MODULE 1 UNIT 3
Understanding charts and patterns

IN COLLABORATION WITH getsmarter™

Table of contents

Learning outcomes:

LO4: Define terminology associated with stock market trends.

LO5: Discuss how stock market trends are identified in practice.

1. Introduction

In this module so far, you have looked at the core aspects of classic and behavioural finance, and how these can aid you in making investment decisions. This set of notes dives deeper into some of the more common elements of technical analysis that would be used in practice. Some aspects of the techniques are highly technical and do not fall within the scope of this programme. Participants wishing to delve deeper into any of these can find useful references provided in the relevant sections.

As mentioned in Unit 1, technical analysis is the practice of predicting future price movements based on past price movements. Understanding this process requires studying some of the techniques that analysts use when developing a trading strategy. A clear understanding of technical analysis techniques is essential for those wishing to not only create a trading model, but also evaluate one.

2. Candlestick charts

Candlestick charts are a style of chart used to represent price movements of a financial instrument. To produce a candlestick chart, you need the open, close, high, and low values for the timeframe that you wish to represent. As seen in Figure 1, the middle section of the candlestick chart is known as the body, representing the opening and closing prices of the security. If the closing price is higher than the opening price, the candlestick is represented in green, with the top of the body showing the closing price and the bottom showing the opening price. If the closing price is lower than the opening price, the body is represented in red, with the top of the body showing the opening price and the bottom showing the closing price (StockCharts, n.d.). Green bodies show buying pressure moving the price up, while red bodies show selling pressure moving the price down.

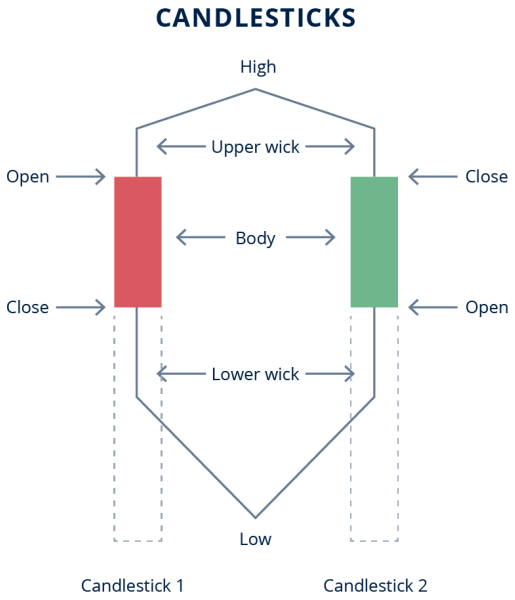

Figure 1: Candlestick charts.

It is important to note that not all platforms represent the body in the same way. For example, it is common for the body to be either filled or empty. A filled body represents a period when the closing price is lower than the opening price (the same as a red body) and an empty body represents a period when the closing price is higher than the opening price (the same as a green body).

The lines extending from the body are known as the wicks or shadows (this programme will refer to these as wicks). Looking again at Figure 1, the wicks extending from the top of the body are known as upper wicks, and the wicks extending from the bottom of the body are known as lower wicks. The top of the upper wick is the highest value that the security achieved over the time period, and the bottom of the lower wick is the lowest value the security achieved over that period (StockCharts, n.d.).

Further reading:

This style of the candlestick chart allows you to see the relationship between multiple pieces of price data at a glance, which has led to it being widely used as a standard tool to assess investment strategies.

3. Chart patterns

While candlestick charts provide a useful illustration of the relationship between opening and closing prices on the same day, you would often be more interested in the relationship

between closing prices on consecutive days. This allows you to identify trends and analyse price progression over time.

This section looks at chart-pattern analysis. Patterns in this context are interpretations of chart formations that have implications for the future movement of a financial security (Downs, 2000:29). These patterns should be used as a tool for determining when to enter and exit trade positions. Investors engaged in this form of analysis should be consistently wondering if the trend they are investing in will continue or not. The answer will depend on whether the investor is following a momentum or mean-reversion approach.

3.1 Identifying stock market trends

A primary use of stock charts is to identify price patterns. Plotting trendlines is a simple mechanism you can use to identify price patterns when conducting a chart analysis. You can draw trend lines over any time period you like, but general convention would have them fall into three categories:

1. **Short-term trends:** This normally refers to a period of less than one month.
2. **Medium-term trends:** This is typically considered to be from one to six months.
3. **Long-term trends:** This refers to periods greater than six months.

(Thorp, 1999)

These categories can be subjective, though. Your definition of short-, medium-, and long-term time periods is relative to your own investment horizons. Those engaging in long-term investment techniques linked to a country's economic development could consider anything less than a year to be a medium-term investment.

Before this discussion begins, it should be clearly understood that there is at least some degree of contention around what is considered best practice for identifying trend lines using chart analysis. This portion of notes is here to act as a starting point to enable you to engage with the basics of plotting trend lines; it is not an absolute guide.

The actual creation of trend lines is a simple process. Looking at Figure 2, the creation of an upward trend requires you to use a straight line to connect at least two or three low points, known as troughs. The process is the same but reversed for downward trends; you need to connect at least two or three high points, known as peaks. This process is the same for line, bar, and candlestick charts. There is contention around whether two or three points are enough, so it comes down to personal preference once again.

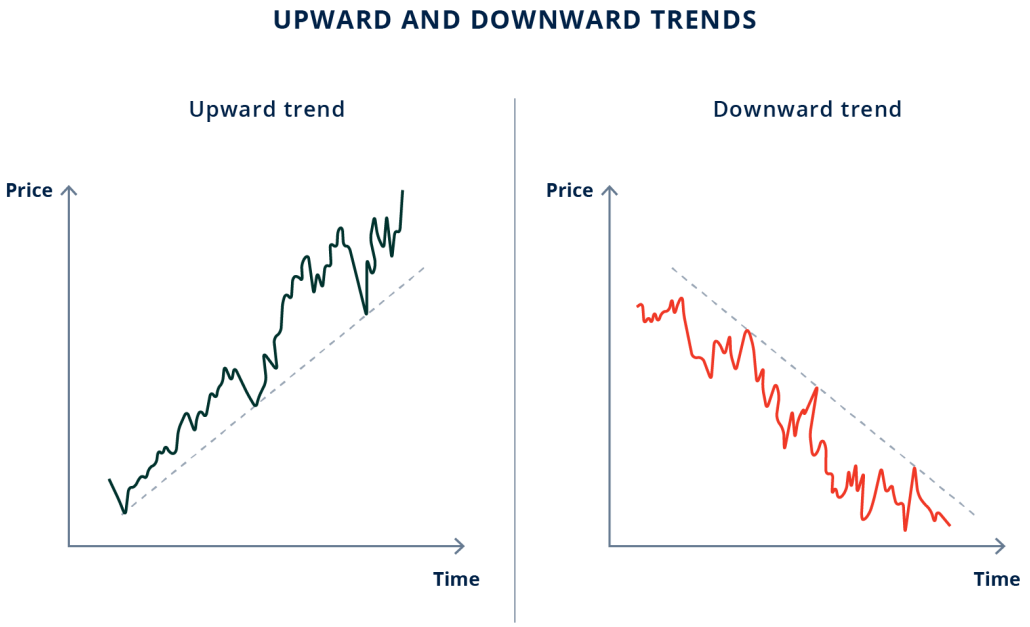

Figure 2: Upward and downward trends.

As new financial information comes in and time passes, trend lines will need to be monitored and updated. You need to be constantly looking for signs of a reversal (a trend switching direction). There are a number of indicators that could alert you to this, some of which are discussed in the next section.

A very basic indicator would be when the price moves through a trend line. Think about a downward trend. You connect all the top points in order to obtain the trend's gradient, but the line also shows the high points reached. If the price reaches a high point that is higher than any predicted by the trend line, you may need to re-evaluate the trend's validity. This works in reverse for upward trends, where you would look for a low point that breaks the trend line. You then need to try to assess whether this development implies a shift in the direction of the trend (Thorp, 1999).

These trend lines are also known as support and resistance lines. The support line is created by plotting an upward trend and the resistance line is created by plotting a downward trend. Look again at Figure 2, can you see how the upward trend is almost being "supported" by the plotted line? You will have the chance to plot some of these lines in an enrichment activity later in this unit, so keep this in mind.

3.1.1 Reversals

As mentioned in the previous section, be constantly on the lookout for reversals in the trend you are following. This section goes over some of the common reversal patterns traders look out for. They are easy to identify, and will aid you when you are looking at your own trends.

The first pattern is double tops and bottoms. The names are a direct indication of what they look like on charts – with practice, they will become easier to identify.

To identify a double top, you need to look for high points formed by price movements. Consider Figure 3. The first peak is reached at Point A, after which the price drops to Point B. The horizontal dotted line at B is commonly known as the neckline, an important indicator, as it lets you know when the reversal is confirmed. The price rises back up to Point C to create the second peak, and then falls again. It cannot be confirmed that the double top has been reached until the line passes through Point D (the neckline), but after it does, you can plan for a reversal of the trend. This reversal does not necessarily result in a downward movement; a horizontal trend is also possible.

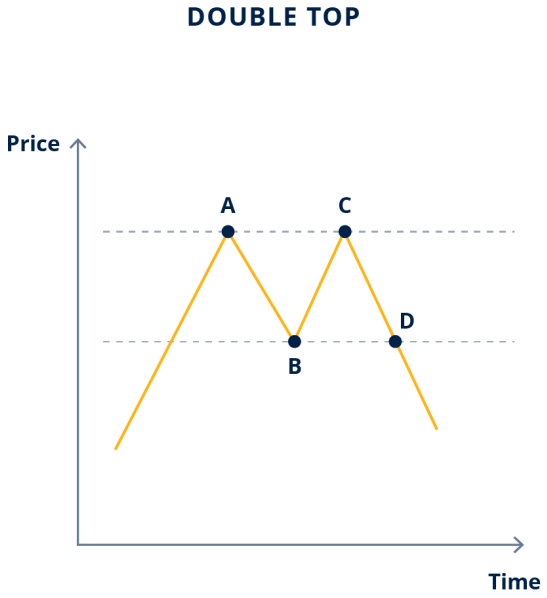

Figure 3: Double top pattern.

The method for identifying a double bottom is the exact inverse of the method used to identify a double top. You would have a W shape with two lows, and the price continuing to rise after breaking the neckline.

The next reversal indicator is known as a head and shoulders pattern. It consists of three peaks (represented in Figure 4 by Points A, C, and E). Points A and E are at very similar price levels, and Point C is discernibly higher. Point A is the left shoulder, Point E is the right shoulder, and Point C is the head. Points B and D are valleys, and lie on similar price levels; the dotted line connecting them is the neckline of the head and shoulders pattern. Point E did not manage to reach the level of the head, and is thus considered an indication of weakness. If the line does not recover after this, and it breaks through the neckline at Point F, then the head and shoulders pattern is confirmed, and a reversal is possibly taking place.

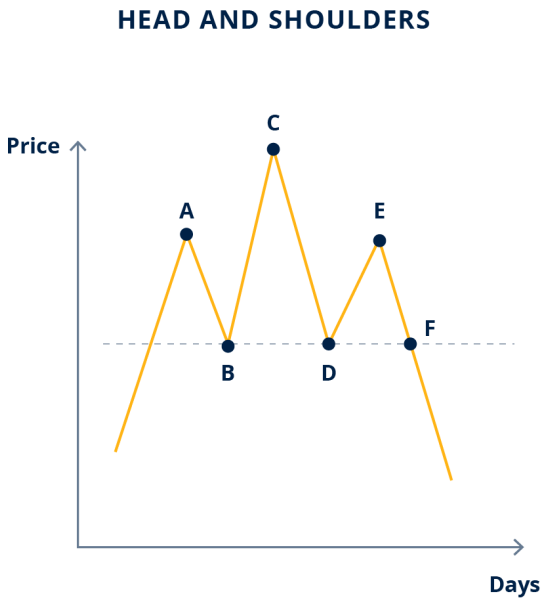

Figure 4: Head and shoulders pattern.

The inverted head and shoulders pattern is simply a flipped version of this; the confirmation is the price rising above the neckline.

Further reading:

The website StockCharts allows you to explore multiple pattern types and see how they work in practice.

4. Other forms of chart analysis

Of course, there are many other forms of chart analysis. This section touches briefly on two of these. They are not covered in detail nor requirements of the programme. As mentioned earlier, much of chart analysis is about finding what works for you. As such, these are provided for your consideration.

4.1 Elliott waves

This form of analysis looks at “waves” that occur in stock market prices, specifically referring to directional movements. Think of a shoreline, where waves are continuously hitting the beach. The waves are not necessarily of the same size, and they do not occur at the same time interval. It is the same for waves observed in the stock market (according to Elliott wave analysis). Elliot wave analysis finds that all these smaller waves hitting the

figurative shore are actually part of larger waves that are behaving the same (Recognia, 2012).

Elliott wave analysis outlines rules for interpreting market patterns and movements. How this is done practically is not covered here, but those interested can look at the suggested reading below.

Further reading:

Elliot wave theory was developed in the 1930s but is still used today to identify and predict market trends.

4.2 Fibonacci levels

Fibonacci analysis is based on metrics calculated from the Fibonacci sequence, and is a fairly popular tool for those engaged in technical analysis (Recognia, 2012). It is the practice of identifying future support and resistance levels. So, instead of using three low points to estimate a support line, this analysis uses levels based on transformations of numbers found within the Fibonacci sequence.

A drawback here is that the levels are not based on any financial understanding, so this type of analysis is most likely not for those who are only comfortable investing in techniques that can be clearly explained in economic terms.

The numbers 21 and 34 are found in the Fibonacci sequence, as are 55 and 89.

$21 \div 34 = 0.6176$

and

$55 \div 89 = 0.6179$

One of the levels used in Fibonacci analysis is 61.8%. That is a short example of how the levels are calculated in this method.

Further reading:

Using the mathematical principles of the Fibonacci sequence, traders have been able to apply these principles to the markets to identify levels of support and resistance.

5. Conclusion

This set of notes has shown you some of the techniques used in finding and analysing patterns in data sets. It is important to remember that finding a method that works for you is a crucial step. Each investor will have their own preferences, and thus each investor will find that some methods support those preferences, and others do not. However, you now have a few sets of rules, and a basic understanding of what to look for.

When looking for chart patterns, you are advised to use a combination of technical and fundamental analysis. So, instead of just looking at patterns and reversals, look at the specific company's underlying health – find a good company and then use patterns to discern buy and sell points. There is no need to be restricted to one form of analysis (Thorp, 1999).

6. Bibliography

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