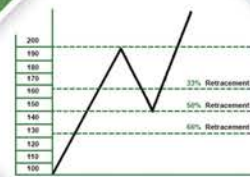
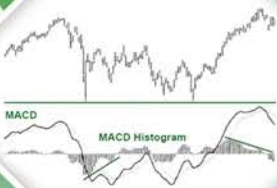
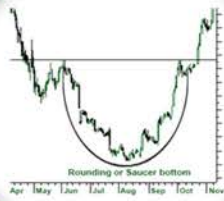


# Technical Analysis

## *Explained*



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# Introduction

The financial market is one of the most exciting and fast-paced markets in the world which day by day attracts new traders and investors. Though it provides plenty of opportunity for investors in order to be successful, each investor should understand the basics behind market movements and analyze securities.

The methods used for analyzing securities and making investment decisions fall into two categories: fundamental and technical analysis. Fundamental analysis considers macroeconomic factors to estimate the value of a security, while technical analysis is constrained only to the price movements in the market. Technical analysis attempts to understand the market psychology by studying the market itself. For this reason, some analysts offer that a better name for the use of such kind of market analysis might be risk/return analysis or market psychology.

At its core technical analysis is a method of determining if a security or the market is worth buying or selling. If one understands the essence, benefits and limitations of technical analysis, it can give him new skills to become a better trader. And as John Murphy, the father of inter-market technical analysis, states “Technical analysis is a skill that improves with experience and study. Always be a student and keep learning.”

In the first chapter of our book, we'll introduce you to the subject of technical analysis-what it is and why it is used. In the second chapter we are going to discuss the trend with all its peculiarities and key points. Chapter 3 and 4 are devoted to the illustration of technical charts and indicators, their major types and how they work to signal the right market direction. Thus, you will be introduced to the main tools and techniques used in technical analysis.

# Chapter I

## What is Technical Analysis?

### 1.1 Definition of Technical Analysis

Technical analysis is the study of market action primarily through the use of charts for the purpose of forecasting future price trends. By “market action” the following three main sources of information are implied: price, market volume, and open interest, the latter referring only to options and futures. The terms “price action” and “market action” are very often used interchangeably.

The history of technical analysis goes back to 1900s, and its roots can be found in the Dow Theory developed by Charles Dow. The principles that come from this theory are the price trending, convergence and divergence, as well as support and resistance levels.

Technical analysis is a crucial method of evaluating assets based on the analysis and statistics of past market action, such as past prices and past volume. The main goal of technical analysts is not the measuring of asset’s underlying value, they attempt to use charts or other technical analysis tools to determine patterns that will help to forecast future market activity. Their firm belief is that the future performance of markets can be indicated by the historical performance.

### 1.2. Philosophy of Technical Analysis

Technical approach is based on the following three premises:

- Market action discounts everything.
- Price moves in trends.
- History repeats itself.

#### ***Market action discounts everything***

This premise is perhaps the most fundamental one, since nothing else coming forth from it can make sense, unless one has completely understood it. Technical analysts believe that each fundamental, political, economic and psychological factor that can possibly affect the price, is reflected in the price of the market. All that they claim is that price action should reflect changes in supply and demand. Together with the increase of demand the price will rise, and, conversely, if supply exceeds demand, prices will fall. This kind of action is at the base of fundamental forecasting; therefore, all technicians indirectly study fundamentals. The charts themselves do not cause markets to go up or down. These are the forces of supply and demand, the economic factors that lead to bullish and bearish markets.

Actually, chartists do not try to find out why the prices fall or rise. They can be aware of the trend the market is likely to go by simply studying price charts and technical indicators. They know that there surely exist reasons why markets move up or down and meanwhile believe that there is no necessity to reveal those reasons for making predictions.

### ***Price Moves in Trends***

There is a corollary to this assumption- a trend in motion is more likely to continue than to reverse. In technical approach once a trend has been established, the future price is accepted to be in the same direction rather than to be against it. The primary goal of charting the price action is to fix trends in early stages of development to later trade in the direction of those trends. So that the entire approach of this trend-following premise is based on the already existing trend, until signs of reversal are indicated.

### ***History Repeats Itself***

This premise brings forward the concept that the key to understanding the future is based on the study of the past. The circular nature of price movements is related to the human psychology, meaning that market participants tend to react similarly to identical market events. The analysts use certain chart patterns to analyze market movements. Most of those charts that were identified about a century ago, reflect certain pictures indicating the rising or falling psychology of the market.

Because of the simple reason that those patterns worked well in the past, they are strongly believed to be as much useful in the future. They are based on the study of human psychology which is stable and does not tend to change.

## **1.3. Technical Analysis vs. Fundamental Analysis**

As it is well known, the two wide spread types of analysis methods to study price trend are technical analysis and fundamental analysis. Comparing technical and fundamental analyses to each other is one of the best ways to understand them.

While technical analysis is focused on the study and past performance of market action, fundamental analysis concentrates on the fundamental reasons that make an impact on the market direction.

The purpose of both of these methods is an attempt to forecast and determine the future price movements. The difference is based on how they achieve that objective. Fundamentalists study the cause of price movement, whereas the technicians study the result. As we mentioned above, technicians do not find it necessary to know the reasons of market changes, but fundamentalists try to discover “why”. Therefore, technicians, who are also called chartists are interested in the price movement, they try to understand and study the emotion in the market.

The second distinctive factor for these two types of analyses is the time horizon. Actually technical analysis takes considerably short time to analyze the market, as compared to fundamental analysis. Technical analysts can do their research based on daily, weekly or monthly data. But conversely, fundamentalists may look at data over years. Since each of those approaches takes different time frames, they are applied for reaching different trading or investment goals.

Generally technical analysis is used for a trade, while fundamental analysis is more appropriate for investment purposes. Traders buy an asset in the hope that the latter will rise in value and they will be able to sell it at a higher price. The reason why fundamental analysts use so long timeframe is the following: the data they study are generated much more slowly than the price and volume data used by technical analysts.

Though these two types of analyses are viewed as polar, many traders and investors, who have active participation in the market use both. For example, a technician may refer to fundamental analysis to add strength and reliability to technical signals, to reaffirm his decision while buying or selling an asset. And, alternatively, fundamental analysts may use technical analysis tools to identify the best time to enter into a security.

The problem is that charts and fundamentals are often in competence. Technical analysts believe that their approach dominates fundamentalists. If a trader or an investor had to make a choice between these two theories, he would give preference to technical analysis. This is because technical approach includes the fundamental. If the fundamentals are reflected in the market price, their study already becomes unnecessary. Herein, chart reading serves as a shortcut of fundamental analysis. The opposite, however is not possible. Fundamental analysis does not cover the study of price action and it's quite possible to trade using only the technical approach. To trade on financial markets one cannot do but take into consideration the markets' technical side.

#### 1.4. Technician or Chartist? Is There Any Difference?

Among various titles given to the practitioners of technical analysis are: chartist, visual analyst, market analyst and technical analyst. If once all they meant the same thing, together with the increasing specialization in this field there have been made some distinctions in terms. Since till the last decade technical analysis was based on mainly the use of charts, the terms "chartist" and "technician" stood for the same concept. But this does not hold true any longer.

Now in the broad field of technical analysis two types of practitioners are distinguished: chartists and statistical technicians. Charts are the primary working tools in technical analysis and the term "art charting" has been given to this approach, since chart reading is really an art. This is largely because the success of the approach greatly depends on the skills and experience of a chartist.

Statistical technician considers primary principles, tests and quantifies to develop mechanical trading systems. These systems are programmed into a computer and generate mechanical "buy" and "sell" signals. That's main purpose is to eliminate human emotional factor in trading. The statisticians may not use charts in their work, and their work can be constrained to the study of market action. From this it follows that all chartists are also technicians, however not all technicians are chartists.

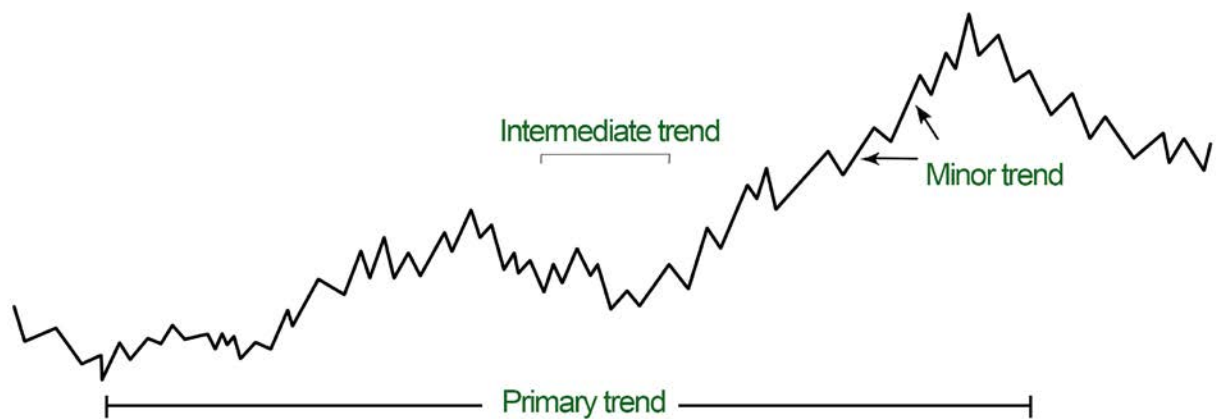
#### 1.5. Different Theories on Technical Analysis

The Dow Theory, named after its creator Charles Dow, is the grandfather of technical analysis. While most technicians view the theory as somewhat dated, the approach of many more statistically sophisticated methods are the variants of Dow's approach. The main objective of Dow Theory is to identify long-term trends in stock market prices. The two indicators used are the DJTA (Dow Jones Transportation Average) and DJIA (Dow Jones industrial Average). The DJIA is an important indicator of underlying trends, while the DJTA serves to confirm or reject the signal.

The Dow Theory posits three forces simultaneously affecting stock prices:

1. The primary trend, which indicates long-term movement of prices and lasts from several years to several months.
2. Secondary (intermediate) trend, which is caused by short-term deviations of prices.

3. Tertiary (Minor) trend which indicates daily fluctuations.



**Figure 1.1** *Three types of trends according to Dow Theory*

Recent variations of Dow Theory are the Elliot Wave theory and the Kondratieff Wave theory. The idea of Elliot Wave theory is that security prices can be described by a set of wave patterns. Long-term and short-term wave cycles are superimposed and result in a complicated pattern of price movements, but by interpreting the cycles one can predict broad movements. Similarly, Kondratieff Wave theory, named after a Russian economist, asserts that stock market moves in broad waves lasting between 48 and 60 years.

The Kondratieff waves are, thus, analogous to Dow's primary trend. Kondratieff's assertion is hard to evaluate empirically, because cycles that last about 50 years provide only two full data points per century, which are hardly enough data to test the predictive power of the theory.

### **Conclusion**

The principles of technical analysis presented in this chapter are widely applied in all markets. How analysts perform all the operations and get the full picture of market action we'll discover in following chapters.



# Chapter II

## Trend In Terms of Technical Analysis

Trend represents one of the most essential concepts in technical analysis. All the tools that an analyst uses have a single purpose: help to identify the market trend. The expressions like “trend is your friend” or “Never buck the trend” are not used accidentally. The meaning they contain is more than deeper. So, it is worth properly understanding what the trend is and what type of trend is possible to differentiate.

### 2.1. Definition of Trend

The meaning of trend is not so much different from its general meaning- it is nothing more than the direction in which a market moves. But more precisely, market does not move in a straight line, its moves are characterized by a series of zigzags which resemble successive waves with clear peaks and troughs or highs and lows, as they are often called. Thus, in technical analysis it is the movement of those highs and lows that form a trend.

Thus, trend is the direction of market indicated by successive peaks and troughs.

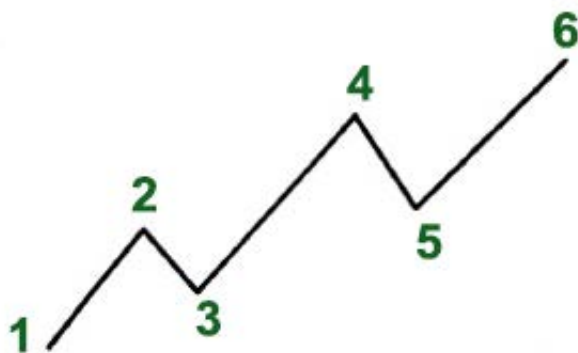
### 2.2. Types of Trends

As we mentioned above trend is comprised of a series of highs and lows, and depending on the movement of those peaks and troughs one can understand the trend’s type in market.

Though most people think that market can be either upward or downward, actually there exist not two but three types of trends:

1. Uptrend
2. Downtrend
3. Sideways

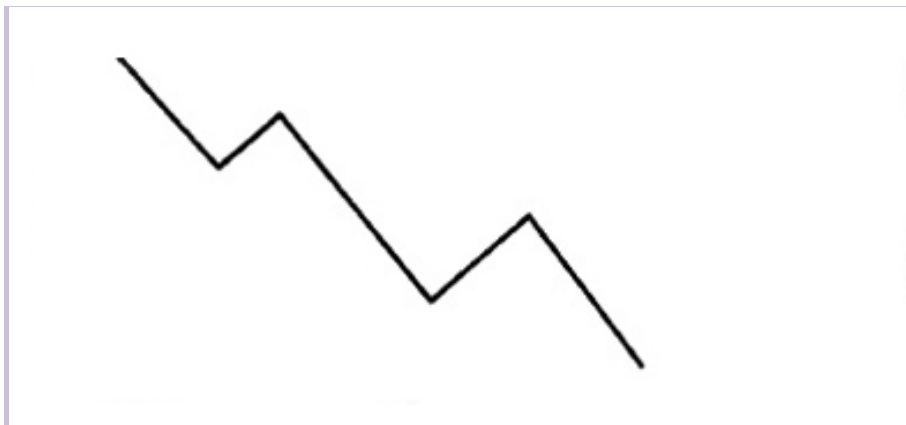
An *uptrend* is defined as a series of higher peaks and higher troughs



**Figure 2.1** An example of an uptrend with ascending highs and lows

As it is clearly mentioned on the chart, the points stand for identifying highs and lows. The first peak represents the point 2 which is determined after the price falls from that point. Herein, point 3 is the trough which is determined after the price falls from the peak. And this should be continuous so that each successive trough must not fall below the previous lowest point. Only in that case the trend can be accepted as an uptrend, otherwise the trend is considered reversal.

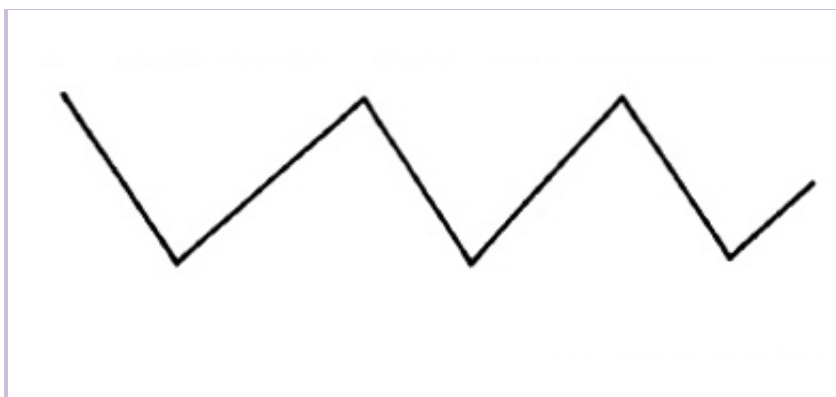
A *downtrend* is right the opposite; it is formed of lower peaks and lower troughs



**Figure 2.2** An example of a *downtrend* with descending peaks and lows

A sideways trend is constituted of many horizontal peaks and troughs, and there is no obvious indication of trend. The direction in which the security price moves is absolutely opaque.

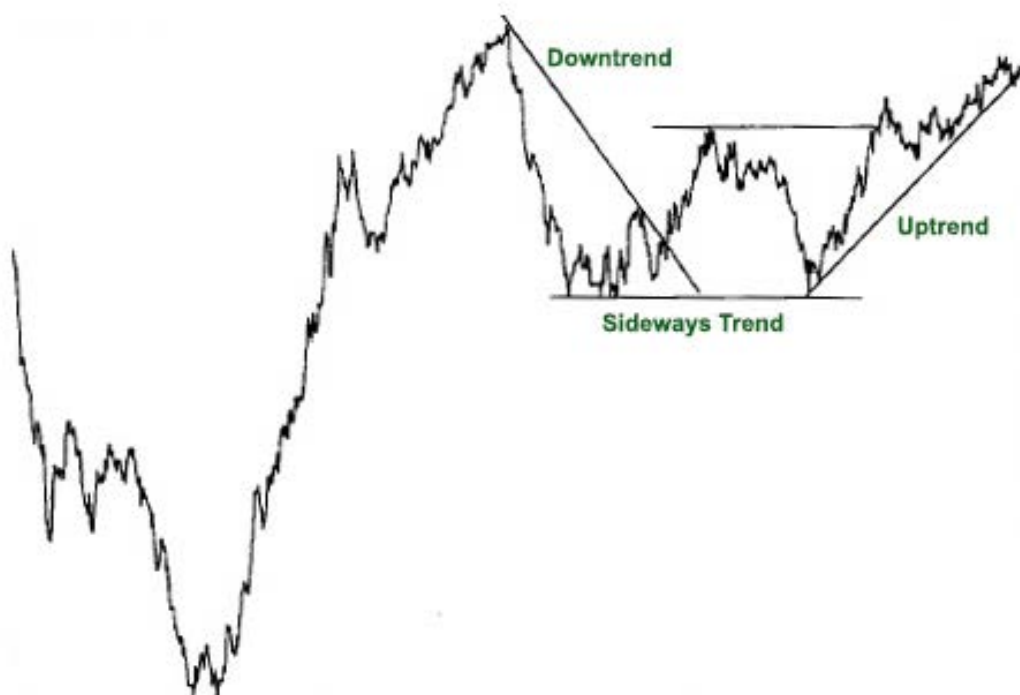
This type of market direction is sometimes referred as “trendless”. This kind of action reflects the period when the forces of supply and demand are in a relative balance. The wide variety of technical analysis tools which are primarily designed to follow the trend become powerless when market enters this “trendless” phase. It is during these periods that traders fail and experience great losses. The failure does not depend on the trend-following system; the system needs a trend to do its work. The reason is hidden in the trader who strives to apply the trend-following system in a non-trending market.



**Figure 2.3** An example of a *sidewise trend* with horizontal peaks and troughs

Traders and investors confront three types of decisions: go long, i.e. to buy, go short, i.e. to sell, or stay aside, i.e. to do nothing. During any type of trend they should develop a specific strategy. The buying strategy is preferable when the market goes up and conversely the selling strategy would be

right when the market goes down. But when the market moves sideways the third option – to stay aside- will be the wisest decision.



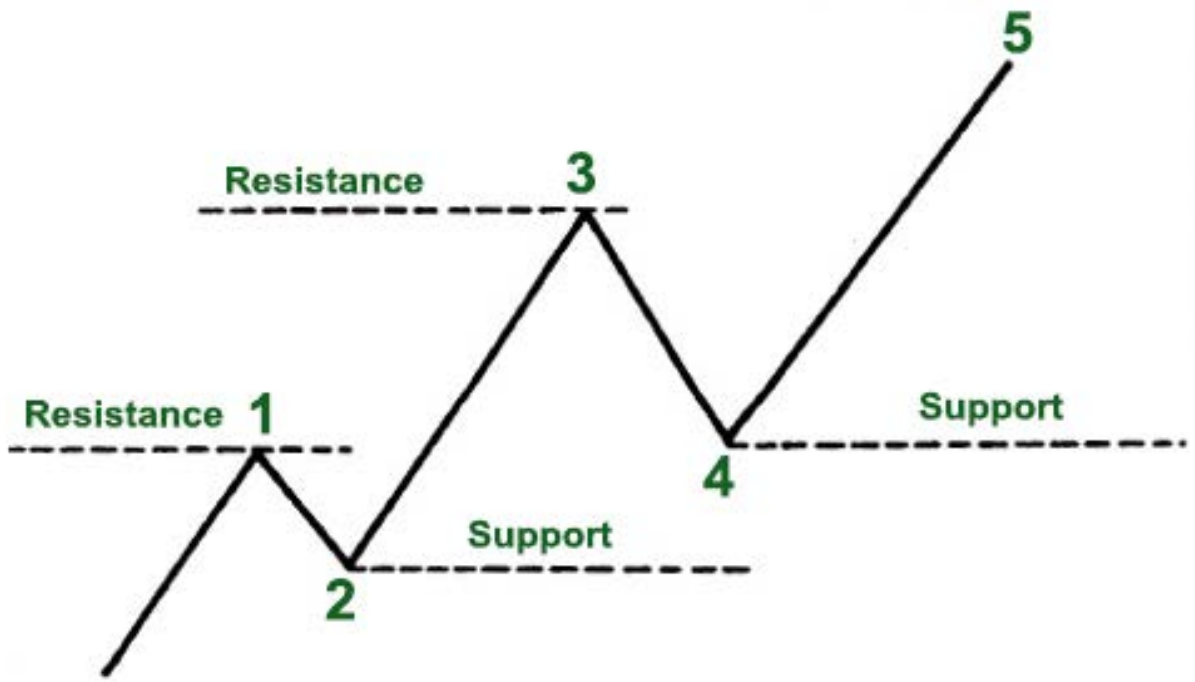
**Figure 2.4.** An example of a downtrend which gradually turns into an uptrend. The first part shows a downtrend, then the market moves sideways and starts to go up.

### 2.3. Support and Resistance Levels

Troughs and peaks in technical analysis are usually mentioned by their appropriate names which are support and resistance respectively.

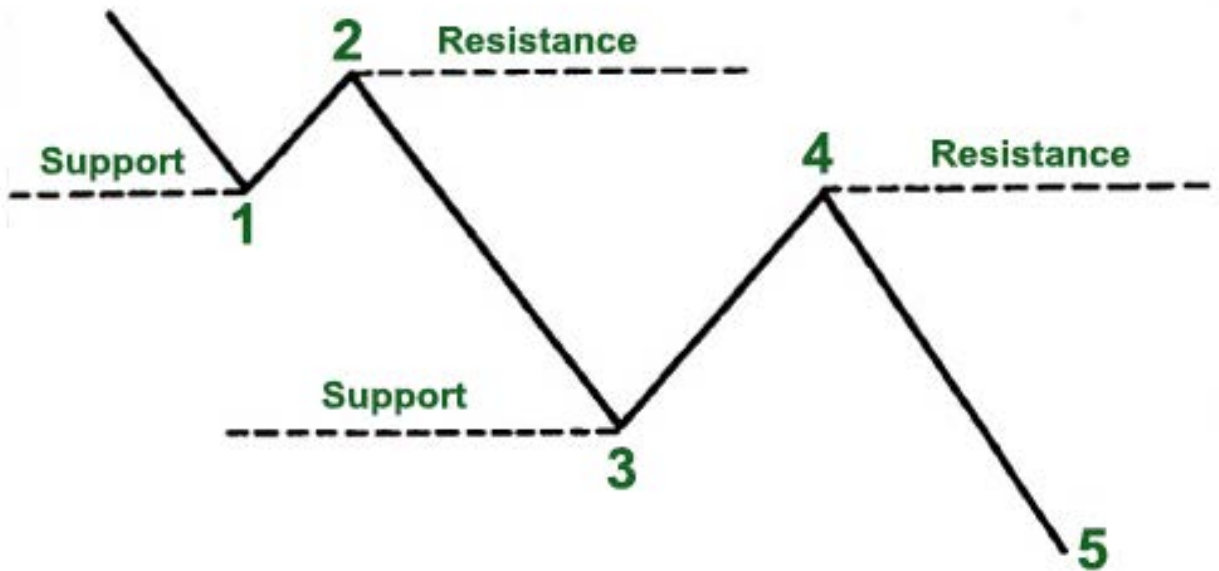
The term support indicates the area on the chart where the buying interest is significantly strong and surpasses the selling pressure. It is usually marked by previous troughs. In an uptrend of the figure 2.5 the points 2 and 4 are considered support levels.

Resistance level, contrary to the support level, represents an area on the chart where selling interest overcomes buying pressure. It is usually marked by previous peaks. The points 1 and 3 in the figure identify resistance levels.



**Figure 2.5** *Rising support and resistance levels in an uptrend*

The image is different with a downtrend (see Figure 2.6) which is composed of descending peaks and troughs. In a downtrend the points 1 and 3 indicate support levels and, consequently, the points 2 and 4 show resistance levels.



**Figure 2.6** *Falling support and resistance levels in a downtrend*

For an uptrend to go on each successive support level should be higher than the preceding one, and each successive resistance level should be higher than the one preceding it. In case this is not so, for

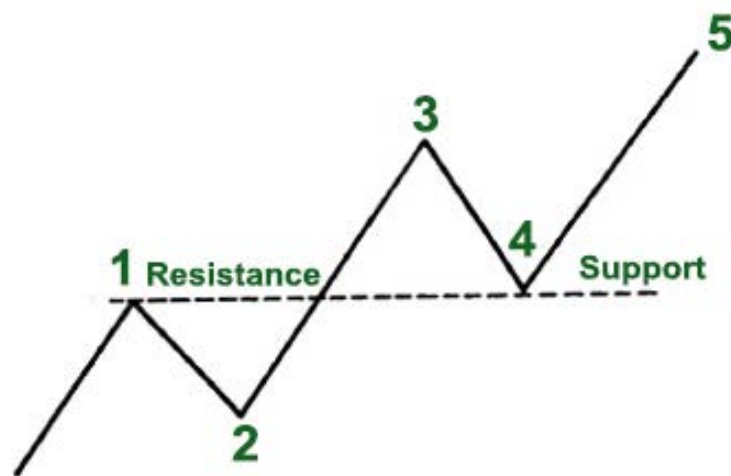
instance, if the support level comes down to the previous trough, it may signify that the uptrend is coming to the end or at least it is turning into a sideways trend. It is likely that trend reversal from up to down will occur.

The opposite situation takes place in a downtrend; the failure of each support level to move lower than the previous trough may again signal changes in the existing trend.

## 2.4. Trend Reversal

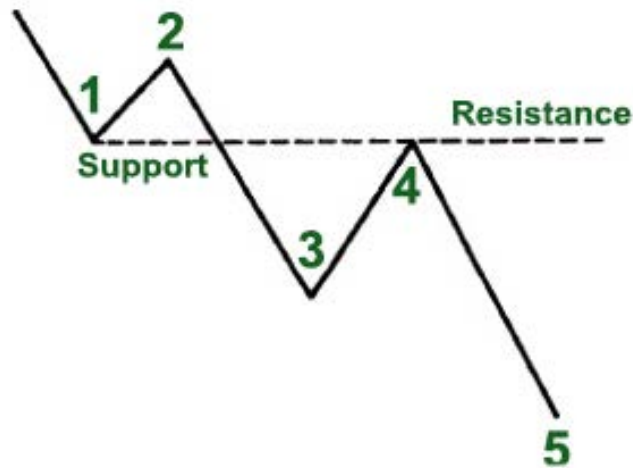
Another interesting aspect of trend is the reversal of support and resistance levels, which is known as "trend reversal", "rally" or "correction".

An uptrend which is defined by successive higher highs and higher lows can reverse into a downtrend by changing to successive lower highs and lower lows.



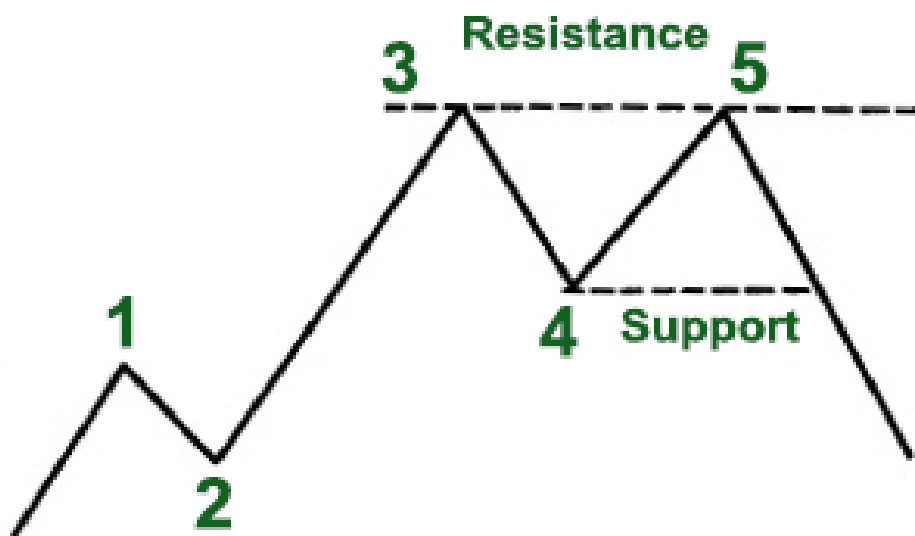
**Figure 2.7** *Trend reversal in an uptrend*

A downtrend, which is defined by lower highs and lower lows, can reverse into an uptrend by changing into successive higher highs and higher lows. To put it more bluntly, a resistance level becomes a support level, and a support level becomes a resistance level.



**Figure 2.8** *Trend reversal in a downtrend*

A reversal can be either a positive or a negative change against the prevailing trend. This is of high significance for market participants and analysts, since those patterns indicate the necessity of taking another trading strategy on the same security.



**Figure 2.9** *Downside trend reversal*

As it is clearly shown in the picture, point 5 fails to exceed the previous peak (point 3) and is followed by a trough which violates the previous low (point 4). This type of pattern is called a double top which we will discuss in chapter 3.

To understand this properly, let's group traders and other market participants into three categories: the longs, the shorts and the uncommitted.

The longs are the ones who have already bought a security, the shorts are those who have already sold it and the uncommitted form the group of participants who either remain undecided or have exited the market. Once the market starts moving higher from the support level the longs will be delighted

only regretting for not having bought more. But this will create a negative situation for the shorts, who will appear on the wrong side of the market and only hope for a dip back to the area where they went short, so that they can get out of the market they got in.

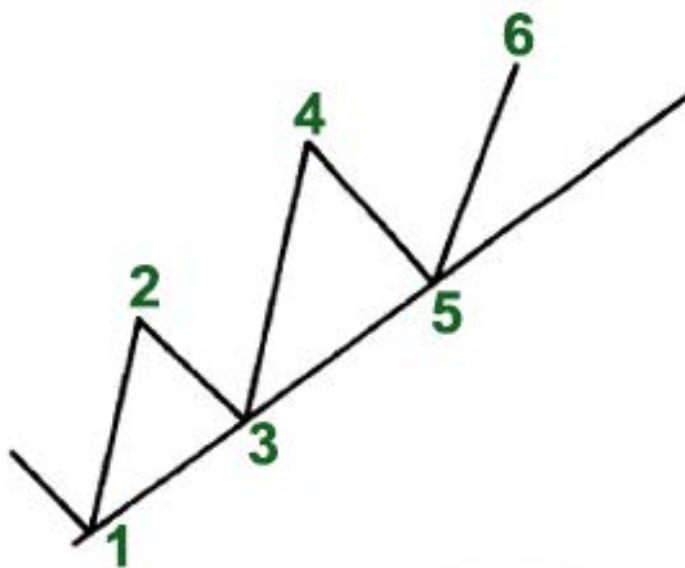
The group of undecided realizing that prices are increasing will decide to enter the market on the long side.

All the mentioned members have a great interest in that support area. The importance of the support and resistance areas is strengthened based on the volume, time spent there and how recently the trade has taken place.

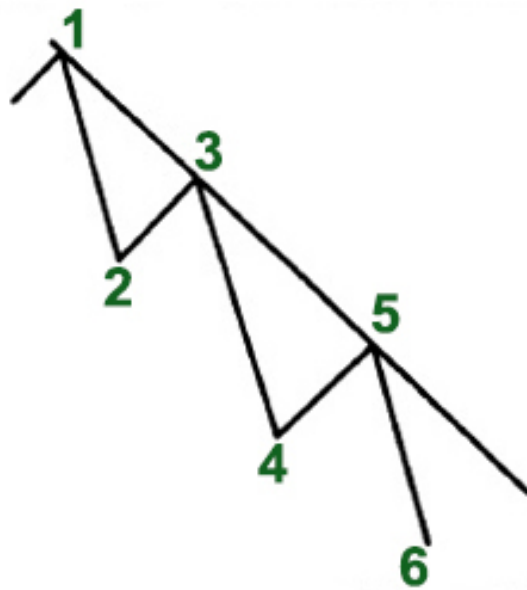
## 2.5. Trendline

Another technical tool applied by a chartist is the trendline. Drawing a trendline does not cause any difficulty, it is as simple as drawing a straight line which follows the trend. The line is used for indicating the trend and also identifying trend reversals.

There can be distinguished two types of trendlines: up trendline and down trendline. An up trendline is a straight line drawn upward to the right along successive lows. A down trendline is drawn downward to the right along successive highs.



**Figure 2.10** An up trendline which is drawn under the rising reaction lows



**Figure 2.11** A down trendline which is drawn over successively falling highs

Drawing a correct trendline, like any other aspect of technical analysis, requires practice and experiment with different lines before finding the correct one. There are certain factors that are very useful in this respect.

Firstly, the trend should be clear and evident. So, for drawing an up trendline there must be at least two reaction lows where the second low is higher than the first. Thus, at least two exact points are necessary to draw any straight line. This refers to a *tentative trendline*. In order to confirm the validity of the trendline, third point becomes necessary. This kind of trendline is referred to as a *valid trendline*.

As long as the trendline is stable, it can be used as a determinant of buying and selling areas. But once it is violated, it is one of the best warnings of a change in trend.

The significance of a trendline is determined by the duration it has been intact and by the number of times it has been tested. A trendline which has been touched for 10 times is more significant than the one which has been tested for only three times. Similarly, a trendline would be of more importance if being in effect for 7 months rather than for 7 days.

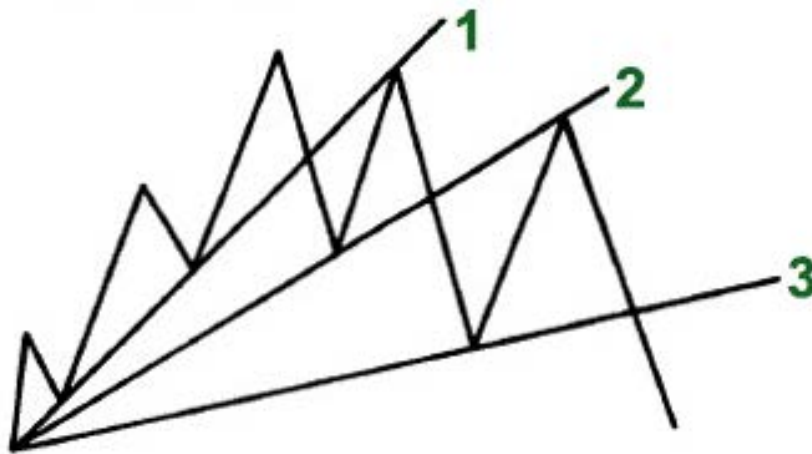
More significance of a trendline indicates more confidence and more important penetration.

### **Fan Principle**

There are situations when prices rally back on the level of trendline. In such cases, after the break, a new trendline is drawn and the previous one becomes a resistance line. Similarly, if the first trendline is violated, the third one is drawn. And if the price breaks the third line, it is most likely that trend reversal will take place.

In figure 2.12 it is shown how prices rallied to but failed to penetrate line 1. Line 2, second trendline, is also broken. After another rally fails, a third line is drawn. The break of that third trendline usually indicates that prices are moving lower.





**Figure 2.12**

This kind of situation is referred to as the “*Fan principle*” whose name derives from the appearance of the lines that resemble a fan. Here it is important to note that the breaking of the third line is a signal of *valid trend reversal*.

## 2.6. Channel Line

Channel lines, or as they are sometimes called return lines, are additions of two parallel trendlines which act as support and resistance levels. As we have already covered, an up trendline connects a series of peaks, while a down trendline connects a series of troughs.

Drawing a channel line is quite simple. If we want to draw it in an uptrend, firstly it is important to draw the basic up trendline along the lows as shown in the figure 2.13 (points 1, 3, 5). Then it follows to draw a dotted line parallel to the basic trendline (starting from the first peak, point 2). Both the dotted and basic lines move in the right direction forming a channel. If the price increases and the next rally reaches and backs off from the channel line (mentioned by point 4), then a channel may exist. And if the price declines and falls back to the trendline, (shown by point 5), then we can say that a channel exists.

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