

# Course 10: Technical analysis

Version 5 - November 2010

## Contents

Topic 1: Introduction to technical analysis .....	3
Topic 2: Chart types .....	4
Line charts.....	4
Bar chart .....	4
Candle stick charts .....	5
Topic 3: Trend analysis .....	6
Defining an uptrend.....	6
Defining a downtrend .....	6
Recognising a change of trend.....	7
Topic 4: Resistance and support lines.....	8
Resistance and support lines .....	8
Resistance .....	8
Support .....	8
Volume.....	9
Chart patterns.....	9
Topic 5: Moving averages .....	11
The moving average.....	11
Summary.....	13



Information provided is for educational purposes and does not constitute financial product advice. You should obtain independent advice from an Australian financial services licensee before making any financial decisions. Although ASX Limited ABN 98 008 624 691 and its related bodies corporate ("ASX") has made every effort to ensure the accuracy of the information as at the date of publication, ASX does not give any warranty or representation as to the accuracy, reliability or completeness of the information. To the extent permitted by law, ASX and its employees, officers and contractors shall not be liable for any loss or damage arising in any way (including by way of negligence) from or in connection with any information provided or omitted or from any one acting or refraining to act in reliance on this information.

**© Copyright 2010 ASX Limited ABN 98 008 624 691. All rights reserved 2010.**

All Ordinaries<sup>®</sup>, All Ords<sup>®</sup>, AllOrds<sup>®</sup>, ASX<sup>®</sup>, ASX100<sup>®</sup>, CHESS<sup>®</sup>, ITS<sup>®</sup> are registered trademarks of ASX Operations Pty Limited ABN 42 004 523 782 ("ASXO").

ASX20<sup>™</sup>, ASX50<sup>™</sup>, ASX200<sup>™</sup>, ASX300<sup>™</sup> are trade marks of ASXO.

S&P<sup>™</sup> is a trademark of Standard and Poor's, a division of The McGraw-Hill Companies Inc.

## Topic 1: Introduction to technical analysis

Technical analysis is the study of the past price movements of an individual share or the market as a whole. Charts are the key tool used in technical analysis.

The argument in support of technical analysis is that all buying, selling, rumours, and information is going to be factored into the price of a share as people act on that information.

By looking at the prices we can see whether there is good news associated with a company resulting in buying and rising prices. We can also see if bad news has come out, or if it's expected to be released because sellers will come into the market and push prices lower.

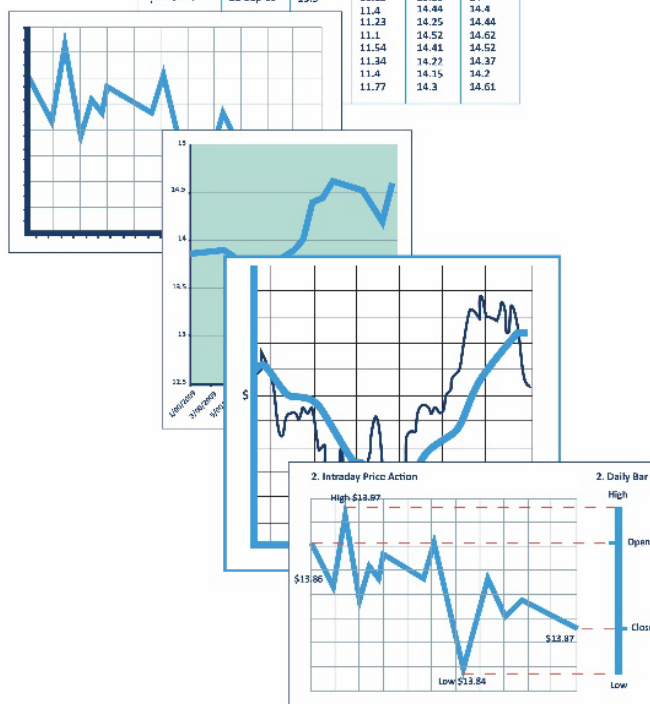
Forget the idea that charts can predict the future with any certainty. They can't and neither can fundamental analysis. So what can charts do for us?

The first benefit that charts provide is the ability to convert a table of data into an easy to interpret line graph. Take the example opposite, is it easier to tell the share's recent price history by looking at the table or the graph?

The graph provides a quick snapshot of how the company's share price has travelled over the recent past.

This is charting in its simplest form, let's take a look at how charting can be extended to greater depth of detail.

Name	Data	Operating	High	Low	Close
Company X	1-Sep-09	13.85	13.97	13.84	13.87
Company X	4-Sep-09	13.82	13.91	13.74	13.91
Company X	5-Sep-09	13.85	13.9	13.8	13.84
Company X	7-Sep-09	13.82	13.84	13.86	13.74
Company X	7-Sep-09	13.8	13.81	13.46	13.65
Company X	8-Sep-09	13.58	13.74	13.53	13.7
Company X	11-Sep-09	13.85	11.13	13.85	13.9
Company X	12-Sep-09	13.9	11.12	13.88	14
		11.4	14.44	14.4	14.4
		11.4	14.25	14.44	14.44
		11.1	14.52	14.52	14.52
		11.54	14.41	14.52	14.52
		11.34	14.22	14.37	14.37
		11.4	14.15	14.2	14.2
		11.77	14.3	14.61	14.61



Excel table

Name	Data	Operating	High	Low	Close
Company X	1-Sep-09	13.86	13.97	13.84	13.87
Company X	4-Sep-09	13.82	13.91	13.74	13.91
Company X	5-Sep-09	13.85	13.9	13.8	13.84
Company X	7-Sep-09	13.82	13.84	13.86	13.74
Company X	7-Sep-09	13.8	13.81	13.46	13.65
Company X	8-Sep-09	13.58	13.74	13.53	13.7
Company X	11-Sep-09	13.85	11.13	13.85	13.9
Company X	12-Sep-09	13.9	11.12	13.88	14
		11.4	14.44	14.4	14.4
		11.4	14.25	14.44	14.44
		11.1	14.52	14.52	14.52
		11.41	14.41	14.52	14.52
		11.22	14.22	14.37	14.37
		11.15	14.15	14.2	14.2
		11.61	14.3	14.61	14.61

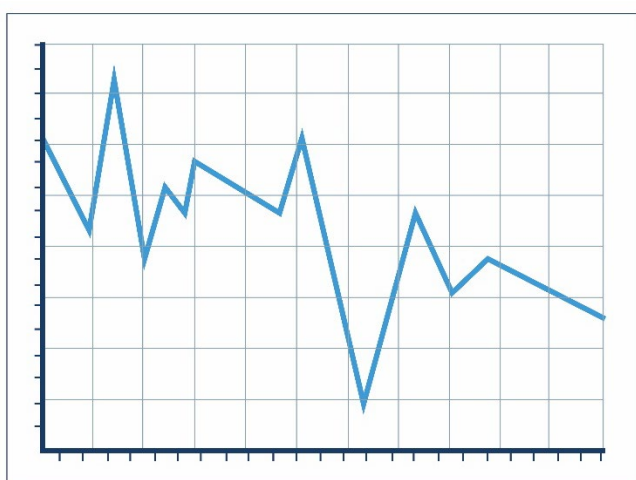


Line graph

## Topic 2: Chart types

### Line charts

Line charts are the most common type of chart. Line charts plot a series of points to graph price movements. Line charts are an excellent way to get a general guide on the direction a price is moving.



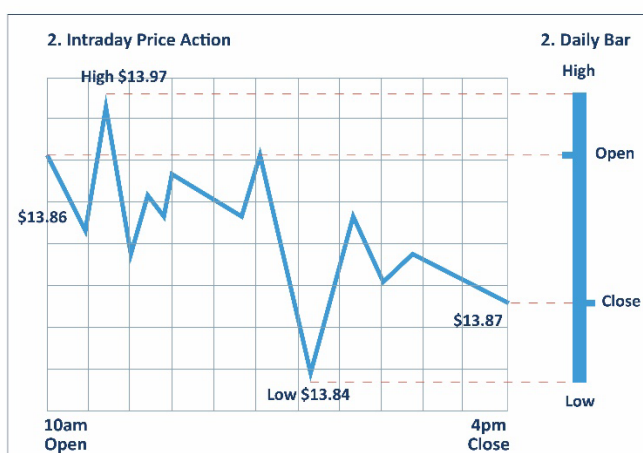
Line charts do have limitations in the amount of information that they represent. In the case of share price movements there can be significant variation in a share price over a single time period. Because a line chart only represents one point in that time period (most commonly the daily closing price) it does not fully represent the fluctuations in that share's price over that period.

In order to show more complete price range information, a bar chart can be used.

### Bar chart

A bar chart simply takes the information from the day's trading and plots that information on a single 'bar'.

Date	Open	High	Low	Close
9-Sept-09	\$13.86	\$13.97	\$13.84	\$13.87



On the right hand side of the graphic opposite is a single day's bar. Bar charts plot price data as a vertical bar. A tab on the left side of the bar represents the OPEN price, and a tab on the right of the bar represents the CLOSE price. The top of the bar represents the day's HIGHEST price and the bottom of the bar represents the day's LOWEST price.

By plotting each day consecutively on a chart the technical analyst develops a picture that helps to illustrate the interplay between supply (sellers) and demand (buyers). While we have drawn a daily bar chart, it is just as easy to draw a weekly chart by capturing the open on Monday, the highest high and the lowest low during the week and finally the close on Friday afternoon. We can also construct monthly bar charts and even 1 -minute bar charts.

### Candle stick charts

Candlestick charts originated in Japan and have been used for centuries. They are constructed using the same information as a bar chart (open, high, low, and close). Instead of using a single line however, a rectangle is used to represent the area between the open and the close.



The rectangle or candle is left blank or a specific colour like green for an up day and filled or a different colour like red for a down day. The rectangle is called the body or the real body and the single lines at the top or the bottom, if they exist, are called shadows, wicks or tails.

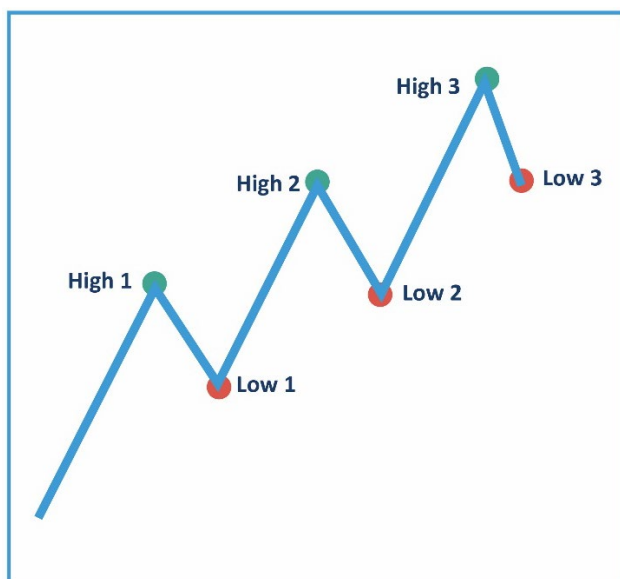
The art of using bar charts and candle stick charts comes in interpreting the shapes that they form and their combinations. There are a myriad of documented combinations that exist and the [charting library on the ASX website](#) is a great place to start delving into the world of charting.

### Topic 3: Trend analysis

Now that we have some background on the different chart types, line, bar and candle stick, we need to use some basic rules to provide us with guidance as to whether prices are rising, falling or have no clear trend.

#### Defining an uptrend

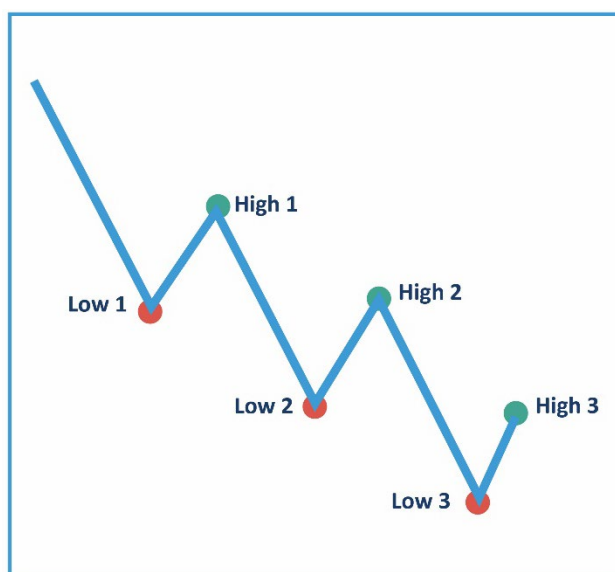
The diagram opposite illustrates how easy it is to define an uptrend.



Notice that each subsequent high is higher than the previous high, while each subsequent low is also higher than the previous low. This is how an uptrend is defined. You must have higher highs AND higher lows. You need both to have an uptrend. If you do not have both a higher high and a higher low you do not have an uptrend. You might not have a downtrend either. Let's look at the alternatives.

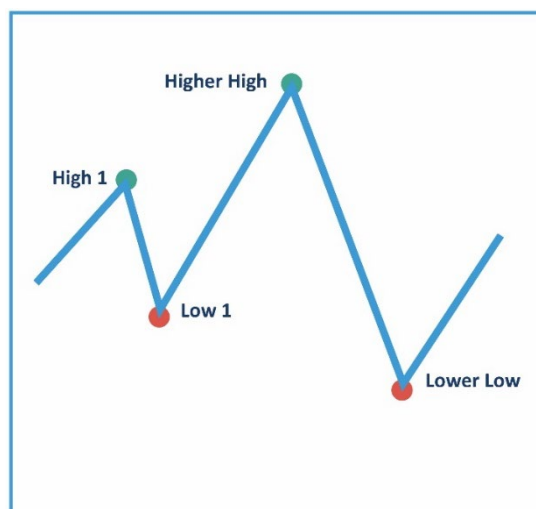
#### Defining a downtrend

The diagram opposite describes a downtrend. The definition of a downtrend is lower lows AND lower highs. If you look at the diagram you can see that each high is lower than the previous one and each low is lower than the previous one.



From a technical analyst's perspective you are doing yourself a disservice if you purchase stocks that are in a downtrend. It is deemed prudent to wait until an uptrend emerges. Markets however are not as simple as the diagrams and there are periods when the market is neither in an uptrend nor a downtrend. The next diagram helps illustrate this point.

In the diagram opposite, prices never reach a point where there is a higher high AND a higher low. After the market registered the second higher high, notice that the market then made a lower low.

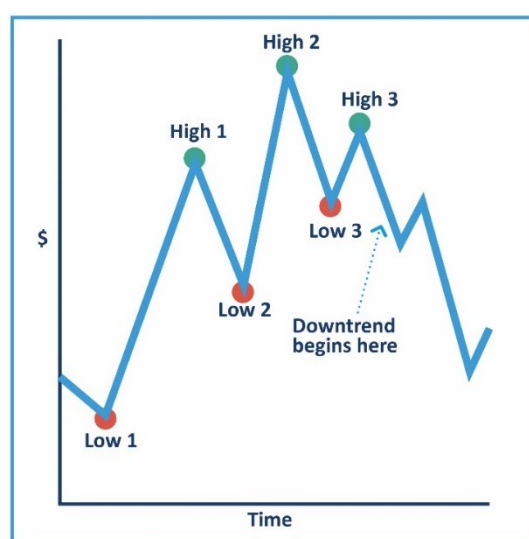


There is neither an uptrend, nor a downtrend, the market is merely trading sideways with little indication of clear direction. There are technical analysis tools available to allow you to trade in a sideways trending market, though these are not covered in this course. For most investors, a sideways trending market represents a time to stand aside and do nothing.

### Recognising a change of trend

We have now defined an uptrend and a downtrend as well as a period of range trading or sideways movement. How do we make use of them in the market place? Obviously we would like to get out of downtrends as soon as they develop and we would like to enter into uptrends as soon as they are confirmed. Now that we know what these things are, let's look at identifying a change in trend.

In the diagram opposite it is easy to see that initially there was an uptrend in place. There is a series of higher highs (H1, H2) AND a series of higher lows (L1, L2, and L3). Notice however that H3 is LOWER than the previous high. This is the first warning, as the criteria for an uptrend is no longer being met.



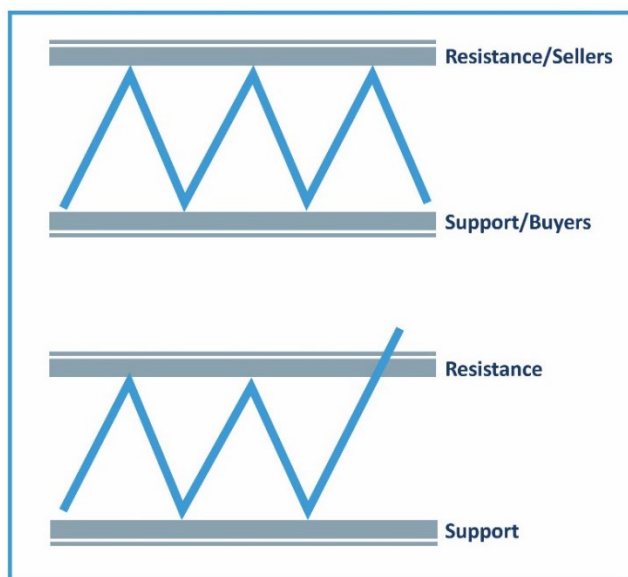
The market is no longer in a clear uptrend. At point H3, we still have higher lows but a lower high. We need both higher lows and higher highs. At point H3, there is no trend either up or down. We may describe the market as neutral or range bound.

The price then turned lower and broke the level marked by L3. Now if you look carefully something significant has happened. We have a lower high at H3 and we have a lower low once L3 is breached. We now have a lower high AND a lower low. A downtrend is in place at the point marked by the arrow.

## Topic 4: Resistance and support lines

### Resistance and support lines

Let's look at using support and resistance levels to help define the buying and selling points in the market.



### Resistance

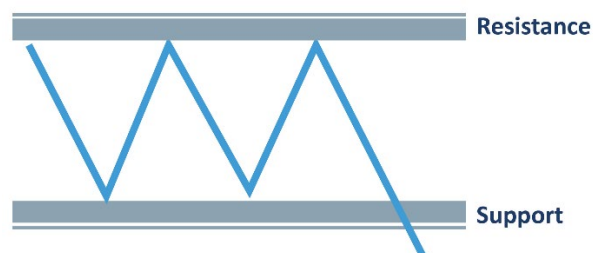
By drawing a line that connects all of the highs we create what is described by technical analysts as a resistance line. At this level the market **RESISTS** going higher because there are sellers who enter the market to sell more shares when the share trades at this price.

The weight of their cumulative selling prevents the price from rising. If the price were to break through this resistance as it has in the second diagram opposite, it could suggest that the selling at this price is complete or the seller has decided not to sell any more of the stock for the time being.

Either way it could be supportive for the stock and may even reflect the release of good news, which has resulted in the sellers at the resistance price holding off or changing their mind. Technical analysts see a break of resistance as a buy signal.

### Support

By drawing a line that connects the lows of the range we can define support. The price is supported from going lower by the presence of a buyer or buyers at this price.



Each time the price drops to this support level a buyer or buying emerges that is of sufficient volume to absorb the selling and prevent the price from falling through.

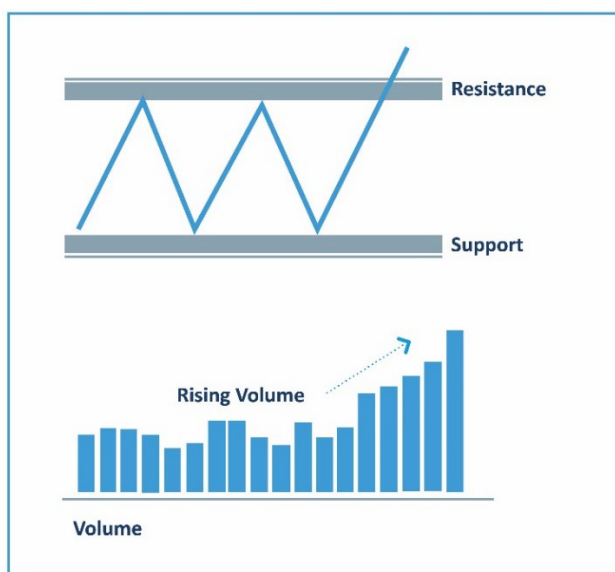
Suppose that the price does break through the support level. What would this indicate? The first conclusion we may draw is that the buyer at the previous support price is no longer present (at that price at least).



The buying has dried up and the selling is continuing now at lower prices. This selling at lower prices suggests that the sellers are becoming more aggressive.

### Volume

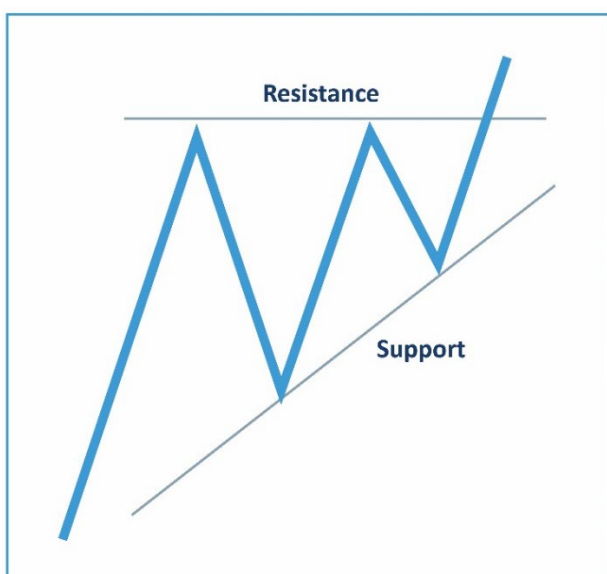
Volume is an important tool for the technical analyst. Rising volume at the time of a break of support or resistance is generally regarded as further confirmation that the break is legitimate and that the price is expected to continue moving in the same direction.



This could be for a number of reasons, for example the higher volumes suggest more sophisticated and knowledgeable investors might be establishing positions in the direction of the market's move or it could be simply because more individuals are discovering the particular factors that make an investment or trade in this share attractive.

### Chart patterns

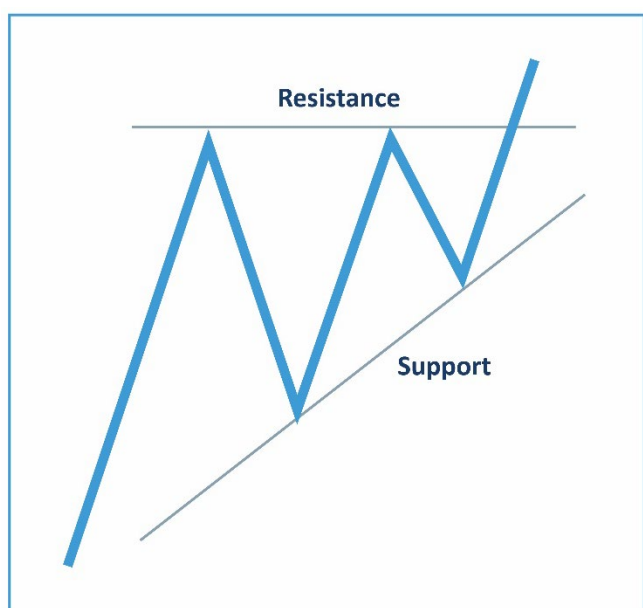
There are a multitude of textbooks available for the classic technical analyst. These texts look at the variety of 'patterns' that the market prices form. These patterns are traded by classic technical analysts and like all tools in trading and investing do not work all the time.



The diagram opposite describes one pattern known as a rising triangle. There are many others and if you are interested in doing further research on this subject you should consider some of the many texts on the subject that are available.

In the diagram opposite you can see that the resistance line is flat. This suggests that there is enough selling to absorb the buying at the same price.

The support level however is sloping upwards. This suggests that the buyers are becoming progressively more aggressive and are increasingly willing to pay higher prices. The question you might ask is why? Well the technical analyst does not concern him or herself with the answer.



By looking at the chart we can see that the buyers simply are more aggressive and so the price could go higher. If the price breaks through that resistance level, then the picture is as follows; buyers are more aggressive, paying higher prices and the selling that was evident before has dried up or ceased.

According to technical analysts, prices should go higher. If you add rising volume to the picture then you have another validation of the strength being exhibited in the market.

## Topic 5: Moving averages

### The moving average

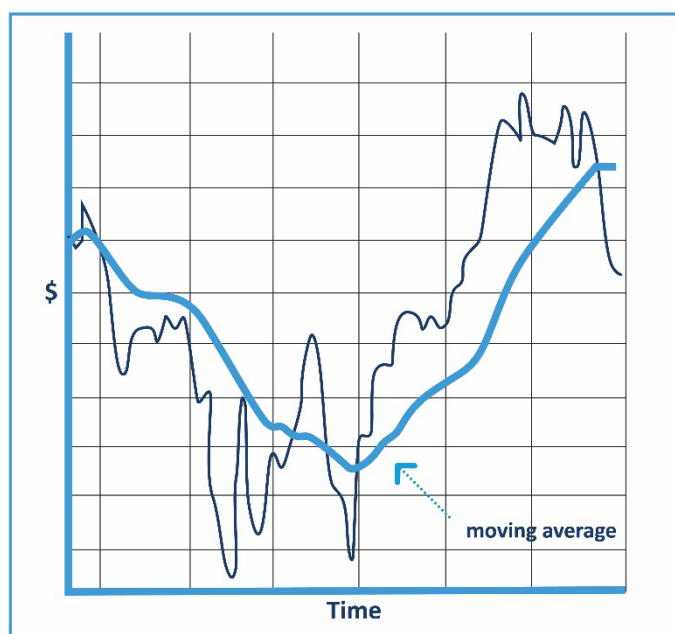
The moving average is a common tool and is familiar to many investors and traders.

Closing prices	<del>1.50</del> + <del>1.55</del> + 1.61 + 1.70 + 1.68
	<u>3</u>
	3
Calculator	= = =
3-day moving average	\$1.55    \$1.62    \$1.66

The moving average is simply an average of the closing prices for the last 'n' days. 'N' equals the number of periods. So a 30-day moving average will therefore be an average of the closing prices for the last 30 days, rolled forward one day at a time. Similarly a 3-day moving average will be an average of the last three days, rolled forward one day at a time.

The table opposite may help illustrate how we calculate the (3-day) moving average.

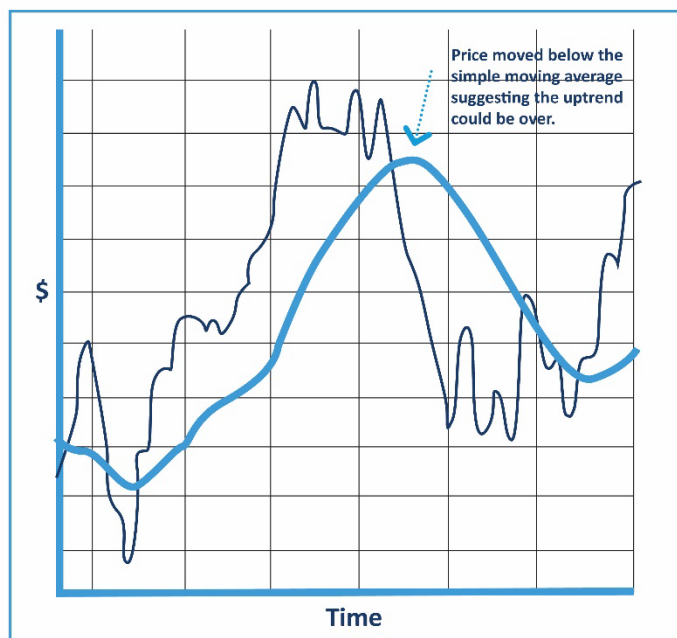
All we are doing is adding up the total of the closing prices for the last 'n' period and then dividing by 'n'. This gives us a series of numbers that we can plot as a line on a price chart. The diagram opposite helps to illustrate what the moving average might look like.



The first step in trading with a moving average is to decide how many days, weeks or months 'n' equals. The larger the number, the smoother the moving average will be. You will also have fewer trades and less false signals.

The downside is that you will give away a lot of the move before getting in and before getting out. With a shorter term moving average you will get into a trend earlier and exit closer to the top, but you will also have many trades and many false signals, therefore many losing trades.

The common way to trade the moving average is to buy a stock if its price breaks above its moving average and to sell it again when the price falls below the moving average.



Now before you go racing off to plot the moving average on every stock and buy everything that rises above it a few points are worth remembering. Nothing works all the time. Indeed the moving average is an indicator that can keep you in an uptrend for its entire duration.

It is also good at keeping you out of the market during a downtrend, as the price will remain below the moving average as in the diagram opposite. In a non-trending market however the moving average will ALWAYS see you lose money when traded in its classic fashion.

In a sideways market the moving average will travel through the middle of the prices and force the trader to buy high and sell low every time. This is a sure fire way to lose money. So a moving average should only be applied to a trending market.

## Summary

- Technical analysis is the study of past price movements with the aim of getting guidance to potential future price movements.
- Charts are the primary tool of technical analysis.
- There are different types of charts, such as line charts, bar charts and candlestick charts.
- Charts can be used to identify trends in share price movements.
- Charting is supported by a very large body of study. There are a multitude of texts and approaches that can be taken.
- The ASX website has a charting service that allows you plot the share prices of all listed companies over a wide range of time frames. You can also overlay moving averages, other companies and indices to do comparative analysis.