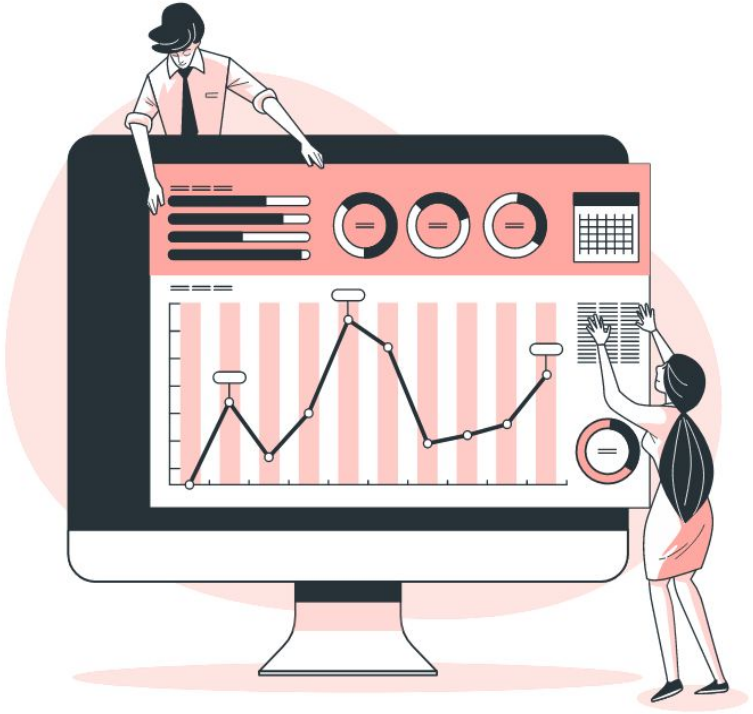
Efficacy of Price Action Trading Strategies in Indian Equities market

#TeamId - 51



Hypothesis

H_o- A combination of uptrend and downtrend trading, and Elliott waves can be used to make consistently profitable trades in the Indian Energy sector.

Why energy sector?

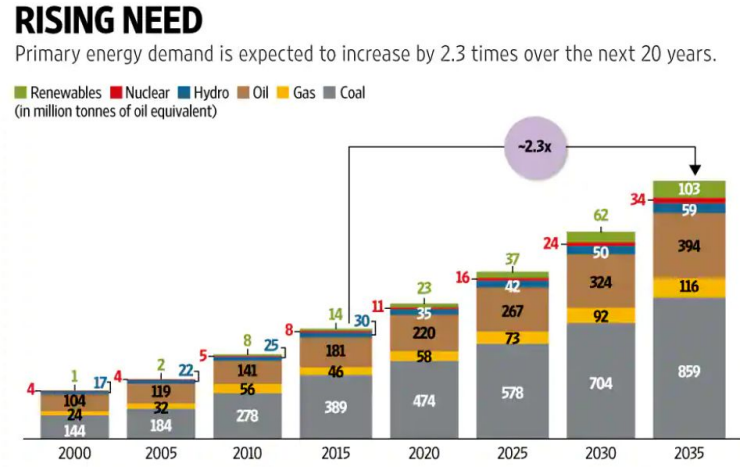
1. Geopolitical and economic reasons can cause significant price movements in the energy sector, especially in oil markets.
2. Price action traders can profit from market trends and patterns in the energy sector.
3. The energy market is known for safe investments with higher returns.
4. The energy market moves in boom-and-bust cycles.

The energy sector in the context of the Indian Equity Market

1. India's energy sector is impacted by internal and international factors such as shifts in governmental policy, supply and demand dynamics, and geopolitical events, which cause substantial price changes in the energy markets, providing opportunities for price action traders.
2. India has a thriving futures and options market for the energy industry.
3. The Indian government has implemented policies to strengthen the stability of the energy sector, including promoting renewable energy sources.
4. Despite growth and development, the Indian energy sector still faces challenges, such as a heavy reliance on imports, limited availability of energy in rural areas, and a need to upgrade infrastructure and distribution systems.

Energy sector between 2018 and 2021

1. India's energy sector saw substantial growth and development between 2018 and 2021.
2. The Indian government has implemented initiatives to expand domestic energy output and decrease reliance on imports.
3. The energy sector saw volatility due to geopolitical and monetary events.
4. The energy industry is expected to increase in the coming years, making it a desirable field of study.
5. The typical boom-and-bust cycle of the energy market is expected to change.
6. Energy corporations are now facing supply finance concerns.
7. Energy poverty is likely to emerge as consumption becomes restricted.
8. Commodities prices broadly impact the market, making tracking and signal generation important.



Stock Universe

The stocks in the energy sector were sorted according to market capitalization, and large and mid-cap companies were selected, resulting in a list of 7 stocks :

1. Reliance Industries Ltd (RELIANCE)
2. Oil and Natural Gas Corporation Ltd (ONGC)
3. Indian Oil Corporation Ltd (IOC)
4. Bharat Petroleum Corporation Ltd (BPCL)
5. Hindustan Petroleum Corp Ltd (HINDPETRO)
6. Petronet LNG Ltd (PETRONET)
7. Oil India Ltd (OIL)

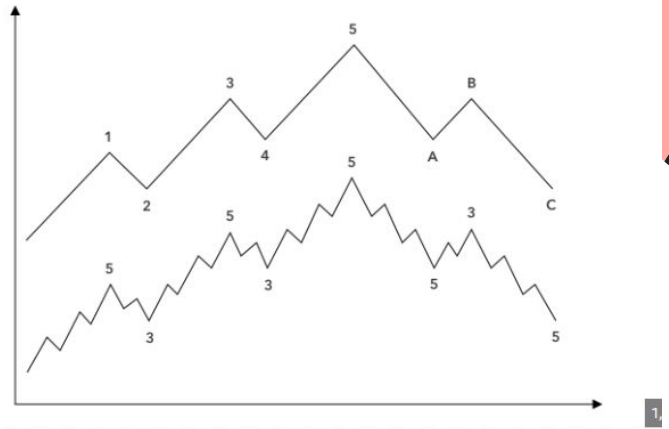
Tools for detecting Price Action

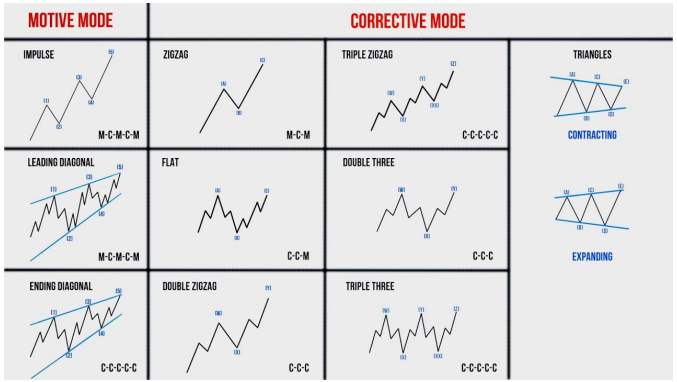
A. Elliott Waves

The theory was developed by Ralph Elliott in the 1930s and is based on the idea that stock prices move in repeating patterns, which are characterized by waves of price movements. It is an analysis tool used to identify patterns in financial market data, including stock prices, currency exchange rates, and commodity prices. They are based on the idea that market prices move in predictable patterns, reflecting the collective psychology of market participants. Because they offer a framework for comprehending market activity and aid in forecasting future price changes, Elliot Waves are employed in price action methods. According to the hypothesis, market prices fluctuate according to predictable patterns that can be seen and used to inform trading choices. It can be particularly helpful in identifying market trends' amplitude and direction as well as potential turning moments. Elliott Waves should be used in conjunction with other analytical methods and risk management procedures, as they are not a guarantee of future market behavior like other technical analysis tools.

According to the Elliott Wave theory, there are two types of market movements: impulse waves and corrective waves. Five sub-waves make up an impulse wave, which travels in the trend's direction. Three sub-waves make up corrective waves, which travel in the opposite direction of the trend. According to the Principle, crowd psychology, or collective investor psychology, alternates between optimism and pessimism in regular cycles. These mood swings produce patterns that are seen in market price changes at every level of trend or time period. On all trend time scales, according to Elliott's model, market prices alternate between an impulsive, or motive phase and a corrective phase. Waves 1, 3, and 5 are impulses, and waves 2 and 4 are smaller retraces of waves 1 and 3. Impulses are always separated into a sequence of 5 lower-degree waves, again alternating between motive and corrective nature. After a five-wave counter-trend impulse, a retracement, and another impulse, corrective waves break down into three waves of a reduced degree. The pattern is reversed in a bear market, where the primary tendency is negative and there are five waves down and three waves up. Corrective waves travel in opposition to the trend, but motive waves constantly follow it. The market price is determined by a pattern of 5 hikes upward and 3 hikes downward.

According to Elliott Wave Theory, market movements are interpreted in terms of repeating price structures that follow the Fibonacci sequence.

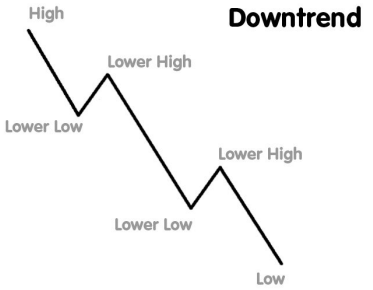




B. Uptrend and Downtrend Trading

We try to fit a trend line to the given data in a particular window. If we identify a sufficiently clear increasing and decreasing trend, we use it for predictions and hence for trading.

In trading, an uptrend is a market condition when prices are consistently rising over time. In an upward trend, every high point that follows is higher than the one before it, and every low point is higher than the one before it. This demonstrates a bullish market. A strategy should invest in such a bullish market and sell the stock once a threshold (take profit) value from the minima is achieved (trying to sell at the local maxima).



Similarly, In a downtrend, each subsequent low point is lower than the previous low, and each high point is lower than the previous high. This demonstrates a bearish market. Here we should aim at finding a local minimum to buy the stocks.

Trading Strategy

Here we use a combination of the above two tools, i.e if an Elliott wave is detected, we give it a priority and trade based on its prediction (stronger mathematical basis). However, since the number of waves might be very few, we use the trend lines to trade meanwhile.

We make one trade per day based on the trend line, now in addition to this, if we find Elliott waves, we can make additional one trade per wave which will be based on the cyclic trend. As discussed above, Elliott waves show the cyclic nature of waves. We use this to predict the future trend and make one buy/sell per cycle.

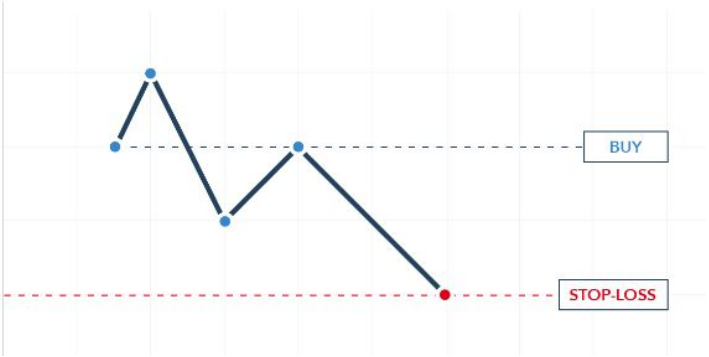
Risk Management and Assumptions

There are numerous additional costs associated with trading in the Indian Equity market, these include Brokerage Fees, Securities Transaction Tax (STT), Stamp Duty, Maintenance charges etc.

Since we're focusing on the Indian Energy Sector, we assume **an STT of 0.05% for buying and 0.1% for selling** which is coherent with the actual tax levied by the government. For sake of easier analysis, we assumed all other kinds of taxes/charges to be zero.

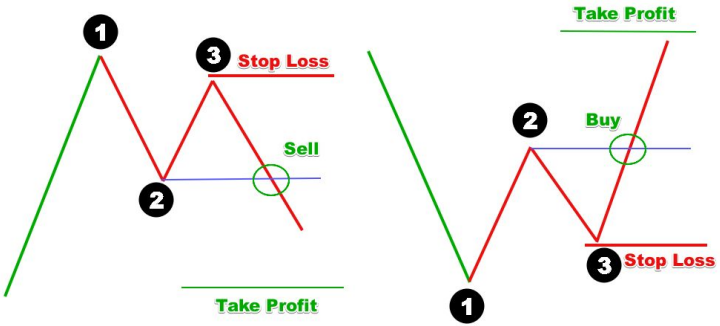
`Similarly, some stocks might suffer from problems of slippage due to differences in expected trading price and actual trading price. Since we're focusing on a **low-frequency trading** problem, we assume **slippage to be zero.**

RISK METRICS CONSIDERED



Stop Loss: This is to prevent loss below a breakage point by stopping the trade if the stock price falls below a certain price limit. For example, The trade will stop if the price falls below 1.5 times the corresponding trough predicted by Elliot waves.

Take Profit: Similar to stop loss, take profit is a metric used to lock the profit if the stock price rises more than a given value. For example: Stop the trade when the price rises more than 1.5 times the corresponding crest predicted by the Elliot waves.



OBSERVATION AND RESULTS

1. RELIANCE.NS

Number of Waves Detected: 10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2. PETRONET.NS

Number of Waves Detected: 2

3. BPCL.NS

Number of Waves Detected: 1

4. HINDPETRO.NS

Number of Waves Detected: 13


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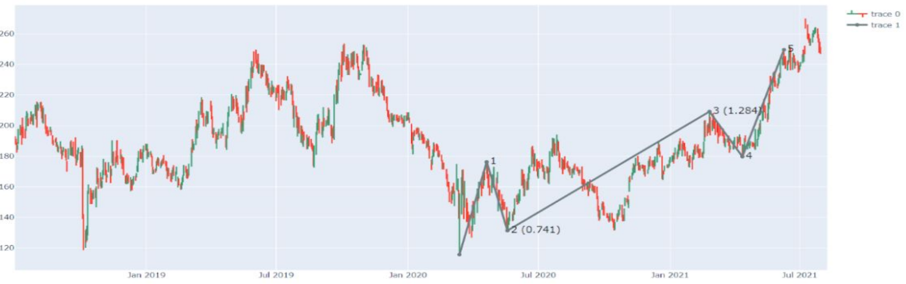
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5. IOC.NS

Number of Waves Detected: 6


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6. ONGC.NS

Number of Waves Detected: 11


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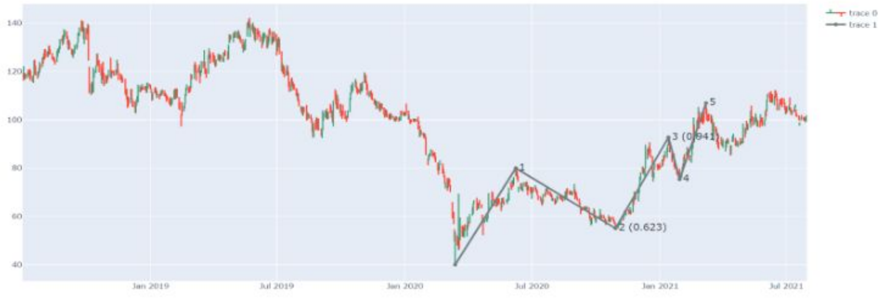
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Conclusion

As we have found Eliott waves in every Energy stock we have chosen in a given period of time, Eliott waves can be a great price action trading strategy for a somewhat cyclical and highly inertial sector like Energy. A combination of uptrend and downtrend lines helps in getting profits when Eliott waves are not getting detected as the Energy sector is volatile as well as trend favoring and taking profit through a trend-based strategy seems like the way to go as it not only identifies the trends but also the market reversals.

Based on the results of the project, it can be concluded that the combination of Elliott Waves and trend lines can be an effective method for analyzing the Indian energy sector. The repetitive nature of market trends in the energy sector and the ability of Elliott Waves to identify and predict these trends, combined with the use of uptrend and downtrend lines, can provide a comprehensive approach to price action trading.

Elliott Waves provide a simple and straightforward method for analyzing market trends, while trend lines help traders identify key support and resistance levels. By using both of these tools, traders can make informed decisions, improve their timing in the market, and reduce their risk.

It is important to note that while this combination of tools can be a valuable asset to traders, it is not a foolproof method and it is necessary to have a solid understanding of both Elliott Waves and trend lines to effectively apply them to the Indian energy sector.

In conclusion, the results of the project suggest that combining Elliott Waves and trend lines can be a powerful method for price action trading in the Indian energy sector.Combining this approach with other forms of analysis and risk management, traders can improve their chances of success in this dynamic and growing market.

TEAM MEMBERS AND CONTRIBUTIONS

Team Member Name	Contribution
Jeevesh Jain	Ideation, RnD, Rnd, Data Analysis, Report (20%)
Suyash Agnihotri	Rnd, Data Analysis, Report, Ideation(20%)
Dhruv Kakadiya	Coding the principle and detection and generation of the graphs, RnD (20%)
Sandesh Singh	Rnd, Data Analysis, Report, Ideation (20%)
Akshat Jain	Rnd, Data Analysis, Report, Ideation (20%)

References

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[4] https://github.com/btcorgtfo/ElliottWaveAnalyzer

Thanks
Any Questions?