains toward either side of the band for a while. We see this playing out in the chart between May to August. The asset price constantly grows along with the Bollinger bands.



We see that whenever the width of Bollinger bands goes down significantly, there might be a convergence of moving averages that are occurring. We can identify opportunities based on Bollinger bands and then use them along with other indicators to act on them. In the highlighted zone we see that the convergence can be identified using Bollinger bands and then we could have generated enter and exit strategy based on moving averages. With this, we end our discussion on Bollinger bands. A beginner should stop here and explore and practice Bollinger on multiple different charts.

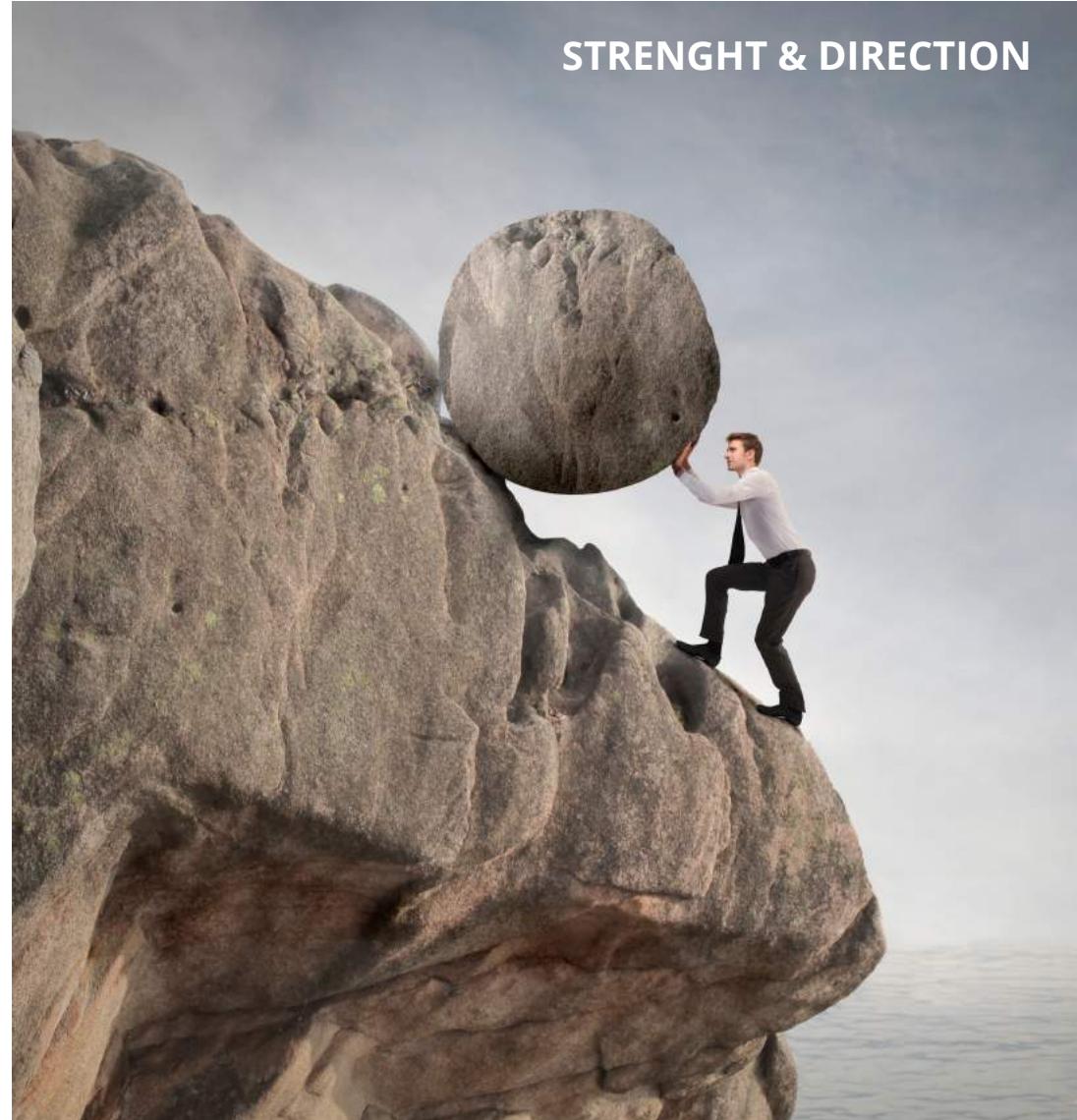
# 6

# COMMODITY CHANNEL INDEX

Commodity Channel Index is an oscillator that revolves around zero and indicates the direction and strength of the trend. It shows the change in trend and if the asset is in an oversold or overbought condition. CCI moves in an unbounded range, so it can take any positive or negative value. If the value is negative, we can say that the negative trend has been the more dominant one till now and it either still exists or has just reversed. A positive CCI value means that a positive trend exists in the market.

CCI is calculated mainly as a difference of the current closing price of an asset from its historical average price. A positive value means that the current price is higher than the historical average whereas a negative value means that the current value is lower than the historical average levels. We can take buy and sell decisions based on this.

However, unlike RSI, CCI does not have a fixed range in which it oscillates. As a result, we will have to figure out the levels at which the assets are overbought or oversold based on past price performances i.e at the levels where they have reverted from in the past. We will have to do this for every individual asset that we want to trade.



## ELEMENTS

CCI mainly has three elements. The first element is the CCI line itself i.e. the oscillator that revolves around zero. The next element is the timeframe that we will use for our analysis. We can change the timeframe for CCI based on our analysis and strategy. Long-term CCI works great to generate timely buy and sell signals. At times, they work better than short-term CCI. The last element is the oversold and overbought threshold level. We will determine the thresholds based on past reversals.

## TRADING SIGNALS

Whenever CCI intersects the zero level and turns positive from negative, it can be said that this is the start of an uptrend and this acts as a buy signal. Similarly, when the CCI becomes negative from positive, this can be taken as a symbol to sell or short. This is one way to get buy and sell signals using CCI. The next method is to understand the overbought and oversold assets and use a different indicator to determine the entry and exit level. We will use the pre-determined levels from looking at past price behavior and CCI reversal levels.

## SUITABILITY

CCI were mainly introduced for commodities and currencies. However, they can also be used for indices and large-cap stocks. These shall be avoided for mid-cap and small-cap stocks.



This is how CCI looks. We see that the same is moving around 0 and takes positive and negative values. We can also define the time horizon for which we intend to generate the CCI. Here, we have used 20 periods which is the default setting for CCI. Whenever CCI turns positive from negative, it is the start of a bullish trend and that can act as a buy signal. Whenever we see that CCI turns negative, it is the start of a downtrend and that is a sell signal. This is how CCI can be used to generate signals. However, a drawback over is that in a sideways market, CCI produces a lot of false signals that can lead to losses. We need to create a trading strategy keeping this in mind.



In a trending market, it produces a lot of buys and sells clean signals. However, in a sideways market, they do not work well and give a lot of false moves.



The second way to use CCI is to understand when the asset is overbought and when it is oversold. This will work like that of RSI. However, here instead of moving between 0 and 100, the CCI moves limitless. So, we will zoom out of the graph, and look at the past and identify the levels from which CCI reverts. We need to set threshold levels on both sides. Let us say, 250 on the positive side and -200 on the negative side. Whenever the CCI goes outside of this range, we can expect a reversal. There will be no clear exit and entry signal. We will have to combine this with other indicators to enter and exit a trade.

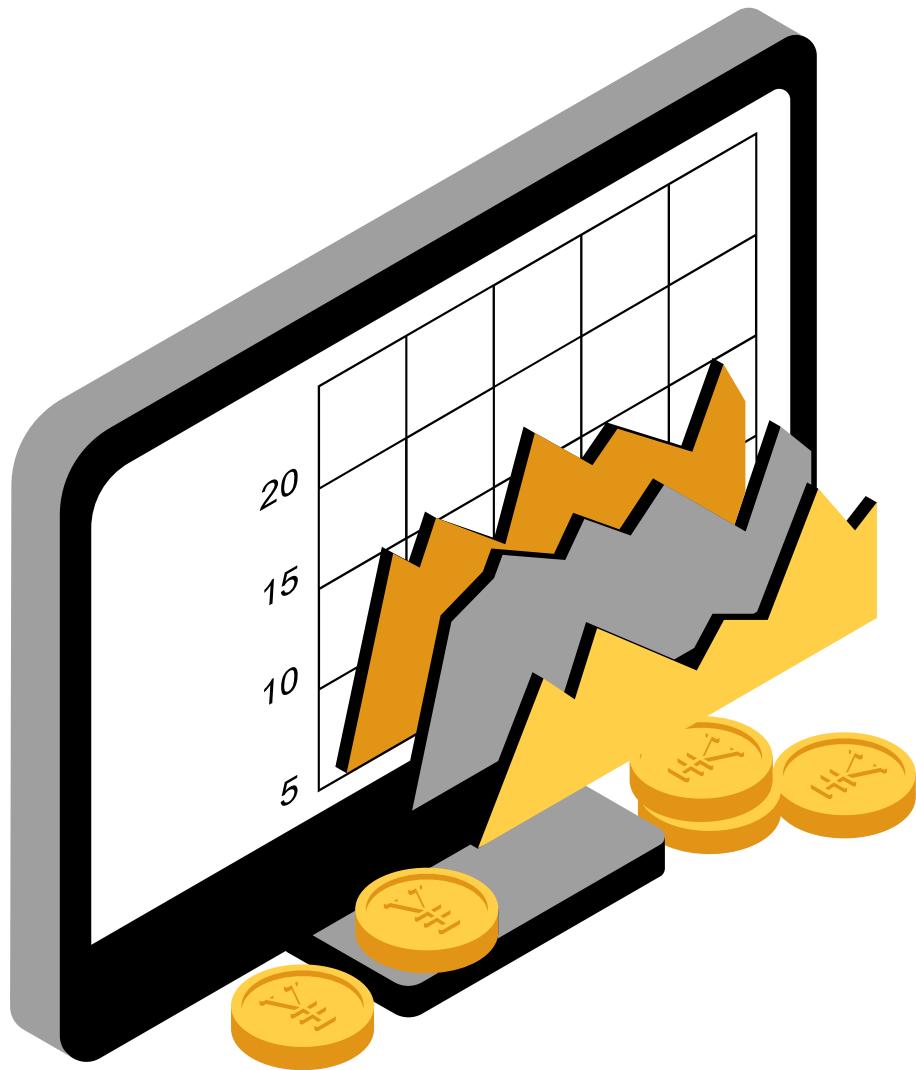


We saw that CCI produces a lot of false signals in the shorter term. A way to smoothen out and reduce such false moves is through the use of longer-term CCI. We see that here we have changed the CCI period to 60 and as a result, false moves have been minimized. A downside to this is that this gives slightly lagging signals. As a result, it is up to an analyst to establish a balance between short term and long term CCI. Long-term versions of CCI give powerful signals when combined with other variables. So, an analyst must experiment around CCI for different time frames.



This is a long term CCI. We saw how they minimize noise and give cleaner indications about whether or not to enter a trade. With this, we end our discussion of CCI. The reader should explore this and spend time practicing the same. Let us now move ahead to the next indicator.

# MOMENTUM 7



The Momentum Indicator is a straightforward one-line technical indicator that is used to estimate the strength of momentum that exists in the market. It is calculated as the difference between the current closing price and the closing price N periods ago. So, if we have selected the time frame of 24 periods, we will see that the momentum indicator value is the current closing price minus the closing price 24 periods ago. It is built on the assumption that the greater the difference in a given time frame, the stronger is the momentum in the asset price.

Momentum indicator can take a positive value as well as a negative value and therefore works like an unbounded oscillator around zero. If the value is positive, that means the closing price is higher than what it was N periods ago and if that difference is significant, we can say that the asset is in a strong uptrend. Similarly, if the closing price is lower than it was N periods ago, we can say that the asset is in a downtrend. The larger the negative value, the stronger is the momentum in the asset price. For a sideways market, the difference between the current closing and the closing N periods ago will not be that significant and as a result, the number will be around zero or a lower positive or negative value.

## ELEMENTS

Momentum indicator mainly has two elements. First is the time frame and second is the momentum indicator line itself. We have to define a fixed time frame for which we intend to calculate the indicator. This has to be defined as several candles and we can use short term or long term periods of time.

---

## TRADING SYSTEM

The momentum indicator can be used to generate buy and sell signals whenever it crosses the zero level. The change in the indicator from positive to negative is a change in the trend from bearish to bullish and this can be considered as a buy signal. Whenever the indicator turns negative from positive, it can be treated as a change in trend from bullish to bearish and a sell signal. However, the momentum indicator does not give the best of signals by itself as it crosses the zero line way too often. Also, it does not work in a sideways market as the line revolves around zero in many ways. So, it is best used in combination with other indicators.

---

## SUITABILITY

We can use momentum indicator for any asset – large-cap, indices, small-cap and mid-cap. We can use these for commodities and currencies and other advanced assets and derivatives too.





This is how the momentum indicator looks. We see that it is a single line that revolves around 0. If the difference between price today and 12 periods ago, in this case, is positive, it shows that the asset price has moved up and if it is negative it shows that the price has gone down. Further away is the price from zero, stronger is the trend. We see that during sideways movement, the oscillator stays very close to zero.



We can change the length of the momentum oscillator as per our strategy. A shorter momentum will result in a lot of false signals.

This is because it changes too quickly and hence it does not produce any quality signals despite a trending asset price.



There is a lot of noise using a momentum indicator for the short term. It is crossing the zero line too often to create any meaningful trading signals.



This is an example of long term momentum indicator. We see that this smoothes out a lot of movement and creates clear signals. The downside of using longer-term indicators is that they produce lagging signals occasionally. In this chart, the indicator moves around zero when a sideways market is in motion but gives clear signals for trends. An analyst will have to figure out a way to segregate these from other clearer indicators.



This is another example for long term momentum indicator. We see that this gives clear signals in trending market. These can be used in combination of other indicators to good effect. An analyst needs to spend time practicing and going through multiple charts and back testing the indicator to understand the subtle parts of it. This will make it clear for them if it works for them or not. With this we end our discussion of Momentum Indicator. An analyst needs to experiment with the same on charts to understand these better. Let us now move to the next indicator.

# 8

# MONEY FLOW INDEX

Money Flow Index is a technical oscillator that is used to determine an oversold or overbought asset. MFI uses both price and volume data to determine its value and it oscillates between 0 and 100. An MFI greater than 70 indicates that the asset is in the overbought zone and we can expect a reversal soon whereas an MFI lower than 30 indicates that the asset is in the oversold zone. In many ways, MFI is similar to RSI. The difference between the two is that the RSI only considers the price movement of the asset and not the volume associated with such changes whereas, MFI takes into consideration both price and volume changes of the asset. MFI is also at times called volume-weighted RSI.

MFI is calculated by conducting a mathematical operation on the price and volume data of the asset. It begins with defining a fixed time frame. Then it segregates periods where there is money outflow i.e. periods when prices went up or down. Then, it calculates the average money outflow for periods when prices went down, i.e. price change multiplied by volume change. Similarly, it calculates the average money inflow for periods when prices went up. Using these two variables, the current value of MFI is calculated.



TREND REVERSAL IN  
OVERBOUGHT AND  
OVERSOLD ZONE

## BUY SIGNAL



## HOLD SIGNAL



## SELL SIGNAL



## HOW THIS WORKS ?

MFI is calculated using the average money inflow and average money outflow. Whenever MFI is greater than 70, we can say that asset is in the overbought zone. However, whenever it is less than 30, we can say that that asset is in the oversold zone. In the general course, we expect MFI to stay between 30 and 70 and whenever it enters the overbought and oversold zone, we expect the price trend to come back to that 30-70 zone. Sooner or later, they do come back to the 30 to 70 channel.

## TRADING SIGNALS

MFI can be used to generate trade signals like RSI. Whenever MFI is in the oversold zone, we can expect a reversal in the prices and as a result, look for other indicators to enter the asset whenever there is a price reversal. MFI does not present an exact entry point. Also, the asset can stay in the oversold zone for a while and therefore lead to losses for the trader. The same is true on the other side when the asset enters the overbought zone. This way we will use MFI to get attention to an asset and then use other indicators to confirm the entry and exit point of a trade. This is exactly how we have been using RSI.

## SUITABILITY

Money Flow Index will only be used for indices, large caps, commodities and currencies. We will not use the same for small-cap and mid-cap assets.



We saw that MFI works exactly like RSI except for the fact that MFI also considers volume as compared to RSI that only considers the price. MFI looks exactly like how the RSI chart looks. It oscillates between 0 and 100. We see that there are lines at 30 and 70 which show oversold and overbought zone respectively. We see that MFI goes in oversold zone thrice and each of these times we can expect a reversal. We will use another indicator to get signals about entry and exit. MFI enters the overbought zone twice and these should also be seen as indicators of an upcoming reversal.



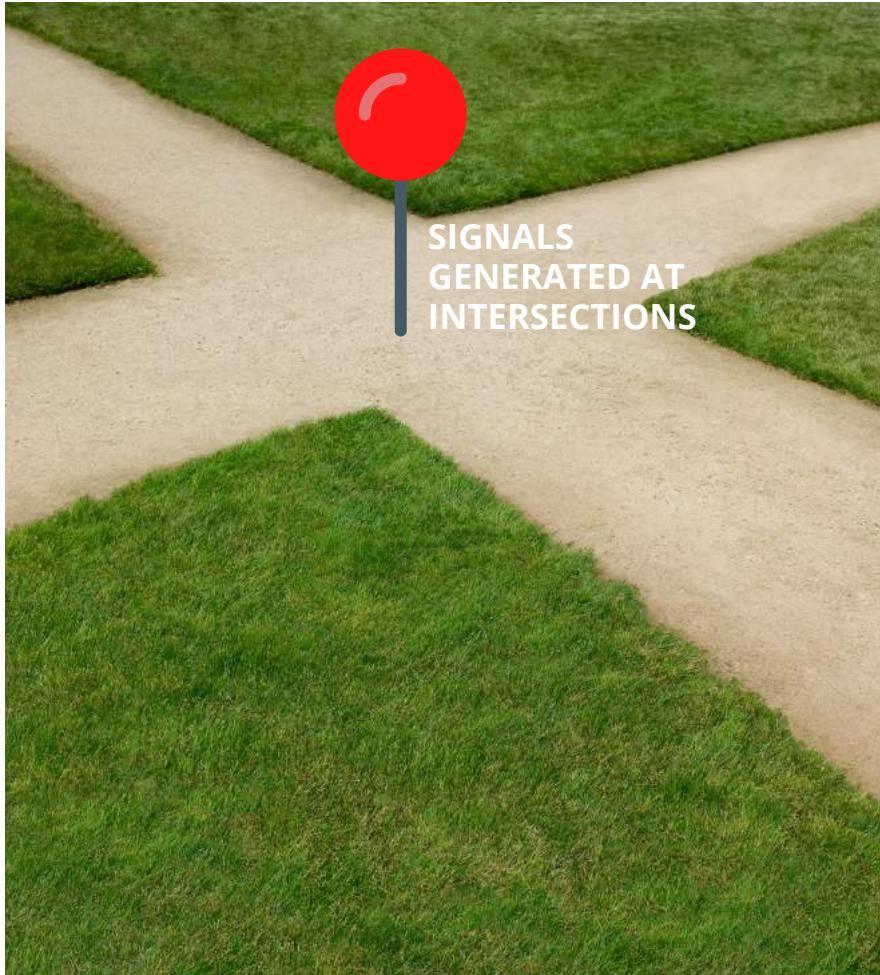
We see that MFI enters the oversold zone and stayed there for a while. So, like RSI, these do not generate any signals about when to enter and exit. They can enter oversold and stay there for a while. As a result, we will start tracking an asset when they enter the oversold zone. We will use another indicator to enter and exit the asset.



These are again examples of money flow index. They work exactly in the same way as RSI does and we will use them in the same manner. We will not trade only based on these but spend time to understand their movements and then use them in strategies based on backtesting. With this, we finish our discussion on the Money Flow Index.

# 9

# MOVING AVERAGE CONVERGENCE & DIVERGENCE (MACD)



'Moving Average Convergence and Divergence is a technical indicator that is built around the concept of moving averages and the convergences and divergences. MACD is a two-line indicator- the first line is the MACD line itself and the second line is a short-term moving average of the MACD line. Here, the second line is a moving average of the MACD line and not of the closing price of the asset. The intersection between the two is used to generate trading signals.

MACD line is derived from the difference between two lines - 26 Day Exponential Moving Average and 12 Day Exponential Moving Average. The difference between the two creates the MACD line and shows the degree of convergence and divergence. We saw that when the convergence of moving averages occurs, the moving averages come together and the difference between them goes down. As a result, we can say that closer the MACD line is to zero, the more likely is it a case of convergence. Farther away is it from zero, more likely is it a case of divergence. If the MACD line is on the positive side, we can say that the divergence is on the bullish side i.e. the 12 DMA is greater than the 26 DMA. The opposite is true on the other side.

The second component is the simple 9 Day SMA of the MACD line itself and we will use crossovers to generate buy and sell signals for the same. We also have bars on the graph that show the difference between the MACD line and the 9 Day SMA.

## HOW IT WORKS ?

The MACD line denotes the distance between the shorter-term and longer-term moving averages. In the process, it shows the degree of convergence and divergence in asset prices and moving averages. We compare this difference with a moving average computed on the MACD line to generate buy and sell signals.

## ELEMENTS

The MACD line has multiple elements. Let us understand them one by one. Firstly, we select two-time horizons – one for the short term and another for the long term. By default, it is 26 DMA and 12 EMA. These two elements and the difference between them will help us calculate the third element which is the MACD line itself. The farther away from zero levels is the MACD line, greater is the divergence. Next, we will use the fourth element which is a short term moving average of the MACD line. We will take the MACD level in last N periods and calculate the moving average. Next, we can also change the period for which we want the MACD moving average to be calculated. Lastly, we have bars on the graph. The bars are nothing but the difference between MACD line and its moving average. We will see that whenever the MACD line and its moving average crossover, the bar goes back to zero.

## SUITABILITY

These are again suitable for indices and large-cap stocks. We will avoid most indicators on small and mid-cap space as one key investor or promoter can manipulate the asset price with much greater ease.

## TRADING SYSTEM

We will use the MACD indicator in two ways. Firstly, the distance of MACD from the zero lines indicates the degree of divergence. So, whenever MACD is near zero, we can say that convergence is occurring and we will combine it with other indicators to check the occurrence of the next divergence. So, it helps us identify potential convergences.

Next, we can also use MACD to create trading signals. Whenever the MACD line crosses over its moving average, we can enter or exit a trade. When the MACD line crosses the moving average from below, it is a buy indicator. Whenever the MACD line crosses over from above, it is a sell signal. However, this too has quite a few false buys and sell signals. As a result, we need to combine this other indicator.



This is how MACD looks like in practice. For beginners, this might look slightly frightening but it becomes easier once we get the hang of it. The blue line in the graph is the MACD line, the orange line is SMA of the MACD. The bars represent the difference between the MACD line and its SMA.

1. The MACD line is too close to zero. As a result, that the different moving averages are converging here and we need to watch for divergences.
2. The MACD line breaks away from the range-bound movement. We can say this is a bearish divergence. We will use other indicators to confirm a trend.

NSE:RELIANCE, 1D 1983.95 ▲ +46.50 (+2.4%) O:1949.10 H:1997.00 L:1923.35 C:1983.95



TradingView

We discussed that we can use the MACD line and SMA crossover to generate trading signals. Here, we see that the two lines cross over each other multiple times. We will have to identify other circumstances based on which we will either accept or decline the trade. These crossovers as indicated on the chart are potential trade signals. Some of these will be profitable whereas others will not and we are to determine the same.



TradingView

This is a complete example of how MACD works. We see all the crossovers that are potential entry and exit signal. We have marked all these short and long signals. Again, some of them would have made us a profit whereas others would have given us a loss. We see a lot of false moves in MACD crossovers. Also, in the highlighted section, we see how the MACD line moves around zero to show convergence and then a divergence follows. With this, we end our discussion of MACD. This is also the last indicator we are covering.



We have now learnt about multiple indicators and oscillators. We saw some indicators are capable of generating reliable trading signals on their own, whereas some need to be combined with other tools.

These are the common ones that are used in practice. However, there is an endless list of other indicators and oscillators that exists. One can easily find them on the internet. However, a person can't know all the indicators. It is not advisable too. It is not required for an analyst to use all the indicators mentioned. One can only use the indicators that they are comfortable with or those that work for them. Remember, keeping it simple is always a good idea when beginning as the analyst will understand what is happening.

For a beginner, understanding these indicators should take a few days. However, becoming an expert in these take a lot of time and the only way to do that is practice. It is highly recommended for an analyst goes through hundreds of charts and tries to understand how the indicator has been working out. Another thing is to practice as we did for candlestick patterns. Also, they should try experimenting with different time frames for each indicator and how it is working for them. They can also try a combination of multiple indicators to generate signals for them. Learning the indicators is easy but spending time on the practice of the same is what requires skill and time. For any beginner, practice, practice and practice!

# CHEAT CODE TO CHART PATTERNS

HOW TO TRADE USING CHART PATTERNS

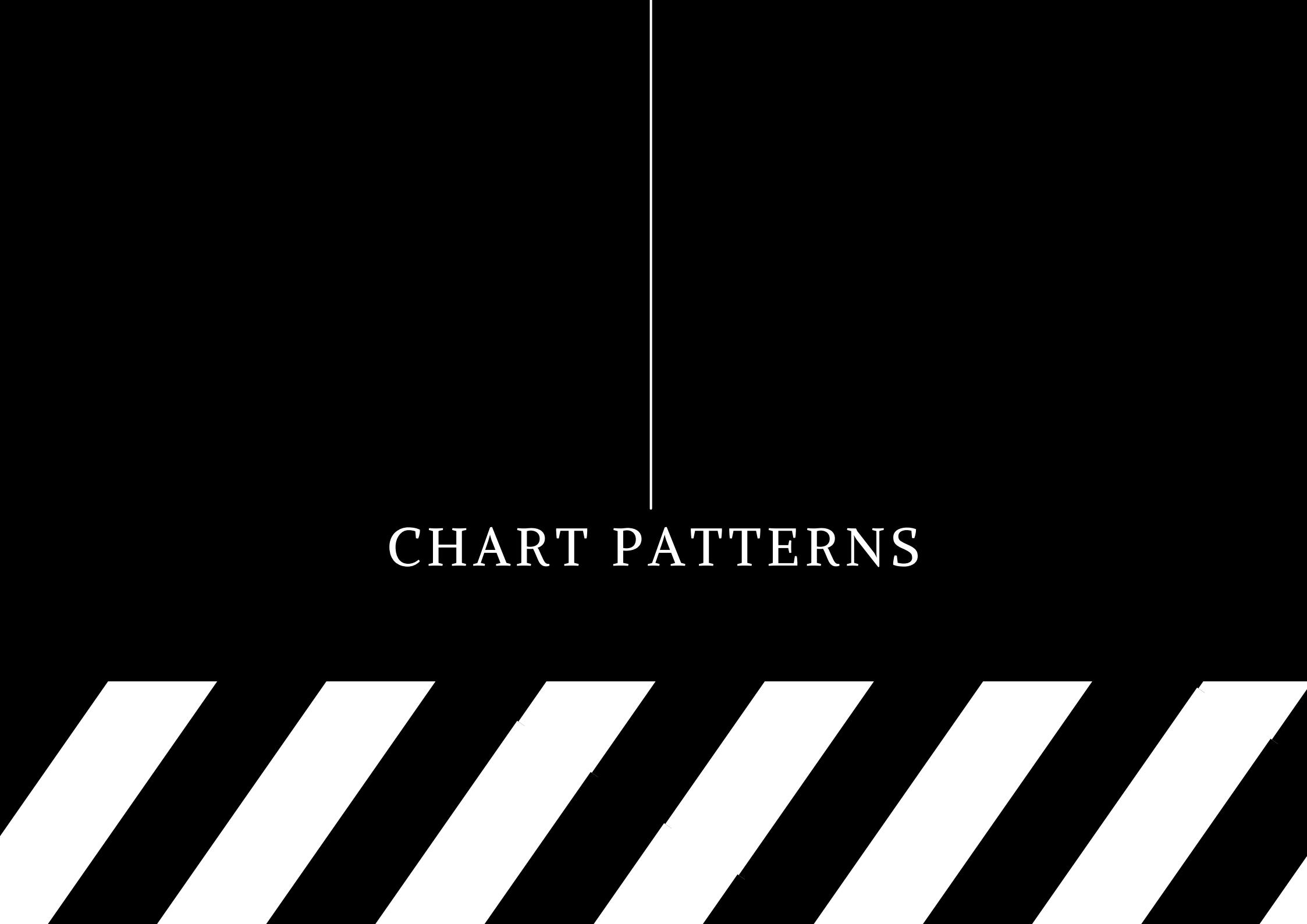
ZEBRA LEARN



10+  
PATTERNS

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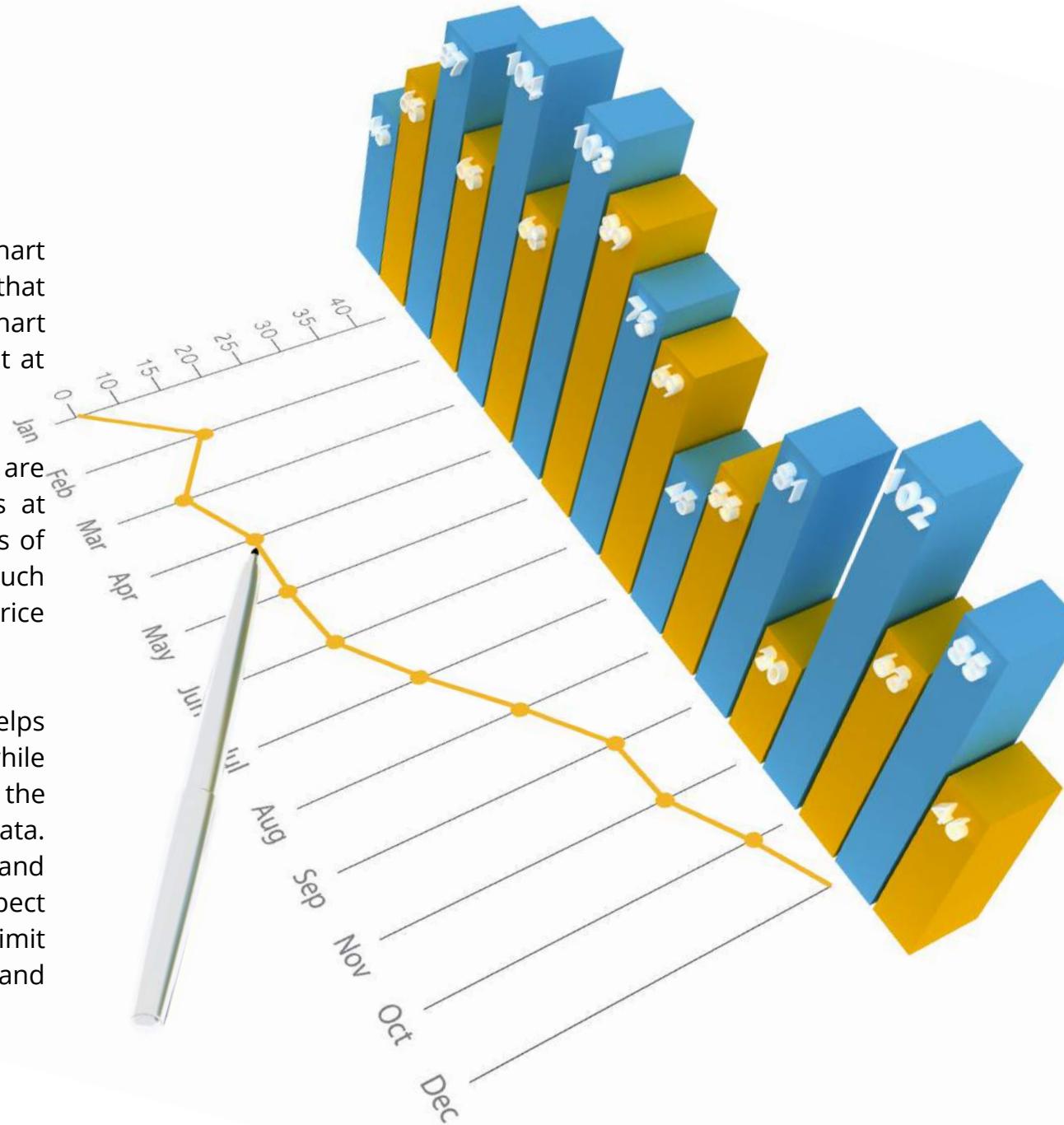
# CHART PATTERNS

# CHART PATTERNS

The next set of technical analysis tools is called 'Chart Patterns'. The closing prices create patterns on the chart that can be used to generate entry and exit signals. Chart patterns are a reflection of the psychology of the market at the moment.

Chart patterns are recognizable trendlines or curves that are formed. Based on these, we can determine the levels at which the asset prices are getting support and the zones of resistance. Chart patterns generate signals based on such support and resistance, to indicate whether the closing price will have a reversal or if the trend will continue.

Chart patterns have been used for a long time as it helps identify the patterns to aid in decision making while accepting trades. Chart patterns only take into account the closing price and do not give weightage to the volume data. Chart patterns are definite and recognizable patterns and only when such patterns are formed exactly, we can expect them to rhyme with their historical behaviour will strictly limit the use of chart patterns to large-cap, indices, currency and commodities.



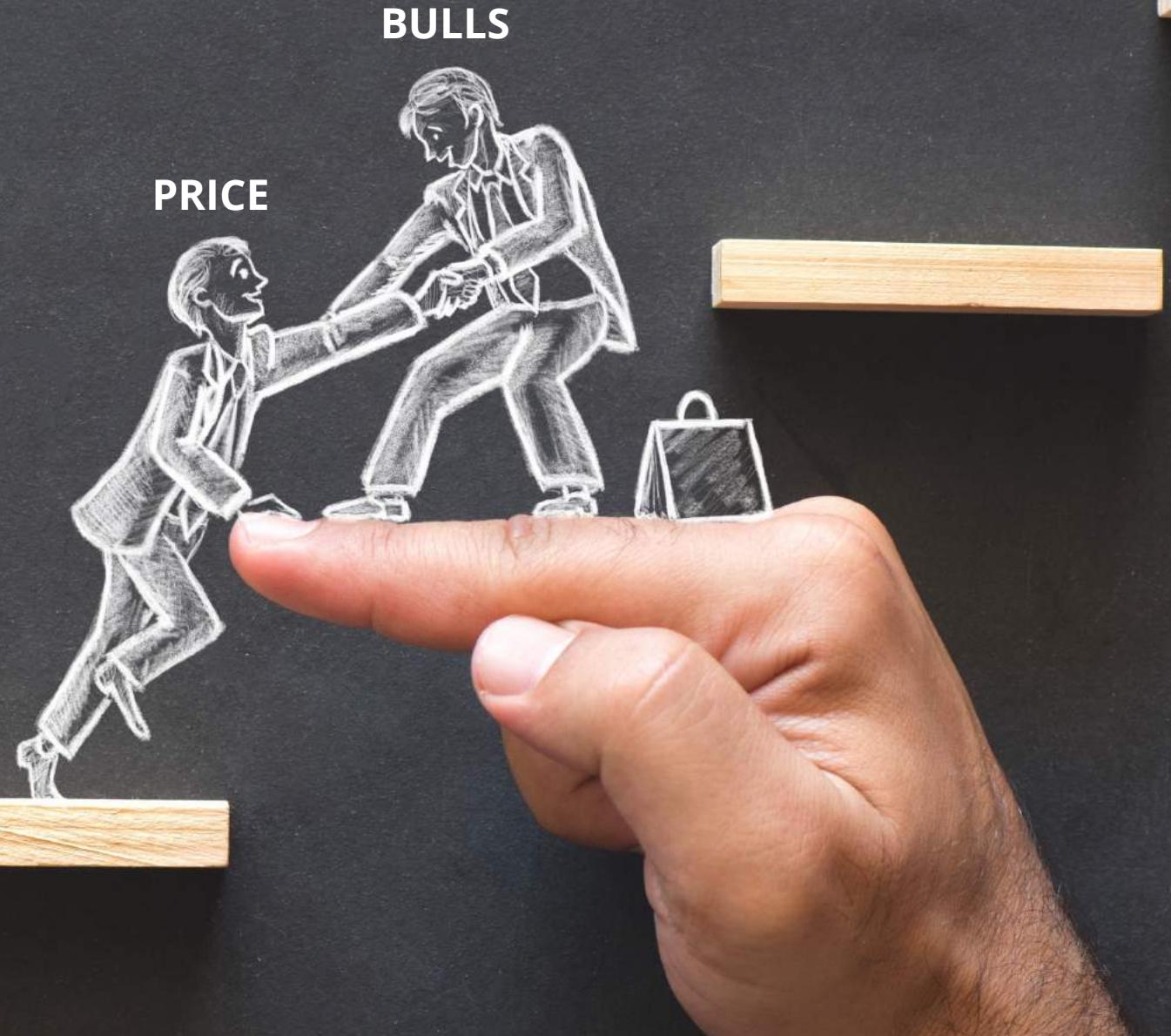
# HOW DOES IT WORK?

With chart patterns, the entire focus of analysis is around support and resistance levels. Support levels refer to those price levels, where a declining asset price finds buyers i.e. they find support and the price decline disappears. This means whenever asset price falls below this level or in fact, even reaches this level, it will manage to find buyers and as a result, the price won't go down further. On the other side, whenever the price of an asset is increasing, it reaches a certain level where it always finds sellers and as a result, it always reverts and the escalation decreases. Such levels where an increasing asset finds sellers and thus price falls repeatedly are called resistance levels i.e. the asset is facing resistance here.



## SUPPORT LEVEL

Whenever price falls to a certain level, bulls will pull it up back. They won't let the price fall beyond this level.



We see that when an asset is increasing, it has the bulls backing it. However, when it meets resistance, it meets bearish opposition. So, the bulls and bears have an arm wrestle here and if the bears win, the asset price reverts and if the bulls win, the asset price continues the trend, breaking free of the bearish opposition. The same is true on the other side as well with bulls fighting to revert the asset price and bears fighting to continue the trend.

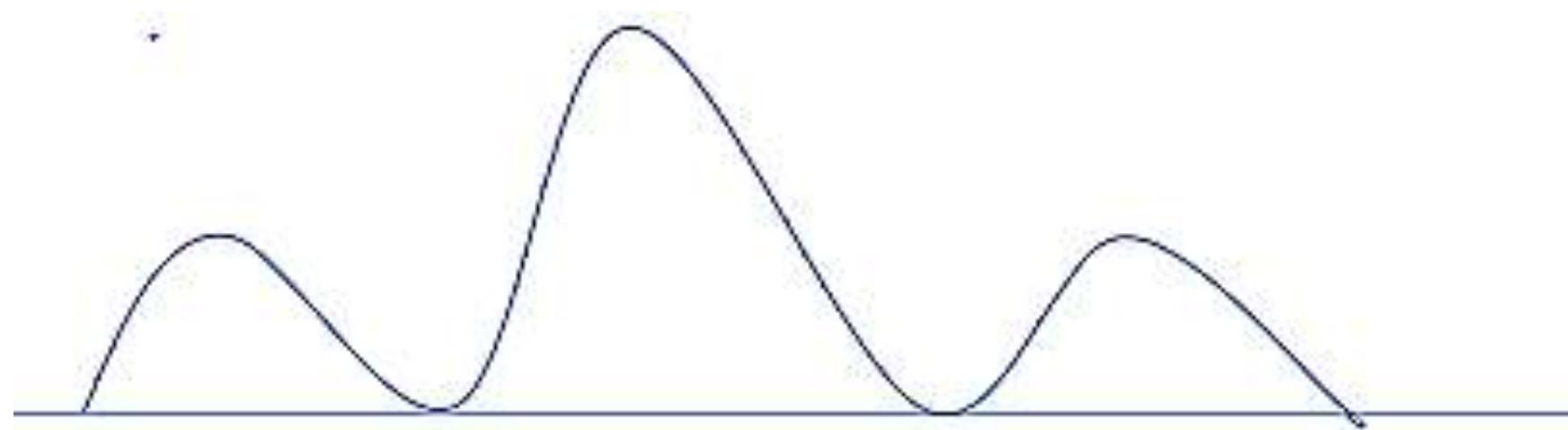
With chart patterns, we are trying to understand the support and resistance levels of the closing price. We are in an attempt to identify the point in which the asset prices break free from their support and resistance and the trend continues for a longer period.

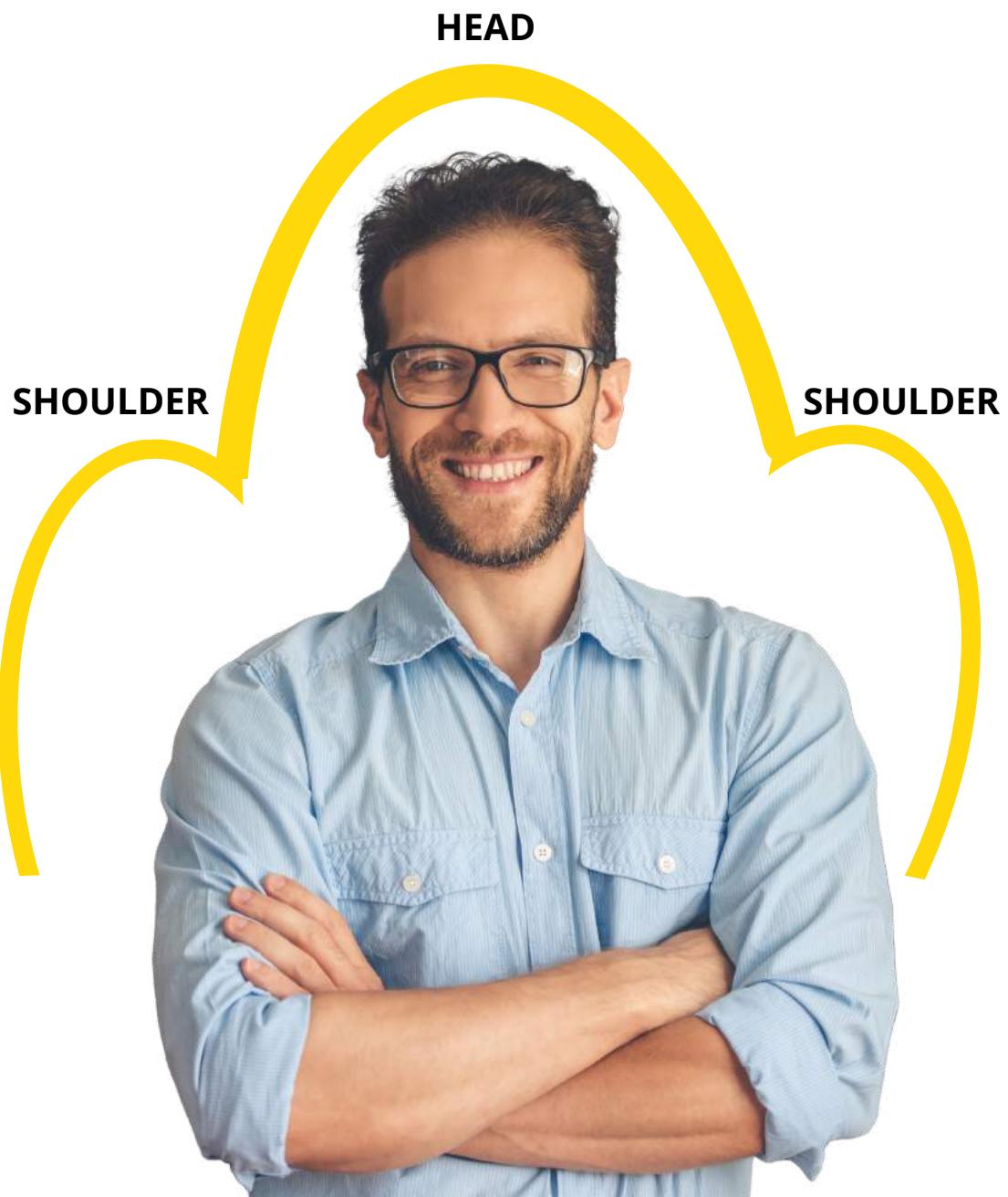


# *Pattern 1* HEAD & SHOULDERS

The 'Head and Shoulders Chart' pattern is formed when the closing price forms the pattern as shown below. It first, forms a curve-shaped shoulder where the price meets support at a particular level. Then the price rebounds and makes a relatively higher-top and then reverts. It again starts the downward journey and then meets support at the same level as it did earlier. This forms the head. The next curve has a relatively lower top and then again reaches the same support level after rising and falling back.

Now that the price is back to the support level, we can expect the bearish trend to revert with the bulls providing the support or else the bearish trend to break out of bulls support and continue the downward journey.

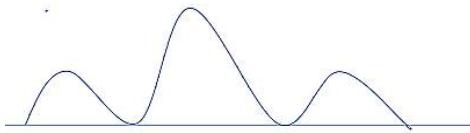




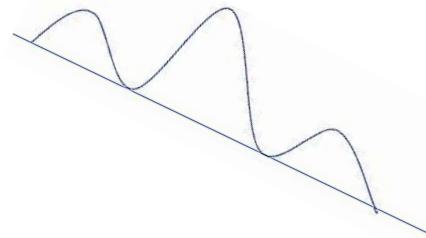
Firstly, we will identify a head and shoulders pattern being formed. Next, we will wait for it to break out of the support levels. The moment it breaks out of the support level, the bulls will recede and the downtrend will continue with even greater force. When the asset breaks out of the support level and there is a confirmation for the breakout, we will short the asset and profit from the price decline.

At times, the chart pattern can also form false moves with a breakout and then a reversal following the same. We will incur small losses here. These things will be taken care of when we backtest and systematically check if our strategy is working or not. In practice, this is a popular pattern that has been used fruitfully by analysts and traders across the globe.

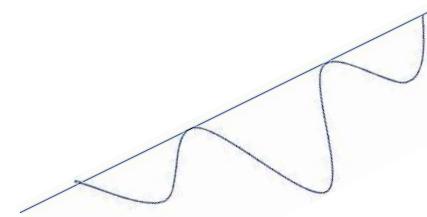
**STRAIGHT HEAD & SHOULDERS**



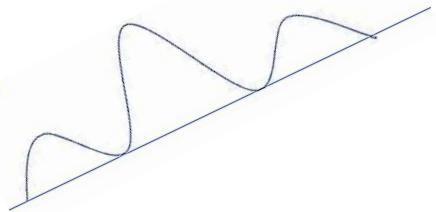
**DOWNWARD SLOPING HEAD & SHOULDERS**



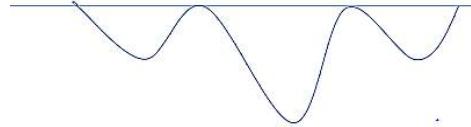
**INVERSE UPWARD SLOPING HEAD & SHOULDERS**



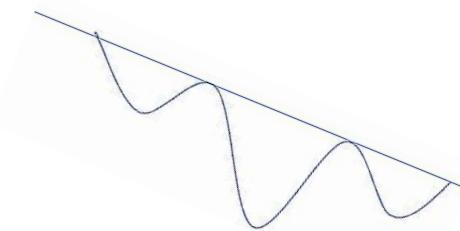
**UPWARD SLOPING HEAD & SHOULDERS**



**INVERSE HEAD & SHOULDERS**



**INVERSE DOWNWARD SLOPING HEAD & SHOULDERS**



Each type of head and shoulders formation works in the same manner. We wait for the breakout and then enter the trade in the direction of the breakout. The only difference is in the direction the pattern is pointing towards. Whenever they break the support or resistance line, we will see that as an entry signal.



Source - Trading View

This is an example of how head and shoulders look in practice. This is an upward head and shoulders pattern. The closing price is finding repeated support at the pointed line. However, when bears break the bullish support, it means bears have a very firm grip on the market and this is a short signal. We can see a clear breakout of the head and shoulder pattern over here. The challenge here for an analyst is to identify these patterns. It takes a lot of practice to identify these patterns in greater detail. The only thing an analyst sees on a chart is the closing price chart.



Source - Trading View

This is another example of a head and shoulder pattern. We see that there is a clear breakout and we would have shorted at that level. In hindsight, it would have been a profitable trade as well. The chart shows that it is not an exact textbook pattern of head and shoulders. The patterns in practice will be irregular and will still behave like head and shoulders.



Source - Trading View

This is an example of inverse head and shoulders. The closing price is meeting resistance at the same level multiple times and as a result, has created an inverted head and shoulders. However, there is a breakout to follow as soon as the bulls overpower the resistance offered by the bears. This breakout leads to a firm grip over the market by the bulls which is expected to continue. As a result, such a formation with breakout will indicate a long signal for us.



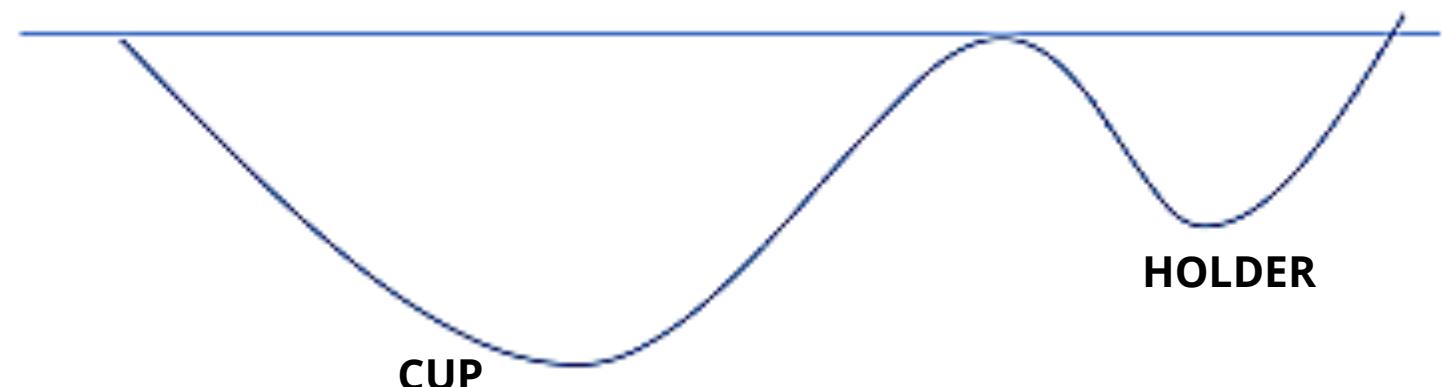
Source - Trading View

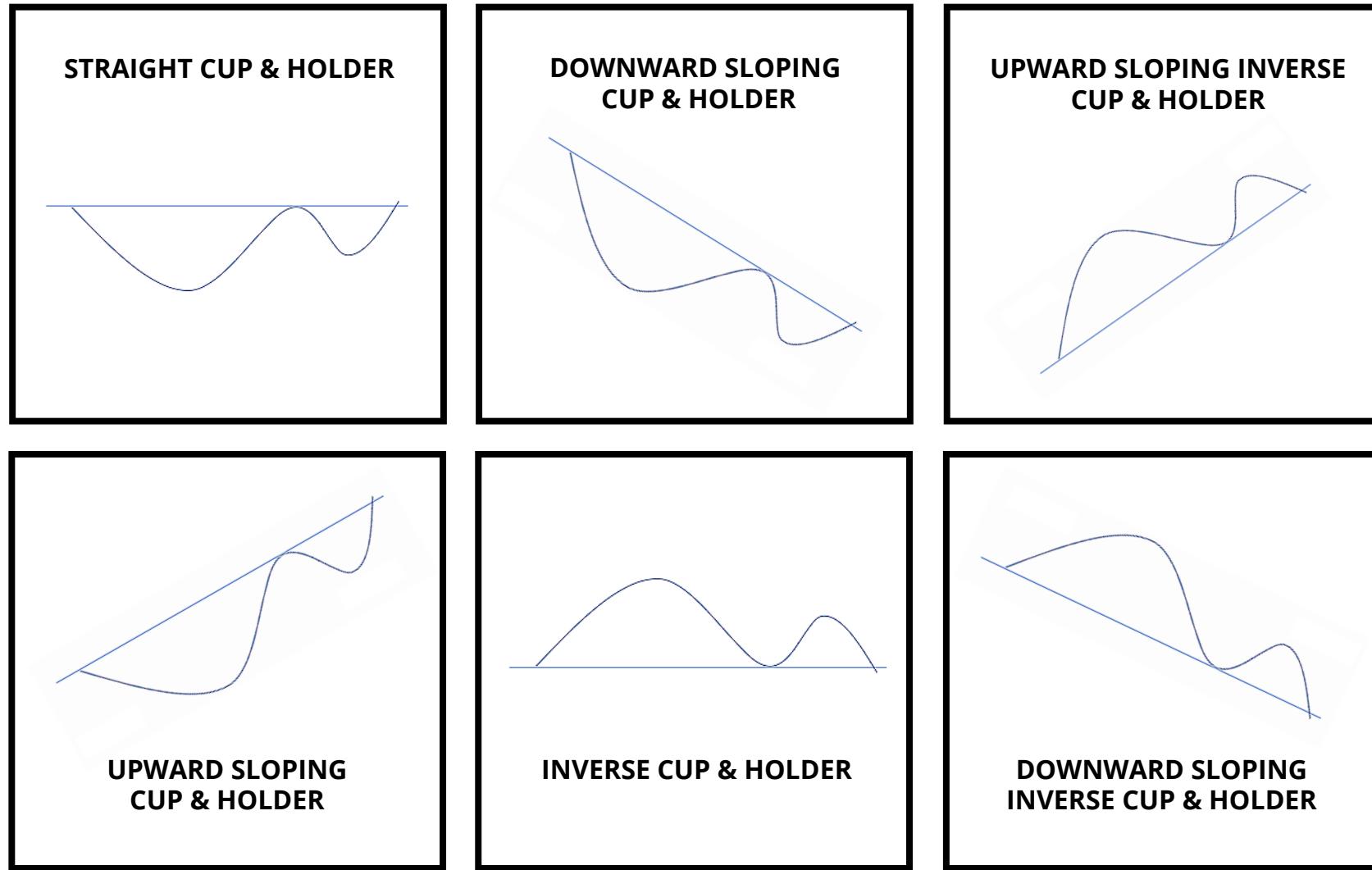
This is yet another example of an upwards inverted head and shoulders. This again is not a textbook version of the same. However, these work the same. There is a breakout following the right shoulder and this indicates a long signal. An analyst must spend hours going through multiple charts trying to identify different patterns that we are learning about here. With this, we end our discussion of head and shoulders pattern. Let us now move to the next pattern.

## *Pattern 2* CUP & HANDLE

The 'Cup & Handle' chart pattern works pretty much in the same manner as the head and shoulders, however, the formation is different. We see that there is a large curve in the closing price which meets resistance at a particular point, which is then followed by a smaller curve that again meets the resistance level. These two curves form the cup and then its handle respectively.

Once a cup and handle are formed, the closing price is near the resistance line. Here, the closing price can be reverted if the bears can resist the advance of the asset price. However, it can also continue and form a breakout, in case the bulls can overpower the bears' resistance. When this happens, we can see this as a long signal. Cup and handle are one of the most popular chart patterns. Cup and handle can be of different kinds as well.





All kinds of cup and handles work the same way. We long or short based on breakout and which side it is on.



Source - Trading View

This is what a typical cup and holder pattern looks like. We see the first curve is the cup and the second curve is the holder. There is resistance when the first time the curve reverted to form the holder. If the asset can go beyond this point, we can say that there was a breakout. In this example, there was a breakout and we could have gone long.



Source - Trading View

This is another example of a cup and handles formation. We see that such formation is formed over months. We see that there is a false breakout and then the price comes back. However, the second attempt to break out is successful and the asset successfully breaks above its cup and handle resistance. There were relatively high volumes at the time of the first breakout which should increase our conviction in the trade. In this case, we would have made a loss in the first trade but earned a decent profit in the second trade.



Source - Trading View

This is yet another example of a cup and handle. At times, in chart patterns, the cup can be followed by two handles before it finally breaks out. So, this formation has two handles associated with it. Many analysts can treat it as a version of inverse head and shoulders. In both cases, we will wait for a breakout. In this case, the breakout is accompanied by a very high volume. As a result, we might have entered the trade in hindsight. However, in this case, we would have ended with a loss rather than a profit.



Source - Trading View

This is an example of an inverted cup and handle. We see that there is a breakout on the lower side and hence, a short signal. We would have most likely made a decent profit in this case. We see that patterns only tell about an entry point and nothing about the exit. We will have to combine these with other analytical tools to determine an exit strategy.



Source - Trading View

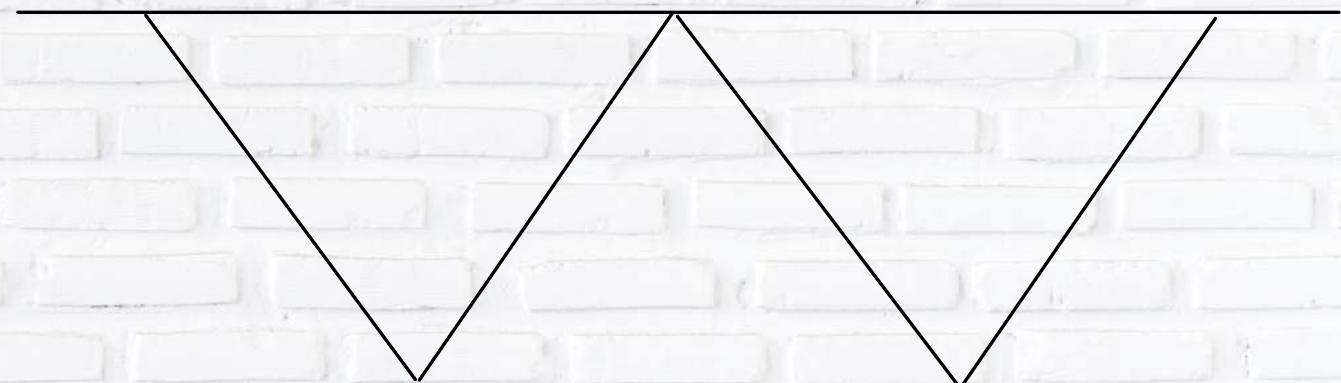
This is another example of the inverted cup and handle. We see that there was no bearish breakout over here. The support line stood firm and the asset price never managed a breakout. So, we see that despite chart formations, we might not want to enter a trade. With this, we conclude the topic of the cup and handle formations. The ability to successfully identifying such patterns depends upon the reader's practice.

## *Pattern 3* DOUBLE BOTTOM

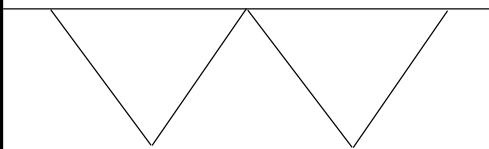
'Double Bottom' is yet another chart pattern that is formed when two downward moves meet the same support and then rebound. On the upper end, they face similar resistance and at the lower end, they will form two equal bottoms.

The first curve goes down, makes a bottom and reverts to meet resistance. Then it repeats the same. Under some circumstances, it can even repeat the same once more and form triple bottoms. Once it comes back to the resistance line, the bulls try to overpower the bears and if they can get a breakout, the same is expected to continue. This breakout is a long signal for a trader. Trades can be taken based on such breakout. Like the other patterns, double bottoms to exhibit multiple types. All of them work in the same manner.

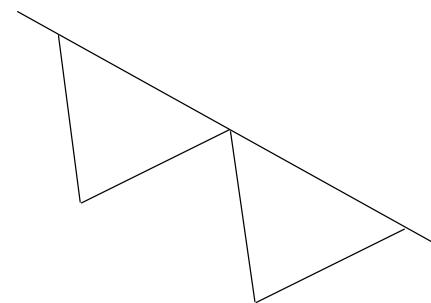
These are the multiple types of double bottoms. We see that the inverse double bottom is also called double top.



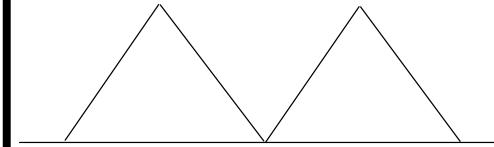
**STARIGHT DOUBLE BOTTOM**



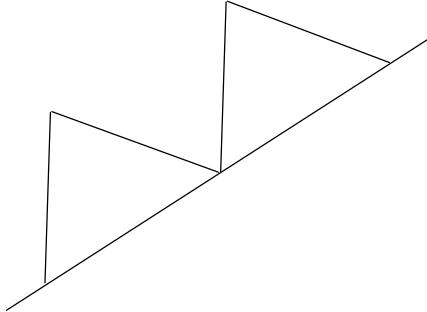
**DOWNTWARD SLOPING  
DOUBLE BOTTOM**



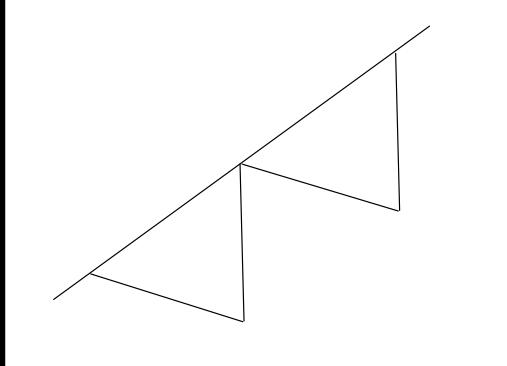
**STARIGHT DOUBLE TOP**



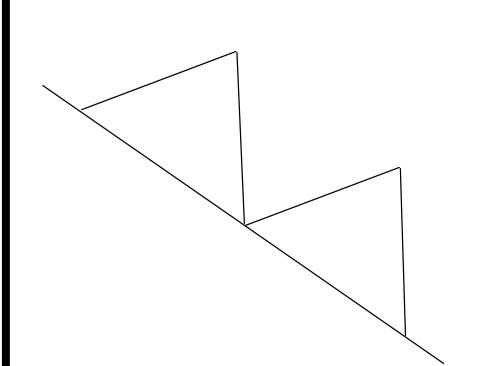
**UPWARD SLOPING  
DOUBLE TOP**



**UPWARD SLOPING  
DOUBLE BOTTOM**



**DOWNTWARD SLOPING  
DOUBLE TOP**



In case of double bottom, we will long the asset on the breakout. In case of a double top, we will short the asset in case of a breakout. We will be using them to exclusively identify breakouts and enter into trades based on the same. Double tops and bottoms are fairly easy to spot. Let us see examples for the same.



Source - Trading View

This is a textbook double bottom formation. We see that two bottoms are being formed at the same level. Whenever the price of the asset breaks above the resistance line, we will take a long position on the asset. Here, the asset price has faced resistance at the resistance line. However, if this turns out to be a false move and the price breaks above the line, we will consider it as a breakout and go long the asset.



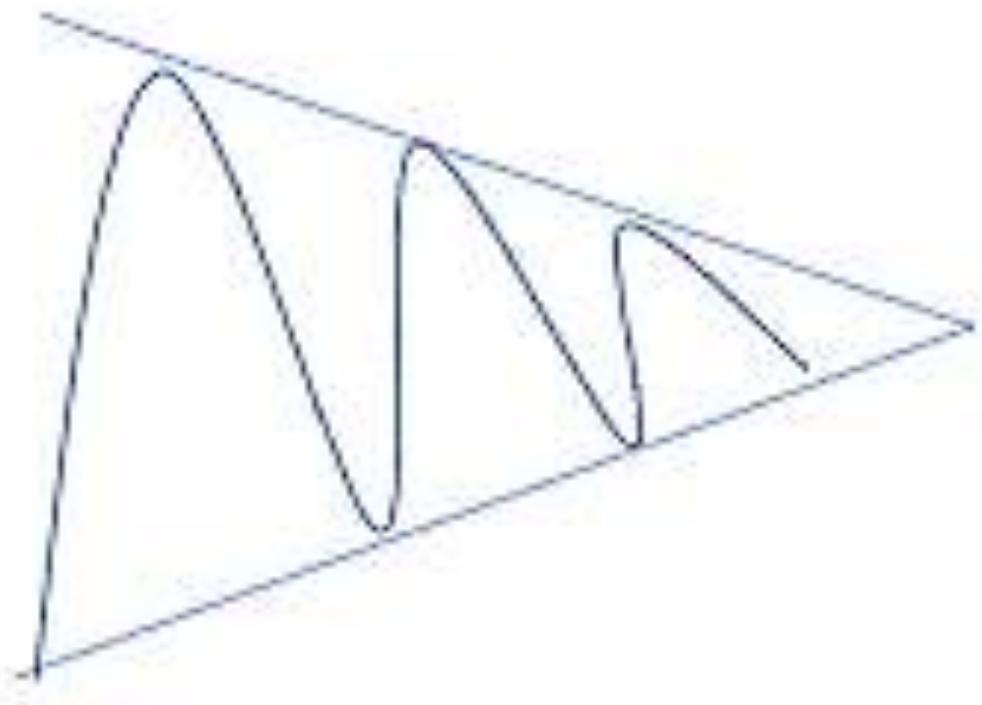
Source - Trading View

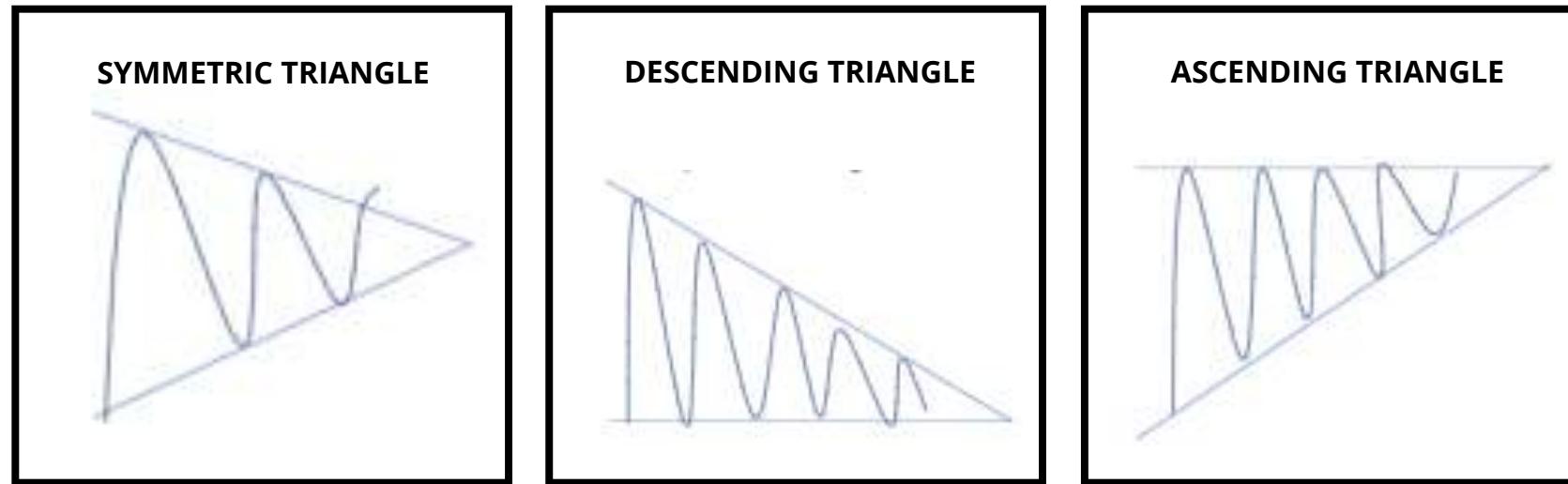
This is another example of the double bottom. This is an extremely shorter-term version of the same. However, we will conclude that this meets all the requirements of the double bottom if it is the same. We see a breakout following this as well where we would have gone long. In hindsight, this position seems to be profitable. With this, we have reached the end of our discussion on the double bottom. Let us now move to the next chart pattern.

## *Pattern 4* TRIANGLE

'Triangles' are created when the asset price moves in a manner such that the support and resistance levels in the recent past form a triangular pattern. The illustration depicts the movement of the closing price of the asset within the edges of the triangle. Such formations are called triangular chart patterns. They work in a sideways manner and a triangle formation can have a breakout in either direction. If it breaks out on the top side, it is a bullish breakout and as a result, we can long the asset.

If the breakout is on the negative side, we can say that it is a bearish breakout and we will short the asset.





These are the different types of triangles that we will be using i.e. symmetric triangles, upward sloping or ascending triangles, downward sloping or descending triangles. These work the same and can break out in either direction.

However, in the case of ascending triangles, we will prefer a bullish breakout more than a bearish one and in the case of the descending triangle, we will prefer a bearish breakout more than a bullish breakout. In the case of a symmetrical triangle, we are indifferent.



Source - Trading View

This is an example of how symmetric triangles look. We see that the upper end of the triangle represents resistance and the lower end represents support. The price is moving between support and resistance. A triangular formation is formed and we are sure that there will be a breakout in either direction. In this case, we see that there is a breakout on the bullish side where the asset price escapes the triangle on the upper end. Such a breakout is a signal to go long on the asset.



Source - Trading View

This is yet another instance of the symmetrical triangle. This is relatively a shorter-term one. We see that the price is still range-bound. We will consider going long or short on the asset based on the breakout side of the closing price.



Source - Trading View

This is an example of the ascending triangle. We see that there is a clear-cut breakout. We would have like a bullish breakout itself when it comes to ascending triangles. As a result, we would have gone long the asset a couple of sessions back.



TradingView

This is another example of the ascending triangle. We will wait in such a scenario for the asset to make a breakout. The triangle here is again a very short term pattern. The longer the term of the chart pattern, the stronger and more tested are the support and resistance levels. In this case, we will not go short in case there is a breakout on the lower end, however, will go long if the breakout is on the upper end.



Source - Trading View

This is a long term ascending triangle. We see that its support and resistance levels have been tested multiple times. We will accept the trade based on the breakout direction. We see that we can combine these with other indicators as well and use two or more, together to create trading signals.



Source - Trading View

This is an example of the descending triangle. We see that this is again a shorter-term triangle. We will prefer the breakout to be on the bearish side. In this case, we see that the breakout has been on the bullish side. We might or might not have entered this trade. However, in such a case if there was a bearish breakout, we would have entered the trade.



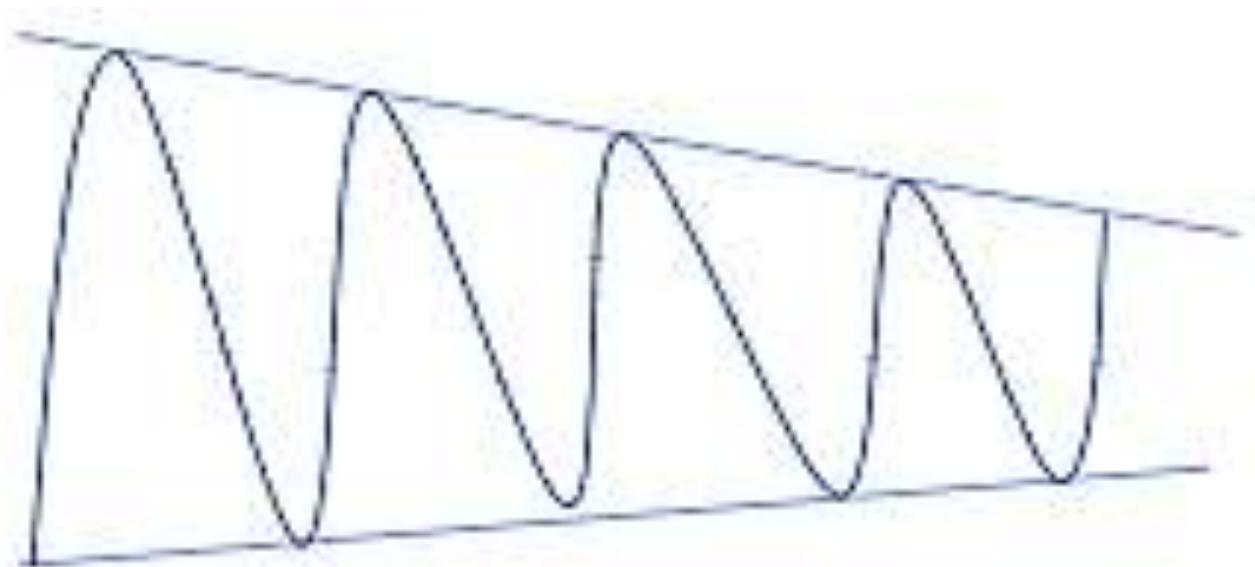
Source - Trading View

This is another descending triangle which is again very short term. The support and resistance levels have not been tested properly. We see that the breakout, in this case, has been on the Bullish side. We would not have entered this trade as this is a very short term triangle.

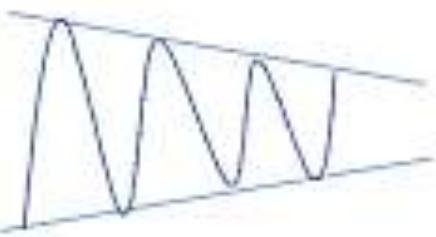
## *Pattern 5* WEDGES

'Wedges' are similar to triangles, but a more open version of the same. If extended for a very long time, wedges go on to create triangles by themselves. Two lines mark the various support levels and the resistance levels of an asset's price. We will wait for the price to break out in either direction and based on the breakout, we will enter a trade either on the bullish side or bearish side.

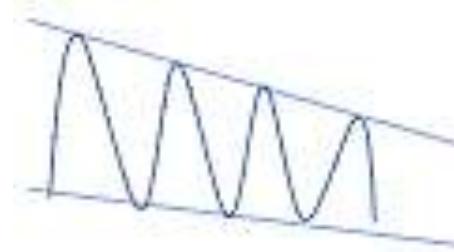
We will go long, in case the breakout is on the upper end of the wedge and we will go short in case the breakout is on the lower end of the wedge. Wedges work exactly like triangles when it comes to generating trading signals. The illustration portrays a typical wedge pattern.



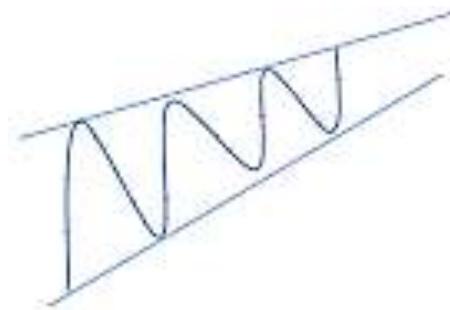
**SYMMETRIC WEDGE**



**DESCENDING WEDGE**



**ASCENDING WEDGE**



We see that wedges can again be of three types -symmetric, ascending and descending. We can enter a trade based on the breakout on either of the sides. However, we will prefer a bullish breakout for an ascending wedge and a bearish breakout for a descending wedge. We are indifferent in the case of the symmetric wedge.



Source - Trading View

This is an example of ascending or rising wedge. It is a long term wedge and the support and resistance lines have been well tested. As a result, we would have entered a trade for a breakout on either side. We would have preferred a bullish breakout, but we would have entered this trade of negative breakout too. In hindsight, we would have made moderate profits.



Source - Trading View

This is another ascending wedge which is relatively long term. We see that there is a breakout on the bearish side. It has been accompanied by very high volumes. As a result, we might have entered the trade. In hindsight, it would not have been profitable. However, in such circumstances when there is a sharp breakout, we would prefer to enter the trade.



Source - Trading View

This is an example of a falling or descending wedge. We see that there is a breakout on the bullish side. We would have entered this trade as the wedge has been formed over a few months. In hindsight, this looks to be a profit-making trade. However, the exact result will depend on our exit strategy and market course.



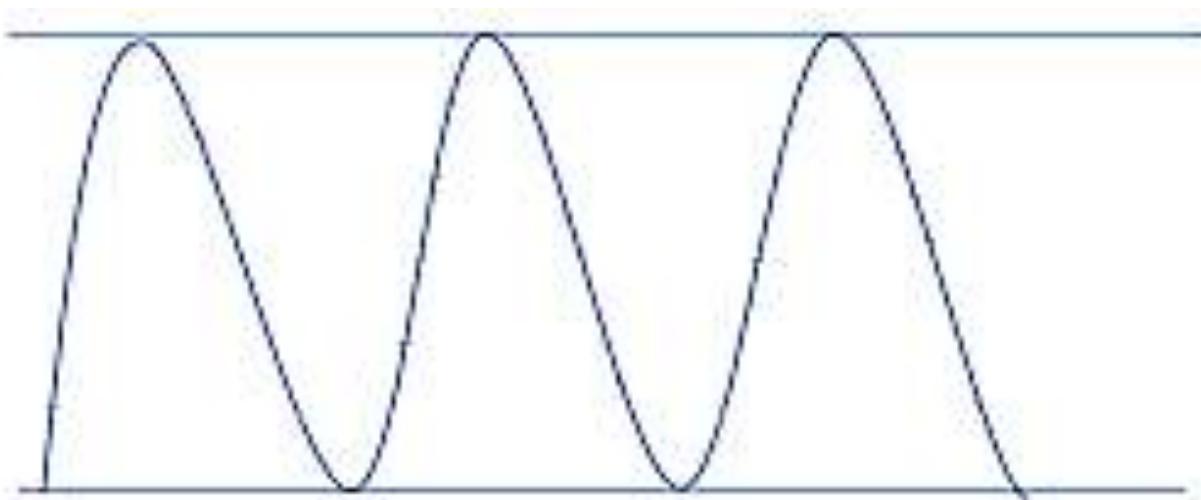
Source - Trading View

This is yet another falling wedge. We see how closely it resembles descending triangles. We see a bullish breakout. We would have entered this trade as this is a long term wedge and also, there is a good increase in volume at the time of breakout. This shows strength in the trend. And that concludes our segment on rising and falling wedges.

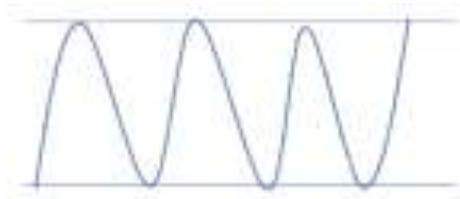
## *Pattern 6* CHANNELS

A 'Channel' is formed when the closing price of an asset starts to move in a fixed channel where the resistance and support that it is getting, are parallel lines. Here, the price of the asset is expected to stay within the range or the within the channels and it will oscillate between the support and resistance levels. We will wait in this case for the asset price to break out of the channels. We will long the asset if it breaks out on the positive side. We will short the asset if it breaks out on the negative side.

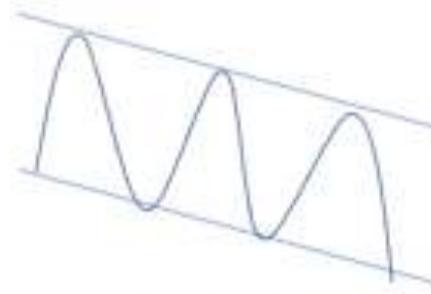
Channel, in many ways, is a flattened version of wedges and it works in the same manner. We will not act when the asset price is within the channel but we will enter the trade when we see any breakout. If heavy volumes are accompanying the breakout, this should make our case for the trade even stronger.



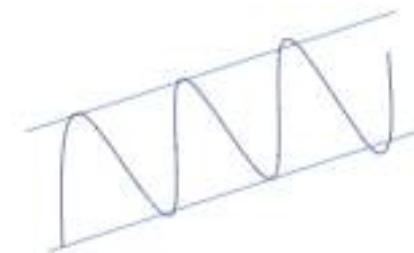
**SYMMETRIC CHANNEL**



**DESCENDING CHANNEL**



**ASCENDING CHANNEL**



This is typically how different types of channels move. We will prefer bullish breakouts in case of ascending channels, and bearish breakouts in the case of descending channels. We are indifferent about the direction of a breakout in case of symmetric channels.



Source - Trading View

This is an example of the ascending channel. We see how support and resistance are parallel lines. There is a breakout on the bearish side. We would not have entered this trade, as in an ascending channel, we would want to go ahead with bullish breakouts. We see that all breakouts cannot be blindly traded-in. Analysts use a lot of judgment in determining the breakouts to be traded. That is developed with experience and practice.



Source - Trading View

This is yet another example of an ascending trend. We would have surely entered this trade on the bullish breakout. We prefer bullish breakouts for ascending channels. Secondly, there is a volume accompanying the breakout.



Source - Trading View

This is an ascending channel. We see that the channel is the relatively shorter-term channel and resistance and support lines have not been tested enough. There is a bearish breakout. We would not have entered this trade as this is short term channel and there is a bearish breakout here. In hindsight, we would have missed out on quite a good trade. But, missing out is much better than incurring a loss. We will never compromise with the rules because 8 out of 10 times, the results in such a breakout will not be in our favor.



Source - Trading View

This is a descending channel. There is a bullish breakout following the asset price movement. We might have not accepted this trade as the channel was downwards and we would prefer a bearish breakout here.



Source - Trading View

This is a descending channel. There is a bullish breakout following the asset price movement. We might have not accepted this trade as the channel was downwards and we would prefer a bearish breakout here.



Source - Trading View

Here we see a sideways channel. The support and resistance lines are sideways and parallel. We are comfortable with a breakout in any direction over here. In the given example, there is no such breakout from the sideways channel. As a result, we cannot enter any trade in the channel shown below.



Source - Trading View

This is yet another sideways channel chart pattern. The price movement is contained within the channel range. A bearish breakout can be seen in October. However, this turned out to be a false signal. We would have incurred a small loss here. The asset price comes back within the channel. The bullish breakout in December is something we will enter a trade on. If this holds up or is a false move, we will get to know going ahead.



Source - Trading View

This is a sideways channel. We will enter a trade here, wherever there is a breakout. We can combine this with other indicators also to generate entry and exit signals.

With this, we end our discussion of the last chart pattern as well.

With this, we have understood the important chart patterns that can be formed. Chart patterns are purely based on price and do not consider volume related data. Chart patterns are developed around the concept of support and resistance and the fact that bulls and bears will be found at those levels repeatedly. We try to take advantage of these patterns by identifying them and expecting them to repeat themselves.

Chart patterns are mostly used in trading to generate signals at the time of breakouts. Traders can also use the support and resistance levels in creative ways in their strategies. Spending time to identify these patterns is the key. The ability to read the charts and spot such patterns takes time and practice but once learned can be very rewarding.





TRENDLINES



# TRENDLINES

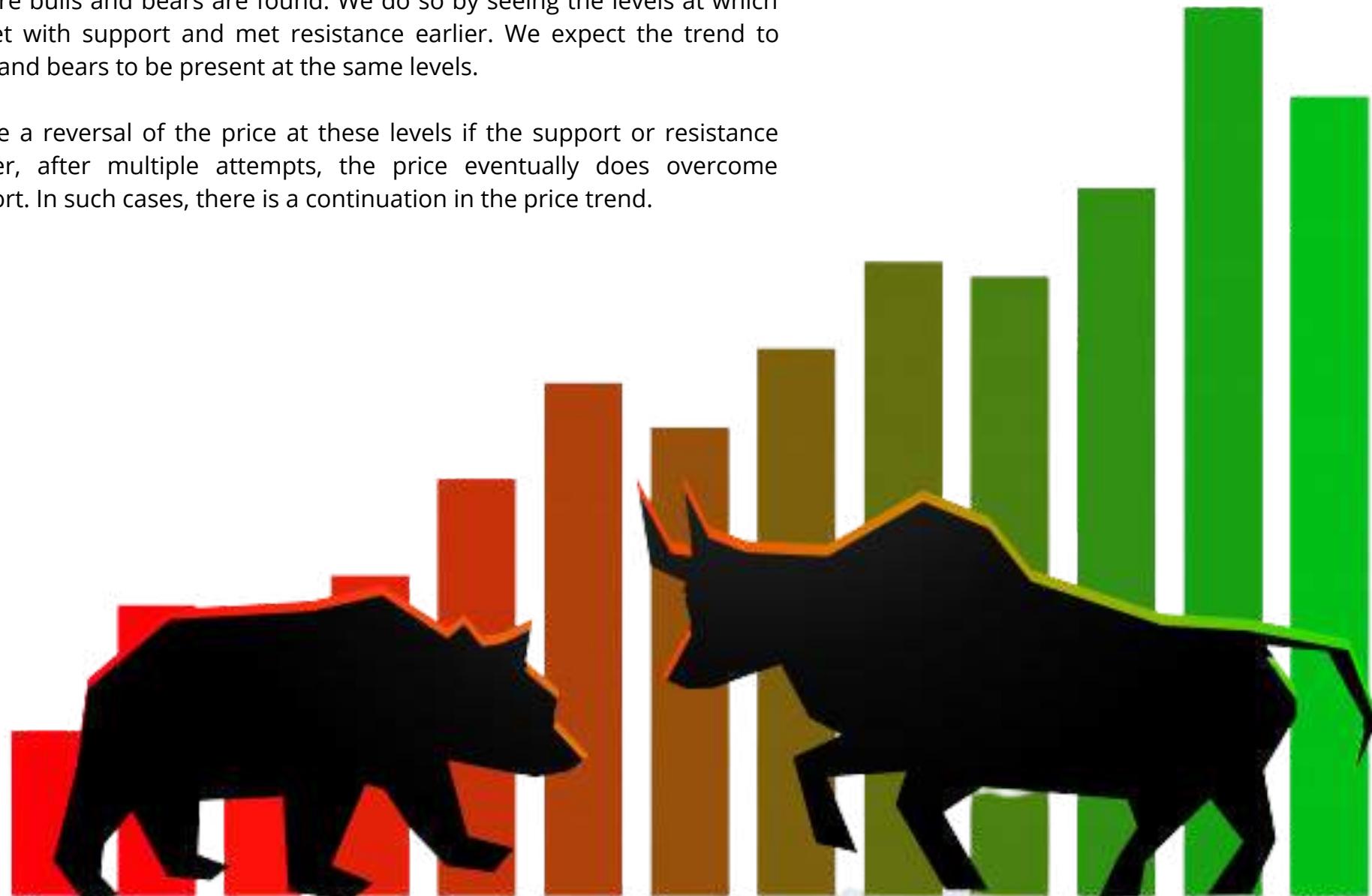
Trendlines are used to identify support and resistance levels on custom chart patterns. We find out the asset price gaining support and resistance based on which we enter trades. Trendlines help in figuring out the levels where bulls and bears might be present in abundance even when a fixed chart pattern is not being formed.



## HOW IT WORKS ?

With chart patterns, we can find bulls and bears at fixed levels. With trendlines, we try to find the levels where bulls and bears are found. We do so by seeing the levels at which the asset price met with support and met resistance earlier. We expect the trend to continue and bulls and bears to be present at the same levels.

There will either be a reversal of the price at these levels if the support or resistance holds up. However, after multiple attempts, the price eventually does overcome resistance or support. In such cases, there is a continuation in the price trend.



# HOW DO WE USE IT?

## DETERMINING TARGETS

We can use trendlines to determine the price target of trades that we are involved in. For instance, if we long an asset, we can use the resistance level based on trendlines as the price target. If we short an asset, we can use support levels as the target price where we aim to book profits. This is because there is a good chance that there might be a reversion at these levels and we might lose out on the profits. The final decision depends on the strategy that we have created for an entry and exit signal.



## BREAKOUTS

The next use of trendlines is to accept new trades based on breakouts. Whenever the asset price breaks out of the support or resistance, we can say that the trend should be expected to continue. The reason for this is the fact that whenever a breakout takes place, the momentum in the price has to be enough to overcome the resistance or support level and once that has been done, we can expect the price to move further along as the opposition strength has also gone down after the breakout. We will enter trades based on these breakouts in a manner very similar to the trades that we had been entering based on chart patterns.

## HOW TO IDENTIFY TRENDLINES ?

The biggest challenge is to identify trendlines. We will do so by connecting the recent highs and recent lows with one another. Whenever we see a straight line forming, we can say that these are trendlines i.e. support and resistance levels fall along these lines. More the number of recent highs on a particular line, the stronger is the resistance at this level as the line has been tested multiple times. This will give us the resistance line.

Similarly, more the number of recent lows on a particular line, stronger is that support line as it has been tested multiple times. Also, resistance levels can become support levels after a breaking out and vice versa.

It is pretty common for analysts to fall in trouble for overdoing trendlines. They try to read too much into the lines in an attempt to identify patterns even in the absence of such support or resistance. We will be careful of this and identify trendlines only when there is a pattern that exists.



NSE:MINDAIND, 1D 406.25 ▲ +1.00 (+0.25%) O:412.00 H:413.00 L:402.40 C:406.25



 TradingView

Source - Trading View

This is how we identify trendlines. We connect the recent highs and recent lows and the line on which they fall are the lines of support and resistance. We see that in this case, by connecting different highs and lows, we have formed an ascending triangle. We will wait for the breakout on either side and take the trade accordingly. Trendlines and chart patterns work in the same manner and often we will recognize chart patterns using trendlines.

NSE:BAJAJCON, 1D 219.50 ▲ +1.25 (+0.57%) O:216.70 H:228.00 L:216.00 C:219.50



TradingView

Source - Trading View

By connecting the recent highs and recent lows, we have identified the support and resistance levels for the asset. These can be used to identify price targets if we are already short or long the asset.

NSE:SUNPHARMA, 1D 581.45 ▼ -22.85 (-3.78%) O:604.10 H:607.35 L:578.45 C:581.45



TradingView

Source - Trading View

In this case, by connecting different highs and lows, we have formed an ascending triangle. We will wait for the breakout on either side and enter the trade accordingly.

NSE:PARAGMILK, 1D 119.85 ▼ -1.05 (-0.87%) O:121.00 H:123.00 L:118.00 C:119.85



 TradingView

Source - Trading View

These are yet another trendlines set. They have together formed an ascending wedge and we will treat them accordingly now. This is a long term resistance and support trendline and each of them has been tested multiple times. As a result, we can say that these are strong resistance and support levels.

NSE:HEROMOTOCO, 1D 3163.15 ▼ -39.85 (-1.24%) O:3200.00 H:3217.55 L:3082.25 C:3163.15

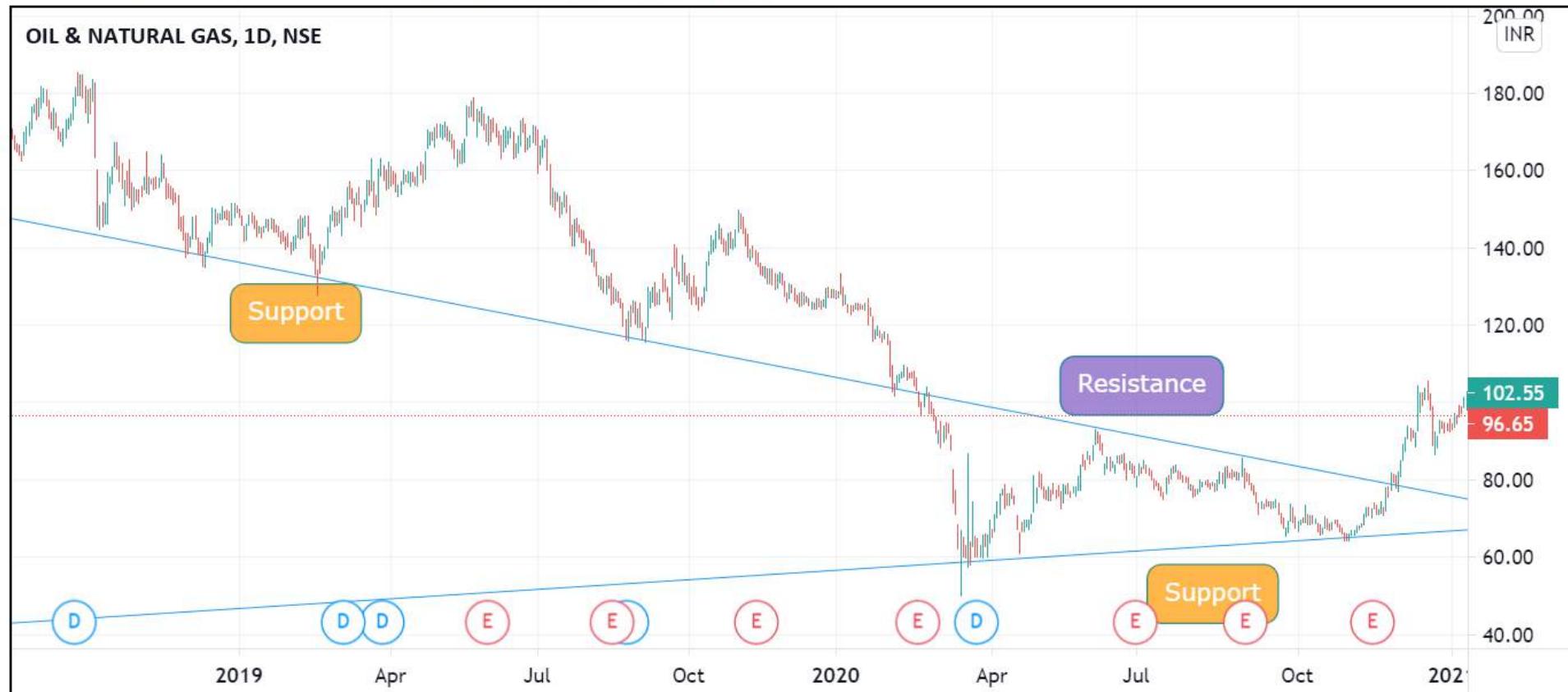


 TradingView

Source - Trading View

We obtained the resistance level by connecting the highs of the asset price. There is a breakout in August where the bulls overpower the bears. Following this, the resistance line has now started acting as a support level and has been tested multiple times and has gained strength. So, we see that trendlines can be used in multiple ways to understand support and resistance levels.

NSE:ONGC, 1D 96.65 ▼ -4.75 (-4.68%) O:101.40 H:101.85 L:96.05 C:96.65



 TradingView

Source - Trading View

This is yet another example where support turned into resistance. There was a breakout in March and we would have gone short on the asset-based on support breakout. The month of November saw another breakout. We would have gone long here. The trendlines together had formed a symmetric wedge formation here.

NSE:BPCL, 1D 409.55 ▼ -5.05 (-1.22%) O: 414.00 H: 416.90 L: 402.00 C: 409.55



 TradingView

Source - Trading View

This is yet another example where the support and resistance lines together form a symmetric triangle. We will now treat it as a triangle rather than trendlines. With practice, we shall be able to identify these trendlines and chart patterns and use them to great effect to take trading calls. An analyst should spend time here and go through many charts and try to spot the resistance and support at different times and also identify different chart patterns.



PYRAMID TRADING

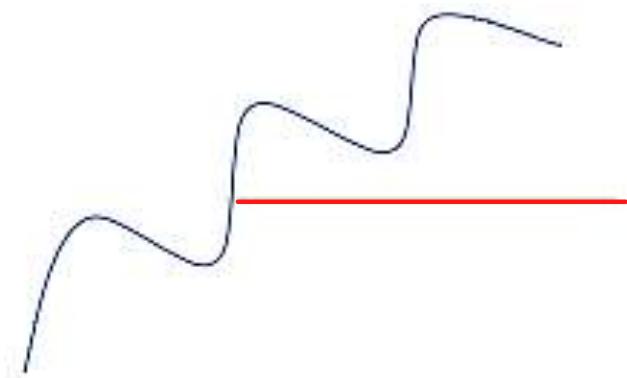


The 'Pyramid Trading' tool is not as much a technical analysis tool it is a trading technique. This is one of the most simple tools to follow. This is built around the theory that in an advancing market, the asset price will form multiple highs and each high will be higher than the previous high. Similarly, in a declining market, the market will form multiple lows and each low will be lower than the previous low. Based on this theory, pyramid analysis is done and positions are taken.

This is suitable over longer-term only. This is because, in the shorter term, markets are affected by a lot of factors. However, in longer-term, many of these factors get neutralized and the primary trend holds up. By long term, we mean a few months as compared to intraday trades. To understand the concept of pyramid trading, we will have to understand the concept of higher highs, lower high, lower low and higher low. We will use these together to understand pyramid trading in greater detail going ahead.

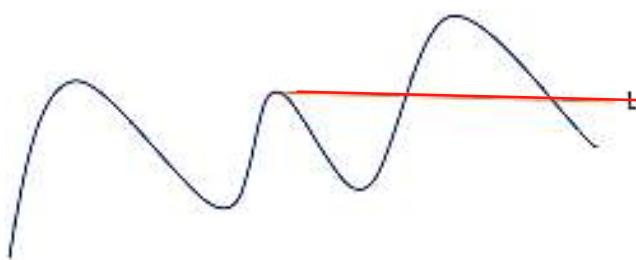
Whenever the market rises, it does not do so in a single straight line. The primary trend is upwards. However, the market will have multiple short terms upward and downward secondary trends. So, in the case of pyramid theory, we will mainly be concerned with the secondary trend forming these patterns. Let us move forward and understand these better.





## HIGHER HIGHS

We see that higher highs occur when in each secondary bullish trend, a high, higher than the high formed by the previous secondary bullish trend, forms. We will go long the asset when a higher high is formed.

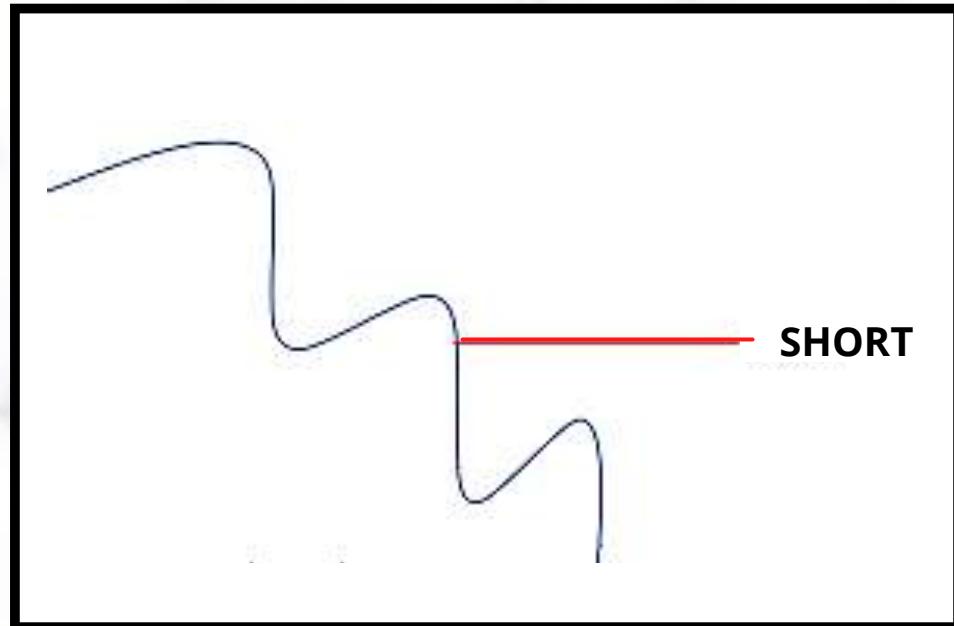


## LOWER HIGHS

As we were continuously forming higher highs, a subsequent high is formed that is lower than the previous high, and we should consider this a warning signal in case we are long that asset.

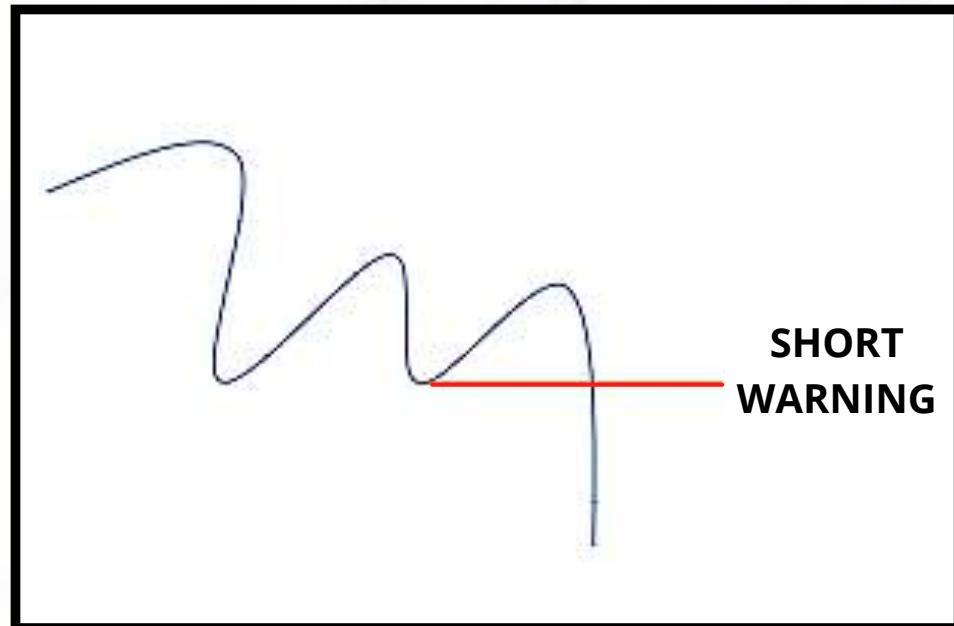
## LOWER LOWS

It is the opposite of higher highs. When the market is in a downtrend, we will see that multiple secondary curves are forming lower lows. This means that the low of each secondary curve will be lower than the previous level of support. We will short the asset when a lower low is formed. This level is also the point where we book our profits in case we are long the asset.



## HIGHER LOWS

When secondary curves form multiple lows but the subsequent low is higher than the previous low, we can say that it is alarming if we are short the asset that a reversal might be around the corner.



NSE:RELIANCE, 1D 1983.95 ▲ +46.50 (+2.4%) O:1949.10 H:1997.00 L:1923.35 C:1983.95

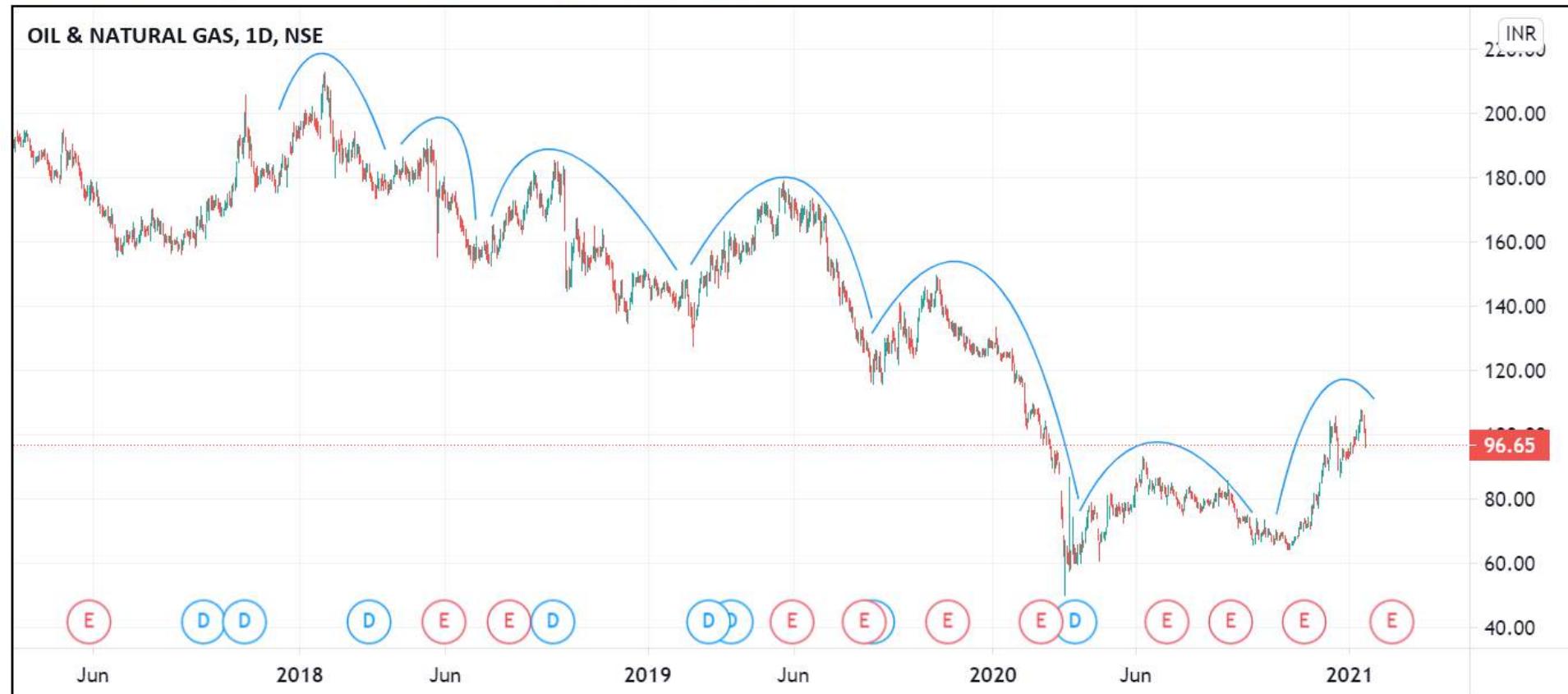


 TradingView

Source - Trading View

This is how pyramid theory looks like in practice. A large uptrend is divided into multiple secondary trends. Each curve is forming a higher high in the uptrend. Towards the top, it is forming lower high before it finally begins the downward journey. We see that the downward journey is confirmed when the asset forms lower highs and then lower lows too. This confirms that the uptrend has ended.

NSE:ONGC, 1D 96.65 ▼ -4.75 (-4.68%) O:101.40 H:101.85 L:96.05 C:96.65

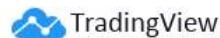
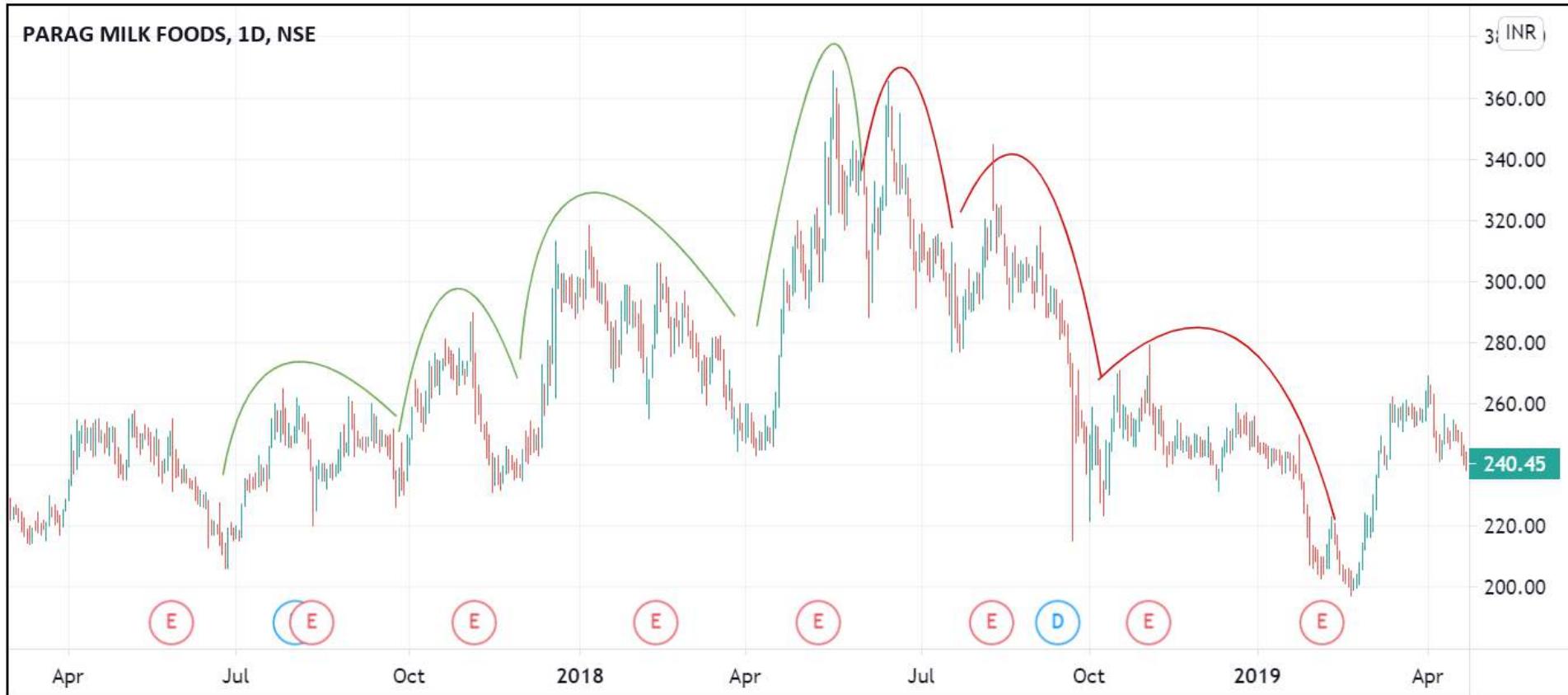


 TradingView

Source - Trading View

This is an example of downtrend using pyramid theory. The primary trend is divided into multiple smaller secondary trends. Each secondary trend is forming lower lows and till the time we can ride it, we will have benefited from a huge downtrend which is very difficult to identify using any other technical indicator.

NSE:PARAGMILK, 1D 119.85 ▼ -1.05 (-0.87%) O:121.00 H:123.00 L:118.00 C:119.85



Source - Trading View

We would have entered the trade the moment the secondary trend crossed the previous secondary curve's high. This means we would have gone long on the asset around October 2018. We would have stayed longer for a very long period till the asset started forming lower highs around June 2019. We would have squared off our position in June 2019 when a lower low was formed and the primary trend seemed to have reversed. However, in the process, we would have had a profitable trade. Also, we would have gone short when the lower low was formed and the second curve crossed that limit and we would stay short till March 2020 when higher was again formed.

NSE:BPCL, 1D 409.55 ▼ -5.05 (-1.22%) O:414.00 H:416.90 L:402.00 C:409.55

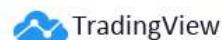


TradingView

Source - Trading View

This is an again similar example where we would have gone long when the asset price was forming higher highs and stayed short when asset price was forming lower lows. Trades based on these last months and generally give an excellent return. We are trying to benefit from reversals of the primary trend and as a result using higher highs and lower lows.

NSE:BPCL, 1D 409.55 ▼ -5.05 (-1.22%) O:414.00 H:416.90 L:402.00 C:409.55



Source - Trading View

Pyramid trading works exceptionally well with the trending market. However, they do not work well with a sideways market. We see that in a sideways market, there is no higher high, lower low and any of those things that make the pyramid theory work. So, we will avoid the use of the theory in a sideways market.

NSE:KOTAKBANK, 1D 1846.95 ▼ -16.95 (-0.91%) O:1870.50 H:1872.25 L:1838.85 C:1846.95



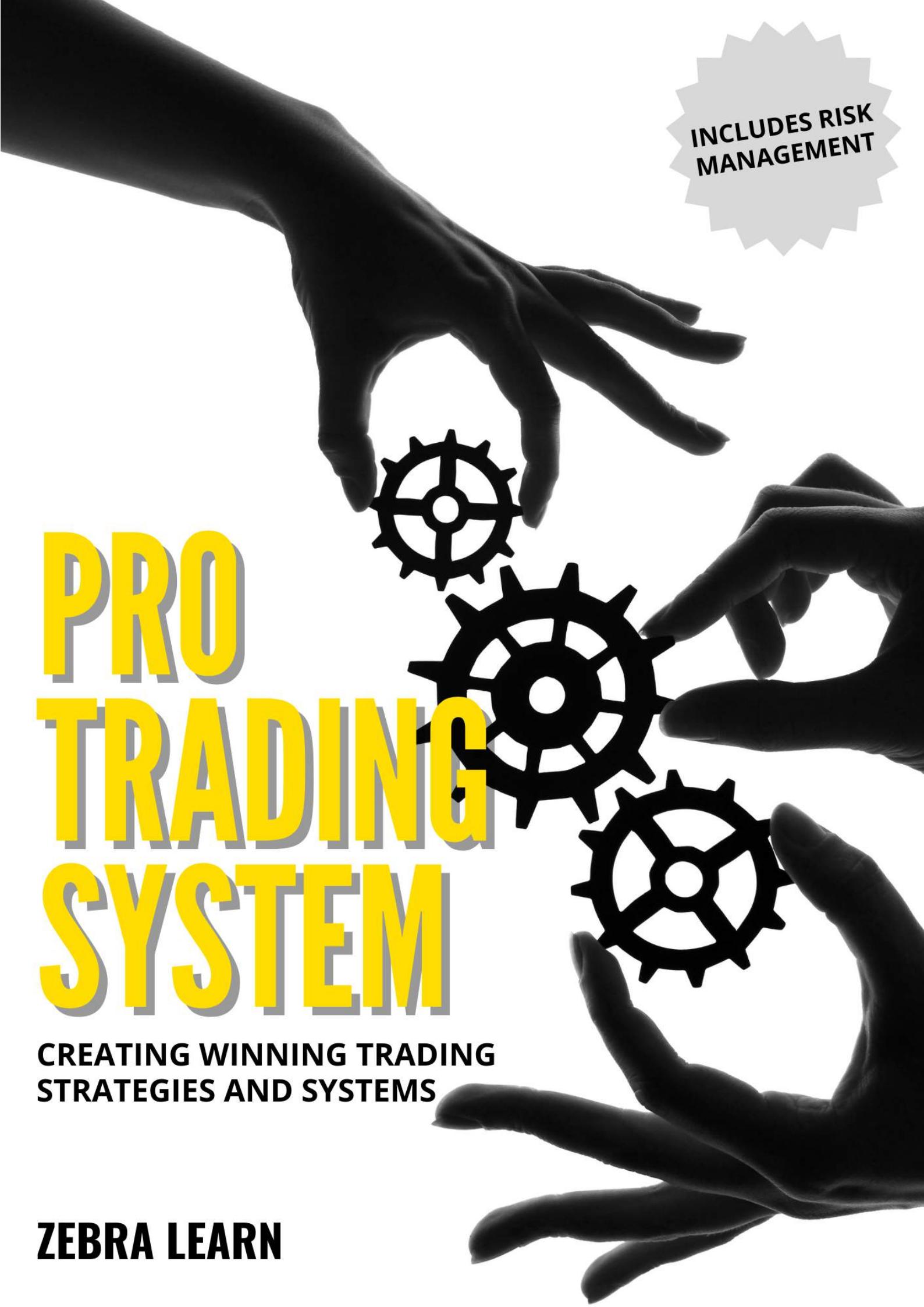
 TradingView

Source - Trading View

This is yet another example of a sideways market. We see that the use of pyramid theory is not possible in such a market and as a result, we will avoid such markets. With this, we end the discussion on the pyramid trading theory. The concept is relatively simple. It is the practice that counts.



With this, we finish our discussion of multiple analytical tool-sets to conduct technical analysis. We have talked about price and volume, candlesticks, chart patterns, trendlines, indicators and oscillators, pyramid trading and so on. We understood how to use each of them. Going ahead, we will understand how to use them in a systematic manner such that we can have sustainable profitable strategies and systems created for us. So, let us move ahead and learn more about their uses together.



INCLUDES RISK  
MANAGEMENT

# PRO TRADING SYSTEM

CREATING WINNING TRADING  
STRATEGIES AND SYSTEMS

ZEBRA LEARN

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# INTRODUCTION

Congratulations on making it here! So far, we have gone through various analytical tools to conduct technical analysis. We have used different candlesticks patterns, learnt to enter and exit based on different moving averages, indicators and oscillators, and about using price and volume data to increase our conviction on trades. Next, we also took a look at different chart patterns and their utility. Lastly, we also studied quite a deal about pyramid theory.





We expect that a learner would have gone through these charts in practice as well. He would have explored or will explore each of these in great detail in real-world charts too. However, so far we have used all these tools individually. We have seen that individual trade and profit and loss means nothing. It is all about our ability to replicate winning trades and systematically reduce loss-making trades. Only upon overcoming this, do we become a technical analyst and a trader. Without a systematic approach, we are just like a child playing darts – some throws randomly hit, while the rest are a miss. We will focus on creating a trading system for ourselves.

We will focus on understanding trading systems and their progression. We will use multiple analytical tools to create strategies. Multiple strategies put together in a systematic manner form a trading system. Let us understand each part of this progression in greater detail.



## ANALYTICAL TOOLS

Analytical tools are all the indicators and tools that we have discussed so far. Each tool tells us a particular fact about the price and volume movement of the asset. We employ each of these tools to help us determine if it is the bulls or the bears that have better control over the market. Each tool has its strengths and weaknesses.

## STRATEGIES

We are now aware of a variety of analytical and each of them has pros and cons. No indicator exists in the world that can exactly point out the direction in which the market is headed with 100% accuracy and one that works in all circumstances and all kinds of market. As a result, we will combine various analytical tools to determine fixed entry and exit points based on the circumstances and price movement. We will create multiple strategies using different combinations of analytical tools. Creating strategies require a lot of backtesting, evaluation, trials, and efforts.



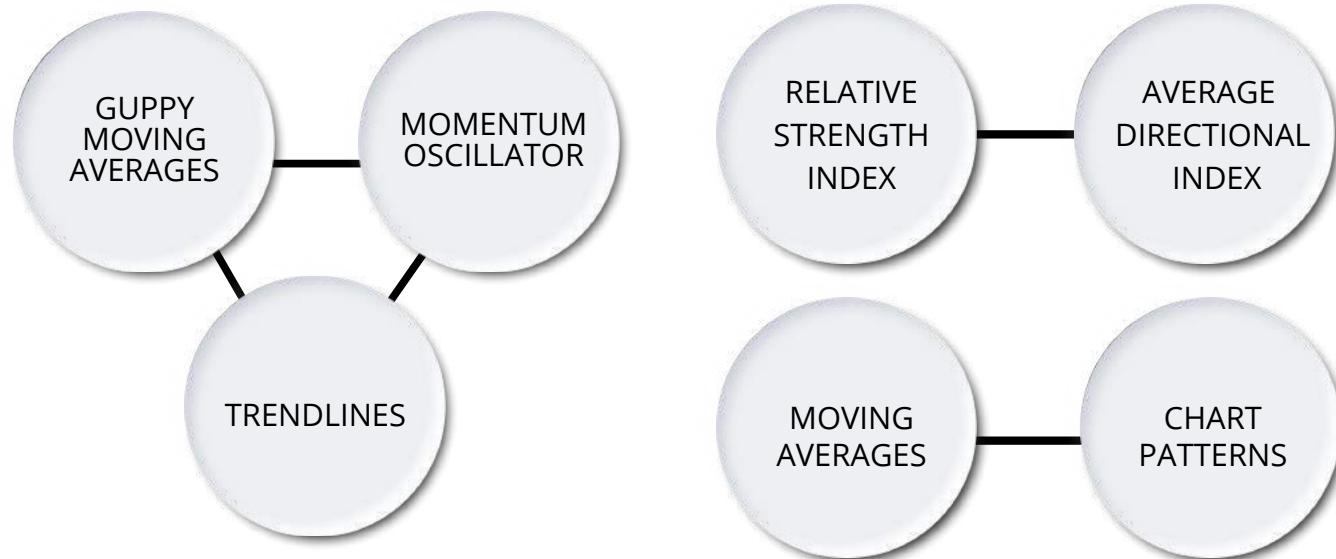
## SYSTEM

We will use multiple trading strategies together to form a trading system. We do not form multiple trading systems. We assess the kind of strategies we will be using in different kinds of market, the kind of indicators to be used in an uptrend market, downtrend market, and sideways market and the effectiveness of multiple strategies. We will then device ways to manage risk and allocate capital to different strategies.



# CREATING A STRATEGY

We have learnt to emphasize on creating a trading system. The building block of a system included building strategies. Let us understand the different elements required to create a working and effective strategy. The different elements required include the following-



## WHAT INDICATORS WE WILL BE USING?

The very first thing that we need to figure out when creating a trading strategy is the combination of analytical tools that we will be using. We can use a combination of RSI and ADX. We can use a combination of moving averages and chart patterns. We can use guppy moving averages, momentum oscillator and trendlines together. We can use any combination as we like to create such strategies. At times we can also use just a single indicator and not in combination with multiple averages. This selection of indicators requires a lot of creative effort and trial and error as well.



## WHEN WE WILL ENTER?

The next element is to define rules that help us determine the point at which we will enter into a trade. We will pre-determine the circumstances to enter a trade. More importantly, we will also define rules when we are unable to enter a trade despite a particular formation. For instance, we say that we will never enter any trade whenever ADX is below 25. So, no matter whatever happens with other indicators that we use, we will never enter trade if ADX is less than 25.

## WHEN WE WILL EXIT?

The next element is to determine when and how we will exit a trade. This means defining the rules that determine the point in time when we will square off our position in case of both profit and loss. This includes determining profit booking levels as well as stop losses. Every trade doesn't need to have a profit booking level. However, it must have stop losses to help in risk reduction. We will understand these in detail going ahead when we talk about risk management.

# WHAT ASSETS WE WILL BE USING?

The next step when creating strategies is to decide upon the kind of assets and the universe of assets we will be using. This means we have to determine if we will primarily trade in large caps and indices or along with mid and small caps and if we will be trading with currencies and commodities. We also have to decide upon trading either using actual assets or futures and options market. The reason we fixate on assets is that each category behaves differently and one strategy will not work for all situations.



## HISTORICAL UPSIDE - DOWNSIDE SIZE

The next element is about testing the efficiency of the strategy. So, here we need to determine the amount of profit or loss booked for all our past trades. The result of this is established by back-testing. We then proceed to find the average loss in each loss-making trade and average gain in all profit-making trades.

## WHAT IS THE HIT RATIO?

The next element is to determine the hit ratio of the strategy. This refers to the number of times the strategy has yielded a profit and the number of times it has resulted in a loss. For example, out of 40 trades in back-testing, a strategy yields 25 profit-making trades and 15 loss-making trades. So the hit ratio is 62.5% (25/40).

## IS STRATEGY SUSTAINABLE?

The last element is to determine whether the strategy is sustainable or not. We will derive this by use of historical upside and downside and hit ratio together. So, we know our average profit and loss, and we also know the frequency of profit and loss. We can convert the same into this-(Profit Making Trade % $\times$ Average Profit) + (Loss Making Trade % $\times$ Average Loss). Here profit-making trade % is 62.5% (25/40) and loss-making trade is 37.5% (15/40). If the net result is positive, we can say that the strategy is sustainable on its own.

The very first phase of creating a strategy is determining the indicators that we will be using. It is a very creative process and involves a lot of trial and error in doing the same. We have already understood the logic behind every analytical tool and the pros and cons. We will use them in combinations based on logic and trial and error. We will have a difficult time doing this if we have not spent enough time understanding the tools or spent time practising those.

## TRIAL AND ERROR WHEN CHOOSING THE TOOLS



Let us take an example. We saw that RSI entering the oversold and overbought zone is a good leading indicator of an upcoming reversal. The downside of the same is that RSI does not produce clear entry and exit signals. Moreover, there are times when RSI can stay in the oversold and overbought region for a while. So, we need another indicator that gives clear cut entry and exit signals following the leading signals and does so, only when actual reversal has taken place. So to do this, we try multiple different tools. We try Aroon oscillator, momentum oscillator, MACD etc. We then try moving average crossovers and they seem to be working the best in such a scenario. We then spend time understanding what time horizons to use for the crossover and let us say we agreed on 45 DMA and 9 DMA.

So, in this strategy, we have finalized upon the use of RSI and then crossover of 45DMA and 9DMA to enter and exit the trade. Using these, we have identified entry and exit. The next thing that we will do is back-test the same and estimate the results if this was used on the historical data. Estimate the average losses and profits and then the hit ratio.

We have finalized one hypothesis i.e. one projected strategy that should work logically. Whether it works or not, will only be determined by the results of back-testing. However, this way we keep on creating multiple such hypotheses and keep backtesting them. Commonly, more than 90% of such hypothesis will get rejected. However, the one that is left can be used by us for a very long period of time. So, we see how we can use different combinations of tools, test them and then validate which strategies to use.

## RELATIVE STRENGTH INDEX

AROON  
OSCILLATOR

MOMENTUM  
OSCILLATOR

MACD

MOVING  
AVERAGE  
CROSSOVER

5 DMA  
9 DMA

9 DMA  
45 DMA

18 DMA  
50 DMA

50 DMA  
200 DMA

## BACK TESTING



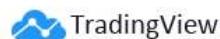
NSE:NIFTY, 1D 14371.90 ▼ -218.45 (-1.5%) O:14583.40 H:14619.90 L:14357.75 C:14371.90



 TradingView

We combine the RSI indicator with moving averages. We see RSI in overbought and oversold as a leading indicator and then look for crossover in next N sessions. If the crossover occurs, we will go long or short on the asset. We do not know whether this will work or not and if so, then the kinds of markets it will play out in. To figure that out, we will backtest and then count this as a strategy or not based on results.

NSE:NIFTY, 1D 14371.90 ▼ -218.45 (-1.5%) O:14583.40 H:14619.90 L:14357.75 C:14371.90



We combine guppy moving multiplier with ADX. We only want to enter trades when the directional movement has force. So, we will only enter trades when  $ADX > 25$ . If GMMA gives signals in such a time, we will commit to it. We will avoid crossovers when  $ADX < 25$ . All of these are creative ideas that have to be tested. We can have as many trial and error circumstances as we want to create strategies based on which we intend to trade.

NSE:RELIANCE, 1D 2049.60 ▼ -49.80 (-2.37%) O:2111.00 H:2115.35 L:2035.15 C:2049.60



 TradingView

This is again a combination of moving averages and money flow index. This works in a manner that is similar to RSI and moving averages. MFI gives leading indicators and on following these if we get moving average crossovers, we can enter or exit the trade. We will learn how to backtest these strategies. We see the formation of strategies is a very creative process.

NSE:RELIANCE, 1D 2049.60 ▼ -49.80 (-2.37%) O:2111.00 H:2115.35 L:2035.15 C:2049.60



 TradingView

This is a plain vanilla price chart used in combination with volume-related data. We see at times our strategies can be simple and one can only use one technical tool instead of a combination of many. The bottom line is that the strategy should be sustainable and profit-making on its own. We can use a combination of any number of tools and any combination to achieve this.

NSE:RELIANCE, 1D 2049.60 ▼ -49.80 (-2.37%) O: 2111.00 H: 2115.35 L: 2035.15 C: 2049.60



 TradingView

It is interesting to see the combination of moving average crossovers with Doji formation. The two highlighted bars are Doji formations on the chart. We will consider a strategy where there is a Doji formed and a moving average crossover occurs in the next 7 or 8 periods.



We can deploy any combination of analytical tools that makes sense together. It is a creative process to come up with such ideas and we will accept or reject the same by conducting backtests. There are no right answers here. Whatever we think, we can plot in on the graph and check the same. Focus on the combination that is being used and the logic behind it. The logic should make sense.

Now once we have hypothesized a strategy, the next thing is to check the same. We have been referring to back-testing these strategies quite persistently. So, to back-test a strategy, there is software where we can code our strategy and check the potential outcomes in the last N years, had we used the strategy. This is the way how expert traders back-test their strategies. Based on the test, the test result has the following details –

- **NUMBER OF TRADES IN THE GIVEN PERIOD**
- **PROFIT MAKING TRADE %**
- **LOSS MAKING TRADE %**
- **AVERAGE PROFIT EARNED**
- **AVERAGE LOSS EARNED**
- **BROKERAGE PAID THROUGHOUT**
- **VALUE OF RS. 1000 CURRENTLY (CAN BE ANY CUSTOM AMOUNT)**
- **MAXIMUM DRAWDOWN**



**EXPENSIVE**

**CODING REQUIREMENTS**

**MISSING OUT ON SUBTLE OBSERVATIONS**



With all this data, we can determine the strategies that seem to be working. We can then check the strategy on different kind of assets and also for different kinds of markets – upwards, sideways and downwards.

However, the software that we mentioned are at times expensive and also require the trader to learn basic coding skills. Furthermore, the trader does not have a complete understanding of the nature of the strategy since a direct result is thrown up without the trader going through the charts. This means the trader does not have a complete understanding of the nature of the strategy and how it can be improved. The positive side of this is that it is extremely fast and gives us the result within minutes.

To overcome the above limitations i.e. expensive, coding requirement and missing out on subtle observations, we will begin with back-testing strategies manually for a while. The testing might be much slower but it will enhance our understanding of the charts and the strategy many folds. As a result, it is strictly recommended for beginners to put in the time to back-test strategies on their own. Later on, they can experiment with the software to do it automatically. The advanced version is relatively complicated and is beyond the reach of this book. Here, we will stick to checking it manually as we will want learners to get as efficient as possible. To manually check whether the strategy is working or not, we will follow the following steps-

# 1

Define the entry and exit strategy accurately and strictly. There should be no room left for subjectivity. For instance, we determine that the ADX should be greater than 25 and there should be a crossover between 9DMA and 45 DMA. So, we will enter all trades only when this condition is satisfied. Similarly, we will also fixate on an exit signal. We will exit whenever the 9DMA crosses back 45 DMA, for instance.

# 2

Next, we will go back to a particular date on the chart. The day or time should at least be a 1000 candles back. So, if we are using a daily chart, we will at least go back 5 years. In the case of a 5-minute chart, we will go back at least 30 days.

# 3

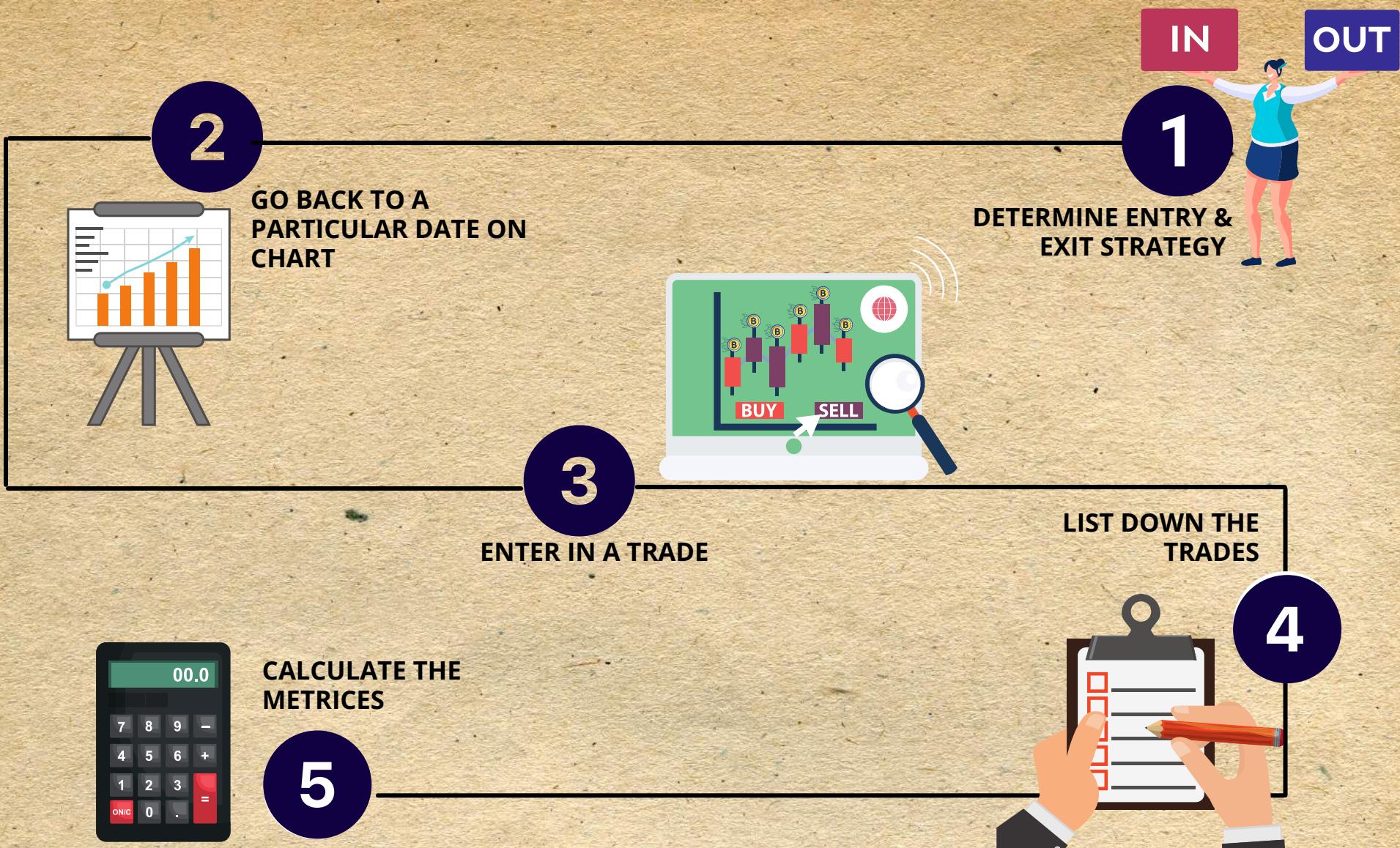
Next, we will move ahead one day at a time and whenever the entry signal we mention comes to pass, we will enter the trade. We will then take the exit when the exit signal hits.

# 4

Irrespective of losses or profits, we will go ahead one day at a time and list down all the trades that we take and whether we make a profit or loss in each trade.

# 5

Once we have this list ready, we can calculate all the metrics mentioned on the previous page. We can calculate the hit ratio, average profit %, average loss %, drawdown and so forth. The result will tell us whether or not the strategy is working.



By doing it manually, we also get additional insights about the scenarios in which the strategy works and otherwise, the improvements needed and the kind of markets it is best suited for. We will back-test all strategies this way.

Most of the strategies will get rejected based on the results generated in backtesting. We will see that most of them do not add up and the value of Rs. 1000 will go down after some time. An important point here is to make sure that we reflect the impact of brokerages on each trade. Let us say our brokerage is 0.1% every time we buy and sell an asset. So, we will make sure that we deduct  $0.1\% \times 2 = 0.2\%$  from the result of every trade that we entered while back-testing the strategy.

Very few strategies will pass this process. But the ones that do, are now ready to be tested in the market. These are generally ones that seem to be working. So, we will now try to apply these strategies in the market with a very small amount for a few months (2-3 months). We will try with amounts that are insignificant to our overall portfolio and experiment with them. If the results here too seem to be fine, then we will take the strategy and get it into our trading system. We will have to now make changes to our system to accommodate the new strategy that we have added.



# CREATING A SYSTEM

This is how a hypothesis is generated from a creative process, back-tested and then experimented in live-markets. A hypothesis that passes all these levels becomes a self-sustaining strategy which is then added to the trading system. This is how the entire evolution of strategy and systems happen. Creating functional and efficient trading strategies and system requires a lot of time and effort on the part of the trader. For a beginner, this will take 60-70% of their time and also will take many months before they have a trading system in place. Also, constant changes and updates are made to the system. Once this has been created, the next step is to execute the system. Execution mainly is a psychological skill. It is about our ability to trust the system that we have created and keep emotions in check.

We have created multiple working strategies and we know that individual profit-making or loss-making trades mean nothing. Hence, we will now create a system out of these strategies and work on three more aspects –

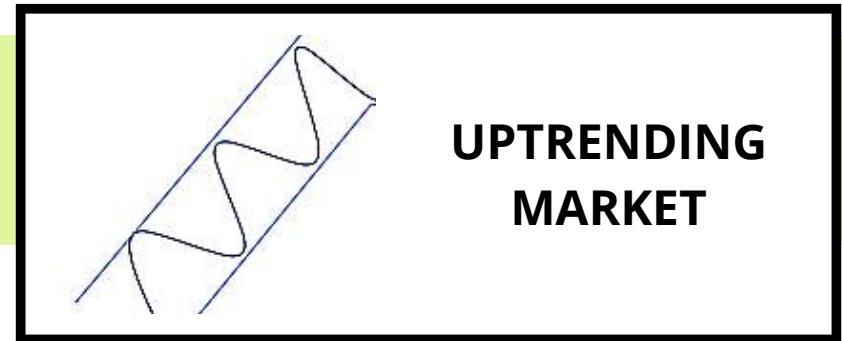
Once we have taken care of the aspects mentioned and have multiple strategies, we will have a robust system that will help us become a proficient trader. Let us understand each of these above-mentioned aspects in greater detail.



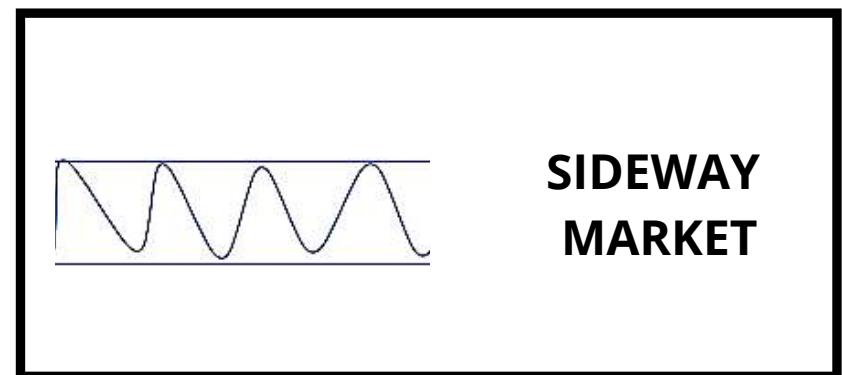
# DIFFERENT KINDS OF MARKET

We see that a market can exhibit different phases – up-trending, down-trending and sideways. These also have complicated names i.e. accumulation phase, consolidation phase and distribution phase. But, we will stick to the simpler names. In practice, we will see that different strategies work in different kinds of market. For instance, those that work in up trending market might not work in a sideways market. Those that work in a down-trending market might not work in up-trending markets.

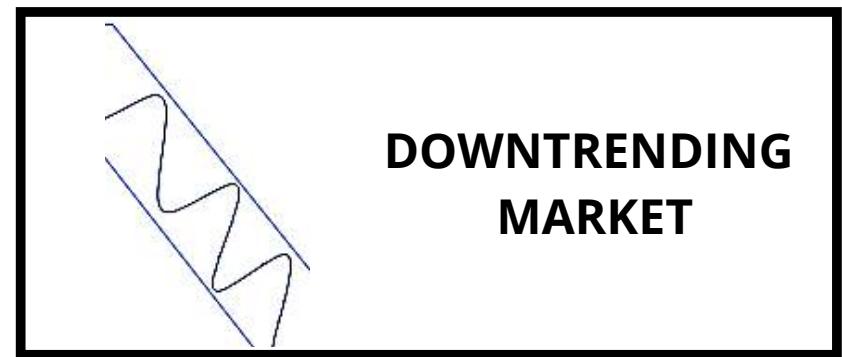
So, to create a system we have to use strategies and determine which strategies will be used in what kinds of markets. Also, it is not required for us to trade in all kinds of markets. We could create a system where we only trade in up trending market and be inactive rest of the time. It could also say that strategy A will be used in up trending, strategy B in sideways and strategy C and D is downtrending. This way, we will define the behaviour of our trading in different kinds of market.



**UPTRENDING  
MARKET**



**SIDEWAY  
MARKET**



**DOWNTRENDING  
MARKET**

# ASSETS WE WILL USE TO TRADE

The next important decision to make while creating a trading system is to determine the assets that we will be trading in. We will determine the universe or subset of assets that we will be trading in and next, the security type we will use to trade – Options, Futures or Cash market.



## DETERMINING THE TRADING UNIVERSE

First and foremost, we will determine the trading universe that we will be actively trading in. This means our decision will involve – whether we will trade in large caps, mid caps or small caps. We can also only trade in indices, commodities, and currencies. Then there are advanced derivative instruments to trade in spreads and interest rates. We will avoid these for now. These involve large amounts, high risk and expertise. One can learn these if they become expert in all that we have discussed so far.

Once we have finalized the space that we want to trade in, we can further narrow it down to the industries that we would prefer to trade-in. Some traders go as far as determining the exact stock names that they will trade-in. They might have a list of 15-20 stocks they will trade. They have a clear understanding of the movement of these stocks and are familiar with their patterns as they have been observing these for quite some time now.

We can also narrow down to select commodities or currencies that we would like to trade-in. We do this because not all strategies work in all kinds of assets. If we keep the trading universe too broad, we will not be able to track and understand the price movement of each asset. We will also get a lot of noise and false moves and as a result, we will have lots of trades and many of them will be unsuccessful. If we keep the universe too narrow, we will not be in a position to trade as we will not get enough signals. So, we have to maintain a balance between quality and quantity by selecting an adequate trading universe.

## TYPE OF SECURITY TO BE USED

Once we have determined the asset universe that we will trade-in, the next step would be to determine the kind of security that we will use to enter trades. The math and risk-reward for each of these security types are different. Let us understand these in greater detail and which ones will we use.



1

### CASH TRADING

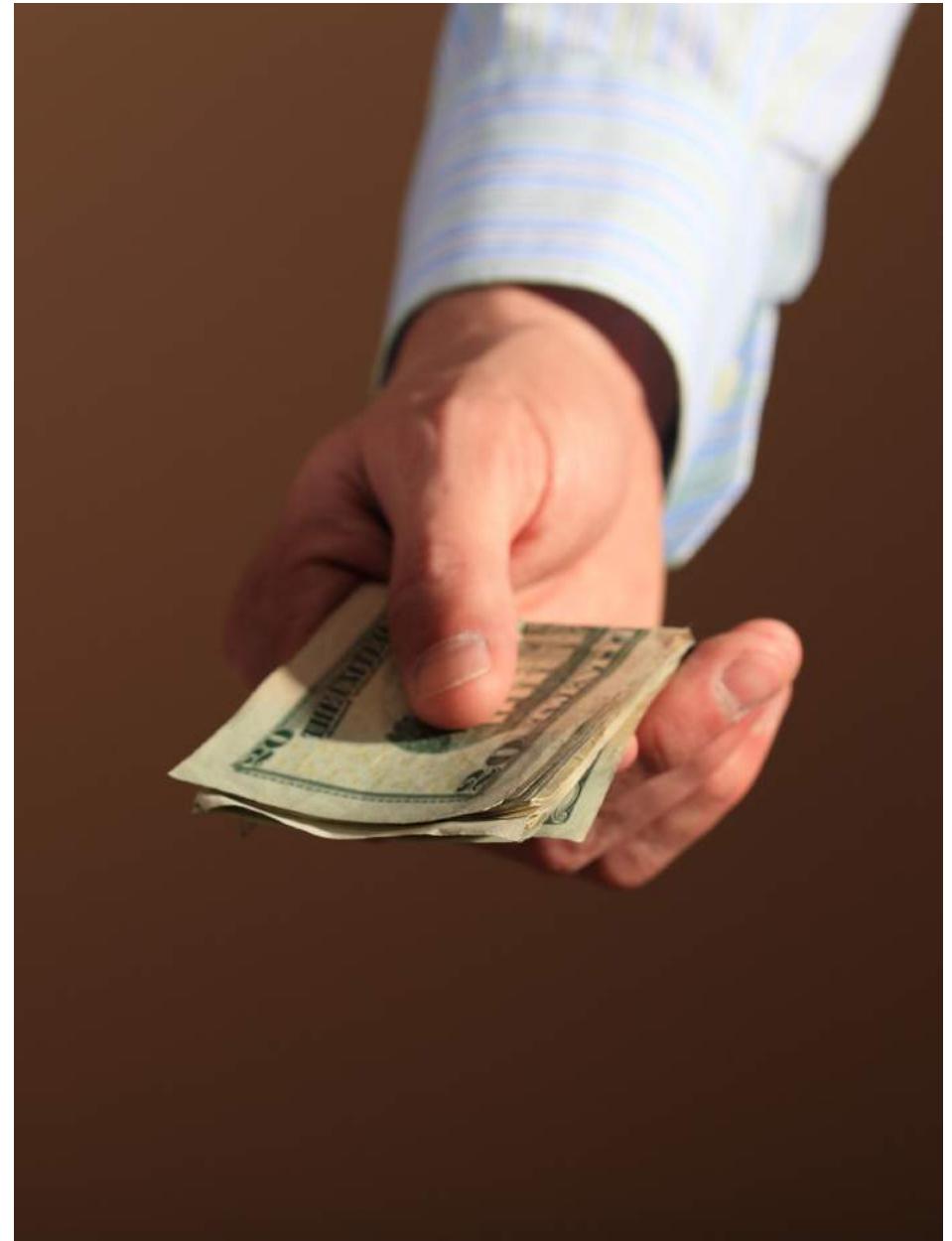
Cash trading means buying the asset by paying the full price with cash for the asset. This means if we buy 100 shares of Rs. 200 each, we will pay Rs. 20,000 in cash right away and the stock will be delivered to us. This is called cash trading as we are buying and selling the actual asset using cash and we are not using any leverage in the trade. In cash trade, we cannot lose more than what we have invested as we cannot lose more than what the asset is worth. The price of the asset will at-max go down to zero and will never go down to a negative number. So, cash trades do not magnify our risk-return. The profit or loss in percentage terms is equal to the percentage change in the asset price. We can only go long on the assets in India i.e. benefit from the price increase. Cash trading is normal buying and holding of the asset and benefit from the price change.

# 2

## FUTURES TRADING

Futures trading is a quasi-cash trade. In the futures market, we do not have to pay the full amount of the asset. We only pay a margin i.e. safety money as a deposit to be used whenever there is a loss. So, if we buy 100 shares of Rs. 200 each and the margin to be paid is 15%, so instead of paying the entire Rs. 20,000 we will only deposit Rs. 3000. This is deposited with the broker and daily losses and profits are added or deducted to this. Let us say, the price of the asset increases from Rs. 200 to Rs. 220, we earn a profit of Rs. 2000. As a result, we will see that Rs. 3000 deposit increases to Rs. 5000. If the price had gone down from Rs. 200 to Rs. 180, we would have had a loss of Rs. 2000 and the deposit would have decreased to Rs. 1000.

We see with futures that the loss or profit we make in percentage terms is much higher than the actual percentage change in the asset market price. This is because, in the futures market, we are using leverage. We are not paying the full price for the asset. Instead, we are only paying a part of the same i.e. 15% in this case.



In the futures market, we can go both long and short on the asset. Futures market price of the asset moves in line with the cash market asset price. The price changes in both are similar. The difference in results is because we are using leverage and not paying full price for the same. We will have to use futures when we are shorting an asset.

We see that the benefit with futures is that it uses leverage and as a result, the price increase is much faster than the changes in the decrease in prices. However, the downside is that the losses are also incurred at a greater velocity. Also, with futures, we can use more than what we own. As a result, we will have to deploy risk management strategies very carefully, particularly when dealing with futures. We will learn about various forms and types of risk management shortly going ahead.



# 3

## OPTIONS TRADING

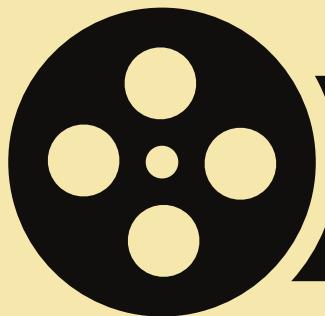
Options the riskiest method of trading where capital is created and lost in a very short span of time. Options trading is a very complicated school in itself which is beyond the scope of this course. As beginners, we will stay away from trading purely in options as multiple factors are at play and these require financial sophistication and technical expertise. For those who understand it well, can go ahead with option trading strategies as well. Options are mainly used for risk management and we will also limit the use of options to risk management.



# CALL OPTION

Call options are a contract where the buyer and seller fixate on a strike price and a fixed date. If on that fixed date, the price of that asset is higher than the strike price, the seller of the call option will pay the difference between the closing price and strike price to the buyer as profit. This is a risk that the seller is taking. In exchange for that risk, the buyer pays the seller a premium. If the closing price is below the strike price, the premium is the profit for the seller.

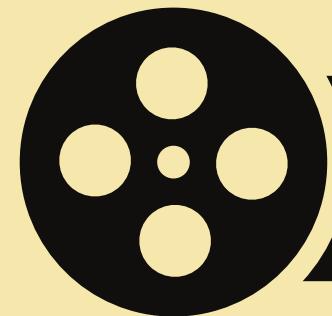
Let us understand this with an example and multiple scenarios with closing price. Let us say, today is the 1st of April 2020 and a share for Reliance Industries Ltd. is worth Rs. 2000.. A buyer and seller enter into a call option trade where the strike price is Rs. 2100 and the cut-off date is 28th April 2020. In exchange for this, the buyer pays a premium of Rs. 50 to the seller right away. The buyer can not incur any more losses beyond this i.e. Rs. 50. Let us see what would the result in different scenarios –



## SCENARIO 1

### CLOSING PRICE IS RS.2000

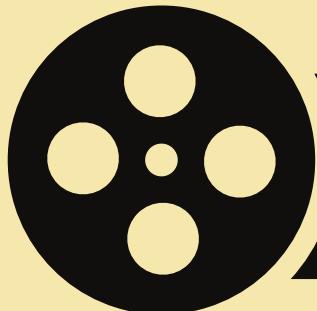
We see that the closing price on 28th April is less than the strike price. This means that the seller will not have to pay any amount to the buyer and the seller makes a profit of Rs. 50 which is the loss for the buyer.



## SCENARIO 2

### CLOSING PRICE IS RS.1800

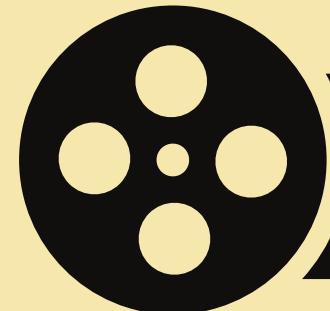
We see that the price has gone down. The seller therefore has no liability and will take the premium of Rs. 50 as profit. We see with Call option that even after price decline, the buyer will not have to pay any additional amount. The loss is capped at Rs. 50 for the buyer.



## SENERIO 3

### CLOSING PRICE IS RS.2100

We see that the price is equal to the closing price. In this case too, the seller will not pay the buyer any amount and ends up with a profit of Rs 50 which was the premium received.



## SENERIO 4

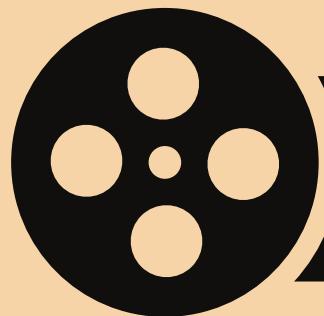
### CLOSING PRICE IS RS.2300

We see that the closing price is higher than the strike price. This means the seller will pay Rs. 200 per share to the buyer as the price increased beyond the strike price. However, Rs. 50 of this was paid to the seller as premium. As a result, the buyer ends up with a profit of Rs. 150 per share. We see how with the use of options, a 15% increase in price led to a profit of 300% for buyer and loss for the seller. These are extremely leveraged and as a result, unless extremely well trained, we are better off away from them. We will only use these for risk management.

# PUT OPTION

Put options are a contract where the buyer and seller fixate on a strike price and a fixed date. If on that fixed date, the price of that asset is lower than the strike price, the seller of the call option will pay the difference between the closing price and strike price to the buyer as profit. This is a risk that the seller is taking. In exchange for that risk, the buyer pays the seller a premium. If the closing price is above the strike price, the premium is the profit for the seller.

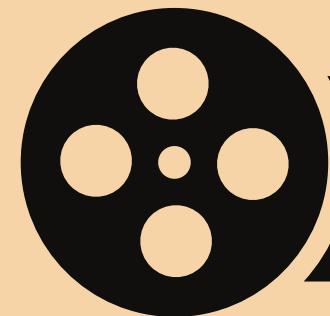
Let us understand this with an example and multiple scenarios with closing price. Let us say, today is 1st of April 2020 and a share is worth Rs. 2000 for Reliance Industries Ltd. A buyer and seller enter into a call option trade where the strike price is Rs. 1900 and the cut-off date is 28th April 2020. In exchange for this, the buyer pays a premium of Rs. 50 to the seller right away. The buyer can not incur any more losses beyond this. Let us see what would the result in different scenarios.



## SENERIO 1

### CLOSING PRICE IS RS.2000

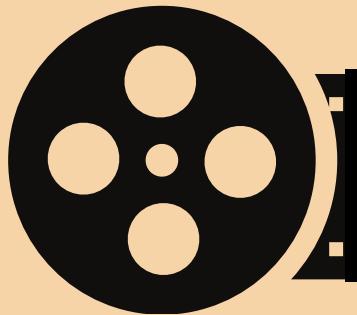
We see that the closing price on 28th April is more than the strike price. This means that the seller will not have to pay any amount to the buyer and the seller makes a profit of Rs. 50 which is the loss for the buyer.



## SENERIO 2

### CLOSING PRICE IS RS.2200

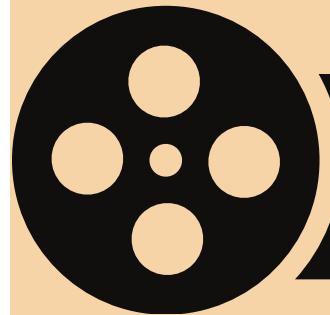
We see that the price has gone up. The seller therefore has no liability and will take the premium of Rs. 50 as profit. We see with Put option that even after price increase, the buyer will not have to pay any additional amount. The loss is capped at Rs. 50 for the buyer.



## SENERIO 3

### CLOSING PRICE IS RS.1900

We see that the price is equal to the closing price. In this case too, the seller will not pay the buyer any amount and ends up with a profit of Rs 50 which was the premium received.



## SENERIO 4

### CLOSING PRICE IS RS.1700

We see that the closing price is lower than the strike price. This means the seller will pay Rs. 200 per share to the buyer as the price fell below the strike price. However, Rs. 50 of this was paid to the seller as premium. As a result, the buyer ends up with a profit of Rs. 150 per share. We see how with the use of options, a 15% decrease in price led to a profit of 300% for buyer and loss for the seller. These are extremely leveraged and as a result, unless extremely well trained, we are better off away from them. We will only use these for risk management.



We understood how futures, cash market and options work. We will stick to futures and cash market as beginners. We can explore the options market going ahead as we become more articulate with technical analysis. For now, our focus should be on creating a system that works. However, we will use options for risk management.

# RISK MANAGEMENT

We have so far looked into different kinds of markets and assets that we will be using to trade and form part of our trading system. The last component to be considered, risk management, is perhaps the most significant bit of the trading system. We cannot emphasize enough on how crucial this section is. If one does not understand this, they are better off away from technical analysis and trading. It can be disastrous for a trader who trades assets in the market without having a proper risk management system in place.

Without an effective risk management system in place, we are risking not only our assets but solvency as well. We are dealing with leveraged assets in the form of futures and options in many places. Poor risk management is the reason for many traders to get washed away from the market. A system can be worked upon and improved. But a poor risk management habit is very difficult to improve.



Risk management means managing the worst-case scenarios of the trades that we are involved in at any moment and making sure that even the worst-case scenario does not risk our survival in the market. It should not force us out of the market or even worse, into bankruptcy. We ask ourselves weird questions and then see if our trading portfolio will survive these or not. If the answer to any of it is no, we need to improve our risk management.

**What if our country gets announces a war today?**

**What if a very senior leader dies somewhere on the planet?**

**What if there is Nuclear attack somewhere in the world?**

**What if there is a major scam unearthed tomorrow?**



# RISK MANAGEMENT TECHNIQUES

Let us take a look at the different techniques and tools that we will be used to manage risks. There are many ways to manage risks and we can get creative here as well till the time we can protect our portfolio from circumstances mentioned on the previous page. We will mainly be managing risk using these techniques. We will understand each of these by one and then we will be ready to start practising and then executing in the live markets.

STOP LOSSES



ONE PERCENT RULE



HEDGING OF POSITIONS



DIVERSIFICATION



CHECKING FOR DRAWDOWNS



CHECKING FOR UNLIMITED LOSSES

# STOP LOSSES

Stop loss is used at the individual trade level, strategy level, or at the system level. Stop Loss is a tool where we pre-determine the level of maximum loss that we are willing to absorb and if losses exceed this level, all the active trades are squared off and the loss is restricted to this stop-loss amount. For instance, when going long on an asset at Rs. 100 and we are willing to absorb a maximum loss of 5%, i.e. the asset will be automatically sold off if the price hits Rs. 95. We do not want to incur any losses beyond this level.

We can have pre-determined stop losses for each trade that can be denoted in amount terms as well as percentage terms. We can also use custom stop losses for trades i.e. 24 days SMA as stop-loss or the use of previous high or low when using candlestick pattern or even use previous support or resistance when using trendlines. Determining stop losses is also an exit strategy decision.



## **STRATEGY LEVEL**

We saw that we can determine to stop losses on strategy level as well. Let us say we limit daily losses to 4%, so in case the losses exceed 4% of the amount, all trades in the strategy will be squared off and the strategy will be inactivated for the day. We can again denote stop losses in terms of amount or percentage.

## **SYSTEM LEVEL**

We can also have stop losses determined at the system level. If the total loss in the system exceeds a particular amount or percentage, the system will be disabled. We see that we can automate these going ahead. However, for now, we will do this manually ourselves. When the losses exceed a certain level, we will manually square off each trade.

As a practice, we must have a stop loss determined at each level and follow it very strictly. This is one of the first ways how risk is managed. Let us understand more about Stop Losses.

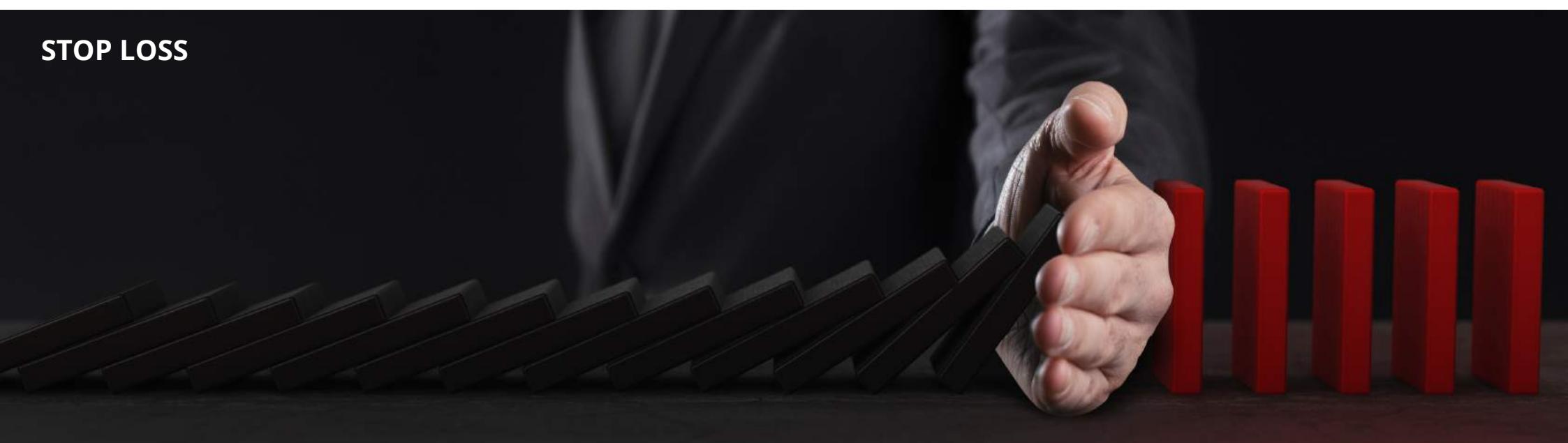
Upon using chart patterns, we can also employ support and resistance levels for stop losses. For candlesticks, we can also make use of the previous candles to determine to stop losses. We can also work with moving averages for determining stop-loss apply a flat N% as stop loss. What we use as stop-loss depends mainly on the strategy and risk appetite that we have. This way, we will determine to stop losses when we hypothesize a strategy and then backtest the same.

With stop losses, we have to pre-determine a level where we want to cut off our losses. However, this is not as easy as it seems. If we determine a stop loss that is too deep i.e. cuts off losses after a large dip, we will incur heavy losses before the trade is squared too often. On the flip side, if the stop loss is too shallow i.e. even a small dip will square off positions, then even winning trades will be squared off due to false moves before they can lock in the profits.

So, selection of a stop loss level requires a balance between the amount that we are willing to incur as losses and the amount we are willing to lose on winning trades due to its initial false moves. All this will become clearer when we back-test manually. This is one of the reasons why we encourage manual back-testing initially because all such understanding is impossible with automatic back-testing.

A major drawback with stop losses is that they are not effective in case of gap ups and gap downs. Since these are manual entries, if the market opens beyond stop losses, we have no option but to accept these losses. We need to keep this in mind. Having said that, we end our discussion on stop losses. We will still go ahead and determine stop losses for each trade, for each strategy and the entire system before we even enter a trade. This is the first step towards risk management.

## STOP LOSS

A dramatic black and white photograph showing a hand reaching out to stop a series of dominoes from toppling over. The hand is positioned to catch the first few dominoes, which are black, while the rest of the row consists of red dominoes. The lighting is low, creating strong shadows and highlights on the hand and the dominoes, emphasizing the moment of intervention.

# ONE PERCENT RULE

According to the one percent rule, we will never enter a trade where we lose more than 1% of our trading capital. This means we will have to have 100 loss-making trades continuously to be wiped out. Such calculation protects us from being wiped out from the trading market completely due to a single event.

The negative of this rule is that we will have to take too many trades if we intend to use entire trading capital. Also, our right decision will churn out lower profit sizes and hence we will be involved with a large number of trades. Hence, at times a trader can increase this to 2% per trade. Traders beginning out right now, are better off with 1%. Under no circumstance should any trader cross 5% of their trading capital on one trade. Here, we need to balance the upside amount that we are willing to give up for downside. A major drawback of this rule is that we need to consider the effects of leverage as well. The rule does not work well with leverage.

# HEDGING

Hedging refers to entering in trades in a way such that we also take an opposite position in the given asset or a related asset so that the losses are minimized or hedged in case there is a loss. For example, a trader goes long on an asset at a price of Rs. 100 might buy a put option with a strike price of Rs. 90. The exposure also needs to be managed that they go long and short for the same amount.

In case, the price falls, we will incur a loss in the long position but a part of the loss will be compensated by the put option that we bought. However, a drawback of hedging is that the upside is also compromised. We will incur losses on the hedging position if the position performs as we expected them to and a part of the profits will be gone over there. However, this limits the loss that we will incur. It also protects us from gaps where stop losses failed to deliver. So, it is upon us to use the different techniques of risk management and control our downside.

There are multiple ways to indulge in hedging. We learnt of hedging using options. Another method is the pair hedging. Let us say, in India, Kotak Mahindra Bank and HDFC Bank moves in sync because of similarity in their business nature. So, we can go long on one asset and short on another and therefore manage risks accordingly.

Coming back to hedging, it can be done at multiple levels – at position level and portfolio level.

## PORTFOLIO LEVEL HEDGING

Portfolio level hedging refers to balancing trades in the portfolio in a way to manage risks automatically. One example of portfolio level hedging is when we balance the long and short exposure of the portfolio. This means, if we are long for assets worth Rs. 1 lac, we are also short for a similar amount. This way, any market-related event which forces the entire market to move in one direction can be neutralized. We can balance different industries that we have exposure to. The key here is that we determine the hedging activities based on the net exposure of the entire portfolio.

## POSITION LEVEL HEDGING

Position level hedging refers to hedging every position with hedge assets instead of balancing the same with other trading positions in the portfolio. Position level hedging is done at every level in the trading portfolio. There are multiple ways to hedge. We will typically use options to hedge if we have that size of exposure. Otherwise, we will try to set things off at portfolio level hedging.

Let us take a look at the benefits and cost of hedging. Hedging is the most definite manner of locking in our losses to a limit. We cannot incur losses beyond this under any circumstances. Hedging instruments can absorb gap ups and gap downs as well. This is the major benefit of hedging. The downside is that hedging is expensive. At times, we might incur losses on certain trades only due to the hedging related costs. In times of profit too, hedging costs will eat into the profits. However, in times of loss, hedging will compensate a part of it. Due to these costs, the math of the entire system and strategy might change and the entire system has to be re-worked.

# DIVERSIFICATION

'Diversification' is pretty well known and widely understood. We will spread our trades instead of having a concentrated trading portfolio. Few people concentrate their entire portfolio into a few trades. We have already learnt to spread out risk and positions using the 1-percent rule. However, we can further diversify these trades.

We will first diversify stocks across different industries. Historically, it has been observed that stocks move in sectoral movements. On days of advance, most shares of a given sector advance and on days of decline, most stocks fall. So avoid concentrating all positions in one industry.

Next, we can also differentiate between different asset classes like equities, currencies and commodities. Such diversification increases our chances that a decrease in one asset class's value might be partially offset by another class's activities. The downside of diversification is that our profit is getting restricted because we are spreading our positions instead of allocating more resources to select trades.



# DRAWDOWNS

Drawdown refers to the highest reduction in the portfolio at any point from the peak. This means, if the entire portfolio falls by 40% from the peak, using the system at the highest, and yet at the end of 5 years, wind up with profits when back-testing, the drawdown for such a system is 40%. It is the maximum loss that we incur in our portfolio at any given point.

So, in the backtesting phase, we will check for the maximum drawdown our portfolio has incurred. We will do this manually but we can also get this done by automated software going ahead. We will also check for volatility in the last major stock market collapse. Currently, we will check the drawdown in a market like 2020 when there was a short-lived collapse due to the COVID pandemic. We will also check, the maximum drawdown in the 2008 financial crisis. If we do not get wiped out of the market in such phases, that means our system has enough resilience to withstand such difficult periods.

However, for prudence, we will say that the worst is yet to come. And therefore, we will consider if we would have survived a drawdown of 1.5x times of the maximum drawdown that we have seen till date. If our system can withstand this, 1.5x of the current highest drawdown, our portfolio has enough resilience to withstand difficult circumstances and passes this test.

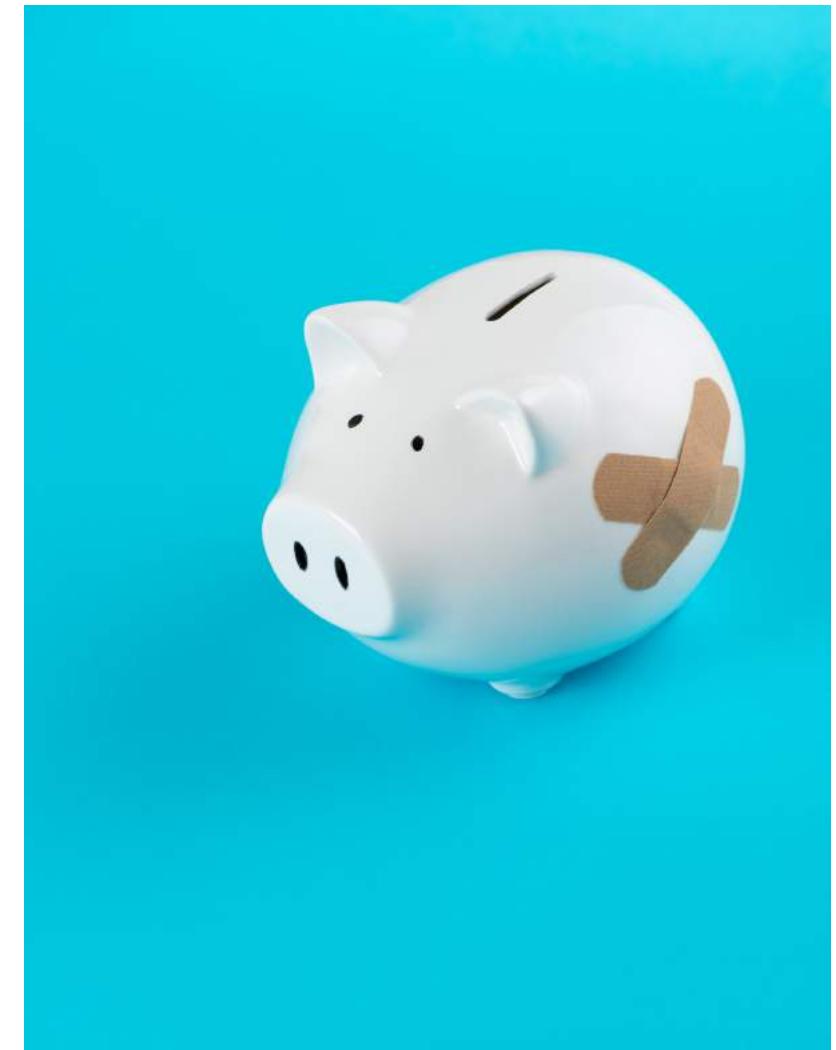


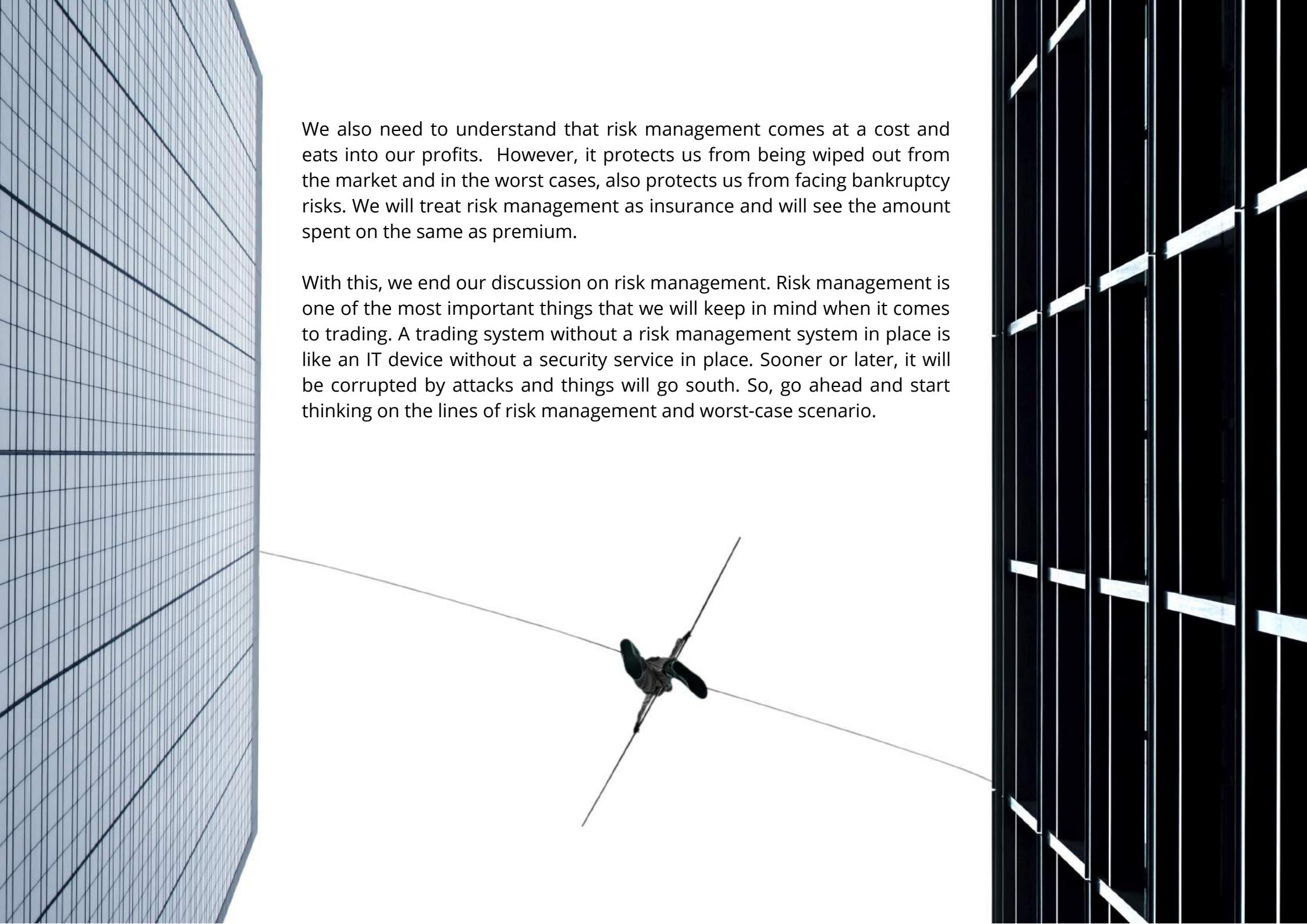
# POSITION OF UNLIMITED LOSSES

We see that different assets and different instruments have various risk-reward characteristic. At times, we also risk unlimited losses when trading. When we buy an asset in the cash market, at maximum we can lose what we have paid for. We can never lose more than that i.e. limited losses. Let us say, we long an asset using futures where we are levered 6 times. So, our profit and loss get multiplied by 6x. So, a 20% loss here means 120% loss on our capital. This means we can lose more than we own. Here, we are risking infinite losses.

Next, let us say we short an asset either in the cash market or futures market. So, the prices here can go to any number and we will continue incurring losses. As a result, we can have infinite losses. When we buy an option of either kind, our losses are limited to the premium paid by us. However, when we sell the option, we will have to pay the difference between the strike price and closing price of any amount. As a result, we are undertaking unlimited loss potential.

Whenever we consider unlimited loss potential in our portfolio, we are exposing ourselves to bankruptcy. We can combine potential unlimited loss positions by buying options to cut off the unlimited loss potential. Due to this, traders start believing that this will never happen and as a result, start taking on such unlimited loss potential risks as they offer profits. However, once in a decade or so, such a risk does materialize and it wipes away all our years of profits and efforts in the market. So, we will never make this mistake of thinking that the possibility is extremely low and as a result, risk unlimited losses.





We also need to understand that risk management comes at a cost and eats into our profits. However, it protects us from being wiped out from the market and in the worst cases, also protects us from facing bankruptcy risks. We will treat risk management as insurance and will see the amount spent on the same as premium.

With this, we end our discussion on risk management. Risk management is one of the most important things that we will keep in mind when it comes to trading. A trading system without a risk management system in place is like an IT device without a security service in place. Sooner or later, it will be corrupted by attacks and things will go south. So, go ahead and start thinking on the lines of risk management and worst-case scenario.

# CONCLUSION



Creation of such a trading system that works is the real art for a technical analyst. Once such a system has been created, more than half the battle has been won. The next phase is sticking to the systems and not letting our emotions corrode the system. Creating a system can take up to months or years and with a lot of practice. However, once it is created, it bears great results. We can get as creative as possible while formulating strategies and systems. Whatever idea we get, the best thing do to is to plot it on a chart and then backtest the same to check whether it works or not.

The progression that we will use to create and deploy a system includes multiple phases. We create multiple strategies and then put them together to form a trading system. We then backtest each of these manually for now. After that, we need to defines rules about the assets to be used to trade, kinds of market conditions where each one of them will be used and so on. Lastly, work on a risk management strategy.

Once we have selected the strategies that are working in a back-test, we will next paper trade them in real markets for a while. We will write down all the trades that we are taking and then make changes as per the result and problems that we are facing. The next phase will involve following the system using small amounts. We will use a small amount in such a manner that even if we lose it, we shall not mind it as much. It is for experimentation. Once a trade has cleared all these levels, we will roll-out the full-fledged system and start trading based on the same. This is how a trading system is created from scratch and money is deployed based on such a system.

Formation of a successful trading system takes a lot of time and creativity. We can keep this as simple as a single technical indicator with one strategy system to a very advanced and complicated strategy. However, creating a strategy is all about practice. As a beginner, we will read as many charts as we can. This will enhance our ability to understand what they are conveying.

The best way to practice for beginners has been discussed multiple times in this set. We will go back to a particular date and then we will start moving ahead, one candlestick at a time. Based on that one candlestick movement, we will take calls on our potential action in case the pattern was being replicated today. And based on the trades entered and exited, we will see the profit and loss in each trade. This way, we will ace in identifying entry and exit signals in the real market based on the strategy.



**KEEP PRACTISING**

We will be backtesting each strategy manually for now. Doing so helps us recognize the buy and sell signals in the markets in realtime. Pat yourself on the shoulder! We have reached the end! We have learnt to create multiple strategies and then put them together as systems and then finally deploy them as a trading system.

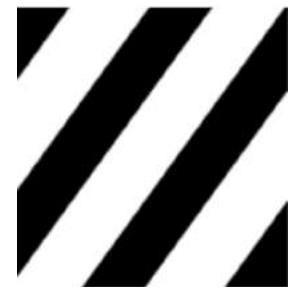
As a beginner, we will perform these processes manually to understand the markets and nitty-gritty in greater detail. We will follow the system manually for at least a year and maybe even longer. Once everything is working and is in shape, we can slowly move towards automating the same as well. This automation of systems is something that is beyond the scope of this book as that is a different field in itself. We will focus on creating strategies and systems here.

With this, we have learnt enough to create a winning trading system. The rest, we will figure out on our own while getting our hands dirty with the charts and strategies. So let us get started. The way forward is pretty simple -practice, practice and practice!



## **CREATING A WORKING TECHNICAL TRADING SYSTEM**





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**THE END**