

# Introducing technical analysis

Technical analysis deals in probabilities, not certainties, write **CAI HAOXIANG** and **NAKUL ASTHANA**

**W**HAT makes technical analysis stand out as a stock trading technique is how all that matters are the price and volume of a stock and not its business, financial statements or management. With just historical price and volume data, charts can be drawn, trends can be determined and trades can be made. Technical analysis is thus the study of the demand and supply situation of the market. Below is a sketch of some of the main ideas and uses of technical analysis.

## The Dow Theory

The Dow Theory is one of the origins of Western technical analysis. It is the oldest and most publicised method of how to identify major trends in the stock market. It evolved from a series of editorials in *The Wall Street Journal* published by journalist Charles H Dow between 1900 and 1902.

Some principles are:  
 ◆ A major upward trend has three main phases. The smart money buys in the accumulation phase where the stock price does not move much, selling pressure is slowly dissipating and the general public is not interested in the stock. Then there is a public participation phase where volumes are heavy, stock prices go up and everybody is enthusiastic. This is when technical traders start taking positions. Finally, the market becomes too hot and the smart money starts selling. This will lead to a downward trend.

In an upward trend, there are several rallies with the lows of each subsequent rally being higher than the lows of the previous rally. In other words, there are higher peaks and higher troughs.

◆ Stock market indices must confirm each other. In Dow's time, this meant that the end of a bear market, or a bull market, will not occur unless the Dow Jones Industrial Average and the Dow Jones Transportation Average both show similar trends.

◆ Volumes must confirm the trend. Volumes refer to the amount of stock that is traded every day. Volumes should increase or decrease along with prices.

Volumes running counter to the trend is a sign of weakness in the trend. For example, if stock prices keep increasing but fewer people are buying, this is a sign that demand is waning and a reversal might be on the way.

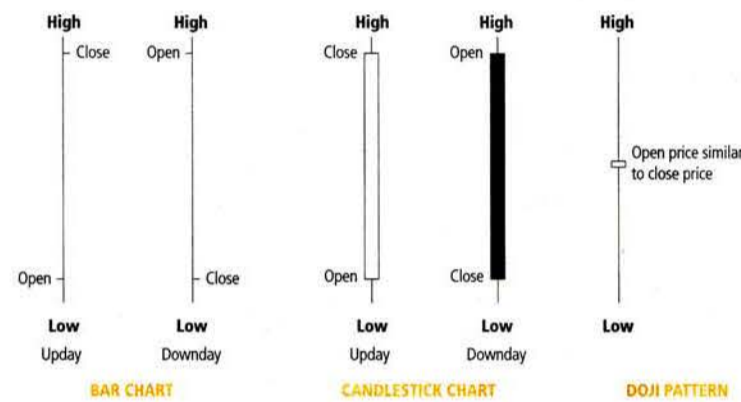
◆ A trend remains in effect until the weight of technical evidence suggests that it has reversed. The takeaway is that unless you can conclude that a trend has definitely changed, it is not wise to trade against it.

## The use of charts

Charting is the foundation of technical analysis. A chart is a pictorial representation of a stock's demand and supply over a period of minutes, hours, days, weeks or months. There are three different types of charts used in technical analysis: line charts, bar charts and candlestick charts. A line chart is drawn by plotting only the closing price of the period. This is the conventional chart that investors

## Bar and candlestick charts

Chart 1



usually see. Bar charts are where opening, closing, high and low prices are depicted using vertical and horizontal lines. Candlestick charts originated in Japan and were used by rice traders over 300 years ago. They are a combination of line and bar charts. Clear or empty candlesticks are formed when the close is higher than the open. A solid or filled candlestick is formed when the close is lower than the open.

The clear or filled portion between the open and the close is called the body, and the lines that extend above the body are called shadows and represent the high and low prices of the session. A cross-like formation called the doji occurs when an asset trades at highs and lows, but closes in the middle. This means that the market is indecisive, and is a signal that a trend might come to an end. (See Chart 1)

## Trends and trend lines

Trends are an important concept in the field of technical analysis. Technical analysis is built on the concept that there is herd mentality present and an up-move or down-move will stay in place for some time. An uptrend is a series of higher highs and higher lows, while a downtrend is a series of lower highs and lower lows.

Horizontal trends describe a sideways price movement when the forces of demand and supply are nearly equal. It is often regarded as a period of price consolidation before the price moves into either an uptrend or a downtrend. Another important charting tool is the concept of trend lines. A trend line is a straight line that connects a series of high or low price points in order to define or confirm a trend. An uptrend line has a positive slope, and similarly, a downtrend line has a negative slope. The more number of times that the price touches a trend line, the more significant and valid that trend line becomes.

An additional use of trend lines is to identify support or resistance levels. The support is a price level which a stock or market seldom

moves below. As the price declines towards support, buyers become more active and sellers become less inclined to sell.

A resistance is a price level where selling overwhelms any buying. As the price advances towards resistance, sellers become more inclined to sell and buyers become less inclined to buy. In Chart 2, the trend lines for the horizontal trend represent support and resistance.

Buy and sell decisions can also be made based on breakouts from support and resistance levels. If the price breaks over a resistance level with high volume, we can expect the security to trend higher in the future, with the old resistance level becoming a new support level. However, there are also false breakouts which do not have enough momentum to sustain the direction in prices.

## Leading and lagging indicators

A technical indicator is derived through a formula applied to price data. Indicators give people an understanding of the strength and direction of the trading of a security. A leading indicator gives a signal before a new trend of reversal occurs, while a lagging indicator only gives signals after price changes clearly form a trend.

Some of these indicators are available to investors using Yahoo Finance or Bloomberg on the computer, phone or tablet. Two of the most widely used leading indicators are the Relative Strength Index (RSI) and the Stochastic Oscillator. The RSI gives information on whether a security is overbought or oversold.

It is an index that ranges from 0 to 100, and is calculated by comparing the ratio of up movements for a stock to down movements of a stock over a time period.

A reading above 70 suggests an overbought situation and is a bearish signal. A reading below 30 suggests an oversold situation and is a bullish signal. The Stochastic Oscillator compares closing prices with their highs and lows over a period. There is a faster moving %K line and a slower moving %D

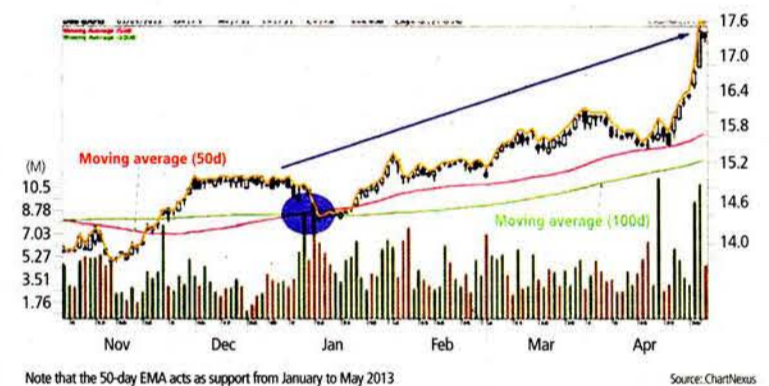
## Downtrends, horizontal trends and uptrends

Chart 2



## Moving averages

Chart 3: Bullish MA crossover of 50 and 100 day EMA



Note that the 50-day EMA acts as support from January to May 2013

line. An upward-moving %K line crossing over the %D line is a bullish indicator, and a similar break downwards is a bearish indicator. This indicator also moves between 0 and 100. Overbought conditions are above 80, and oversold conditions below 20.

But the usefulness of this indicator depends on the time frame set. False signals can be generated if the time frame is too short.

## Moving averages

Moving averages are lagging indicators that follow price trends. They are useful to confirm these trends.

The moving average shows the average price of the security over a specific time frame. They help track trends by smoothing out day-to-day market fluctuations. Some commonly used time periods are the 20/50/100/200-day moving averages.

There are simple moving averages (SMA) and exponential moving averages (EMA).

The SMA is constructed by taking the arithmetic mean of prices, while the EMA gives

greater weight to recent prices in an attempt to make it more responsive to recent information. The crossing of a shorter term moving average over the longer term moving average indicates bullishness (Chart 3), while the opposite indicates bearishness. Moving averages can also act as a support or resistance for a trend and hence can be used to make buying and selling decisions.

The MACD (moving average convergence-divergence), pronounced Mac Dee, is a momentum indicator that is based on the difference between two moving averages. The two averages usually used are the 26-day EMA and 12-day EMA. A 9-day EMA of the MACD called the "signal line" is also plotted in order to act as a trigger for buy and sell signals.

The resulting moving averages form a line that oscillates above and below zero, without any preset boundaries like the RSI and Stochastic Oscillator. The MACD is used to trade in situations of crossovers, when it is outside its normal range, and when trend lines can be used on the MACD itself.

## Which indicators to use

A large number of indicators have been developed and are widely used by traders. Most traders use multiple indicators to confirm buy or sell signals.

Confirming indicators increase the probability of making a winning decision. For example, a bullish MACD signal accompanied with a breakout over a long-term resistance indicates a stronger bullish trend than when only one indicator is used.

A key tenet of technical analysis is that it deals with probabilities and never certainties. Ultimately, one must exercise caution while using technical analysis. The market poses a variety of risks that can result in large losses. Stop losses and price targets can be set in order to minimise such damage. haoxiang@sph.com.sg

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