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Impact of COVID-19 Towards Top Listed Companies and Capital Markets with Reference to NSE

N. Manicka Mahesh[1], V. Ragavi[2*], K. Yeshwanth[3], Anjali Suresh[4]
[1,2,3,4]*School of Management, Sri Krishna College of Engineering and Technology, Coimbatore, India*

***Abstract*: COVID-19 has impacted communities, businesses and organisations globally, inadvertently affecting the financial markets and the global economy and the same replicated in Indian economy. The main objective of the study is that to find out the relation between the scripts taken for the study and NSE and to analyse the risk and return of top listed companies in NSE. For this purpose, to 10 companies were taken from NSE based on market capitalization were SEM analysis, Beta and RSI were used as tools to analyse the secondary data. The conclusion of the study is that the risk factors towards comparing NSE with top 10 companies with the index taken for the study is high and it is not preferred to invest based on the risk factor but Bharti airtel, Reliance industries, Hindustan Unilever Limited and Infosys gave profit in the lost six months and as a whole HUL can be given the most preference as it gave profit and also there exists a technical obedience with the script.**

***Keywords*: COVID 19, NSE, Listed companies.**

1. Introduction

A. About the Project

The World Health Organization (WHO) first declared COVID-19 a world health emergency in January 2020. Since the virus was first diagnosed in Wuhan, China, it has been detected in over 190 countries and all U.S. states. At the beginning of March, the focal point associated with infections moved from China in order to Europe, specifically Italy, although by the spring 2020, primary shifted towards the United States, where number of bacterial infections was speeding up. The infection seems to have sickened well over 3. two million men and women, about a third in the United States, using thousands of deaths. More than eighty countries experience closed their own borders to be able to arrivals through countries having infections, purchased businesses to shut, instructed their populations to self-quarantine, and even closed classes to an predicted a few billion kids. In late the month of January 2020, India was the earliest country to be able to impose holiday restrictions, and then South Korea and Vietnam. Over the five-week period coming from mid-March to late-April 2020, more than 30th million Vacationers filed designed for unemployment insurance plan, raising the chance of a heavy economic recession in addition to a significant embrace the joblessness rate. The same has given an impact towards Indian economy as there was a huge surge in Indian share market from February 2020 and that too with the top listed companies with NSE and BSE and that the study is to analyze the impact of Covid 19 towards top listed companies with reference to NSE.

B. Need for the Study

There are two major stock indices in India- Bombay Stock Exchange (BSE), Sensex, and National Stock Exchange (NSE), Nifty. If we look at the Bombay Stock Exchange, there is a drop in the Sensex index to 13.2% on 23rd March 2020. It was the highest single they fall after the news of the Harshad Mehta Scam, 28th April 1991 (Mandal, 2020). Similarly, Nifty has also declined to almost 29% during this period. Some economists have considered the impact of COVID-19 on the Indian stock market as a 'Black-Swan Event' i.e. the occurrence of a highly unanticipated event with an extremely bad impact. Due to the lockdown policy adopted by the government, the factories have reduced the size of their labour force as well as production level which disrupted the supply chain. Again because of the uncertainty prevailing among mankind, people also reduce their consumption habits leading to demand-side shock. Studies have also found that the entire previous pandemic had affected only the demand chain. But this COVID-19 pandemic has affected both the demand chain and supply chain.

Despite the severe impact of COVID-19 on the stock market of the entire economy, there is limited study on it especially in the case of an emerging economy. To shed light on this aspect, this paper attempts to investigate the impact of COVID-19 on the two important stock market of India. GJR GARCH model is used to make the study more significant in terms of volatility in stock index prices due to the outbreak of the pandemic and lockdown policy adopted by the Indian government. Major findings of the study reveal the volatile nature of BSE Sensex and NSE Nifty, the two prominent stock market of India.

1) Pre-covid

Pre COVID-19, market capitalization on each major exchange in India was about $2.16 trillion. The 2019 stock market rally was limited to 8-10 stocks within the large caps.

*Corresponding author: vragavi98@gmail.com

The Sensex returned around 14% (excluding dividends) for the year 2019 but prominently featured blue-chip companies such as HDFC Bank, HDFC, TCS, Infosys, Reliance, Hindustan Unilever, ICICI Bank and Kotak Bank, without which Sensex returns would have been negative. However, in the start of 2020, there was overall recovery which led to both NSE and BSE traded at their highest levels ever, hitting peaks of 12,362 and 42,273 respectively. At the beginning of the year, there were close to 30 companies that were expected to file IPO's. The market conditions were generally favorable as they witnessed record highs in mid-January.

Ever since COVID 19 strike, markets loom under fear as uncertainty prevails. It has sent markets around the world crashing to levels not witnessed since the Global Financial Crisis of 2008. Following the strong correlation with the trends and indices of the global market as BSE Sensex and Nifty 50 fell by 38 per cent. The total market cap lost a staggering 27.31% from the start of the year. The stock market has reflected the sentiments this pandemic unleashed upon investors, foreign and domestic alike. Companies have scaled back; layoffs have multiplied and employee compensations have been affected resulting in negligible growth in the last couple of months. Certain sector such as hospitality, tourism and entertainment have been impacted adversely and stocks of such companies have plummeted by more than 40%.

While the world has witnessed many financial crises in the past, the last one being the global recession of 2008, the current coronavirus crisis is different from the past fallouts.

In response to current turmoil, RBI and the Government of India has come up with a slew of reforms such as reductions of repo rate, regulatory relaxation by extending moratorium and several measures to boost liquidity in the system howsoever the pandemic has impacted the premise of the corporate sector. Payment deferrals, subdued loan growth, rising cases of bad loans and sluggish business conditions have impaired the growth and the health of the economic activity. Deceleration of GDP growth, demand-supply chain, cut in discretionary expenses and CAPEX has been the observed during the lockdown, which has led to falling in household incomes, marketing spends, reduced travel cost and hiring freeze.

Companies with innovative products, increasing distribution reach, technology-driven processes and healthy balance sheet would revive the growth momentum post lockdown. Lower oil prices and high capital expenditure by the government in turn creating capital which will provide a platform to flourish when we overcome COVID 19 pandemic.

As for the outlook for the market, we only need to look back at its history. Drops in BSE sensitive index is temporary, and each dip provides investors with the opportunity to enter the market and earn a higher return especially for those with long term horizon. Moreover, the higher the fluctuations, the higher chances of getting better returns. While these crises are real and it impacts the world economy, but historically, such crisis has not lasted long, as the world is competent enough to come up with answers to combat these challenges. Even though it's hard to predict the magnitude and impact of Coronavirus on the economy, but it is certain that the markets will bounce back soon the crisis gets over. With an average annual return (CAGR) of around 15 per cent, by growing from 100 points in 1979 to over 41,000 points in 2019, Sensex has proven time and again that corrections are temporary, but growth is permanent.

C. Industry Profile

India has a diversified financial sector undergoing rapid expansion, both in terms of strong growth of existing financial services firms and new entities entering the market. The sector comprises commercial banks, insurance companies, non-banking financial companies, co-operatives, pension funds, mutual funds, and other smaller financial entities. The banking regulator has allowed new entities such as payment banks to be created recently, thereby adding to the type of entities operating in the sector. However, financial sector in India is predominantly a banking sector with commercial banks accounting for more than 64% of the total assets held by the financial system.

The Government of India has introduced several reforms to liberalize, regulate and enhance this industry. The Government and Reserve Bank of India (RBI) have taken various measures to facilitate easy access to finance for Micro, Small and Medium Enterprises (MSMEs). These measures include launching Credit Guarantee Fund Scheme for MSMEs, issuing guideline to banks regarding collateral requirements and setting up a Micro Units Development and Refinance Agency (MUDRA). With a combined push by Government and private sector, India is undoubtedly one of the world's most vibrant capital markets.

1) Market Size

As of November 2020, Assets Under Management (AUM) managed by the mutual fund industry stood at Rs. 30 lakh crores (US$ 407.39 billion). Inflow in India's mutual fund schemes via the Systematic Investment Plan (SIP) route reached Rs. 82,453 crores (US$ 11.70 billion) in 2019. Equity mutual funds registered a net inflow of Rs. 8.04 trillion (US$ 114.06 billion) by end of December 2019.

Another crucial component of India's financial industry is the insurance industry. Insurance industry has been expanding at a fast pace. The total first year premium of life insurance companies reached Rs. 2.59 lakh crore (US$ 36.73 billion) in FY20.

Furthermore, India's leading bourse, Bombay Stock Exchange (BSE), will set up a joint venture with Ebix Inc to build a robust insurance distribution network in the country through a new distribution exchange platform.

In November 2020, Paytm reported 2x growth in digital gold transactions in the last six months. New customers have increased 50% since the beginning of this financial year and the average order value has increased by 60%.

In November 2020, the Reserve Bank of India (RBI) announced establishment of its Innovation Hub. To encourage access to financial services and goods and foster financial inclusion, this initiative would create an ecosystem. The Innovation Hub of the Reserve Bank (RBIH) is intended to promote innovation across the financial sector by leveraging technology and creating a conducive environment for

innovation.

2) Government Initiatives

In November 2020, the Union Cabinet approved the government's equity infusion plan for Rs. 6,000 crores (US$ 814.54 million) in the NIIF Debt Platform funded by the National Investment and Infrastructure Fund (NIIF) consisting of Aseem Infrastructure Finance Limited (AIFL) and NIIF Infrastructure Finance Limited (NIIF) (NIIF-IFL).

In November 2020, two MoUs were signed—one between India International Exchange (India INX) and Luxembourg Stock Exchange and another between State Bank of India and Luxembourg Stock Exchange for cooperation in financial services, ESG (environmental, social and governance) and green finance in the local market.

On November 11, 2020, The Cabinet Committee on Economic Affairs approved continuation and revamping of the scheme for financial support to public-private partnerships (PPPs) in 'Infrastructure Viability Gap Funding (VGF) Scheme' until 2024-25 with a total outlay of Rs. 8,100 crores (US$ 1.08 billion).

3) Road Ahead

India is expected to be the fourth largest private wealth market globally by 2028. India is today one of the most vibrant global economies on the back of robust banking and insurance sectors. The relaxation of foreign investment rules has received a positive response from the insurance sector, with many companies announcing plans to increase their stakes in joint ventures with Indian companies. Over the coming quarters, there could be a series of joint venture deals between global insurance giants and local players.

The Association of Mutual Funds in India (AMFI) is targeting nearly five-fold growth in AUM to Rs. 95 lakh crore (US$ 1.47 trillion) and more than three times growth in investor accounts to 130 million by 2025.

India's mobile wallet industry is estimated to grow at a Compound Annual Growth Rate (CAGR) of 150% to reach US$ 4.4 billion by 2022, while mobile wallet transactions will touch Rs. 32 trillion (USD$ 492.6 billion) during the same period.

D. About the Company

1) Reliance

Reliance Industries Limited (RIL) is an Indian multinational conglomerate company headquartered in Mumbai, India. Reliance owns businesses across India engaged in energy, petrochemicals, textiles, natural resources, retail, and telecommunications. Reliance is one of the most profitable companies in India, the largest publicly traded company in India by market capitalization, and the largest company in India as measured by revenue after recently surpassing the government-controlled Indian Oil Corporation. On 10 September 2020, Reliance Industries became the first Indian company to cross $200 billion in market capitalization.

The company is ranked 96th on the Fortune Global 500 list of the world's biggest corporations as of 2020. It is ranked 8th among the Top 250 Global Energy Companies by Platts as of 2016. Reliance continues to be India's largest exporter, accounting for 8% of India's total merchandise exports with a value of ₹1,47,755 crore and access to markets in 108 countries. Reliance is responsible for almost 5% of the government of India's total revenues from customs and excise duty. It is also the highest income taxpayer in the private sector in India.

2) TCS

Tata Consultancy Services (TCS) is an Indian multinational information technology (IT) services and consulting company, headquartered in Mumbai, Maharashtra, India. As of February 2021, TCS is largest company in the IT sector in the world by Market capitalization of $169.2 billion. It is a subsidiary of the Tata Group and operates in 149 locations across 46 countries. Even though TCS has office buildings in 149 locations, the TCS employees are not allowed to enter the office premises due to COVID pandemic and are asked to Work from Home.

TCS is the second largest Indian company by market capitalization. Tata consultancy services is now placed among the most valuable IT services brands worldwide. In 2015, TCS was ranked 64th overall in the Forbes World's Most Innovative Companies ranking, making it both the highest-ranked IT services company and the top Indian company. As of 2018, it is ranked eleventh on the Fortune India 500 list. In April 2018, TCS became the first Indian IT company to reach $100 billion in market capitalization, and second Indian company ever (after Reliance Industries achieved it in 2007) after its market capitalization stood at ₹6,79,332.81 crore ($102.6 billion) on the Bombay Stock Exchange.

3) HDFC Bank

HDFC Bank Limited is a subsidiary of Housing Development Finance Corporation headquartered in Mumbai, Maharashtra. It has a base of 1,16,971 permanent employees as of 21st March 2020. HDFC Bank is India's largest private sector bank by assets. It is the largest bank in India by market capitalization as of April 2021.It has a market capitalization of ₹8trillion.It is the third largest company by market capitalization on the Indian stock exchange (BSE/NSE).

4) HUL

Hindustan Unilever Limited (HUL) is an Indian consumer goods company headquartered in Mumbai, India. It is a subsidiary of Unilever, a British company. Its products include foods, beverages, cleaning agents, personal care products, water purifiers and other fast-moving consumer goods. Hindustan Unilever Limited (HUL) is an Indian consumer goods company headquartered in Mumbai, India. It is a subsidiary of Unilever, a British company. Its products include foods, beverages, cleaning agents, personal care products, water purifiers and other fast-moving consumer goods.

HUL was established in 1931 as Hindustan Vanaspati Manufacturing Co. and following a merger of constituent groups in 1956, it was renamed Hindustan Lever Limited. The company was renamed in June 2007 as Hindustan Unilever Limited.

As of 2019 Hindustan Unilever's portfolio had 35 product brands in 20 categories. The company has 18,000 employees and clocked sales of ₹34,619 crores in FY2017–18.

In December 2018, HUL announced its acquisition of GlaxoSmithKline's India business for $3.8 billion in an all-

equity merger deal with a 1:4.39 ratio. However, the integration of GSK's 3,800 employees remained uncertain as HUL stated there was no clause for retention of employees in the deal. In April 2020, HUL completed its merger with GlaxoSmithKline Consumer Healthcare (GSKCH India) after completing all legal procedures.

5) Infosys

Infosys Limited is an Indian multinational information technology company that provides business consulting, information technology and outsourcing services. The company is headquartered in Bangalore. Infosys is the second-largest Indian IT company after Tata Consultancy Services by 2020 revenue figures and the 602nd largest public company in the world according to Forbes Global 2000 ranking. On 31 December 2020, its market capitalization was $71.92 billion. The credit rating of the company is A− (rating by Standard & Poor's).

6) HDFC

Housing Development Finance Corporation Limited (HDFC) is a privately owned Indian development finance institution based in Mumbai, India. It is a major housing finance provider in India. It also has a presence in banking, life and general insurance, asset management, venture capital, realty, education, deposits, and education loans.

7) Bharti Airtel

Bharti Airtel Limited, also known as Airtel, is an Indian multinational telecommunications services company based in New Delhi, Delhi NCT, India. It operates in 18 countries across South Asia and Africa, as well as the Channel Islands. Airtel provides 2G, 4G LTE, 4G+ mobile services, fixed line broadband and voice services depending upon the country of operation. Airtel had also rolled out its VoLTE technology across all Indian telecom circles. It is the second largest mobile network operator in India and the second largest mobile network operator in the world with over 457.96 million (45.796 crore) subscribers. Airtel was named India's 2nd most valuable brand in the first ever Brandz ranking by Millward Brown and WPP plc.

Airtel is credited with pioneering the business strategy of outsourcing all of its business operations except marketing, sales and finance and building the 'minutes factory' model of low cost and high volumes. The strategy has since been adopted by several operators. Airtel's equipment is provided and maintained by Ericsson, Huawei, and Nokia Networks whereas IT support is provided by Amdocs. The transmission towers are maintained by subsidiaries and joint venture companies of Bharti including Bharti Infratel and Indus Towers in India. Ericsson agreed for the first time to be paid by the minute for installation and maintenance of their equipment rather than being paid up front, which allowed Airtel to provide low call rates of ₹1 (1.4¢ US)/minute.

8) Kotak Mahindra

Kotak Mahindra Bank Limited is an Indian private sector bank headquartered in Mumbai, Maharashtra, India. It offers banking products and financial services for corporate and retail customers in the areas of personal finance, investment banking, life insurance, and wealth management. As of February 2021, it is the third largest Indian private sector bank by market capitalization, with 1600 branches & 2519 ATMs.

9) ICICI Bank

ICICI Bank Limited is a privately owned Indian development finance institution with its registered office in Vadodara, Gujarat, and corporate office in Mumbai, Maharashtra. It offers a wide range of banking products and financial services for corporate and retail customers through a variety of delivery channels and specialized subsidiaries in the areas of investment banking, life, non-life insurance, venture capital and asset management. The bank has a network of 5,275 branches and 15,589 ATMs across India and has a presence in 17 countries.

ICICI Bank is one of the Big Four banks of India. The bank has subsidiaries in the United Kingdom and Canada; branches in United States, Singapore, Bahrain, Hong Kong, Qatar, Oman, Dubai International Finance Centre, China and South Africa; as well as representative offices in United Arab Emirates, Bangladesh, Malaysia and Indonesia. The company's UK subsidiary has also established branches in Belgium and Germany.

10) ITC

ITC Limited is an Indian multinational conglomerate company headquartered in Kolkata, West Bengal. Established in 1910 as the Imperial Tobacco Company of India Limited, the company was renamed as the India Tobacco Company Limited in 1970 and later to I.T.C. Limited in 1974. The company now stands renamed to ITC Limited, where "ITC" today is no longer an acronym or an initialized form. ITC has a diversified presence across industries such as Cigarettes, FMCG, Hotels, Packaging, Paperboards & Specialty Papers and Agribusiness. The company completed 100 years in 2010 and as of 2019–20, had an annual turnover of US$10.74 billion and a market capitalisation of US$35 billion. It employs over 36,500 people at more than 60 locations across India and is part of the Forbes 2000 list.

2. Literature Review

Kohzadi, N., Boyd, M. S., Kermanshahi, B., & Kaastra, I. (1996) with the study a feed forward neural network which can account for nonlinear relationships was used to compare ARIMA and neural network price forecasting performance. Data used was monthly live cattle and wheat prices from 1950 through 1990. The experiment was repeated seven times for successive three-year periods. This involved using a walk forward or sliding window approach from 1970 through 1990 which generated out of sample results. The neural network models achieved a 27 percent and 56 percent lower mean squared error than AR&IA model. The absolute mean error and mean absolute percent error were also lower for the neural network models. The neural network models were able to capture a significant number of turning points for both wheat and cattle, while the ARIMA model was only able to do so for wheat. Since this forecasting method is not problem specific and uses only past prices, it can be applied to other forecasting problems such as stocks and other financial prices.

Andrew M. Mckenzie& Matthew T. Holt (2000) conducted a study on “Market efficiency in Agricultural Futures Markets”

and analyzed about that the markets may be efficient and unbiased in the long run but may experience short-run inefficiencies. The objective is to empirically test the two-separate hypothesis of market efficiency and unbiasedness in both the long and short-term. The result was that in the long-run, risk premia do not exist in these markets, and the markets are both unbiased and efficient in the long-run.

Sunil Hasley (2003) conducted a study on "Commodity Derivatives and Futures Trading" and examined the sources of Market Failure and the policy options for its revival, Report of the consulting assignment for forwards Markets Commission, the lack of standards and certification prices can be quoted and compared across the country once there is a good standardization of commodities. Once commodities can be clearly categorized as one standard as opposed to the other, then prices become more meaningful for comparison at one Mandy versus another. These standards should be applicable equally across all states.

Gaurav Raizada, Gurpreet Singh Sahi (2005) conducted a study on "Commodity Futures Market in India and effect on Inflation" and examined the commodity future market in India and analyzing its effect on social welfare and inflation in the economy. The result of the study was that the commodity futures market is not efficient in the short run and the social loss statistic also indicates poor price discovery. The growth in commodity futures markets volume also has a significant impact on the inflation in the economy.

Claud B. Erb & Campell R. Harvey (2006) conducted a study on "The tactical and strategic Value of Commodity Futures" and analyzed that the investors face a number of challenges when seeking to estimate the prospective performance of a long-only investment in commodity futures. The result of the study was that a commodity future portfolio might have "equity-like" returns if it is able to achieve a high enough diversification return.

Sudhir Reddy (2007) conducted a study on "The test of efficiency of Commodity Futures Market", and examined the efficiency of commodity futures market of soy bean, chana and sugar. Using unit root test, it is confirmed that the data is stationary. The residual based Ganger co-integration test also indicates that the spot prices have co-integrated, with the NCDEX futures prices. Then once again the residual values are tested foe unit root test to see that both the future series and spot series are co-integrated with each other. The result was that the unit root test conducted for both the values are stationary, and that the market efficient in these three commodities. The volatility in the short run prices has corrected over a period in the long run.

Sushismitha Bose (2008) conducted a study on "Commodity Future Markets in India" and examined to bring forth the nature of information flows between futures and spot prices in the market for commodity derivatives in India, taking into consideration the history of commodity derivatives globally, and the importance of and problems associated with commodity markets particularly in less mature economies. The result of the study was that the degree of information flows and their direction vary significantly. The variation is mostly based on the type of commodity studied, the market infrastructure and the operation of arbitrageurs in the futures market.

Andrew M. Mckenzie & Matthew T. Holt (2012) conducted a study on "Market Efficiency and the risks and returns of dynamic trading strategies with commodity Futures", it examined about the dynamic trading strategies, based on structural components of Returns, including risk premia, convenience yields, and net hedging pressures for Commodity futures. The result of the was that significant momentum profits are identified in both outright futures and spread trading strategies when the spot premium and the term premium are used to Form winner and loser portfolios.

Pravakar Sahoo & Rajiv Kumar (2012) conducted a study on "Efficiency and Future Trading-Price Nexus in Indian Commodity Futures Markets" and examined the efficiency and future trading-price nexus for five top selected commodities namely gold, copper, petroleum crude, soya oil, and chana in commodity market in India. The result of the study was that the commodity future market for all five commodities was efficient and that there is no sufficient evidence to support that futures market leads to higher inflation.

Paul Joseph (2012) conducted a study on "Futures trading in commodities: Will it help?" and examined on whether the future markets help farmers in taking correct decisions in regard to the crops to be sown and sale of the crops. The result of the study was that future market enables a person to shift his risk to another person and that it is helpful for a farmer to take correct decisions.

Siami-Namini, S., Tavakoli, N., & Namin, A. S. (2018) Said that Traditionally, there are several techniques to effectively forecast the next lag of time series data such as univariate Autoregressive (AR), univariate Moving Average (MA), Simple Exponential Smoothing (SES), and more notably Autoregressive Integrated Moving Average (ARIMA) with its many variations. ARIMA model has demonstrated its outperformance in precision and accuracy of predicting the next lags of time series. With the recent advancement in computational power of computers and more importantly development of more advanced machine learning algorithms and approaches such as deep learning, new algorithms are developed to analyze and forecast time series data. The research question investigated in this article is that whether and how the newly developed deep learning-based algorithms for forecasting time series data, such as "Long Short-Term Memory (LSTM)", are superior to the traditional algorithms. The empirical studies conducted and reported in this article show that deep learning-based algorithms such as LSTM outperform traditional-based algorithms such as ARIMA model. More specifically, the average reduction in error rates obtained by LSTM was between 84 - 87 percent when compared to ARIMA indicating the superiority of LSTM to ARIMA. Furthermore, it was noticed that the number of training times, known as "epoch," in deep learning, had no effect on the performance of the trained forecast model and it exhibited a truly random behavior

Torbat, S., Khashei, M., & Bijari, M. (2018) handled the complexity and uncertainty associated with real-world market

problems, forecasting needs to be capable of handling complex situations. The steel industry is a strategic one for Iran playing a critical role in the national economy. Using time series models, this study aims to forecast the future trend of Iran's crude steel consumption. Although autoregressive integrated moving average (ARIMA) models are regarded as the most important time series models and are extensively employed in forecasting financial markets, they are hampered by certain limitations that detract from their popularity. They assume that a linear relationship holds between future values of a time series and its current and past values. Moreover, they depend heavily on a large amount of historical data to provide the desired results. To overcome the limitations in such conventional models, fuzzy autoregressive integrated moving average models have been proposed as improved versions of the ARIMA models. Unfortunately, the former is also plagued by very wide forecasted intervals in cases where there are outliers that create instability in the data. The present paper proposes a hybrid model which is a combination of computational intelligence tools and soft computing techniques. In such a form they take advantage of their unique properties which, when exploited, can provide more accurate financial forecasts. The main objective of the proposed model is to identify nonlinear patterns with probabilistic classifiers to obtain narrower intervals than would be otherwise possible under the traditional FARIMA models. The empirical results obtained from applying the proposed model to forecasting Iran's steel consumption provide significantly improved accuracy.

Dinh, D. (2020) compared and forecasted domestic credit growth in Vietnam's and China's economy. Thus, the paper is applied by a method of an autoregressive integrated moving average (ARIMA) model. This model is fitted to time series data both to better understand the data and to forecast future points in the series. Hereby, the methodology is selected by Vietnam's best fit model ARIMA (2,3,1) and China's best-fit model ARIMA (2,3,5). Analytical data are collected from 1996 to 2017, the sample fitted the model and is statistically significant. The result shows the forecast result for next years. The Vietnamese and Chinese economy are the open economies and have domestic credit greatly contributed to economic growth. These results are the basis for policymakers to have a general view and define the impact of domestic credit growth on GDP between the two countries.

Hu, W., & Zhang, X. (2020) said that the traditional methods of forecasting are not comprehensive, and the actual effect is not ideal. Use the ARIMA model to fit the original product sales time series, extract the main deterministic information in the product sales time series through the deterministic factor decomposition method, and subtract or remove the trend effect fitting polynomial and seasonal effect fitting from the sales time series the remaining part of the polynomial obtains the residual sequence. The similarity distance function of the comparison layer in the adaptive resonance theory neural network is improved to measure the degree of similarity between a subsequence of the residual sequence and another subsequence, and the weight is adjusted according to the similarity. Each neuron in the competition layer of the network compares the input subsequences accordingly to generate the most similar subsequences of each subsequence, and iteratively eliminates all sequences related to the total residual sequence to obtain the final residual sequence that meets the requirements. Experimental comparison shows that the model after optimization by residual error can reflect the sales law more accurately and comprehensively and improve the accuracy of product sales forecast.

3. Research Methodology

A. Objectives of the study

1) Primary objective

To analyze the risk and return of top listed companies in NSE.

Compare the relationship between national and international Silver with specific economic indicators of the country during covid period.

2) Secondary objectives

- To evaluate the performance of the companies using RSI.
- To evaluate the internal relationship of every commodities and indicators taken for the study based on ARIMA model.

B. Scope of the study

The study is to analyze about the price movements of top listed companies with NSE during the Covid period and thus the study will help the investors to invest in blue chip companies based on their performance in future period.

C. Need of the study

The need of the study is that to analyze the risk and return of top listed companies in NSE. Compare the relationship between national and international Silver with specific economic indicators of the country during covid period. find out the relation between the scripts taken for the study and NSE and to analyze the risk and return of top listed companies in NSE. For this purpose, to 10 companies were taken from NSE based on market capitalization were SEM analysis, Beta and RSI were used as tools to analyze the secondary data.

D. Research Design

1) Type of Research

As the study evaluates about the market fluctuations descriptive and Exploratory research methods were used to collect and evaluate the data.

2) Type of Sampling

The study discusses about the top listed companies in NSE and economic indicators have been implemented with the study thus purposive sampling method has been adopted towards research.

E. Data Collection

1) Sample size

A total of 10 companies were taken into consideration for analyzing and the companies are those top 10 listed with NSE based on market capitalization and the companies are as

follows,

Table 1
Sample size of the study

S. No.	Script	Market capitalization
1	Reliance	833,273.31
2	TCS	625,781.95
3	HDFC Bank	545,095.61
4	HUL	398,052.54
5	Infosys	326,956.41
6	HDFC	310,830.38
7	Bharti Airtel	267,107.81
8	Kotak Mahindra	242,594.92
9	ICICI Bank	237,062.29
10	ITC	833,273.31

For Analyzing the Capital Market:

BSE, NSE, International Silver, National silver, GDP, CPI, and India Wholesale Price Index were taken for the study.

Period of study: The study period is limited to 6 months from 1st January 2020 to March 2021.

F. Tools used for analysis

- Beta
- CAGR
- BHAR
- Multiple regression

1) Beta

Beta is a measure of the volatility—or systematic risk—of a security or portfolio compared to the market. Beta is used in the capital asset pricing model (CAPM), which describes the relationship between systematic risk and expected return for assets (usually stocks). CAPM is widely used as a method for pricing risky securities and for generating estimates of the expected returns of assets, considering both the risk of those assets and the cost of capital.

Beta coefficient(β)=Covariance (Re,Rm)/Variance(Rm)

2) CAGR

Compound annual growth rate (CAGR) is the rate of return that would be required for an investment to grow from its beginning balance to its ending balance, assuming the profits were reinvested at the end of each year of the investment's lifespan.

CAGR=(BVEV)n1−1

3) BHAR

Buy and hold is an investment strategy where an investor buys stocks and holds them for a long time. The BHAR is based on this principle and calculates abnormal returns by deducting the normal buy-and-hold return from the realized buy-and-hold return.

HPRi = (∏Ti t=1 (1+Rit) - 1] X 100%,

4) Multiple regression

Multiple regression is an extension of simple linear regression. It is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressor variables).

Multiple regression also allows you to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained.

G. Limitations of the study

- Only limited economic indicators are taken for the study.
- There may be a bias towards secondary data collected.
- Only one year of data was taken for the study.

4. Analysis and Interpretation

A. Tools used

Beta, CAGR, BHAR, Multiple regression, Paired sample t-test, ARIMA Model are the tools are used for analysis and interpretations.

To analyse the risk and return of top listed companies in NSE.

Table 2
Reliance

MEAN(X)=	0.23
SD	2.24
BETA	1.31
Return	58.41
CAGR	0.10

The above table shows about the risk and return of Reliance during Covid 19 period where the beta value for the company is at 1.31 which is greater than 1 and it yielded a return of 58.41% in the last one year which reveals that it is preferred to invest in this script in future period (Period-of-time).

Table 3
TCS

MEAN(X)=	0.22
SD	1.58
BETA=	0.57
Return	54.79
CAGR	0.07

The above table shows about the risk and return of TCS during Covid 19 period where the beta value for the company is at 0.57 which is less than 1 and it yielded a return of 54.79% in the last one year which reveals that it is not preferred to invest in this script based on risk and it is preferred to invest in this script based on return in future period-of-time.

Table 4
HDFC bank

MEAN(X)=	0.21
SD	2.18
BETA=	0.97
Return	51.78
CAGR	0.08

The above table shows about the risk and return of HDFC bank during Covid 19 period where the beta value for the company is at 0.97 which is almost 1 and it yielded a return of 51.78% in the last one year which reveals that it is preferred to invest in this script in future period-of-time.

Table 5
HUL

MEAN(X)=	-0.01
SD	1.50
BETA=	0.72
Return	-2.56
CAGR	0.02

The above table shows about the risk and return of HUL during Covid 19 period where the beta value for the company is at 0.72 which is less than1 and it yielded a return of -2.56% in the last one year which reveals that it is not preferred to invest in this script in future period of time.

Table 6
INFOSYS

MEAN(X)=	0.27
SD	2.06
BETA=	1.35
Return	67.72
CAGR	0.11

The above table shows about the risk and return of Infosys during Covid 19 period where the beta value for the company is at 1.35 which is greater than1 and it yielded a return of 67.72% in the last one year which reveals that it is preferred to invest in this script in future period of time.

Table 7
HDFC

MEAN(X)=	0.18
SD	2.47
BETA=	0.71
Return	44.49
CAGR	0.06

The above table shows about the risk and return of HDFC during Covid 19 period where the beta value for the company is at 0.71 which is less than1 and it yielded a return of 44.49% in the last one year which reveals that it is not preferred to invest in this script-based o risk, and it is preferred to invest in this script based on return.

Table 8
AIRTEL

MEAN(X)=	0.09
SD	2.05
BETA=	0.33
Return	22.96
CAGR	0.03

The above table shows about the risk and return of Airtel during Covid 19 period where the beta value for the company is at 0.33 which is less than1 and it yielded a return of 22.96% in the last one year which reveals that it is not preferred to invest in this script-based o risk, and it is preferred to invest in this script based on return.

Table 9
KOTAK MAHINDRA BANK

MEAN(X)=	0.12
SD	2.52
BETA=	1.57
Return	29.51
CAGR	0.06

The above table shows about the risk and return of Kotak Mahindra bank during Covid 19 period where the beta value for the company is at 1.57 which is greater than1 and it yielded a return of 29.51% in the last one year which reveals that it is preferred to invest in this script in future period-of- time.

Table 10
ICICI Bank

MEAN(X)=	0.22
SD	2.76
BETA=	1.24
Return	53.85
CAGR	0.09

The above table shows about the risk and return of ICICI bank during Covid 19 period where the beta value for the company is at 1.24 which is greater than1 and it yielded a return of 53.85% in the last one year which reveals that it is preferred to invest in this script in future period of time.

Table 11
ITC

MEAN(X)=	0.09
SD	1.88
BETA=	0.13
Return	22.12
CAGR	0.04

The above table shows about the risk and return of ITC during Covid 19 period where the beta value for the company is at 0.13 which is less than1 and it yielded a return of 22.12% in the last one year which reveals that it is not preferred to invest in this script based on risk and it is preferred to invest in this script based on return.

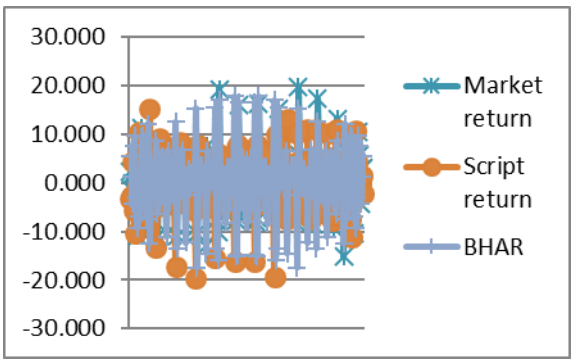

Fig. 1. BHAR comparison between USDIX and International silver

Interpretation:

The above table shows about the relationship between USDIX and International silver for the past ten days. When

compared to the script and market return the volatility of BHAR was much higher. Based on the comparison it revealed that BAHR gave a yield of 0.048 points in the last 10 years.

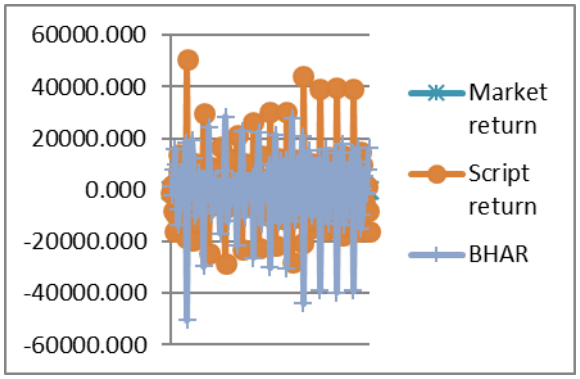

Fig. 2. BHAR comparison between USDIX and silver MCX

Interpretation:

The above table shows about the relationship between USDIX and silver MCX for the past ten days. When compared to the BHAR and market return the volatility of script (Silver MCX) was much higher when comparing USDIX. Based on the comparison it revealed that BAHR gave an average yield of 238.05 points in the last 10 years.

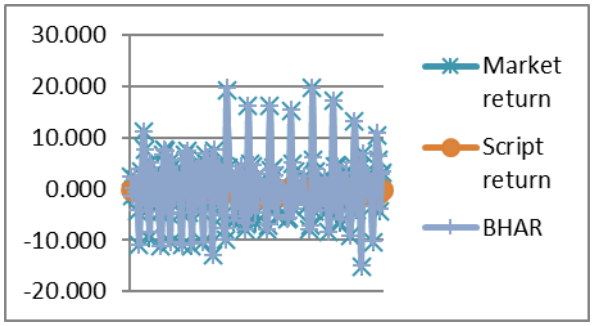

Fig. 3. BHAR comparison between USDIX and USDINR

Interpretation:

The above table shows about the relationship between USDIX and USDINR for the past ten days. When compared to the BHAR and USDINR the volatility of script (USDIX) was much higher when comparing USDINR. Based on the comparison it revealed that BAHR gave an average yield of 43.75 points in the last 10 years.

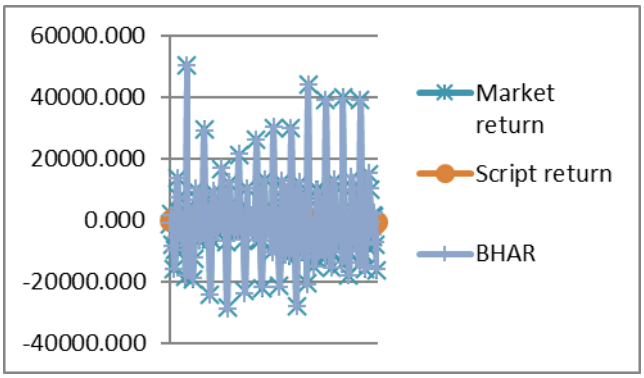

Fig. 4. BHAR comparison between Silver MCX and NSE

Interpretation:

The above table shows about the relationship between Silver MCX and NSE for the past ten days. When compared to the NSE and BHAR the volatility of script (Silver MCX) was much higher when comparing NSE. Based on the comparison it revealed that BAHR gave an average yield of 43.75 points in the last 10 years.

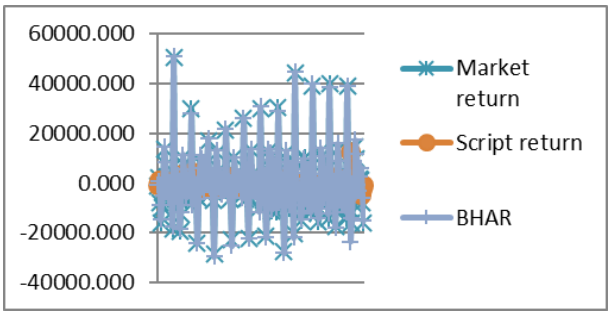

Fig. 5. BHAR comparison between MCX silver and BSE

Interpretation:

The above table shows about the relationship between Silver MCX and BSE for the past ten days. When compared to the BSE and BHAR the volatility of script (Silver MCX) was much higher when comparing BSE. Based on the comparison it revealed that BAHR gave an average yield of -169.65 points in the last 10 years which was negative, and it is not preferred to invest based on the comparison.

Table 12
Multiple regression Comparison of Silver MCX and monetary factors related to economy Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Std. Error	Beta		
1	(Constant)	26.982	7.796		3.461	.001
	NSE	.012	.008	2.581	1.430	.154
	BSE	-.003	.002	-2.404	-1.355	.177
	GDP	-.226	.206	-.094	-1.097	.274
	CPI	.562	.523	.142	1.073	.285
	India Wholesale Price Index	-.010	.312	-.003	-.033	.973
a. Dependent Variable: Silver MCX						
R square change		0.058				
F		0.920				
Sig		0.040				

Interpretation:

The above table shows about the comparison of Silver MCX and monetary factors related to economy. The R value towards the comparison factors is at 0.058 with level of significance 0.040 which shows that relationship exists between MCX Silver and monetary factors related to economy. Based on the comparison NSE (0.012) and CPI (0.562) has a positive relationship towards monetary factors related to economy.

5. Suggestions and Conclusion

A. Findings

1) BETA

The beta value for Reliance, Infosys, Kotak Mahindra bank and ICICI Bank was higher than 1.0 in the last one year and it was towards other scripts taken for the study.

The return of HUL was negative with HUL in the last one year and rather the return towards all other scripts taken for the study were positive.

2) BHAR

The volatility of BHAR was much higher. Based on the comparison it revealed that BAHR gave a yield of 0.048 points in the last 10 years with USDIX and International silver.

When compared to the BHAR and market return the volatility of script (Silver MCX) was much higher when comparing USDIX. It gave an average yield of 238.05 points in the last 10 years. When compared to the BHAR and USDINR the volatility of script (USDIX) was much higher when comparing USDINR.

BAHR gave an average yield of 43.75 points in the last 10 years while comparing Silver MCX and NSE and BAHR gave an average yield of -169.65 points in the last 10 years which was negative and it is not preferred to invest based on the comparison.

3) Multiple regression

Relationship exists between MCX Silver and monetary factors related to economy. Based on the comparison NSE (0.012) and CPI (0.562) has a positive relationship towards monetary factors related to economy. But no relationship exists between USD Silver and monetary factors related to economy.

B. Suggestions

It is preferred to invest in Reliance, Infosys, Kotak Mahindra bank and ICICI Bank based on risk as the beta value for the companies are greater than 1.0.It is not preferred to invest in HUL in future as the risk was also high and the yielded a negative return during the pandemic situation. When taking decision towards international silver the it is mandatory to consider USDIX as both the variables have relationship between each other. When comparing MCX silver the economic indicators USDINR. NSE, BSE, GDP, CPI and India Wholesale Price Index has to be taken in to consideration for decision making process.

C. Conclusion

COVID-19 has impacted communities, businesses and organizations globally, inadvertently affecting the financial markets and the global economy and the same replicated in Indian economy. The main objective of the study is that to risk and return of top listed companies in NSE and to compare the performance of index with economic indicators. For this purpose, to 10 companies were taken from NSE and the data of national and international silver, GDP, Inflation and CPI were taken for the study. The study was analyzed using Beta, CAGR, Multiple regression and Arima model. The conclusion of the study is that the It is preferred to invest in Reliance, Infosys, Kotak Mahindra bank and ICICI Bank based on risk It is also concluded that when analyzing economic indicators with MCX silver the economic indicators USDINR. NSE, BSE, GDP, CPI, and India Wholesale Price Index has to be taken into consideration for decision making process as they had a higher impact towards the study.

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