COMMON USED INDICATORS AND PATTERNS IN TECHNICAL ANALYSIS

Homework 2

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I. **Introduction**:

The essay is about technical analysis's indicators and patterns. It begins by introduce the general idea and classification of indicators and lists several indicator's definition and example. Then, the essay discusses about the patterns used in technical analysis. For each pattern, it state the time scale of the pattern and how the trading volume associated with the pattern.

II. **Body**:

1. Indicators

Indicators represent a statistical approach to technical analysis as opposed to a subjective approach. By looking at money flow, trends, volatility, and momentum, they provide a secondary measure to actual price movements and help traders confirm the quality of chart patterns or form their own buy or sell signals.

There are two primary types of indicators:

1) Leading Indicators. Leading indicators precede price movements and try to predict the future. These indicators are most helpful during periods of sideways or non-trending price movements since they can help identify breakouts or breakdowns.
2) Lagging Indicators. Lagging indicators follow price movements and act as a confirmation tool. These indicators are most useful during trending periods where they can be used to confirm that a trend is still in placing or if it's weakening.

Here are several most common used indicators in technical analysis: (Schaap, 2017)

a) Accumulation/Distribution Line:

The accumulation/distribution line is one of the most popular volume indicators that measures money flow in a security. The indicator attempts to measure the ratio of buying and selling by comparing the price movement of a period to the volume for that period.The calculation is:

Acc/Dist = ((Close – Low) – (High – Close)) / (High – Low) * Period's Volume

Traders use the indicator to gain insight into the amount of buying compared to selling in a given security. If the accumulation/distribution line is trending upward, it's a sign that there is more buying than selling and vice versa. (Schaap, 2017)

b) Average Directional Index:

The average directional index (ADX) is a trend indicator that's used to measure the strength of the current trend – although it has limited use identifying the direction of the current trend.

The ADX is comprised of the positive directional indicator (+DI) and the negative directional indicator (-DI). The +DI measures the strength of the uptrend while the –DI measures the strength of the downtrend. These two measures are also plotted along with the ADX line that measures on a scale between zero and 100.

Traders generally look for readings below 20 that signal a weak trend or readings above 40 that signal a strong trend.

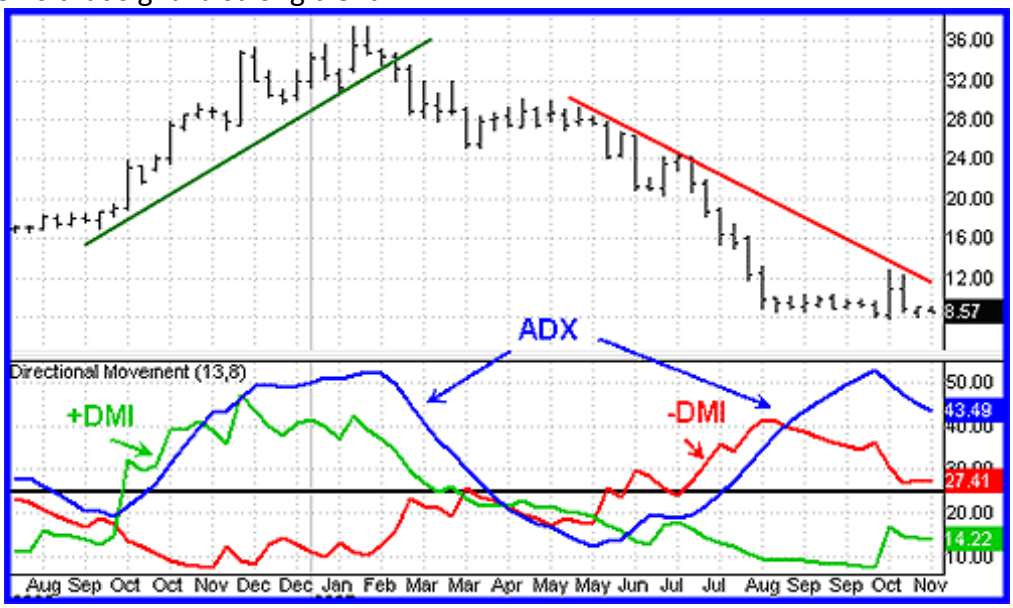

Figure 1 ADX is nondirectional and quantifies trend strength by rising in both uptrends and downtrends

c) Stochastic Oscillator:

The stochastic oscillator is one of the most recognized momentum indicators in technical analysis. The indicator works on the premise that prices should be closing near the highs of a trading range during upswings and toward the lower end of a trading range during downswings.

The stochastic oscillator is plotted within a range of zero and 100. Readings above 80 are considered overbought while readings below 20 are considered oversold. The oscillator has two lines, the %K and %D, where the former measures momentum and the latter measures the moving average of the former. The %D line is more important of the two indicators and tends to produce better trading signals.

Figure 2 Stochastic Overbought Signals

d) Relative Strength Index

The relative strength index (RSI) is another well known momentum indicators that's widely used in technical analysis. The indicator is commonly used to identify overbought and oversold conditions in a security with a range between 0 (oversold) and 100 (overbought).

A reading above 70 suggests that a security is overbought, while a reading below 30 suggests that a security is oversold. Often times, the indicator is used by traders to determine if the price has been pushed to unreasonably higher or low levels after a snap reaction to news. (Kuepper, 2017)

Figure 3 RSI Overbought and Oversold Points

2. Patterns

Volume is invaluable when confirming chart patterns, such as head and shoulders, triangles, flags, and other patterns. Chart patterns try to predict pivotal moments – like reversals. If volume isn't present alongside these chart patterns, then the resulting trading signal isn't as reliable.

a) Flag & Pennant

Flags and Pennants are short-term continuation patterns that mark a small consolidation before the previous move resumes. These patterns are usually preceded by a sharp advance or decline with heavy volume, and mark a midpoint of the move. (Flag, Pennant (Continuation), 2017)

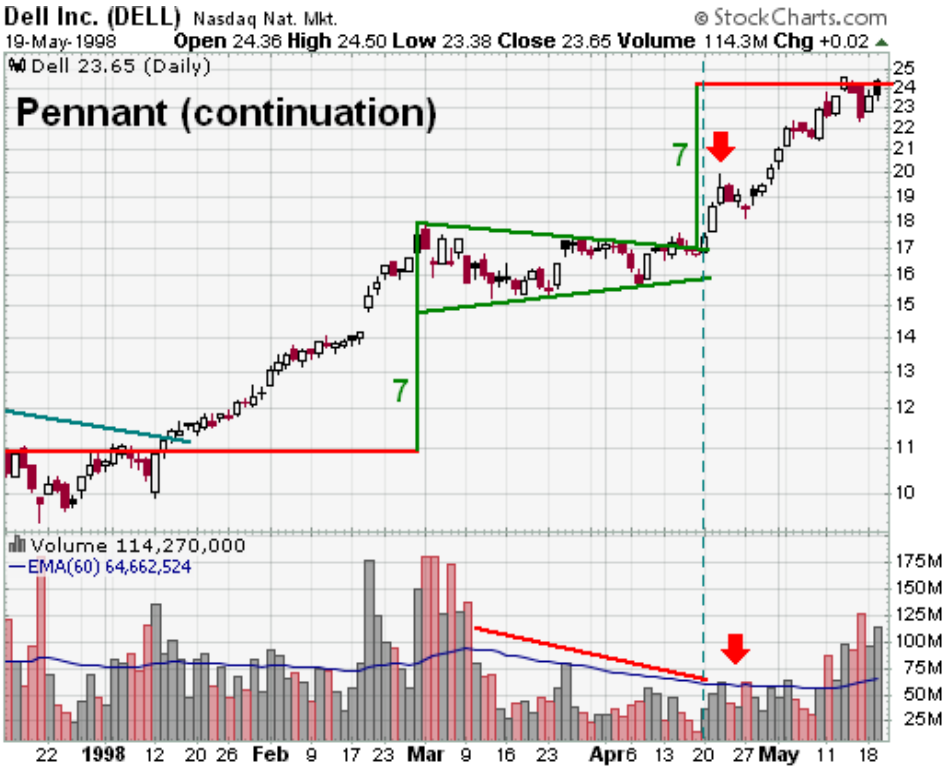

Figure 4 Flag and Pennant

Flag:A flag is a small rectangle pattern that slopes against the previous trend. If the previous move was up, then the flag would slope down. If the move was down, then the flag would slope up. Because flags are usually too short in duration to actually have reaction highs and reaction lows, the price action just needs to be contained within two parallel trend lines.

Pennant: A pennant is a small symmetrical triangle that begins wide and converges as the pattern matures (like a cone). The slope is usually neutral. Sometimes there will not be specific reaction highs and lows from which to draw the trend lines and the price action should just be contained within the converging trend lines.

For the volume: Volume should be heavy during the advance or decline that forms the flagpole. Heavy volume provides legitimacy for the sudden and sharp move that

creates the flagpole. An expansion of volume on the resistance (support) break lends credence to the validity of the formation and the likelihood of continuation.

For the time scale and duration: Flags and pennants are short-term patterns that can last from 1 to 12 weeks. There is some debate on the timeframe and some consider 8 weeks to be pushing the limits for a reliable pattern. Ideally, these patterns will form between 1 and 4 weeks. Once a flag becomes more than 12 weeks old, it would be classified as a rectangle. A pennant more than 12 weeks old would turn into a symmetrical triangle. The reliability of patterns that fall between 8 and 12 weeks is debatable.

b) Triangles

The triangle can be a continuation or a reversal pattern. Although, more often it is a continuation pattern. There are three types of triangles: symmetric, ascending, and descending. For trading purposes they are all the same, the just look different.

A triangle forms when the price action narrows over several price swings. If trendlines are drawn along the highs and lows of the price action, the trendlines converge towards each other. This creates the appearance of the triangle. (Symmetrical Triangle (Continuation), 2017)

Figure 5 Symmetrical Triangle Example

Example of Symmetrical triangle patterns：Symmetrical triangles occur when two trend lines converge toward each other and signal only that a breakout is likely to occur – not the direction. Ascending triangles are characterized by a flat upper trend line and a rising lower trend line and suggest a breakout higher is likely, while descending triangles have a flat lower trend line and a descending upper trend line that suggests a breakdown is likely to occur. The magnitude of the breakouts or breakdowns is typically the same as the height of the left vertical side of the triangle.

For the volume: As the symmetrical triangle extends and the trading range contracts, volume should start to diminish. This refers to the quiet before the storm, or the tightening consolidation before the breakout.

Figure 6 Triangle Pattern and Trading Volume

For the time scale and duration: In order to qualify as a continuation pattern, an established trend should exist. The trend should be at least a few months old and the symmetrical triangle marks a consolidation period before continuing after the breakout. The symmetrical triangle can extend for a few weeks or many months. If the pattern is less than 3 weeks, it is usually considered a pennant. Typically, the time duration is about 3 months.

III. **Conclusion**:

To wrap it up. The essay summarized some common used indicators and patterns in technical analysis. For each indicator and pattern, the artical discussed the definition and the example of how to use it to analyze and predict the price of stock. What's more, How the trading volume associated with the pattern and under which time scale the pattern is applicable has been mentioned in the second paragraph. It proves that, in finance, technical analysis is an strong tool to forecasting the direction of the price through the study of past market data.

IV. **Reference**:

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Fig1: https://www.investopedia.com/articles/trading/07/adx-trend-indicator.asp

Fig2: https://www.investopedia.com/university/technical/techanalysis10.asp

Fig3: https://www.investopedia.com/university/technical/techanalysis10.asp

Fig4: http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:chart_patterns:flag_pennant_continuation

Fig5:http://stockcharts.com/school/doku.php?id=chart_school:chart_analysis:chart_patterns:symmetrical_triangle_continuation