International Journal of Business and Management Invention (IJBMI)
ISSN (Online): 2319-8028, ISSN (Print):2319-801X
www.ijbmi.org || Volume 11 Issue 10 || October 2022 || PP 64-72

A Study on Performance of Nifty during Covid Pandemic using Technical and Macroeconomic analysis

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ABSTRACT: *This paper mainly consists of the Technical and Macroeconomic analysis of the Nifty taking into consideration macroeconomic variables (US Dollar Index, GDP, Gold, Inflation, interest rates) to analyze the correlations between the macroeconomic indicators and the Stock market and also technical analysis indicators (EMA 100 & 200, MACD, Bollinger bands, RSI, Stochastic Oscillators) being used to forecast Nifty Index movement before and after a covid pandemic. The Nifty 50, one of the significant NSE indices, is used in this study to assess the impact of the coronavirus on the Indian stock market and the stock market's reaction.The study's major goal is to learn how macroeconomic data and technical analysis indicators may be utilized to assess the Nifty.The findings from the project tell that the investors are not much aware of the importance of macroeconomics variables and technical analysis indicators, they only concentrate on company analysis to make the right decision both analyses need to be considered*.

KEYWORD: *Nifty, covid pandemic, macroeconomic variables, technical analysis indicators*

Date of Submission: 02-10-2022 Date of Acceptance: 13-10-2022

I. INTRODUCTION

The Nifty 50, one of the significant NSE indices, is used in this study to assess the impact of the coronavirus on the Indian stock market and the stock market's reaction. The research period ran from January 1 to December 31, 2020.

On March 8, 2020, the covid pandemic began to spread. The outcome is evident through a comparison of pre (-3 months) and post-event data (8 months). The economy and financial markets were negatively impacted by the shutdown. The Covid-19 crisis has had the biggest impact on stock markets to yet.

The Indian government imposed a lockdown, which brought the whole nation to a stop. All throughout the world, the stock market and economy fell. Due to a dearth of knowledge about the new virus, the Indian stock market saw excessive volatility. As a result, there was a great deal of market uncertainty and massive outflows.

The art and science of predicting future values based on an examination of previous price movements are known as technical analysis. Technical analysis is focused on examining the present supply and demand for commodities, equities, indexes, futures, and other trading assets.

In order to predict future price movements, numerous models and indicators are applied along with the examination of data from activities on a graph, such as prices, volumes, and open interest. It may be used for time periods ranging from several years to daily, weekly, or monthly data. Technical indicators utilized for analysis and interpretation are Moving Average, MACD, Bollinger Bands, Stochastic Oscillator, and RSI.

Macroeconomics explains how a country's economic level of production, employment, andprices are ascertained, as well as how the money supply affects the rate of interest and thegovernment's monetary and fiscal policies. Numerous economic and financial variables are interconnected in intricate ways. Forinstance, a government's decision to alter the quantity of money in the system or adjust the taxrate might have an influence on the financial markets both directly and indirectly.Over time, several variables have an impact on the Indian financial markets, or prices changein expectation of these occurrences or economic developments.Economic variables such as the Dollar Index, GDP, Gold, inflation, and interest rates are also used for the purpose of analysis and interpretation.

II. LITERATURE REVIEW

Shreya Agrawal and Dr. Sangeetha R (2019), The Impact of Macroeconomic determinants on the Performance of the Indian Stock Market, This article's exclusive focus is on analyzing the direction of the Indian Stock Market and the effects of the many macroeconomic factors included in the analysis. Ten factors are taken into account by the analysis, including the cost of gold, silver, and oil, interest rates, industrial production, exchange rates, inflation, money supply, foreign exchange reserves, and trade balance.

Rishika Shankar, Priti Dubey (2021), Indian Stock Market during the COVID-19 Pandemic: Vulnerable or Resilient?: Sectoral analysis, This study looks at how the COVID-19 pandemic affected the daily average returns andtrading volume on the Indian stock market. Companies and the government bothexperienced a financial squeeze as a result of the minimal or nonexistent economicactivity. The author alludes to a bubble developing when people increase their equityinvestments during periods of persistent recession.

R.Amuthan (2021), NIFTY 50 Index Trend's impact on NSE's Sector-based Indices Growth
Momentum in Post COVID-19 led Indian Economy with Special reference to NIFTY Bank, NIFTY Pharma, and NIFTY IT, The author of the study predicted the index point trend to identify the best and worst performing sector indices by comparing the performance of NIFTY 50 with sector based indices. The author of this research discovered that Nifty 50 fluctuations had a significant impact on Nifty IT and Nifty Consumer Durables.

Yashraj Varma, Renuka Venkataramani (2021), Short-Term Impact of COVID-19 on the Indian Stock Market, The author set out to determine how the epidemic might affect the primary index (NIFTY50) and the several sectors that make up the Indian stock market in the short run. Temporarily, all the industries were affected, but the financial industry was most
hit. The study discovered that industries including pharmaceuticals, consumer products, and IT had favorable or little effects.

Dr. Arvind S. Luhar, Dr.Shama A. Shah (2021), A STUDY ON TECHNICAL ANALYSIS OF S&P CNX NIFTY INDEX COMPANIES, The author aimed to convey that the success of investing activity depends on the knowledge and abilities of investors to invest the correct amount, in the right sort of investment, and at the right time. According to this study, RMI and RSI have created higher average rates of return when compared to other indicators in the sample businesses. It proves that RSI and RMI are superior to all other indicators.

MohdNaved, Prabhat Srivastava (2015), Profitability of Oscillators used in Technical Analysis for Financial Market, The purpose of the experiment was to evaluate the accuracy of the oscillatoremployed in a market index's technical analysis. The three oscillators that are most frequentlyemployed by traders are the stochastic, the RSI, and the CCI. The author of this study discovered thatthe indicator picked and the amount of days taken into account in the indicator's computation bothaffect how profitable is technical analysis.

III. OBJECTIVES

1. By using the NSE Nifty 50 index as a benchmark to represent the overall movement of stock prices, this study attempts to assess the effect of a coronavirus outbreak on the Indian stock market.
2. This study's main goal is to determine how macroeconomic factors like the US Dollar Index, GDP, Gold, inflation, and interest rates affect the Nifty 50. To examine the connection between the Nifty and the macroeconomic factors.
3. To analyze the performance of the Nifty during the covid pandemic using varioustechnical analysis indicators (EMA 100 & 200, MACD, Bollinger bands, RSI, Stochastic Oscillators).
4. To discover the technical analysis indicators with a high likelihood and to determine the responsiveness, dependability, and correlation of the chosen technical analysis indicators.

IV. RESEARCH METHODOLOGY

The research type used here is the analytical type of research. Sample tools used in this paper are Technical Indicatorssuch as Moving Average [EMA 100 & 200], MACD, BollingerBands, Stochastic Oscillator, and RSI. Macroeconomic indicatorsused are the US dollar index, GDP, Gold, inflation, and interest rates. Sample frame of this isFrom January 2020 – December 2020, For the study, secondary data were used. The data is integrated through various publications by researchers in the field of financial markets and economics.

V. ANALYSIS AND INTERPRETATION

(Chart - 1.2)

The NIFTY50 index was taken into consideration to measure the market returns. The fluctuation of the index during the onset of the pandemic is seen in (Chart 1.2). The Nifty saw the largest decline in Indian history in March, when the epidemic first broke out, falling by around 15–17 percent. The market made an effort to recover from its March lows in April, and the market started to trend upward.

Technical indicators

1) Exponential Moving Average [100 EMA & 200 EMA]:

(Chart - 1.3)

Analysis:
100 & 200 EMA is significant for the nifty index. A correction or phase of consolidation has frequently been identified by a crossing below the moving average.In the above chart, we can observe that during the 1st week of march 2020 the nifty closing was below 100 EMA and 200 EMA for a continuous 5 days, later there was a drastic fall and gap down opening in nifty till the end of March.

Interpretation:
If the closing is below the 100 & 200 EMA then it’s a sell signal and if the closing is above 100 & 200 EMA then it’s a buy signal. Based on the analysis, we can interpret that the nifty closing was below 100 & 200 EMA in 1st week of march 2020 which indicates a sell signal.

2) MACD:

(Chart - 1.4)

Analysis:

When the MACD dips below zero and enters the negative zone, a bearish centerline crossing occurs. That the trend has shifted from bullish to bearish is obvious from this.The above MACD chart of Nifty during the 1st week of March 2020, indicates a cross of the fast line (blue) from above to below the signal line (red). The fast line (blue) is seen crossing the signal line from below to above in the final week of April 2020. (red).

Interpretation:

According to the study, the Nifty began to decline (bear trend) when the MACD moved below zero and into negative territory, and a cross of the MACD line (blue) from above to below the signal line (red) in the first week of March 2020 indicated a sell signal.A cross of the MACD line (blue) from below to above the signal line (red), suggesting a buy signal, is indicated later in the final week of April 2020 when MACD climbs above zero.

3) Bollinger Bands:

(Chart - 1.5)

Analysis and Interpretation:

A 20 SMA with two standard deviations in the upper and lower bands makes up a set of Bollinger bands. The bottom band serves as a point of support, and the top band serves as a point of resistance. The present trend will continue if the price moves outside the bands.In the above nifty chart, we can observe that during the 1st week of march 2020 the nifty was trading below the 20 SMA and the nifty formed a strong bearish engulfing candle outside the lower Bollinger band which indicates a bearish trend or further fall in the nifty. Later in the mid of April 2020, the Nifty crosses 20 SMA and formed an inverted hammer a bullish reversal candle that indicates a bullish trend.

4) RSI:

(Chart - 1.6)

Analysis:

RSI is a momentum oscillator used to generate buy and sell signals when RSI is below 30% and is considered oversold and above 70% overbought.Due to anxiety and uncertainty among investors, as well as a significant outflow of foreign portfolio investors from India's equities market, the nifty was oversold during the first week of March 2020. As a result, there was a lot of volatility and the Nifty fell.The RSI was as low as 10% the trading halted due to a lower circuit breaker in both the exchanges.

Interpretation:

Based on the analysis, we can interpret that the Nifty Started falling in the 1st week of March 2020 due to huge selling by FII and RSI was below 30 i.e. 10% which indicated the market was oversold. Later in the mid of April 2020, there was a bounce-back in the nifty due to buying by the retail investors and DII. In the above chart, we can observe RSI started moving above the oversold zone which indicates a buying opportunity.

5) Stochastic Oscillator:

(Chart - 1.7)

Analysis:

The Stochastic Oscillator is used to define oversold (20%) and overbought (80%) zones. A purchasing opportunity arises when the % K (blue line) line crosses the % D (red line) line upward in the oversold zone.In the overbought zone, an exit/sell is signaled when the % K (blue line) line crosses the % D (red line) line downward.

Interpretation:

According to the study, the Nifty was overbought in February 2020. Later, in March, the stochastic % K (blue line) line crossed the stochastic % D (red line) line downward in the overbought zone, signaling a sell signal that caused the Nifty to decline by more than 10-15%.The nifty recovered later in the middle of April 2020, and the stochastic % K (blue line) crossed the stochastic % D (red line) upward in the oversold area, signaling a buying opportunity.

Economic indicators

1) US Dollar Index:

(Chart - 1.8)

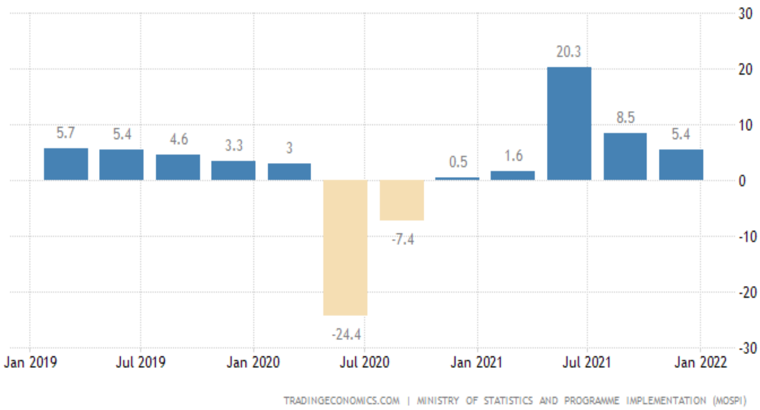
Impact on Nifty

Due to the expectation of inflation, stock prices often fall as the value of the dollar declines. whereas a rise in nifty results from the dollar's appreciation.Companies that rely on exports suffer when the home currency is stronger, while those that rely on imports profit.The chart above indicates a rise in the US dollar (yellow line) is immediately reflected in the Nifty performance. During the covid pandemic in March, the dollar index was traded at a $102 all-time high, the nifty crashed 10 – 15 % during the month.Information Technology and pharma are export-driven sectors that benefit from a weak rupee. Only both sectors were bullish during the covid pandemic and supported nifty from further fall.Hence the correlation between the USD dollar and the Nifty becomes more pronounced.

2) GDP:

The following chart shows a trend of Indian GDP in the past few years :

(Chart - 1.9)



(Source: www.tradingeconomics.com)

Impact on Nifty

The graph above shows that India's GDP growth faced a sharp downtrend due to the breakout of the covid-19 pandemic in Q3 and Q4 of 2020 i.e. -24.4% and -7.4%.Due to the bad GDP numbers, investors' confidence weakens in the stock market. Nifty continued its downtrend during march and April 2020. Later in the month from April to June government announced financial packages Pradhan Mantri Garib Kalyan Yojana (PMGKY), PLI Scheme to overcome the economic slowdown. The investors positively reacted to the government stimulus and GDP recovered to positive growth of 0.5% in August and also the nifty rebounded from the March lows. GDP is a leading indicator for the stock exchange index and can be used to forecast the future trend in the nifty. When the growth rates are higher it is more favorable to the stock market.

3) Gold:

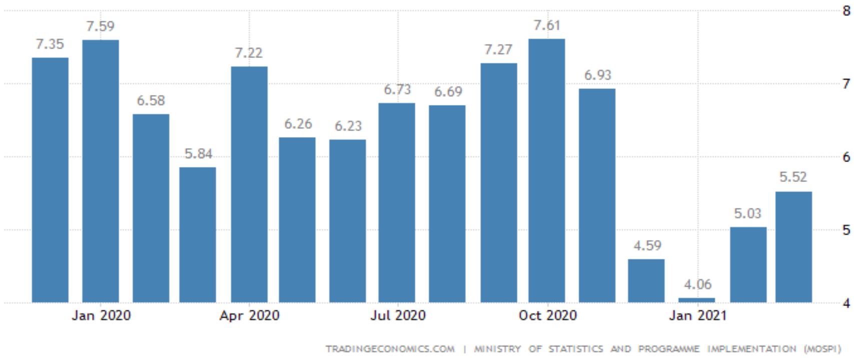
(Chart - 2.0)

Impact on Nifty

As there is a negative correlation between Nifty and gold price returns, gold prices rise when the stock market declines.In the above nifty chart, we can observe that during the pre- covid i.e. from January to March 2020 the gold (orange line) was traded lower than the nifty.In 1st week of March 2020 due to the outbreak of covid, the nifty started to descend more than10- 15 % in a week whereas the gold prices started to appreciate (Rs 42,200 per ten grams) as it is an asset class used to hedge against risk.

4) Inflation:

(Chart - 2.1)



(Source: www.tradingeconomics.com)

Impact on Nifty

A rise in the average level of prices for goods and services over time in an economy is referred to as inflation. Loss of the buying power of money is referred to as inflation.From the above chart, we can observe that the inflation was 5.84% in March 2020. Due to the nationwide, there was a massive disruption of production, demand, and supply activities, during The next 3 months, the inflation rose to above 7% caused due to demand-pull inflation. Later the government reduced the interest rates to tackle inflation. Reducing interest rates will benefit banking, NBFC, and other financial sectors the weightage of these sectors in nifty is 38.03% which resulted in the outperformance of nifty. Stock markets typically rise when there is moderate inflation since it is generally seen as a sign that the economy is doing well. While high inflation discourages investments and savings by creating uncertainty about future inflation rates. Stock markets as a result react negatively.

5) Interest rates:

(Chart - 2.2)

(Source: www.timesofindia.com)

Impact on Nifty

Due to the nationwide lockdown and economic slowdown also inflationary pressure the central bank RBI continuously reduced the interest rates to an all-time low of 4% in May 2020. The risk aversion of the banking system gets significantly aggravated to control. The RBI governor Shaktikanta Das, made a number of announcements on March 27, 2020. EMIs were postponed for three months, and repo rates were decreased.The market reacted positively to the RBI decisions and the nifty rebounded from the march bottoms. The main contribution to the nifty rally was by the banking and financial sector. Thus, when the interest rate reduces, the prices of the growth stocks ascend and Value equities perform better and have higher prices as interest rates rise.

VI. FINDINGS

1. Throughout the COVID pandemic, there was a lot of external news where the government imposed or eased restrictions from time to time, so it may not help to analyze the market using only technical analysis.
2. In the month of 1st week of march all the technical indicators used in the study Moving Average, MACD, Bollinger Bands, Stochastic Oscillator, and RSI indicated a sell signal for Nifty.
3. Later in the month of April, all the technical indicators used in the study indicated a buy signal.
4. Economic variablessuch as the Dollar Index, GDP, Gold, inflation, and interest rates used in the study are found that there is an inverse relationship or negative correlation between Nifty.
5. The largest decline in the Nifty's value in India's recorded history occurred in March and fell by about 15–17% when the epidemic first broke out. The market made an effort to recover from its March lows in April, and the market started to trend upward.
6. During the covid pandemic, the government made monetary changes we observed that when the interest rate reduces, the prices of the growth stocks ascend and Value equities perform better and have higher prices as interest rates rise.

VII.RECOMMENDATIONS

1. There is no stabilization in the inflation rates the Government has to focus on controlling the inflation in the economy which leads to an increase in purchasing power and adequate income leads to higher investment in securities.
2. A single indicator is not enough to decide on buy or sell signals combination of technical indicators and oscillators is required for an accurate decision.
3. Before making investment decisions, investors must study the current trends in the economy and have detailed knowledge of the technical analysis.
4. Investors should use technical and macroeconomic analysis so that investors can make the best investment decision.
5. Whenever investor uses macroeconomic analysis should give more importance to crude oil, the US dollar index, Gold, inflation, and interest rates as there is an inverse relationship or negative correlation with the nifty.
6. Apart from macroeconomic analysis and technical analysis, investors or traders should also study the option chain, i.e., calls and puts, open interest. By knowing this, they can know the support and resistance levels of Nifty.
7. In technical analysis, there are various indicators and oscillators that are lagging and leading in nature, so the investor must choose the appropriate one or combination of both.

VIII. LIMITATIONS

1. The study's time frame is constrained since it only covers the three months preceding and about six months following the lockdown.
2. Researchers have used only a few technical indicators
3. A study conducted was for the period Jan 2020 to Dec 2020.
4. Indicators were applied only to Nifty which can be applied to other indexes.
5. The accuracy is limited as the data was strictly limited to secondary sources.
6. The precision of the study is based on the data presented on the NSE website.
7. The research study is solely for academic reasons.

IX. CONCLUSION

The technical analysis of the Nifty index is the main subject of the study. The study's buy/sell signals, which were generated using the chosen technical indicators, accurately represented when to purchase and sell the index. Sometimes Technical analysis doesn't work, because market prices may be volatile in nature. At that time shareholders or investors were unable to make decisions they should take into consideration macroeconomic factors. However, our research also demonstrates that investors may take into account variables like the Dollar Index, GDP, Gold, inflation, and interest rates, all of which have experienced a substantially larger increase. The investors take these factors into account when determining the state of the economy in which they are investing.

The pandemic's partial shutdowns of entire countries have brought such a financial catastrophe in India. Companies and the government both experienced financial hardship as a result of declining economic activity in the form of reduced revenue. Increased equity investments during periods of persistent recession, may also portend the emergence of a bubble in specific industries or stocks.

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KUSHAL S, et. al. "A Study on Performance of Nifty during Covid Pandemic using Technical and Macroeconomic analysis." *International Journal of Business and Management Invention (IJBMI)*, vol. 11(10), 2022, pp. 64-72. Journal DOI- 10.35629/8028