

# An Introduction to Technical Analysis - Charts



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## 1. Introduction

In this course, we will embark on a journey to demystify the language of charts, indicators, and patterns. Technical analysis is not just about predicting the future; it's about understanding the present and gaining insights into market psychology.

### Course Highlights:

#### Understanding Market Basics:

- What are charts, what information do they give and how to decide on chart timeframes.

#### Candlestick Patterns:

- Dive into the fascinating world of candlestick patterns. Learn how these visual representations of price movements provide valuable insights into market sentiment and potential trend reversals.

#### Chart Patterns:

- Explore the art of recognizing chart patterns such as head and shoulders, triangles, and flags. Understand how these formations can signal potential future price movements.

#### Technical Indicators:

- Uncover the secrets behind popular technical indicators like Moving Averages, Relative Strength Index (RSI), and MACD. Discover how these tools can be used to gauge market momentum and identify potential entry or exit points.

#### Trend Analysis:

- Master the skill of trend analysis, a cornerstone of technical analysis. Learn to distinguish between uptrends, downtrends, and sideways movements, and understand how to align your strategies accordingly.

#### Risk Management:

- Delve into the crucial aspect of risk management. Understand how to set stop-loss orders, manage your portfolio, and protect your capital in the unpredictable world of trading.

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## Who Should Take This Course?

- Investors: Enhance your decision-making process by incorporating technical analysis into your investment strategy.
- Traders: Refine your trading skills and develop a systematic approach to navigating the markets.
- Enthusiasts: If you're passionate about understanding the intricacies of stock market dynamics, this course is your gateway to a deeper comprehension.

No matter your level of expertise, join us as we unravel the mysteries of technical analysis, providing you with the tools and knowledge to navigate the stock market with confidence. Get ready to transform the way you perceive and engage with the financial markets!

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## 2. The Basics

### 2.1. How to access charts for FREE

There are numerous 'FREE' sources where you can get charts online. If you have an online broker you most likely have access to a charting package also.

Our favorite 'FREE' resource is [finance.yahoo.com](http://finance.yahoo.com). The reason we like them best is that you also get real time data for FREE too. Most other FREE charting packages are using data that is 20 minutes delayed.

In our experience there is no need to pay for real time data...just use the charts on [finance.yahoo.com](http://finance.yahoo.com)!

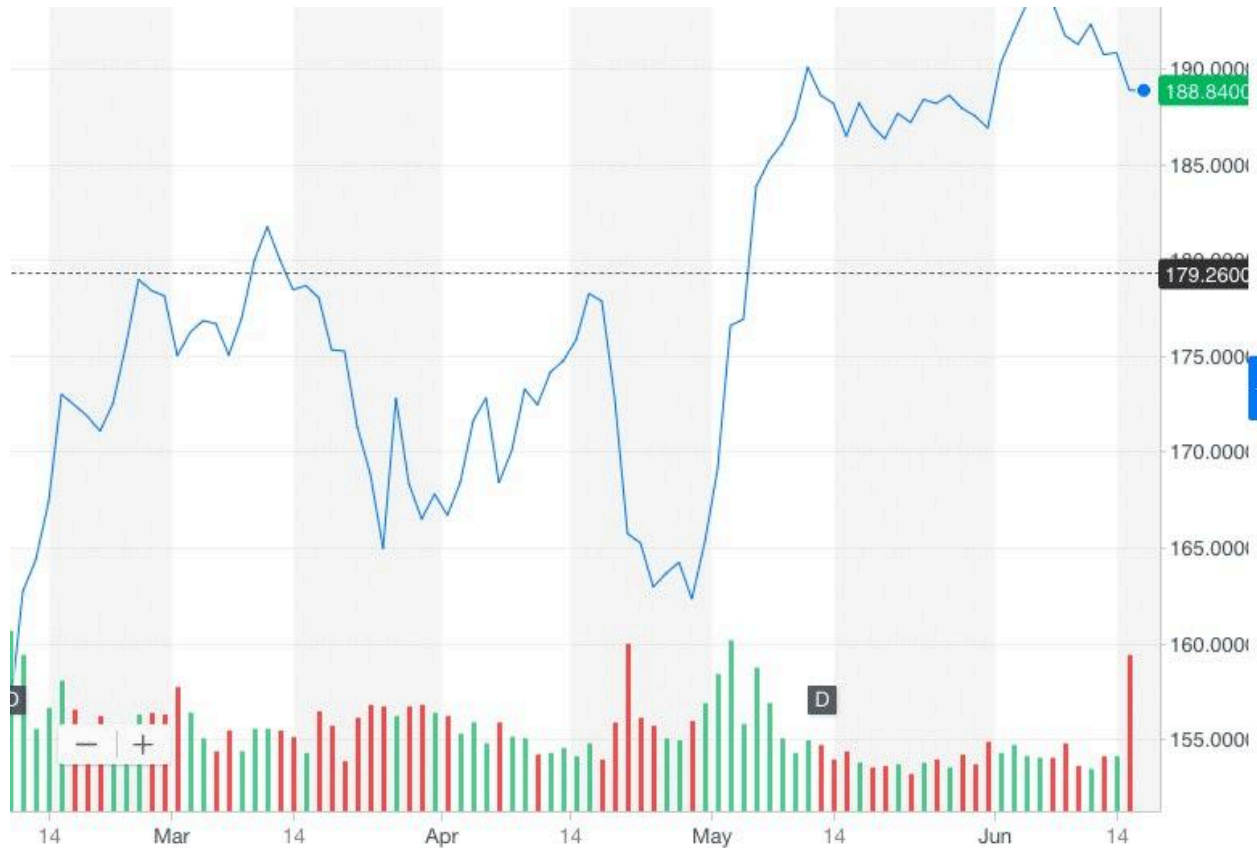
For the purposes of this course we will teach you based on the charts available on [finance.yahoo.com](http://finance.yahoo.com). But you can apply the principles to any charting package.

[CLICK HERE](#) to watch a video showing you how to get FREE charts for any company you want.

### 2.2. What is a chart?

A chart is a sequence of prices plotted against a timeframe. Prices are on the y axis (vertical) and timeframe is on the X axis (horizontal). See the line chart below of Apple Computers (AAPL). Price is on the right hand side (y axis) and time frame is on the bottom (x Axis).

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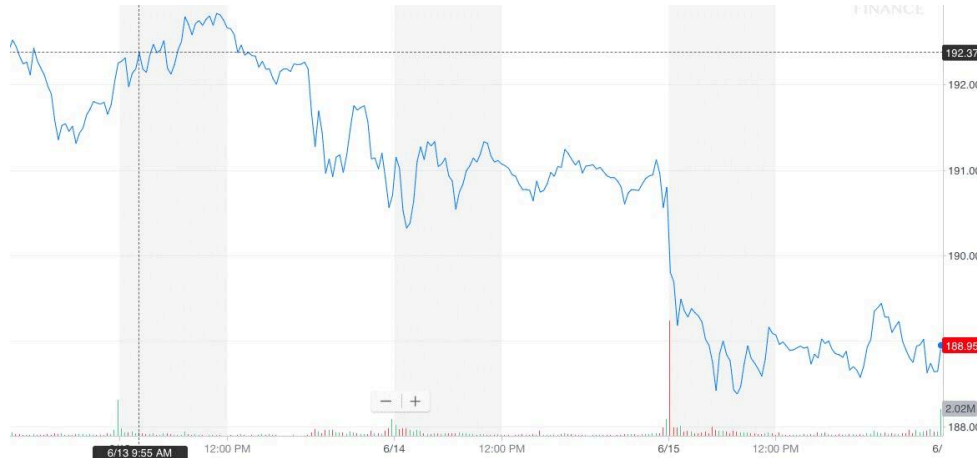
*Line Chart of Apple (AAPL)*

In its simplest form charts are just a picture of price movement for a stock over a given timeframe.

### 2.3. Chart Timeframes

You can view charts over different time frames. You can get a chart for 1 day, 2 days, 1 week, 1 months, 1 year, 5 years etc... The timeframe you pick will give you a very different picture of the stock. Look at the two chart examples of Apple Computers below. The first chart is a 5 day chart and the other is a 1 year chart.

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You might conclude from looking at the 5 day chart of Apple (above) that it is not performing very well. The price has fallen substantially over the past 5 days. But hold your judgment for one moment...let's look at the 1 year chart.



What a difference! You can see that AAPL has performed very well over the past year. In technical analysis it is very important to look at charts from different time frames. Do not pass judgment based on just one time frame.

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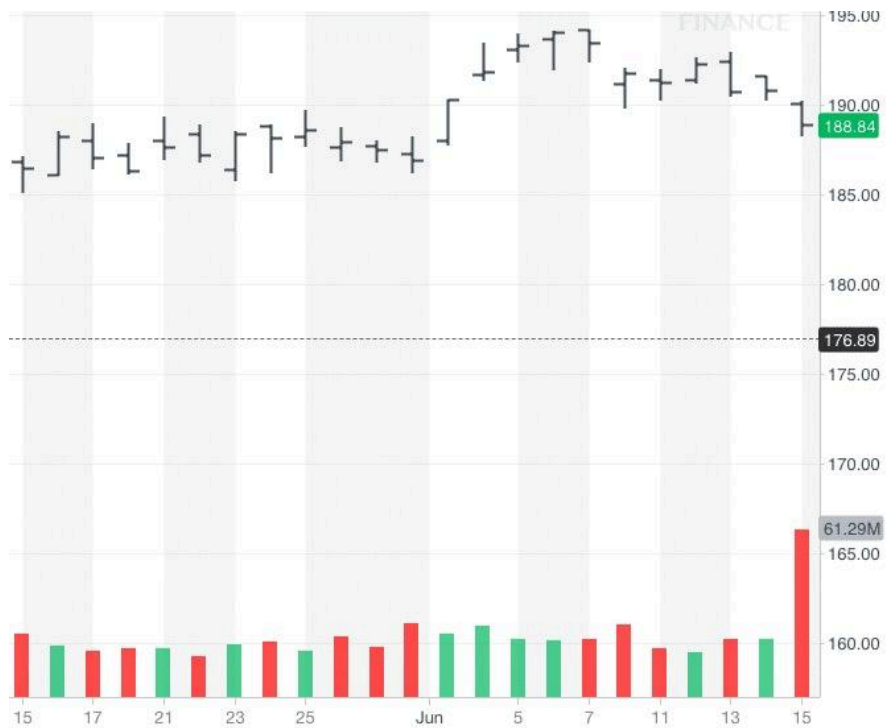
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[CLICK HERE](#) to watch a video showing you how to change chart time frames.

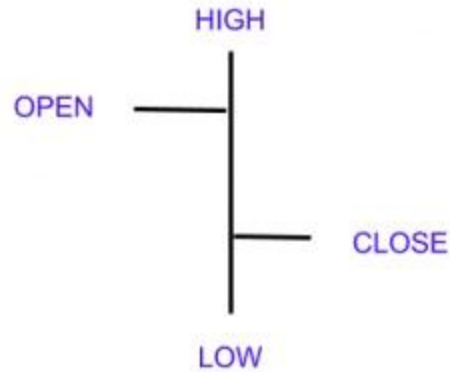
## 2.4. Chart Types

- **Line Charts** - Line Charts are formed by joining the closing price for each data point. These charts are not very commonly used but some investors prefer them as they focus solely on the closing price and ignore the highs and lows for the given period.
- **Bar Charts** - Bar Charts require the open, high, low and closing price for the stock. They are more commonly used. See image below.



From the chart above you can see that each time period is separated into a 'Bar' structure. The left hand tick on each bar is the 'open' price for the period selected, the right hand tick on each bar is the 'close' price for the period selected and the main bar is the high and low price for the day. See below:

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- Candlestick Chart:** Candlestick Charts are simply bar charts where the open and close are filled in. If the closing price is higher than the opening price the body is usually filled in green to represent an up period. When the closing price is lower than the opening price, the body is usually filled in red to indicate a down period. Candlestick charts are commonly used. See chart below



The green candles are ‘UP’ periods and the red candles are ‘DOWN’ periods.

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## 2.5. Time Periods

There is a difference between a 'TimeFrame' and a 'Time Period/Interval'. The 'Time Frame' is simply the look back period for the stock. For example, a one year chart or a one month chart. A 'Time Period' is the data in between the Time Frame that is represented by each 'Bar' or 'Candle'. For example, daily data, weekly data or even five minute data.

The 'Time Period' is what each 'Bar' represents. See below an example of daily time period and weekly time Period for AAPL.



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A daily time period/interval will have the open, high, low and close for one day trading in each 'Bar' or 'Candle'. A weekly time period will have the open, high, low and close for one week trading. We prefer to look at daily time periods.

[CLICK HERE](#) to watch a video showing you how to change time periods.

## 2.6. Short, Intermediate and Long Term Trends

In stock technical analysis, traders and investors use various indicators to analyze and make decisions about stock prices and trends. These indicators can be categorized into three main timeframes: short term, intermediate term, and long term. Each category serves a different purpose and provides insights into different aspects of a stock's price movement. Here's an explanation of the differences between these three types of indicators:

### 1. Short-Term Indicators:

- **Timeframe:** Short-term indicators typically cover a period of a few hours to a few weeks.
- **Purpose:** They are used by short-term traders and day traders who seek to profit from short-lived price movements. These indicators are valuable for identifying quick trading opportunities.
- **Examples:** Short-term indicators include intraday moving averages (such as the 10-day or 20-day moving averages), Relative Strength Index (RSI), Stochastic Oscillator, and short-term candlestick patterns.

### 2. Intermediate-Term Indicators:

- **Timeframe:** Intermediate-term indicators focus on a few weeks to several months of price data.
- **Purpose:** They are used by swing traders and investors with a medium-term outlook. Intermediate-term indicators help traders capture trends that may last several weeks to months.
- **Examples:** Intermediate-term indicators include the 50-day and 200-day moving averages, Moving Average Convergence Divergence (MACD), and some longer-term oscillators like the Commodity Channel Index (CCI).

### 3. Long-Term Indicators:

- **Timeframe:** Long-term indicators analyze price data over several months to years.

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- **Purpose:** They are primarily used by long-term investors who have a buy-and-hold strategy. Long-term indicators help investors assess the overall health and sustainability of a stock or market trend.
- **Examples:** Long-term indicators include the 200-day moving average, fundamental analysis metrics (e.g., Price-to-Earnings ratio), and long-term trendlines and support/resistance levels.

It's important to note that the choice of indicators and the specific timeframes used can vary depending on the individual trader or investor's goals and trading style. Some traders may combine indicators from different timeframes to get a more comprehensive view of the market.

Additionally, it's essential to consider that while technical analysis can provide valuable insights into past price movements and potential future trends, it does not guarantee successful trading or investing outcomes. Traders and investors should use technical indicators in conjunction with other forms of analysis, risk management strategies, and a clear understanding of market dynamics.

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### 3. Support, Resistance & Trendlines

#### 3.1. Introduction

Support and resistance are foundational concepts in technical analysis that help traders and investors identify potential price levels where a security may experience buying or selling pressure.

Let's explore these concepts in more detail:

##### 3.1.1. Support:

- Definition: Support is a price level at which a security tends to stop falling and may even bounce back upwards. It acts as a metaphorical "floor" that prevents the price from falling further. Traders often view support levels as potential buying opportunities.
- Key Points:
  - Historical Significance: Support levels are often identified based on historical price action, where the price has previously reversed or experienced a slowdown in its decline.
  - Demand Zone: Support is associated with increased buying interest. When the price approaches a support level, buyers may see it as a favorable entry point, creating demand and potentially causing the price to rise.
  - Psychological Significance: Some support levels have psychological significance, such as round numbers or previous significant lows. These levels can attract buying interest from traders.
  - Role Reversal: Once a support level is breached, it may become a resistance level, and vice versa. This phenomenon is known as the role reversal principle.

##### 3.1.2. Resistance:

- Definition: Resistance is a price level at which a security tends to stop rising and may encounter selling pressure. It acts as a metaphorical "ceiling" that prevents the price from moving higher. Traders often view resistance levels as potential selling opportunities.

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- Key Points:
  - Historical Significance: Resistance levels are identified based on historical price action, where the price has previously struggled to move above a certain level.
  - Supply Zone: Resistance is associated with increased selling interest. When the price approaches a resistance level, sellers may view it as a favorable exit point, creating supply and potentially causing the price to decline.
  - Psychological Significance: Like support levels, resistance levels can have psychological significance, such as round numbers or previous significant highs.
  - Role Reversal: Once a resistance level is breached, it may become a support level, and vice versa. This role reversal principle is a key concept in technical analysis.

### 3.1.3. How to Use Support and Resistance:

- Identifying Trends: Support and resistance levels help traders identify the overall trend of a security. An uptrend is characterized by higher highs and higher lows, while a downtrend has lower highs and lower lows.
- Entry and Exit Points: Traders often use support and resistance levels to determine entry and exit points for their trades. Buying near support and selling near resistance are common strategies.
- Risk Management: Support and resistance levels play a crucial role in setting stop-loss orders. Traders may place stop-loss orders just below support levels or just above resistance levels to manage their risk.
- Confirmation with Other Indicators: Traders often use support and resistance levels in conjunction with other technical indicators to strengthen their analysis and increase the probability of successful trades.

In summary, support and resistance are fundamental concepts in technical analysis, providing valuable insights into potential price reversals and areas of buying or selling interest. Incorporating these concepts into your analysis can enhance your ability to make informed trading and investment decisions.

### 3.2. How to draw support and resistance lines

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### 3.3. Examples of Support and Resistance

#### Support

Support is usually lower than the current price or sometimes at around the same price level. Support is the price level at which demand is thought to be strong enough to prevent the price from declining further.

Support is usually drawn as a line connecting common price points where the stock has rebounded from in the past. See chart below for an example of 'Support' with SPY (SPY is an ETF that tracks the S&P 500 index). SPY in recent months has hit the \$260 price level on 3 different occasions and then rebounded upwards from that level. Therefore \$260 is considered a support level for the stock. Investors trading SPY may get interested in buying the stock the next time it hits the \$260 area.



*Chart of SPY support area*

The logic of support dictates that as the price declines towards support and gets cheaper, buyers become more inclined to buy and sellers become less inclined to sell.

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By the time the price reaches the support level, it is believed that demand will overcome supply and prevent the price from falling below support.

**Please note**, that this is not an exact science and just because a stock held a previous price point in the past does not mean it will hold the same price point in the future. It is important to have done your fundamental analysis too. Ask yourself the question '*What is my realistic price target for the stock in 12 months time?*' (we teach you about price targets in our other fundamental courses).

Traders using technical analysis generally use support as an area of interest...they will use other technical indicators to get 'buy' signals. We will discuss these later.

### **Old support becomes new resistance**

When a support price is broken... traders then look for the next level of support below the previous support price. It is important to make sure that support is actually broken. A couple of hours trading below a support line doesn't mean a support line is broken... a couple of days trading does!

Finally, when support is broken the old support is now considered the **new resistance** price.

### **Resistance**

Resistance is usually higher than the current price or sometimes at around the same price level. Resistance is the price level at which supply is larger than demand which prevents the price from rising further.

Resistance is usually drawn as a line connecting common price points where the stock has rebounded lower from in the past. See chart below for an example of resistance with SPY (SPY is an ETF that tracks the S&P 500 index). SPY in recent months has hit the \$280 price level on 3 different occasions and then rebounded lower from that level. Therefore \$280 is considered a resistance level for the stock. Investors trading SPY may get interested in shorting or selling the stock the next time it hits the \$280 area.

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Chart of SPY resistance area

The logic of resistance dictates that as the price rises towards resistance and gets more expensive, sellers become more inclined to sell and buyers become less inclined to buy. By the time the price reaches the resistance level, it is believed that supply will overcome demand and prevent the price from rising above resistance.

**Please note**, that this is not an exact science and just because a stock fell from a previous price point in the past does not mean it will do so in the future. It is important to have done your fundamental analysis too. *What is your realistic price target for the stock in 12 months time?* (we teach you about price targets in our other courses).

Traders using 'Technical Analysis' generally use 'Resistance' as an area of interest...they will use other technical indicators to get 'sell' signals. We will discuss these later.

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## Old Resistance becomes new Support

When a resistance price is broken... traders then look for the next level of resistance above the previous resistance price. It is important to make sure that resistance is actually broken. A couple of hours trading above a resistance line doesn't mean a resistance line is broken... a couple of days trading does!

Finally, when resistance is broken the old resistance is now considered the **new support** price.

### 3.4. Trendlines

There are three types of trends:

1. **Up Trend** - This is when stocks continue to make higher highs and higher lows. In this case, technicians will not sell or short a stock.
2. **Down Trend** - This is when stocks continue to make lower highs and lower lows. In this case, technicians will not buy a stock.
3. **Sideways Trend** - This is when stocks trade sideways with similar highs and similar lows. Technicians in this case will wait for support to be reached, held and when the stocks rebounds will buy. Then they will sell the stock as it hits resistance.

See examples below.

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### 3.4.1. Interpreting Trends

See chart of Apple below. Apple was in a long term downtrend. A technician will wait for the downtrend to finish - they will not try and buy the stock at its lowest price. Instead, they will wait for the downtrend to be confirmed as 'broken' and then wait to buy when other indicators give them the signal. A downtrend is considered broken when the stock makes a higher high which breaks it out of its downtrend. This must be confirmed by trading higher for at least 2-3 days.



Please note, that it is very important for you to also do your fundamental homework on the stock. What do you think it is worth and why? In this case with Apple let's assume that you liked the fundamentals of the stock and want to buy. You would simply wait for the downtrend to be over and then take a position when you get your next buy signal (assuming this is below your target price!).

Similar can be used for uptrends. If the trend is broken it may be time to consider protective option strategies or to simply sell the stock. This again will depend on your target price for the stock.

**Tip:** Trends should be identified using a 1 year chart.

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## 4. Moving Averages

### 4.1. Introduction

Moving averages are a widely used and versatile tool in technical analysis, providing valuable insights into the direction and strength of a trend. Let's break down the concept of moving averages:

#### What is a Moving Average?

A moving average is a statistical calculation used to analyze data over a certain period, smoothing out fluctuations to identify trends more easily. In the context of financial markets, the most common moving averages are applied to price data.

#### Types of Moving Averages:

Simple Moving Average (SMA):

- The Simple Moving Average is the most basic form of a moving average. It calculates the average price over a specified number of periods. Each data point receives equal weight in the calculation.

Exponential Moving Average (EMA):

- The Exponential Moving Average gives more weight to recent prices, making it more responsive to current market conditions. It is calculated using a formula that emphasizes the latest data points.

#### How Moving Averages Work:

- **Trend Identification:** Moving averages help identify the direction of the prevailing trend. If the price is consistently above the moving average, it suggests an uptrend, while prices below the moving average indicate a potential downtrend.
- **Support and Resistance:** Moving averages can act as dynamic support or resistance levels. Traders often observe how prices react to moving averages, using them as potential entry or exit points.
- **Crossovers:** One of the most common strategies involves the use of two moving averages with different periods. A bullish crossover occurs when a shorter-term moving average crosses above a longer-term moving average, signaling potential upward momentum. Conversely, a bearish

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crossover occurs when the shorter-term moving average crosses below the longer-term moving average, indicating potential downward pressure.

- Price Momentum: The slope of a moving average provides insights into the strength of price momentum. An upward-sloping moving average suggests a strong uptrend, while a downward-sloping moving average indicates a potential downtrend.

### **Practical Considerations:**

- Selecting the Right Period: The choice of the period (number of data points) for a moving average depends on the trader's preferences and the time frame of analysis. Shorter periods are more responsive but may generate more false signals, while longer periods provide a smoother trend but might lag in signaling changes.
- Combining with Other Indicators: Moving averages are often used in conjunction with other technical indicators to strengthen signals and improve overall analysis. Common combinations include using moving averages with oscillators like the Relative Strength Index (RSI) or the Moving Average Convergence Divergence (MACD).
- Adaptability: Traders often adapt their moving average strategies based on market conditions. For trending markets, crossovers and trend-following strategies are popular, while range-bound markets might benefit from using moving averages as dynamic support and resistance levels.

In conclusion, moving averages are a versatile tool in technical analysis, providing traders with a visual representation of trends, potential reversal points, and market momentum. By understanding how to interpret and apply moving averages, traders can make more informed decisions in the dynamic world of financial markets.

## **4.2. How to plot moving averages on charts**

[CLICK HERE](#) to view a video showing you how to plot moving averages on charts.

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### 4.3. Simple Vs Exponential Moving Averages

Simple Moving Averages (SMA) and Exponential Moving Averages (EMA) are two types of moving averages used in technical analysis. While both are designed to smooth out price data and identify trends, they differ in their calculation methods and responsiveness to recent price changes. Let's explore the key differences between the two:

#### 4.3.1. Simple Moving Average (SMA):

- Calculation Method: The Simple Moving Average is calculated by taking the average of prices over a specific number of periods. Each data point is given equal weight in the calculation
- Formula: Sum of Prices over N periods divided by N
- Equal Weighting: In an SMA, the oldest data points have the same impact as the most recent ones. As a result, SMAs are slower to react to sudden price changes.
- Smoothing Effect: SMAs provide a smoother curve on the chart, which can be beneficial for identifying longer-term trends but may result in lag compared to recent market developments.

#### 4.3.2. Exponential Moving Average (EMA):

- Calculation Method: The Exponential Moving Average gives more weight to recent prices. It places a higher importance on the most recent data points, making it more responsive to current market conditions
- Formula:  $(\text{Closing Price} - \text{Previous EMA}) \times (2 \text{ divided by } \text{Number of Periods} + 1) + \text{Previous EMA}$
- Weighted towards Recent Data: EMAs assign greater significance to the most recent prices, allowing them to respond more quickly to changes in market sentiment.
- Faster Reaction Time: EMAs react more swiftly to price changes compared to SMAs. This responsiveness makes them particularly useful for short-term traders and in markets with frequent fluctuations.

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**Practical Considerations:** Choosing the Right Type:

- The choice between SMA and EMA depends on the trader's objectives and time horizon. Short-term traders may prefer EMAs for their responsiveness, while long-term investors might favor the smoothing effect of SMAs.
- Signal Generation: Crossovers, where a shorter-term moving average crosses above or below a longer-term moving average, are common signals used in both SMA and EMA strategies. However, EMA crossovers tend to occur earlier due to their faster reaction time.
- Adaptability: Traders often adapt their moving average strategies based on market conditions. In trending markets, EMAs may be more effective, while SMAs might be suitable for identifying longer-term trends.

In summary, while both SMAs and EMAs serve the purpose of smoothing price data to identify trends, the key distinction lies in their calculation methods and responsiveness. SMAs offer a more stable, lagging view of the market, while EMAs provide a more responsive, faster-reacting perspective. Traders choose between the two based on their specific analytical needs and the dynamics of the market they are trading.

#### **4.4. Moving Averages as Support and Resistance**

In a previous module we discussed 'support' and 'resistance'. Moving averages can act as support and resistance for stocks also. This is where they can be useful in technical analysis. See chart below of AAPL the 10 day moving average acted as support and resistance.

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The support and resistance picture changes with different time periods for the moving average.

#### 4.5. Lookback Period for Moving Averages

At Share Navigator, we look at five different time periods for simple moving averages:

**200 day moving average** - this is the primary moving average that we look at. It will give you a longer term view of the trend of the stock and represents roughly 1 years of daily trading data. Stocks trading above the 200 day moving average is seen as a positive sign for the stock. Stocks trading below the 200 day moving average is see as a negative for the stock. See chart of SPY below with the 200 day moving average in green. You can see that SPY broke down below its 200 day moving average which acted as support on 3 occasions prior to the breakdown. The 200 day moving average

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will change at a slower rate than shorter moving averages. This is because there is more data which has a greater smoothing effect on the moving average.



*SPY 200 day Moving Average (Green Line)*

**100 day moving average** - this is the second one we look at. A shorter time period than the 200 day moving average. The reason we look at this time period is because we want to see the shorter term trend supporting the longer term 200 day moving average. See chart below of SPY. The 100 day is the purple line. Stock prices are trading below it which is negative. You can also see that it is trending lower and migrating down lower towards the 200 day moving average. This is telling us that the short term action in the market is clearly lower.



*SPY 100 day (purple) and 200 day(green) moving averages*

**50 day moving average** - this is the third moving average that we look at. A shorter time period than the 100 day moving average. The reason we look at this time period is because we want to see the shorter term trend supporting the longer term 100 day and 200 day moving average. See chart below of SPY.



### *SPY 50 day (blue), 100 day (purple) and 200 day (green) Moving Averages*

The 50 day is the blue line. Stock prices are below it which is negative. Recently, SPY made an attempt to break above it which may have indicated a change in sentiment at least in the short term but as it stands now that effort was a failure with stock prices trading below the 50 day moving average again.

Also, you can see that the trend of the 50 day moving average has turned down in early February. This was the first real warning sign from a moving average perspective that sentiment in SPY was changing for the worse.

Here you can see why we look at different time periods with moving averages. It gives us a fuller picture of what is happening with the share price of the stock. Clearly the 50 day and 100 day moving averages have shown that recent price action in stocks had changed and acted as early warning signs that the recent uptrend maybe over.

Another classic Bearish indicator is the 'Death Cross' .... this is when the 50 day moving average crosses down below the 200 day moving average. Technical Analysts see this as a very bearish signal .... however this is not much good to you because as you can

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see from the chart above much of the damage is done in the share price before the crossover occurs.

The opposite to the death cross is the 'Golden Cross' - this is when the 50 day moving average crosses above the 200 day moving average and is seen as a very bullish indicator. Again much of the gain may have already happened by the time they cross.

We use them just as confirmation of an overall trend ... nothing more or nothing less.

**10 day and 20 day moving averages** - short term moving averages which active traders use. We do not use these to form an overall opinion of the intermediate or long term price direction. But we do use them to give us a picture of what is happening in the short term with the stock. See chart below of SPY.



*SPY 10 day (red line) and 20 day (yellow line) moving averages*

It is clear from the chart above that the short term 10 and 20 day moving averages are currently in an uptrend but it wasn't so long ago that they were in a downtrend. These

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shorter term moving averages are more volatile than the longer term averages because there is less price data included in the calculation. Notice how the moving average can act as support and resistance for the stock.

Traders watching these moving averages would want to see the intermediate and longer term moving averages breached before getting too confident. Short term moving averages can change direction quickly and this recent rally may just indicate a 'relief' rally. Short term moving averages can be useful in trying to identify an early change in sentiment.

#### **4.6. Interpreting Moving Averages**

At Share Navigator, we use moving averages for two purposes only:

1. To identify short, medium and long term trends.
2. To identify possible support and resistance areas.

That's it! We do not use moving averages to give us buy and sell signals. We believe that they offer no statistical advantage in this regard and therefore we don't use them. There are far better indicators to help you to identify buy and sell signals. Instead, we use moving averages to give us an overall picture for the stock. Nothing more nothing less!

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## 5. Momentum Indicators

We look at two momentum indicators here - RSI and The Stochastic Oscillator. Like all technical indicators there are pros and cons to each.

### 5.1. What are stochastics?

[CLICK HERE](#) to watch the video.

#### 5.1.1. How are Stochastics calculated?

Many investors follow indicators without really understanding how they came to being or the logic behind them. Whilst you will never need to calculate a stochastic it is a good idea for you to understand how they are calculated. Then you can make up your own mind as to the merits of the indicator. As we have said we love it and find it reliable in sideways trending stocks but not so reliable in bull or bear markets.

Let us break the formula down for you before we show you how to use the Stochastics indicator.

The 'Look Back Period' = The Time Period we are using for calculation, it can be hours, days, weeks or months. Typically we use a 14 day look back period.

#### The Formula:

**%K Line** = (Closing Price - Minus Lowest price during look back period)

**divided by**

(Highest Price during look back period minus lowest price during look back period)\*100

**% D Line** = 3 day moving average of %K

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Let's give you an example. Look at 14 days of data for SPY below:

Day	Date	Open	High	Low	Close
1	May 15, 2018	271.590	271.61	270.03	271.10
2	May 16, 2018	271.140	272.76	271.11	272.24
3	May 17, 2018	271.940	273.23	271.13	272.01
4	May 18, 2018	271.620	272.03	270.93	271.33
5	May 21, 2018	273.010	273.98	272.57	273.37
6	May 22, 2018	273.960	274.25	272.24	272.61
7	May 23, 2018	271.170	273.39	270.99	273.36
8	May 24, 2018	272.910	273.22	270.78	272.80
9	May 25, 2018	272.150	272.86	271.58	272.15
10	May 29, 2018	270.310	271.17	267.76	269.02
11	May 30, 2018	270.500	273.11	270.42	272.61
12	May 31, 2018	272.150	272.49	270.26	270.94
13	June 1, 2018	272.410	273.94	272.33	273.60
14	June 4, 2018	274.530	275.19	274.26	274.90

Let's breakdown the information needed:

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**Lowest Price during look back period = 267.76**

**Highest Price during look back period = 275.19**

**Latest closing price = 274.90**

Let's put the numbers into the formula:

**% K Line = (274.90 - 267.76)**

**divided by**

**(275.19-267.76) \*100**

**Stochastic Value = 96.097**

**% D Line** = is a 3 day moving average of %K above we only have 1 day's data of % K. But if we did have 3 days we would simply add them up and divide by 3.

### **5.1.2. Interpreting Stochastics**

**Important Note:** *At Share Navigator, we believe that stochastics are best used in sideways trending markets. This is where they can offer you a statistical advantage against the market. But in Bull and Bear Markets we have not found any statistical advantage with stochastics. Therefore it is important for you to establish the trend of the stock first before using the stochastics indicator.*

Stochastics are plotted on a chart and minimum value is 0 and maximum value is 100. The idea is quite simple and you get messages from it:

- **Oversold:** When the indicator drops below 20 the stock is said to be 'oversold' and there may be a reversal back upwards around the corner - the stock is not a

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'buy' yet. The buy signal comes when the indicator crosses back above the 20 line.

- **Overbought:** When either indicator rises above 80 the market is said to be 'overbought' and there may be a pullback around the corner - but the stock is not a 'sell' yet. The sell signal comes when the indicator crosses down below the 80 line.
- **Buy/Sell Signals:** Buy signals occur when the stochastic crosses back above 20. The Sell signal comes when the stochastic falls back below 80.

Let's look at a great example with SPY. In February 2018, SPY broke down from a long Bull run and started into a sideways trend (see chart below).



Support for the stock was circa \$260 and resistance was \$280. Let's track how accurate stochastics were during this period. Below we have plotted another chart and circled the buy signals in green and sell signals in red. Notice how they correspond to the movement in SPY.



- **Example 1:** The first buy signal was on February 12th. SPY was trading at a mid price of \$263. We then got our sell signal on March 1st (2 weeks later). SPY was trading at a mid price of \$270. That's an increase of \$7 (2.7% in 2 weeks).
- **Example 2:** The next buy signal on April 3rd. SPY was trading at a mid price of \$259. We then got our sell signal on April 23rd (3 weeks later). SPY was trading at a mid price of \$266. That's an increase of \$7 (2.7% in 3 weeks).

## False Signal

Technical Analysis not an exact science. As we have already mentioned, we do not find any statistical advantage with stochastics in Bear and Bull markets. Even in sideways trending markets there can be false signals. It is important for you to use other indicators such as Money Flow.

Let's look at the same example on SPY of a False signal.

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On May 25th 2018 we got a sell signal for SPY. This may have caused you to 'short' SPY. The ETF fell for a few days and it looked like the trade was another winner but then the share price caught a bid and started rising again. In this scenario the signal ended up being false and would have resulted in a small loss if you closed out the position when stochastics went back above 80.

Remember, if you are using charts you are most likely trying to trade frequently to generate profits. Not every trade will be a winner. There will be losers. This is part and parcel of 'trading' as opposed to 'investing'. Sometimes you have to take the hit and wait for the next signal.

In this case it came almost one monthly later and is proving to be a winner.

## 5.2. Relative Strength index (RSI)

The Relative Strength Index (RSI) is a popular momentum oscillator used in technical analysis to measure the speed and change of price movements. RSI values range from

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0 to 100 and are used to identify overbought and oversold conditions, as well as potential trend reversals. Here's an explanation of RSI with examples:

### 5.2.1. RSI Calculation:

The RSI is calculated using the following formula:

$$RSI = 100 - (100 / (1 + RS))$$

Where:

- RS (Relative Strength) = Average Gain / Average Loss
- Average Gain = Average of price gains over a specified period (e.g., 14 days)
- Average Loss = Average of price losses over the same specified period

### Step-by-Step Calculation:

Let's calculate the 14-day RSI for a hypothetical stock using daily price data. We'll assume the following closing prices over the last 14 days:

- Day 1: \$50.00 (Initial value for the calculation)
- Day 2: \$51.00 (Gain of \$1.00)
- Day 3: \$52.00 (Gain of \$1.00)
- Day 4: \$49.00 (Loss of \$3.00)
- Day 5: \$50.50 (Gain of \$1.50)
- Day 6: \$52.00 (Gain of \$1.50)
- Day 7: \$48.50 (Loss of \$3.50)
- Day 8: \$47.00 (Loss of \$1.50)
- Day 9: \$48.50 (Gain of \$1.50)
- Day 10: \$49.50 (Gain of \$1.00)
- Day 11: \$51.00 (Gain of \$1.50)
- Day 12: \$52.50 (Gain of \$1.50)
- Day 13: \$52.00 (Loss of \$0.50)
- Day 14: \$53.00 (Gain of \$1.00)

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**Step 1:** Calculate the daily price changes (gains and losses) for each day:

- Day 2: \$51.00 - \$50.00 = \$1.00 (Gain)
- Day 3: \$52.00 - \$51.00 = \$1.00 (Gain)
- Day 4: \$49.00 - \$52.00 = -\$3.00 (Loss)
- Day 5: \$50.50 - \$49.00 = \$1.50 (Gain)
- Day 6: \$52.00 - \$50.50 = \$1.50 (Gain)
- Day 7: \$48.50 - \$52.00 = -\$3.50 (Loss)
- Day 8: \$47.00 - \$48.50 = -\$1.50 (Loss)
- Day 9: \$48.50 - \$47.00 = \$1.50 (Gain)
- Day 10: \$49.50 - \$48.50 = \$1.00 (Gain)
- Day 11: \$51.00 - \$49.50 = \$1.50 (Gain)
- Day 12: \$52.50 - \$51.00 = \$1.50 (Gain)
- Day 13: \$52.00 - \$52.50 = -\$0.50 (Loss)
- Day 14: \$53.00 - \$52.00 = \$1.00 (Gain)

**Step 2:** Calculate the average gains and average losses over the 14-day period:

Average Gain =  $[(1.00 + 1.00 + 1.50 + 1.50 + 1.50 + 1.00) / 14] = 0.79$  (rounded to two decimal places)

Average Loss =  $[(3.00 + 3.50 + 1.50 + 0.50) / 14] = 0.54$  (rounded to two decimal places)

**Step 3:** Calculate the Relative Strength (RS):

RS = Average Gain / Average Loss =  $0.79 / 0.54 \approx 1.46$  (rounded to two decimal places)

**Step 4:** Calculate the RSI:

RSI =  $100 - (100 / (1 + RS)) = 100 - (100 / (1 + 1.46)) \approx 59.52$  (rounded to two decimal places)

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So, the 14-day RSI for this hypothetical stock is approximately 59.52. This RSI value indicates the momentum and relative strength of the stock over the past 14 days. It's above 50, suggesting that there has been more upward momentum than downward momentum during this period, but it's not in overbought territory (above 70) or oversold territory (below 30). Traders would typically use this RSI value in conjunction with other analysis to make trading decisions.

### 5.2.2. Interpretation of RSI:

1. **Overbought Condition (RSI > 70):** When the RSI rises above 70, it is often considered an indication that the asset may be overbought. This suggests that the price may have risen too much too quickly, and there is a higher likelihood of a potential price reversal or correction.
2. **Oversold Condition (RSI < 30):** When the RSI falls below 30, it is often considered an indication that the asset may be oversold. This suggests that the price may have dropped too much too quickly, and there is a higher likelihood of a potential price reversal or bounce.
3. **Bullish Divergence:** A bullish divergence occurs when the price of the asset makes lower lows, but the RSI makes higher lows. This can signal a potential reversal from a downtrend to an uptrend.
4. **Bearish Divergence:** A bearish divergence occurs when the price of the asset makes higher highs, but the RSI makes lower highs. This can signal a potential reversal from an uptrend to a downtrend.

### 5.2.3. RSI Examples

**Example 1: Overbought Condition** Imagine you are analyzing the daily price chart of a stock, and the RSI has recently risen to 75. This indicates that the stock may be overbought, meaning it has had a strong upward move, and there's a chance it could reverse or correct in the near future. Traders might consider this a warning sign to be cautious about buying the stock at this point.

**Example 2: Oversold Condition** On the same daily chart, the RSI has dropped to 25. This suggests that the stock may be oversold, implying it has had a significant downward move, and there's a possibility of a price bounce or reversal. Traders might view this as an opportunity to consider buying the stock, especially if other indicators or analysis align with this signal.

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**Example 3: Bullish Divergence** Suppose a currency pair has been in a downtrend, making lower lows on its price chart. However, during the same period, the RSI has been making higher lows. This bullish divergence can be a signal that the downtrend is losing momentum, and there might be a potential reversal or at least a temporary bounce in the price of the currency pair.

**Example 4: Bearish Divergence** Conversely, let's say a stock has been in an uptrend, making higher highs on its price chart. However, the RSI has been making lower highs. This bearish divergence could indicate that the uptrend is weakening, and there's a possibility of a reversal or correction in the stock's price.

It's important to note that while RSI can provide valuable insights into potential price reversals or shifts in momentum, it should be used in conjunction with other technical indicators and analysis methods for more robust trading decisions. False signals can occur, so risk management and confirmation from other sources are essential for successful trading.

### 5.3. Stochastics Vs RSI

Stochastics and the Relative Strength Index (RSI) are both popular technical indicators used by traders and analysts in the field of technical analysis to make informed decisions about buying or selling assets, particularly in the context of financial markets like stocks, currencies, or commodities. However, they have different purposes and calculations, and traders may use them for different reasons or in different market conditions. Here's a brief comparison of stochastics and RSI:

1. Calculation and Purpose:
  - **Stochastics:** Stochastics, also known as the Stochastic Oscillator, is a momentum oscillator that compares the closing price of an asset to its price range over a specified period. It consists of two lines, %K and %D, and is used to identify overbought and oversold conditions. It is primarily used to predict potential reversals in the market and to assess the strength or weakness of a trend.

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- **RSI:** The Relative Strength Index, or RSI, is another momentum oscillator that measures the speed and change of price movements. It compares the magnitude of recent gains to recent losses over a specified period, typically 14 periods. RSI values range from 0 to 100 and are used to identify overbought and oversold conditions. RSI is often used to confirm trends and assess the potential for a reversal.
2. Interpretation:
- **Stochastics:** Stochastics typically use two lines: %K and %D. When %K crosses above %D and both lines are in overbought territory (above 80), it may signal a potential sell signal. Conversely, when %K crosses below %D and both lines are in oversold territory (below 20), it may indicate a potential buy signal.
  - **RSI:** RSI values above 70 are generally considered overbought, suggesting a potential sell signal. Conversely, RSI values below 30 are considered oversold, suggesting a potential buy signal. Traders also look for bullish or bearish divergences between RSI and price to identify potential trend reversals.
3. Sensitivity:
- **Stochastics:** Stochastics can be more sensitive to short-term price fluctuations and may produce more frequent signals, sometimes resulting in false signals.
  - **RSI:** RSI is considered somewhat less sensitive than stochastics and is often used for identifying longer-term trends and trend reversals.
4. Market Conditions:
- **Stochastics:** Stochastics are often preferred in range-bound or choppy markets where assets are trading within a certain range. They can help identify potential turning points within the range.
  - **RSI:** RSI is often used in trending markets to identify the strength of the trend and potential exhaustion points. It can help traders stay in a trend for longer.

In practice, traders often use a combination of technical indicators, including both stochastics and RSI, to make more informed trading decisions. These indicators should be used in conjunction with other analysis methods and risk management strategies to mitigate potential losses. It's also important to note that no single indicator is foolproof, and they should be used as part of a comprehensive trading strategy.

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## 6. Bollinger Bands

Bollinger Bands, developed by John Bollinger in the 1980s, are a popular technical analysis tool that helps traders assess volatility, identify potential trend reversals, and gauge the relative strength of a price movement. This indicator consists of three bands – an upper band, a lower band, and a middle band – that are plotted on a price chart.

### 6.1. Components of Bollinger Bands:

- **Upper Band:** The upper band is calculated by adding a specified number of standard deviations (typically two) to a moving average of the price data. It represents the upper limit of expected price movements within the chosen timeframe.
- **Lower Band:** Conversely, the lower band is calculated by subtracting the same number of standard deviations from the moving average. It serves as the lower limit of expected price movements.
- **Middle Band (SMA or EMA):** The middle band is the moving average itself, commonly a Simple Moving Average (SMA) or an Exponential Moving Average (EMA). This band provides a baseline for assessing the trend and acts as a centerline for the upper and lower bands.

### 6.2. Key Concepts and Interpretation:

- **Volatility Measurement:** Bollinger Bands dynamically adjust to market volatility. During periods of high volatility, the bands widen, indicating increased price variability. Conversely, in low volatility periods, the bands contract.
- **Overbought and Oversold Conditions:** When prices touch or exceed the upper band, the asset is considered overbought, suggesting a potential reversal or correction. Conversely, when prices touch or fall below the lower band, the asset is considered oversold, signaling a potential buying opportunity.
- **Trend Identification:** Bollinger Bands can help identify the strength and direction of a trend. If the price consistently rides the upper band, it may indicate a strong uptrend, while riding the lower band may signify a strong downtrend.
- **Reversal Signals:** Price touching or surpassing one of the bands does not guarantee a reversal, but it can act as a warning signal. Traders often look for confirmation from other indicators or chart patterns before making decisions based on Bollinger Bands alone.

### 6.3. How to Use Bollinger Bands:

- Trend Confirmation: Confirm the prevailing trend by observing whether the price remains consistently above or below the middle band.
- Volatility Assessment: Evaluate market volatility by observing the width of the bands. Wider bands indicate higher volatility, while narrower bands suggest lower volatility.
- Overbought/Oversold Conditions: Use overbought and oversold conditions as potential signals for reversals or corrections in price.
- Crossovers: Some traders use the crossing of the price over the middle band as a potential entry signal. Others use crossovers of the price with the upper or lower bands for trend confirmation.

### 6.4. Considerations:

- Combine with Other Indicators: Bollinger Bands are often more effective when used in conjunction with other technical indicators to confirm signals and reduce false alarms.
- Adjust Parameters: Traders may adjust the number of standard deviations or the period of the moving average to tailor Bollinger Bands to different timeframes and market conditions.

In conclusion, Bollinger Bands are a versatile tool for technical analysis, providing insights into market volatility, trend strength, and potential reversal points. When used judiciously and in conjunction with other analytical tools, they can be valuable aids in making informed trading decisions.

### 6.5. How to calculate Bollinger Bands

Let us break the formula down for you before we show you how to use the Bollinger Bands. The Look Back Period = The Time Period we are using for calculation, it can be hours, days, weeks or months. Typically we use a 20 day look back period for Bollinger Bands.

#### The Formula:

**Middle Band** = 20 day moving average

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**Upper Band** = 20 day moving average plus 2 standard deviations of price

**Lower Band** = 20 day moving average minus 2 standard deviations of price

Standard deviation tells you the normal price from the mean price and can be calculated easily in an excel spreadsheet by:

1. In a cell enter '=STDEV'
2. Highlighting the range of values you

Let's give you an example. Look at 20 days of data for SPY below:

Day	Date	Close	20 day SMA	20 day Standard Deviation	Upper Band	Lower Band
1	May 15, 2018	271.1				
2	May 16, 2018	272.24				
3	May 17, 2018	272.01				
4	May 18, 2018	271.33				
5	May 21, 2018	273.37				
6	May 22, 2018	272.61				
7	May 23, 2018	273.36				
8	May 24, 2018	272.8				
9	May 25, 2018	272.15				
10	May 29, 2018	269.02				
11	May 30, 2018	272.61				
12	May 31, 2018	270.94				
13	June 1, 2018	273.6				
14	June 4, 2018	274.9				
15	June 5, 2018	275.1				
16	June 6, 2018	277.4				
17	June 7, 2018	277.37				
18	June 8, 2018	278.19				
19	June 11, 2018	278.56				
20	June 12, 2018	278.92	273.88	2.84	279.57	268.19

Let's breakdown the information needed:

**20 day moving average** = 273.88

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**Standard Deviation = 2.84**

Let's put the numbers into the formula:

**Middle Band = 273.88**

**Upper Band = 273.88 + (2.84\*2) = 279.57**

**Lower Band = 273.88 - (2.84\*2) = 268.19**

## 6.6. Interpreting Bollinger Bands

### *Important Notes:*

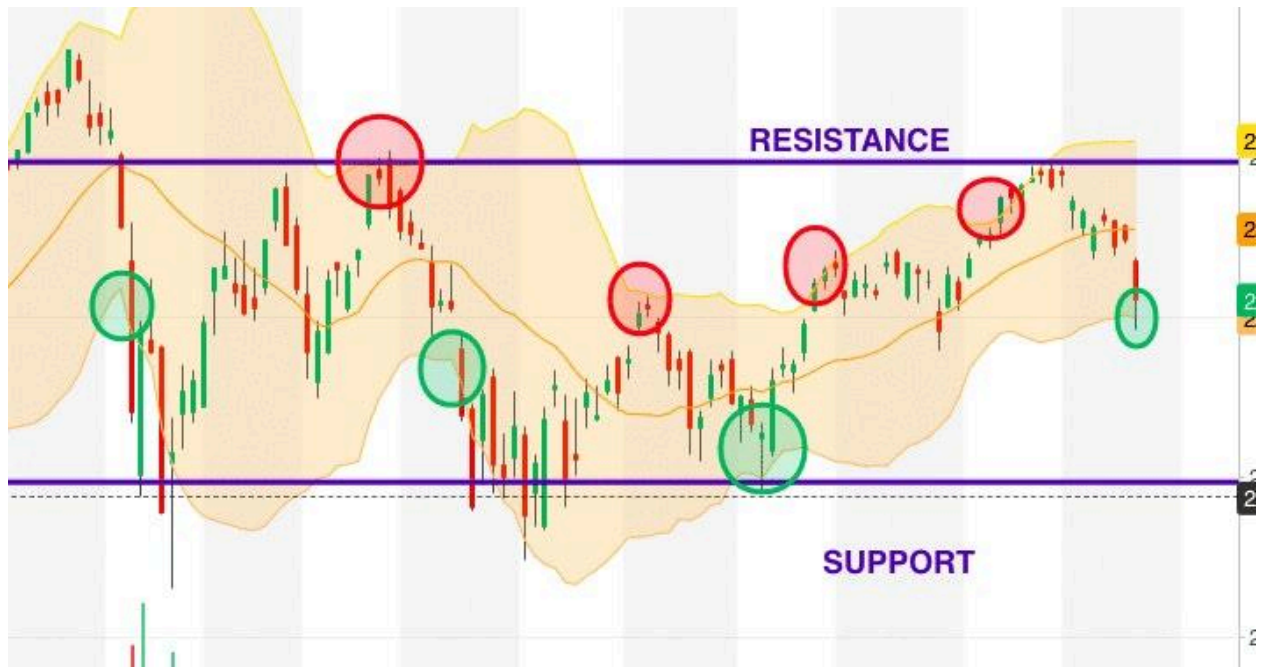
- *At Share Navigator, we believe that Bollinger Bands are best used in sideways trending markets. This is where they can offer you a statistical advantage against the market. But in Bull and Bear Markets we have not found any statistical advantage with Bollinger Bands. Therefore it is important for you to establish the trend of the stock first before using the indicator.*
- In our opinion, the best settings to use for Bollinger Bands is a 20 day moving average along with 2 standard deviations. Another important note to make is that Bollinger Bands **will not** give you a buy or a sell signal. All we want from the Bollinger Bands is to give us an idea of how a stock is trading relative to its 20 day moving average.
- Statistically speaking stocks will operate within the upper and lower bands 90% of the time. If a stock hits either extreme in a sideways trending market, it may indicate a possible reversal. Please let us emphasize that this is a simple possibility and that's all.

Let's look at a great example with SPY. In February 2018, SPY broke down from a long Bull run and started into a sideways trend (see chart below).

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Support for the stock was circa \$260 and resistance was \$280. Let's track how Bollinger Bands may have helped us to identify possible reversals. Below you will see possible bullish reversals in green and bearish reversals in red. Notice how the the share price moved after the out bands were reached.



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- **Example:** We got our second green reversal notice on Feb 5th. Now as we have already mentioned, we **would not** use this as our buy indicator. We would simply make note that there has been an extreme move to the downside. This gathers our interest and we will use other indicators such as stochastics to identify when to buy. In fact, in this example we did not get our buy signal for another 3 days. Surely enough the stock retraced from its lower bollinger band back to the 20 day moving average and hit the upper bollinger band. The stock hit the upper bollinger band on March 12th (1 month later). This is when we may start considering selling the position. Again, we would use another indicator like stochastics for our sell signal.
- Follow the green buy reversal indicators and red reversal indicators and you will see a similar pattern

### Important Notes:

1. Bollinger Bands do not give you buy and sell signals.
2. Bollinger Bands are only useful in sideways trending markets, they do not help you in longer term Bull or Bear markets.
3. Stocks will operate inside the Bollinger Bands about 90% of the time.
4. When a stock hits the out bands it means that a reversal maybe imminent, it does not tell you to buy or sell.
5. Stocks can stay at the outer bands for days and weeks.
6. Use other indicators such as MACD and Stochastics to identify buy and sell signals.

### False Signals

Technical Analysis is not an exact science. As we have already mentioned, we do not find any statistical advantage with Bollinger Bands in Bear and Bull markets. Here are some important things to note:

1. Bollinger Bands do not give you buy and sell signals.

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2. Bollinger Bands are only useful in sideways trending markets, they do not help you in longer term Bull or Bear markets.
3. Stocks will operate inside the Bollinger Bands about 90% of the time.
4. When a stock hits the outer bands it means that a reversal maybe imminent, it does not tell you to buy or sell.
5. Stocks can stay at the outer bands for days and weeks. This is known as walking the bands.
6. Use other indicators such as MACD and Stochastics to identify buy and sell signals.

Let's look at the same examples of SPY 'Walking the Bands'



1. **First Green Signal** - It took 5 trading days lower before the stock started trading within the bands again. If you had of bought the stock on the first touch of the band you would have lost money in the first 5 trading days thereafter.
2. **Second Green Signal** - It took 5 trading days lower before the stock started trading within the bands again. If you had of bought the stock on the first touch of the band you would have lost money in the first 5 trading days thereafter.

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3. **Third Red Signal** - It took 6 trading days higher before the stock started trading within the bands again. If you had of sold the stock on the first touch of the band you would have lost more upside.

Let's incorporate Stochastics with Bollinger Bands to give us some buy and sell signals.

### 6.7. Bollinger Bands and Stochastics together

Look at the chart of SPY below. Bollinger Band on Top and Stochastics on the bottom. We use the Bollinger Bands to let us know that a reversal maybe imminent but we do not use it for a buy or sell signal. Instead we use the Stochastics to give us the buy and sell signals.

You will notice from below that the stochastic indicator gave you buy signals days after the initial touch of the bollinger band. This gave us a much better entry price in the stock than using the Bollinger Bands as a buy signal. This again highlights why you should wait for other indicators to give you the buy and sell signal.



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## 7. MACD (Moving Average Convergence Divergence)

The Moving Average Convergence Divergence (MACD) is a popular momentum and trend-following indicator in technical analysis. Developed by Gerald Appel, MACD is used to identify potential trend reversals, momentum shifts, and the strength of a trend. It consists of two main components: the MACD line and the Signal line.

### 7.1. Components of MACD:

- **MACD Line:** The MACD line is the difference between two exponential moving averages (EMAs). Commonly, a shorter-term EMA (12 periods) is subtracted from a longer-term EMA (26 periods). The resulting MACD line represents the convergence and divergence of these two moving averages
  - Formula:  $\text{MACD Line} = 12\text{-period EMA} - 26\text{-period EMA}$
- **Signal Line:** The Signal line is a 9-period EMA of the MACD line. It smoothens the MACD line, providing a signal for potential trend changes.
  - Formula:  $\text{Signal Line} = 9\text{-period EMA of MACD Line}$
- **Histogram:** The Histogram is a visual representation of the difference between the MACD line and the Signal line. It helps traders visualize the degree of convergence or divergence between these two lines.
  - Formula:  $\text{Histogram} = \text{MACD Line} - \text{Signal Line}$

### 7.2. Interpretation of MACD:

- **MACD Line Crosses:**
  - **Bullish Signal:** When the MACD line crosses above the Signal line, it generates a bullish signal, suggesting potential upward momentum.
  - **Bearish Signal:** Conversely, when the MACD line crosses below the Signal line, it generates a bearish signal, indicating potential downward momentum.
- **Zero Line Crosses:**
  - When the MACD line crosses above the zero line, it suggests that the short-term EMA is above the long-term EMA, indicating bullish momentum.
  - Conversely, when the MACD line crosses below the zero line, it suggests bearish momentum.
- **Histogram Analysis:**
  - The Histogram provides a visual representation of the difference between the MACD line and the Signal line. Positive histogram bars indicate bullish momentum, while negative bars suggest bearish momentum.

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### 7.3. Key Concepts:

- Divergence and Convergence:
  - Divergence occurs when the price of an asset moves in the opposite direction of the MACD indicator, suggesting a potential reversal.
  - Convergence, on the other hand, occurs when the price and MACD move in the same direction, confirming the current trend.
- Signal Confirmation:
  - Traders often use MACD signals in conjunction with other technical indicators or chart patterns to confirm potential trend changes or reversals.
- Default Parameters:
  - While the default settings for MACD are 12, 26, and 9, traders may adjust these parameters based on their preferences and the timeframes they are analyzing.

### 7.4. Considerations:

- Trend Confirmation:
  - MACD is effective in confirming trends and spotting potential trend changes, but it may generate false signals in choppy or sideways markets.
- Use with Other Indicators:
  - For more robust analysis, traders often use MACD in combination with other technical indicators or price action analysis.

In summary, the MACD indicator is a versatile tool that helps traders identify trends, momentum shifts, and potential reversal points. By analyzing the relationship between the MACD line and the Signal line, traders can gain insights into the strength and direction of market trends, aiding in the decision-making process.

### 7.5. Examples of MACD

MACD is plotted on a chart with the MACD line and Signal Line. MACD is great for visualizing when shorter term moving averages are diverging and converging. It can also provide buy and sell signals (although we prefer stochastics for this in sideways trending markets). The idea for buy and sell signals is quite simple:

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- **Buy Signal:** When the MACD line crosses above the signal line.
- **Sell Signal:** When the MACD line crosses below the signal line.

Let's look at a great example with SPY. But before we do, please note that we will never make a decision based on MACD alone, we will use other indicators such as stochastics, bollinger bands and money flow to help us make our decision. In fact, we prefer using stochastics for buy and sell signals and then using MACD to confirm. We have found that stochastics provide better entry and exit prices. We will demonstrate this later for you in this module.



*SPY MACD 26,12,9*

The chart of SPY above gives you buy and sell signals based on MACD alone. See the chart below to see the corresponding move in the share price of SPY. Now look at that

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chart below. This plots the price movement of SPY versus the buy and sell signals received from MACD.



Chart of SPY Price and MACD

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- **Example 1:** The first buy signal was on Jan 9th. SPY was trading at a mid price of \$269. We then got our sell signal on Jan 30th. SPY was trading at a mid price of \$282. That's an increase of \$13 (2.8%).
- **Example 2:** The next buy signal on Feb 22nd. SPY was trading at a mid price of \$271. We then got our sell signal on Mar 17th. SPY was trading at a mid price of \$272. That's an increase of \$1 (0.4%).

We prefer to use MACD to confirm our buy or sell signals from Stochastics.

### 7.6. Limitations of MACD

This is not an exact science. Because MACD is based off moving averages, we have found a bit of a 'LAG' factor with buy and sell signals.

Let's look at the same example on SPY.



Chart of SPY Price and MACD

Look at the third buy signal on SPY. On April 10th we got a buy signal and the mid price for SPY was \$263. On the 2nd May we got a sell signal but the mid price was still only \$263. In this case we did not make any money but if we had sold earlier we would have made a nice profit. Next, we will show you how to use MACD in conjunction with Stochastics.

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### 7.7. MACD & Stochastics

See below the chart of SPY with PRICE, MACD, and Stochastics. There are two examples here of how stochastics tend to give you earlier entry signals.



SPY Price, MACD and Stochastics

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Let's compare both signals:

### Example 1:

	Buy Date	Buy Price	Sell Date	Sell Price	Profit	Profit %
<b>MACD</b>	Feb 22nd	\$271	Mar 17th	\$272	\$1	0.40%
<b>Stochastics</b>	Feb 6th	\$264	Mar 1st	\$273	\$9	2.40%

You can see from our first example that stochastics got you in earlier to the stock and also out earlier for a higher profit. Let's look at another example.

### Example 2:

	Buy Date	Buy Price	Sell Date	Sell Price	Profit	Profit %
<b>MACD</b>	April 10th	\$263	May 2nd	\$263	\$0	0.00%
<b>Stochastics</b>	April 3rd	\$259	April 20th	\$267	\$8	3.10%

You can see again from above that stochastics provide better entry and exit prices.

However, MACD still plays an important role in confirming your thesis. Also MACD is more beneficial than stochastics in Bull and Bear markets. As we have mentioned before we only use stochastics in sideways trending markets. MACD can be beneficial in Bull markets.

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