Assessment of Elliott Wave Theory's Applicability and Accuracy in Predicting Trends in the Indian Stock Market: A Study of NSE Nifty Fifty.

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Abstract

The aim of the paper is to assess the applicability and accuracy of Elliot wave theory, with reference to Indian stock market. Elliot wave theory was originally profounded by Ralph Nelson Elliot in 1920s. According to this theory, Stock market trends are repetative cycle and follow a certain pattern. As the Indian stock market is very unpredictable, Elliot wave theory proved to be very useful Teachnical Analysis tool. Through quantitive analysis this research paper tries to examine the relation between actual market movements on NSE and wave patterns as suggested under Elliott theory. As this theory is based on Fibonacci sequence, the scope of paper also covers the same. The results of this comparative study will throw light on the reliability and practicality of EWT on the stock movements in context of NSE.

Keywords: Elliott ave theory, Fibonacci sequence, Technical Analysis, Stock price, Trends, Indian Stock Market, NSE.

Introduction

When it comes to prediction of stock prices, we have two different approaches. First one is the Fundamental Analysis, where we calculate the intrinsic value of stock and accordingly predict the future prices or movement of the stock. Second method of analysis is the Technical Analysis, where prices or movements of the market are determined with the help of demand, supply and volume of trade of the stock. Elliott wave theory or Elliott wave Principle One such Technical analysis tool of predicting stock movement, market cycles or we can say trend forecasting by identifying price levels i.e. low and high by carefully observing the patterns in price. The story of development of Elliott wave theory is not only interesting but also self validating one. Ralph Nelson Elliott began studying the stock Indies of past seventy-five years in early 1930s ranging from yearly to half-hourly prices. In 1938 he gave detail description of his observation in his book named “The Wave Principle”. The Elliott, in this book claims that stock movement is not only predictable but also follows a repeated pattern. By using his Wave Principle's one can predict the future movement of stock prices with the use of Fibonacci sequence. Robert Prechter, in 1979 founded Elliott Wave International, where he applied and expanded Ralph Nelson's Elliott wave principle.

Elliott Wave Theory

Elliot Wave Theory is technical analysis approach. According to this theory financial market move in repetitive pattern or waves which is termed as Fractal (i.e. Mathematical structure that infinitely repeat itself on a smaller scale). This theory comprises 8 waves divided into two parts:

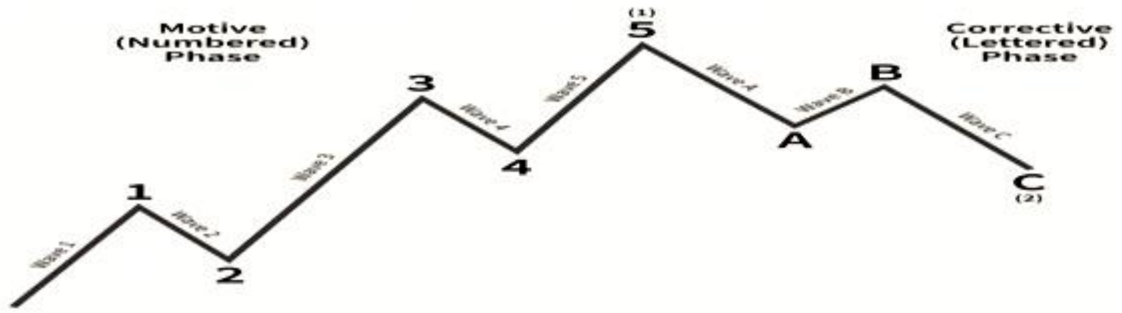

Figure 1: Elliot Wave Structure Source: Investopedia

Motive Waves	Corrective Waves
5 Up trending waves are called **Motive Waves.** Labelled as 1, 2, 3, 4 and 5.	3 down trending waves are called **Corrective Waves.** Labelled as A, B and C.
Wave 1, 3, 5 move in up direction refers to as impulse. Wave 2, 4 acts as “Retracements”.	Wave A and C are called Negative Impulse (opposite in direction to motive waves), while wave B is intervening retracement wave which move in the same direction of motive waves)

Elliot Wave Rules

There were many rules to interpret waves but following are three basic rules which are generallyunbreakable.

Rule 1: Wave 4 cannot be below wave 1, but if it does, it means it would be part of large“Motive wave” which could progress higher or lower.

Rule 2: Wave 2 cannot retrace more than 100% of wave 1- if it does wave 2 will mostly be retracement wave.
Rule 3: Wave 3 is usually the largest of 5 waves.

Due to the repetitive nature of waves this theory originally identified as Nine Degree of Embedded or nested waves. This Degree ranges from decades to intraday movements. Following are names of these degrees in decreasing order: Grand Super Cycle, Super Cycle, Cycle, Primary, Intermediate, Minor, Minute, Minuette and Sub-minuette. This theory is subjective and requires expertise to apply effectively. Elliot wave pattern follows the Fibonacci Series (a Mathematical phenomenon recognized as one of nature`s unique laws, as founded by **Leonardo Fibonacci**). Fibonacci series often used with Elliot wave to indicate levels at which strong resistance and support can be found in the movements of prices and indices in the stock market, so that traders can now identify the entry and profit target.

Relationship between Fibonacci Ratios and Elliot Wave Theory

Fibonacci`s ratios are derived from the Fibonacci sequence, where every number is the sum of preceding two numbers and this sequence starts with 0 and 1. So, it goes like 0,1,1,2,3,5,8,13,21,34, and so on. The main Fibonacci ratio that are widely used along with Elliot Wave are 38.2%, 50.6%, 61.8%, 76.4%,100% and many more. Fibonacci ratios are often used in Elliot Wave theory to measure the length of Waves for an example:
Wave 2: is generally 50.6%, 61.8%, 76.8%, 85.4% of wave 1.
Wave 3: is generally 161.8% of wave 1.
Wave 4: is small wave and may be 14.6%, 23.6%, or 38.2% of wave 3.
Wave 5: is generally 61.8%, 100%, or 123.6% of wave 1.

So to conclude, we can say that Fibonacci ratios along with Elliot Wave principles can be used by traders to determine potential target prices, retracement levels, and reversal points.

In this paper we will try to assess the applicability and accuracy of Wave principle in Indian stock market taking into consideration NSE-NIFTY 50 stock price movement on yearly basis and data for three consecutive years starting from Jan. 1 2021 to Dec. 31, 2023 is studied. As NSE-NIFTY 50 shows the weighted average price of top 50 companies listed on Indian stock exchange. This paper will track repeated wave structure in the NSE-NIFTY 50 stock chart as per the three rules prescribed by the R. N. Elliot.

Literature Review

C. Arkaprava, Dr. M. Ayan (2023) In their research they predicted ability of the traders based on this trend of the stock price in short term. They used Fibonacci Retracement Technical Strategy, which used the Fibonacci ratio or Golden ratio and tries to capture the support and resistance level on selected stocks in Indian Capital Market. They concluded that the Fibonacci retracement is very useful technique to calculate the long term and short term trends of stock price movements. They also bring into light that price fluctuations are happening with in the Fibonacci levels if the stocks of high beta are selected, but in case of low beta, volatility of the stock is lower, there can be possibility that the support and resistance will be lower.

KV Manjunath, Malepati C. S., (2022) examines the EWP and RNN model with other technical analysis tools to predict the stock market movements. According to the findings the EWP-RNN model can be utilized to predict trends and buying and selling points, to maximize the profit. Even as per their study EWP can be used to signal traders about starting of 5^{th} wave.

P. Himanshu, M. Hardik (2018) they studied the weekly chart pattern of Adani Port and Special Economic Zone Shares, Axis Bank and Tata Motors. In their study they claimed that Elliot wave theory is the great discovery by R. N. Elliot Which reflects the psychology and behavior of trader's effect on security market.

Chendroyaperumal, Chendrayan and Karthikeyan, Bask, (2011) In their study the applicability of Elliot wave theory on selected sectors namely automobile, banking, energy, information technology, and telecommunication. On the study of 25 different companies they come to the conclusion that Elliot Wave theory is applicable in India stock market at least for the sectors as under study. They also suggest that Elliot Wave theory can be used as technical analysis for predicting the future prices or movements of stock.

D. Mihir, P. Anand (2009) They study the 36 scrips of out of 50 scrips of NSE-NIFTY index taking closing prices of the scrips for the period of Jan. 1, 2001 to Dec. 31, 2008 comprising two thousand and three trading days. The finding of their study supports the applicability of Elliot wave theory in the Indian Stock market giving more significant relevance to short and medium length waves.

Research Methodology

Type of Research: The research is related to the assess the applicability and accuracy of Elliot wave theory in predicting the trend in Indian stock market. As the stock market is huge, which make it difficult to study each and every stock litsed on stock exchanges. NSE-NIFTY 50 was taken as sample to test the accuracy and applicability of wave theory. As NIFTY 50 act as a bechmark of Indian stock market index, and represents the eighted average price of 50 largest companies listed on National Stock Exchange. The type of research that best suits the objective is descriptive and analytical research.

Tools for Data Collection: Secondary Data

Date Source: stock charts are taken from Investing.com and Tradingview.com web site.
Variables of Study: Independent
Variable: Stock charts or candle graphs.

Data Analysis and Interpretation

To assess the accuracy of Elliot Wave Theory we will test the Indices of NSE-NIFTY 50 for three years starting from Jan. 1, 2021 to Dec. 31, 2023. The study is on the Primary degree as the term coined by Elliot for the data chart of one year. The lines labelled here are only to show the wave patterns clearly for better understanding. In this paper we have only focused on the wave theory and does not include exhaustive study of fibonacci ratios, although to measure the support and retracement basic of Fibonacci ratios are used to track the wave lengths and their movements.

Figure 2: Elliot Wave Count for NSE-NIFTY 50 (Yearly chart for 2023)
Source: Stock chart Available: www.in.investing.com

Figure 2 is the stock chart of NSE-NIFTY 50 for the year 2023, as it was appearing in the Figure 2, we can observe the starting of wave 1 followed by wave 2 and wave 2 is not retracing wave 1 more than 100%. Wave 3 is the longest wave as observed, followed by wave 4 which is above wave 1.

Figure 3: Elliot Wave Count for NSE-NIFTY 50 (Yearly chart for 2022)
Source: Stock chart Available: www.in.tradinview.com

In Figure 3 stock chart of NSE-NIFTY 50 is taken into consideration for the year 2022. Here alsowave 2 is not retracing wave 1 more than 100%, wave 3 is the longest wave, and wave 4 is not below wave 1.

Figure 4: Elliot Wave Count for NSE-NIFTY 50 (Yearly chart for 2021-2022)

Source: Stock chart Available: www.in.tradinview.com

Figure 4 is related to the stock chart of NSE-NIFTY 50 for the year 2021 extended to 2022. In this chart also all three rules of Wave theory is applied i.e. Wave 2 is not retracing wave 1 by more than 100%, wave 3 is the longest and wave 4 is above wave 1.

On analysing all the three year patterns we also examine that, as required under Fibonacci ratio wave 2 is within 38.6% of wave 1, while wave 3 is within the range of 161.8% of wave 1. Ave 4 is smallest and lies within the range of 14.6 to 38.2% of wave 3. 5^{th} wave is almost 100% of wave 1.

Conclusion

Elliott wave theory is known for its ability to identify repetitive patterns in stock price movements. With the help of this theory traders can get insight of collective sentiments of traders and investors, as stock prices are driven by sentiments of traders and investors. As claimed under Wave principle that stock market movements shows repetitive and cyclic pattern, holds true as we have studied the patterns of three consecutive years and have seen the patterns and cycles repeating. As stock market is considered very fluctuating and unpredictable, Elliot Wave principles can be considered as a solution to track the movement of price in the stock market. As Indian stock market is huge and very sensitive it seems next to impossible to be fully sure when it comes to prediction in such scenario it appears from the research that Elliot wave theory if used with Fibonacci ratios could help traders to earn great profits and predict the trend of market accurately. The flaw with this theory is that it is complicated and one needs to have deep understanding of the market and skills to calculate the ratios. Further research on same subject for other stocks or taking the monthly, weekly or say daily price movements, can throw more light on the subject matter, and can validate the applicability of Elliot Wave Theory in the Indian stock market.

At the end to summaries the findings of the research Elliott wave theory can be used as effective technical analysis tool to predict stock market, but due its complexity one should use it cautiously and along with different technical tools to make it more effective.

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