

# **GARCH Model for Determining COVID-19 Pandemic Effect on Hospitality Stock Returns**

**Prabhat Srivastava**

Student, Department of management Studies  
M.S. Ramaiah University of Applied Sciences, Bangalore.  
prabhat1710.777@gmail.com

**Chandrakala D P**

Research Scholar and Assistant Professor  
Department of Management Studies  
M.S. Ramaiah University of Applied Sciences, Bangalore  
chandrakala.ms.mc@msruas.ac.in

**N Suresh**

Professor, Department of Management Studies  
M.S. Ramaiah University of Applied Sciences, Bangalore  
nsuresh.ms.mc@msruas.ac.in

## **Abstract**

The hospitality industry contributes about 6.23% to the GDP of a country and 8.78% of employment in the country. This sector has seen strong growth in recent years due to the massive inflow of foreign travelers, and the movement of national tourists has also increased. World stock markets are declining now as investors become more concerned about the economic impact of the COVID-19 pandemic. Hotels, travel & tourism, and airlines have also experienced enormous losses. This study examines the effect of hospitality stock returns during the COVID-19 pandemic period, i.e., hospitality sectors, on stock index returns (Nifty 50) during the pandemic period. The weekly rate of hospitality stock index return (Nifty50) was considered for the study. A dummy variable was used to measure the effectiveness of the hospitality stock returns during March-May 2020. The study period was restricted from March 25th, 2020 to May 31st, 2020. The GARCH Model was used to analyse the data, and the results were validated using Residual Diagnostics. Finally, this study reveals a significant impact on hospitality stock returns during the COVID-19 pandemic period.

## **Keywords:**

Hospitality Stock Returns, COVID-19, GARCH, Stock Index Return, Dummy Variable

## **1. Introduction**

The hospitality industry has been affected the most as a result of travel limits imposed due to the COVID-19 pandemic, both internationally and within India. Hygienic emergencies distress the hospitality sector in immeasurable ways, including the deficiency of occupations of local people; advance reimbursement responsibility of affected organizations, and low to no habitation paces of hotels that may prompt impermanent or perpetual end; and income issues. Notwithstanding these difficulties, the government has approached with supporting measures, for example, the all-inclusive Wage Assistance Scheme for the hospitality industry, drawn-out credit bans and low loan costs, and the waiver of the rental installment of state lands for the forthcoming fiscal year to tide over the liquidity issues. The Mauritius Investment Corporation (MIC) has additionally been set up to propose interests in qualified organizations through various speculation devices, including both value and semi-value instruments.

The COVID-19 pandemic will remain in our amassed memory for quite a while into the future as a result of its perplexing impact at different levels on the overall economy. With continuing government support and the help of

monetary foundations, exchange will continue to push progress and move beyond the crisis. Beating a monetary crisis is most certainly not something else. Where there's a will, there's a way.

On March 24, 2020, at midnight, Indian Prime Minister Narendra Modi declared a nationwide lockdown. The lockdown has proceeded in four phases: Phase 1 will last from March 25, 2020 to April 14, 2020; Phase 2 will last from April 15, 2020 to May 3, 2020; Phase 3 will last from May 4, 2020 to May 17, 2020; and Phase 4 will last from May 18, 2020 to May 31, 2020. During the 68-days lockdown, people were prohibited from leaving their homes, all services and businesses, public and private buildings, training facilities, places of worship, public and private transportation, and all social, political, sporting, and entertainment events as well as academic, cultural, and religious activities were outlawed. According to the ministry of home affairs, violators of the rules might spend up to a year in jail. The only way to stop COVID-19 from spreading was to end the circle of social contact, and the lockdown should be implemented more tightly than the Janata curfew. The COVID-19 epidemic has caused a public health issue, diverting the stock market, especially in the hospitality sector, which includes hotels, travel & tourism, and leisure. According to the GDP, by the end of 2020 and 2021, the pandemic will have cost the globe more than 2 trillion dollars. (UNCTAD, n.d., *The Global Economy Could Lose Over \$4 Trillion Due to COVID-19 Impact on Tourism*.) About 6.23 percent of the nation's gross domestic product and 8.78 percent of employment has come from the hospitality industry. Due to the significant increase in domestic and international travel during the past few years, the industry has seen rapid expansion. Global stock markets are currently falling as investors grow more worried about the COVID-19 pandemic's potential economic effects. Airlines, travel & tourism, as well as the hotel sector have all suffered significant losses.

The hospitality sector, such as restaurants, resorts, hotels, airlines, railways, tourism companies, and travel agencies, faced a lot of financial distress. The income of the hospitality industry is expected to fall by 30%. The net effect is expected to be \$1.55 billion. 2020. The coronavirus had an undesirable impact on the stock market's price returns. Additionally, an epidemic model of investor behaviour has been developed, simulating how quickly illnesses spread and how stock values fluctuate. According to the Federation of Hotels and Restaurants Association of India (FHRIL, n.d.), the hotel industry will hit over 1.30 lakh crore in FY 2020–21 due to the COVID-19 pandemic. In 2020, occupancy rates are expected to fall by 31.6%, with revenue per available room falling by 57.8%. This research shows the effect of stock prices in the hospitality industry and then analyses and discusses how COVID-19 effects the returns in the hospitality industry by analysing the returns of the companies before, during, and after pandemics by using descriptive statistics, the ADF test, and the GARCH model, validating them by using the Normality test.

## 1.1 Objectives

- To analyze the effect of COVID-19 in Hospitality stock returns during pandemic.
- To evaluate the effect of the COVID-19 Pandemic on hospitality stock returns.
- To develop and validate a model on the effect of COVID-19 on hospitality stock returns during the pandemic period.

## 2. Literature Review

Literature reviews show that there were many studies have been conducted on the various calendar anomalies for example studies on the day, week, the month of the year and the effect of holidays. In many studies the stock market treated consistent and challenges to find single anomaly for entire stock market. Still, there is no attempt made to study the anomaly 'Forecasting the Effect of Hospitality Stock Returns of Indian Stock Market in the COVID-19 pandemic Period'. (Khan et al., 2021), *The Effect of COVID-19 on the Hospitality Industry: The Implication for Open Innovation*. Analyzes the hidden system by looking over 372 representatives of the hospitality sector during COVID-19. This study reveals that fear of economic crises and unemployment leads to the job insecurity among the employees and its leads to various psychological problems like depression stress anxiety and uncertainty during covid-19 outbreak. (Gössling et al., 2020), *Pandemics, tourism and global change: a rapid assessment of COVID-19*. This study reveals pandemic changes in tourism sector and economy impact and the way of societal changes with the help of comparative study on previous pandemic with current covid-19 pandemic situation. That there is a doubt in quick recovery of tourism sector because of profitability and liquidity is very low. The current pandemic is still on, by increasing air transportation overcapacity, proper accommodation, market regulation, subsidy and deceptive indifference of policy maker to address the disorderly growth of global rise of AirBnB. (He et al., 2020), *COVID-19's Impact on Stock Prices Across Different Sectors—An Event Study Based on the Chinese Stock Market*. Data

collected from Shanghai and Shenzhen A-share market, individual stock returns of 2,895 samples collected from 3rd June 2019 to 13th March 2020 in listed companies. CSMAR database used for T-test to observe the stock returns during the pandemic period. The findings of this study obtained that there is a covid-19 impact is adversely affected towards transportation, mining, environment industries, heating and electricity. However, manufacturing, health care, information and education sectors were resilience to current pandemic period. (Ratten, 2020), Coronavirus (Covid-19) and entrepreneurship: cultural, lifestyle and societal changes literature review of a prevailing covid -19 pandemic crisis management in views and effect of entrepreneurs. This research methodology helps to the entrepreneurs to adopt their business activities and how they are capable to manage their business and social well-being in periods of financial and societal disturbance. this study reveals that the entrepreneurs were inbuilt strong in nature, during the pandemic crisis they faced specific challenges by adopting themselves into the new atmosphere and the way of responding to be ambiguity by being a stretchy but also through backing of an entrepreneurial ecosystem environment. (Smales, 2021), Investor attention and the response of US stock market sectors to the COVID-19 crisis. methodology of Da et al, in the year of 2015 usage of GSV as substitution of investors' attention to investigation of relationship between investors' attention and stock returns across the 11 sectors. study reveals that US stock market negatively impacted towards covid 19 crisis and few sectors grabbed the attention likely to benefit from the crisis, spending by household by government such as consumer staples, healthcare and IT. The results are showed that investor's investigating the online info to enable a good understanding about covid 19 impact on stock sector wise performance. (Salisu et al., 2020), Pandemics and the emerging stock markets. data collected from stock index returns using data set of uncertainty and global fear index of 24 emerging market data bases of before and after covid -19 pandemic period. This study is used panel data techniques of series and predictive model. this study reveals that developing stock market is weaker to UPE than developed stock market. In visa versa developed stock market provides better hedge against UPE than developing stock market. while integrating the UPE indicator in valuation of stocks specifically during pandemics circumstances crucial for the investment decision. (Gössling et al., 2020), Pandemics, tourism and global change: a rapid assessment of COVID-19. The methodology used in this study was - Event based comparative study on previous pandemic and current (Covid-19) pandemic effect on global tourism - Critical literature review made on pandemic was a mysterious hazard. This study reveals that the current situation is not permanent and it will recover slowly back to normal. The findings of this study reveals that why the pandemic crisis is ongoing and what are the necessity to question the volume growth travel and tourism model advocated by tourism organizations. (Sherif, 2020), The impact of Coronavirus (COVID-19) outbreak on faith-based investments: An original analysis. The daily prices of listed obtained from Islamic stock market index and its counterpart FTSE100 index from 20th Jan 2020 to 20th May 2020, the data obtained from Bloomberg stock prices that includes market capitalization and market to book ratio. This research also obtained daily data of active confirmed cases and daily cases of death from covid -19 in the UK. Impact of covid -19 crisis performance of 10 UK sector groups. Results reveals that there is a significant impact of the information technology better than the market. Other side consumer discretionary sector significantly worse than the market during pandemic crisis. (Liu et al., 2020), Short term response of Chinese stock markets to the outbreak of COVID-19. this study reveals that the impact of covid-19 crisis had positive cumulative abnormal returns on pharmaceutical, manufacturing, software and IT services and negative cumulative abnormal returns on transportation, lodging and catering during the event study. The current covid-19 crisis is unique and there is no historical data and the crisis is still relatively time limited and it's started to spread after January. It is hard to practice traditional predication models to analyses the long-term effects. (Gurbaxani, 2021), A Study on the Impact of COVID- 19 on Investor Behavior of Individuals in a Small Town in the State of Madhya Pradesh, India. Literature review used to understand basic knowledge of impact on covid -19 and steps taken by govt. during crisis. The survey data collected from service sector and owned business in Madhya Pradesh how the pandemic changes the investors investment decisions with respect to SIPs was studied. significant association between measures taken by govt to prevent the spread of covid-19 like lockdown and travel restrictions, individual income directly affects the individual investor behavior and 43% drop in SIP investment. (Mittal & Sharma, 2021) The Impact of COVID-19 on Stock Returns of the Indian Healthcare and Pharmaceutical Sector published on 2021, This is one of a few studies on the Indian stock market, but the study is limited to companies in the BSE Healthcare index and does not include any companies in the same sector outside the index. Furthermore, because there are no separate sectoral indices for healthcare and pharmaceutical companies, the BSE Healthcare index was used to represent both sectors in this study.

### **3. Methods**

The main objective of this study is to develop a general-specific GARCH model to check whether the COVID-19 pandemic has an impact on hospitality stock returns. The following methods were involved(N. Suresh and Bharathi. N. R, 2018):

- Examine the trend in hospitality stocks' returns as well as the weekly rate of return.
- Used descriptive statistics to determine the goodness-of-fit of data
- The ADF (Augmented Dickey-Fuller) test, determine the sequence of integration of the variables.
- Checked regression model for heteroscedasticity before running GARCH family model
- Developed and validated the ARCH model through the following tests: Correlogram – Q Statistics, Correlogram – Square residual, and Histogram – Normality Test.
- To enable diagnostic checking of the model with hospitality stock index returns as a dependent variable and stock index returns (Nifty) as an exogenous variable, to determine the impact of the pandemic, a dummy variable is used.
- Suggest desirable GARCH results in which hospitality stocks do not have serial correlation, and whether the COVID-19 pandemic affects hospitality stock returns or not.

#### 4. Data Collection

The study was based on secondary sources. The NSE's official website was used to collect data on the Nifty's Weekly adjusted closing prices. Data is collected from November 4, 2019 to September 28, 2020, with the Pre-COVID- 19 Pandemic from November 4, 2019 to March 1, 2020; the COVID-19 Pandemic from March 2, 2020 to May 5, 2020; and the Post-COVID-19 Pandemic from May 6, 2020 to September 28, 2020. There are 31 companies in the NSE listed hospitality companies, including Advani Hotel, Asian Hotel East, Asian Hotel West, Apollo Sinduri Hotel, Bluecoast, Byke, Country Club Hospitality & Hotels, Chalet Hotel, Coffee Day, Cox & Kings, Delta Crop, EIH Association, EIH, HLV Ltd, Hotel Rugby, IND Hotel, IRCTC, ITDC, JUBL food, Kamat hotel, Lemon Tree, MHRIL, Orient Hotel, Royal Orchid, Speciality Restaurant, Taj Gvk, Tgb Hotels, Thomas Cook, Viceroy, Westlife, Wonderla Holidays.

#### 5. Results and Discussion

The hospitality sector had an impact on stock returns during the COVID-19 epidemic period, i.e., the hospitality sector on stock index returns (Nifty 50) during the pandemic period. The study also considered the weekly rate of return of hospitality sector companies and the stock index return (nifty50) for the study. A dummy variable was used to measure the effectiveness of the hospitality sector during March-May 2020. The following results reveal that there was a significant impact on hospitality stock returns during the COVID-19 pandemic period.

##### 5.1. Descriptive Statistics

The descriptive statistics of hospitality stock index returns are summarised in Figure 1. The skewness factor indicates that the distribution is significantly skewed. Kurtosis depicts the size of the distribution's tails and aids in determining how much risk is involved in a specific investment. Furthermore, the Jarque-Bera test determines whether the sample data has skewness and kurtosis that are consistent with a normal distribution. The test critical values are statistically significant at the 1%, 5%, and 10% levels, respectively, and show statistical significance at the 1% level.

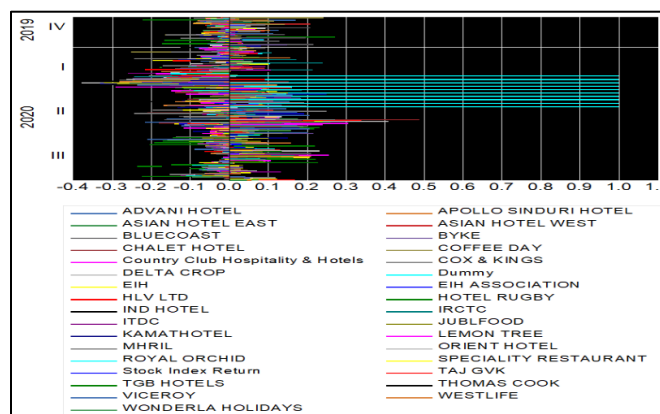


Figure 1. Descriptive Statistics Source: E-views analysis

## 5.2. ADF Test

Table 1 recaps unit root test (stationery test): Time series data should stationary to run Auto-regressive models at levels. Hence, stationary test for different data series were conducted through Augmented Dickey Fuller Test (ADF). The ADF statistic value for following stock index return is -6.047325 and one-sided p-value for a test with 48 observations) is 0.00 for all the variables and so on. Test critical values at the 1, 5 and 10 % levels are shown in Table 1. It was found that, the t- statistics is less than the critical values meaning that variables do not have unit root and is desirable at level.

Table 1. Augmented Dickey Fuller Test (ADF)

SL. No	Hospitality stock returns.	t-Statistics	Probability*
1	STOCK_INDEX_RETURN (Nifty-50)	-6.047325	0.0000
2	ADVANI HOTEL	-5.371470	0.0000
3	ASIAN HOTEL EAST	-6.348231	0.0000
4	ASIAN HOTEL WEST	-8.568596	0.0000
5	APOLLO SINDURI HOTEL	-5.801075	0.0000
6	BLUECOAST	-4.085789	0.0025
7	BYKE	-5.775256	0.0000
8	Country Club Hospitality & Hotels	-4.477958	0.0008
9	CHALET HOTEL	-7.086462	0.0000
10	COFFEE DAY	-3729497	0.0068
11	COX & KINGS	-4.903816	0.0002
12	DELTA CROP	-4.458756	0.0008
13	EIH ASSOCIATION	-6.369333	0.0000
14	EIH	-4.577824	0.0006
15	HLV LTD	-6.723778	0.0000
16	HOTEL RUGBY	-6.140670	0.0000
17	IND HOTEL	-5.066375	0.0001
18	IRCTC	-5.923488	0.0000
19	ITDC	-5.053277	0.0001
20	JUBLFOOD	-7.169822	0.0000
21	KAMATHOTEL	-6.490705	0.0000
22	LEMON TREE	-4.161898	0.0019
23	MHRIL	-6.472133	0.0000
24	ORIENT HOTEL	-6.581190	0.0000
25	ROYAL ORCHID	-7.051859	0.0000
26	SPECIALITY RESTAURANT	-5.768678	0.0000
27	TAJ GVK	-5.883725	0.0000
28	TGB HOTELS	-6.924636	0.0000
29	THOMAS COOK	-5.255914	0.0001
30	VICEROY	-4.319017	0.0012
31	WESTLIFE	-4.008152	0.0031
32	WONDERLA HOLIDAYS	-5.222637	0.0001

Source: Author contribution data calculated on E-Views

## 5.3. GARCH Model

This research used three variables: the Indian Stock Exchange Index (Nifty 50), hospitality stock return, and a dummy variable. Our fictitious data ranges from 04/11/2019 to 28/09/2020. In this case, we employed a dummy variable (Dummy) to know the effect of COVID-19 on hospitality stock returns. Dummy = 0 for the previous pandemic period (04/11/2019 to 01/03/2020) and Dummy = 1 during the pandemic period (02/03/2020 to 05/05/2020), whereas Dummy = 0 after the pandemic period (06/05/2020 to 28/09/2020). If the dummy variable is discovered to be large and positive, the stock price returns, coupled with the company's returns, have a positive influence on the Nifty.

**Arch test:** In order to fit ARCH/GARCH Model we should run the regression model to see that the residuals should be stationary.

It is found that probability of P-value is less the 5% then we can accept the null hypothesis and we can reject the alternative hypothesis, so we can run the ARCH/GARCH model

**Development of an ARCH Model:** The development of general arch model consists mean equation and variance equation represented below:

$$\text{GARCH} = C (3) + C (4) * \text{RESID} (-1) ^2 + C (5) * \text{GARCH} (-1) + C (6) * \text{DUMMY}$$

Where,

- GARCH = Residual variance (error term) it is also known as present day variance
- RESID (-1) ^2= Previous period residual square and it is also known as previous days return information regarding volatility. It is also called as ARCH term.
- GARCH (-1) = Lag/Previous day's Variance residual or volatility of stock market return (Nifty). It is known as GARCH.
- DUMMY = Variable to represent the impact of pandemic effect

**Results and Discussion of GARCH (1,1) Model:** This study has been done with Stock index returns as dependent variable, independent 31 hospitality stock returns and DUMMY as exogenous variable (Table 2). The AIC and SC measures the model is the one with the lowest, the criteria take into account both the closeness of fit of the points to model. The prob shows that less than < 5% which shows that significant impact of pandemic effect in the hospitality industry.

Table 2. GARCH/ARCH Model

SL. No	Name of the Company	AIC	SC	Prob. *
1	ADVANI HOTEL	-4.412946	-4.179046	0.0051
2	ASIAN HOTEL EAST	-4.417439	-4.183539	0.0100
3	ASIAN HOTEL WEST	-4.290250	-4.056350	0.0252
4	APOLLO SINDURI HOTEL	-3.957902	-3.685809	0.0142
5	BLUECOAST	-4.237666	-3.994368	0.0136
6	BYKE	-4.285004	-4.041705	0.0013
7	COUNTRY CLUB HOSPITALITY & HOTELS	-4.361949	-4.113710	0.0279
8	CHALET HOTEL	-4.326598	-4.083299	0.0200
9	COFFEE DAY	-4.203937	-3.960638	0.0246
10	COX & KINGS	-4.320815	-4.086915	0.0159
11	DELTA CROP	-4.535417	-4.292119	0.0075
12	EIH ASSOCIATION	-4.519300	-4.276001	0.0003
13	EIH	-4.601509	-4.367609	0.0000
14	HLV LTD	-4.348065	-4.111875	0.0331
15	HOTEL RUGBY	-4.258816	-4.020297	0.0221
16	IND HOTEL	-4.466679	-4.232779	0.0189
17	IRCTC	-4.244016	-4.005497	0.0298
18	ITDC	-4.903924	-4.660625	0.0000
19	JUBLFOOD	-4.373215	-4.132327	0.0102
20	KAMATHOTEL	-4.438730	-4.185398	0.0278
21	LEMON TREE	-4.305948	-4.057709	0.0289
22	MHRIL	-4.519393	-4.285493	0.0002
23	ORIENT HOTEL	-4.333605	-4.099705	0.0082
24	ROYAL ORCHID	-4.878764	-4.614844	0.0230
25	SPECIALITY RESTAURANT	-4.324268	-4.090368	0.0136
26	TAJ GVK	-4.499905	-4.266005	0.0373
27	TGB HOTELS	-4.190211	-3.941972	0.0004
28	THOMAS COOK	-4.174715	-3.923948	0.0102
29	VICEROY	-4.236133	-3.992835	0.0193
30	WESTLIFE	-4.212178	-3.978278	0.0329
31	WONDERLA HOLIDAYS	-4.357862	-4.104530	0.0209

Source: E-views data analysis

## 5.4 Validation

The volatility of stock price returns has been simulated using the general autoregressive conditional heteroscedastic (GARCH) model. Table 3 shows the validation of the ARCH model through Q-Statistics, square residual, and normality tests. The significant effect of hospitality stock returns on any two tests has to be significant (<0.05) and vice versa. From the results, it shows that out of 31 hospitality stock returns, 25 hospitality stocks showed significance, rejected the alternative hypothesis, and accepted the null hypothesis.

- The residual diagnostic test is the most desirable model for measuring the volatility of hospitality stock return during the pandemic period.
- The equation residuals' autocorrelations and partial autocorrelations up to the selected number of lags are shown. In the time series data set, the least number is accepted as a lag.
- Using the correlogram square residual (Q test), the estimated equation should be tested for serial correlation. The test assumptions are as follows:
- A normality test: Normality of Residual Diagnostics/Histogram The test describes descriptive statistics as well as a residuals histogram. The Jarque-Bera statistic is used to regulate whether the residuals are normally distributed or not. The Jarque-Bera statistic should not be significant if the standardised residuals are normally distributed.

### 5.4.1 Hypothesis Statement

- **H<sub>0</sub>**: The COVID-19 Pandemic Period had a significant impact on hospitality stock returns.
- **H<sub>1</sub>**: The COVID-19 Pandemic Period had no significant impact on hospitality stock returns.

**Table 3: Validation of GARCH Model**

SL No	Name of the company	Q-Statistics	Square Residual	Histogram/Normality	Hypothesis Results
1	ADVANI HOTEL	0.001	0.101	0.000	Accepted
2	ASIAN HOTEL EAST	0.003	0.435	0.000	Accepted
3	ASIAN HOTEL WEST	0.005	0.208	0.005	Accepted
4	APOLLO SINDURI	0.004	0.473	0.000	Accepted
5	BLUECOAST	0.012	0.365	0.001	Accepted
6	BYKE	0.268	0.221	0.004	Rejected
7	COUNTRY CLUB	0.001	0.030	0.740	Accepted
8	CHALET HOTEL	0.011	0.102	0.030	Accepted
9	COFFEE DAY	0.008	0.273	0.005	Accepted
10	COX & KINGS	0.045	0.332	0.000	Accepted
11	DELTA CROP	0.043	0.398	0.000	Accepted
12	EIH ASSOCIATION	0.032	0.215	0.018	Accepted
13	EIH	0.001	0.572	0.152	Rejected
14	HLV LTD	0.032	0.048	0.239	Accepted
15	HOTEL RUGBY	0.010	0.438	0.013	Accepted
16	IND HOTEL	0.004	0.609	0.007	Accepted
17	IRCTC	0.018	0.416	0.019	Accepted
18	ITDC	0.106	0.287	0.601	Rejected
19	JUBLFOOD	0.001	0.001	0.459	Accepted
20	KAMATHOTEL	0.325	0.340	0.176	Rejected
21	LEMON TREE	0.006	0.003	0.070	Accepted
22	MHRIL	0.043	0.114	0.000	Accepted
23	ORIENT HOTEL	0.030	0.003	0.439	Accepted
24	ROYAL ORCHID	0.029	0.013	0.274	Accepted
25	SPECIALITY REST.	0.001	0.070	0.000	Accepted
26	TAJ GVK	0.000	0.287	0.023	Accepted
27	TGB HOTELS	0.104	0.356	0.000	Rejected
28	THOMAS COOK	0.186	0.327	0.118	Rejected
29	VICEROY	0.020	0.310	0.000	Accepted
30	WESTLIFE	0.005	0.138	0.0001	Accepted
31	WONDERLA HOLIDAYS	0.010	0.118	0.0085	Accepted

**Source: Author contribution data calculated on E-Views**

Based on the validation results, we intend to reject the alternative hypothesis ( $H_1$ ) that there is no serial correlation in the residuals because Q-statistics are insignificant in all distributions with a large  $p > 0.05$  and accept the null hypothesis ( $H_0$ ) that there is a serial correlation in the residuals because Q-statistics are significant in all distributions with a large  $p < 0.05$ .

Model selection:

Following a residual diagnostic check, it was discovered that the GARCH Model with all distributions was satisfactory with the test for serial correlation. The ARCH-test for heteroskedasticity and the normality test with Jarque-Bera statistics are used to determine heteroskedasticity and normality. As a result, all of the models are acceptable. As a result, the most desirable model will be the generalised error distribution.

## 6. Conclusion

This study tries to explore the interaction between 31 hospitality companies' stock returns and stock index returns during the COVID-19 pandemic period. The volatility of Indian stock market returns has been modelled by using GARCH models that capture the most common stylized facts about stock returns during the pandemic period with the help of ML ARCH-Normal distribution (BFGS/Marquardt Steps). This study used data from the 1st of March to the 31st of May 2020 as an exogenous variable, and a dummy variable was used to measure the influence of the COVID-19 pandemic on the hospitality industry. The findings of the ARCH test conducted point out the significant presence of ARCH effects in the hospitality stock returns during the COVID-19 pandemic period. The perception of investor behaviour has a significant impact on the hospitality stock market as well.

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## Biography



**Prabhat Srivastava:** Second year student of Masters of Business Administration (MBA) in Finance from MS Ramaiah university of Applied Sciences. Received a bachelor's degree in Bachelors of Commerce from Veer Bahadur University.

**Chandrakala D P:** Assistant Professor with a demonstrated history of working in the higher education industry. Skilled in MS office, Research Methodology, Data Analysis, Project Management, Six Sigma Green and Black Belt, Statistics, Operation Excellence. Strong education professional with a Master of Business Administration (MBA) focused on Finance, General from MS Ramaiah University of Applied Sciences

**Dr Suresh N:** Experienced with a demonstrated history of working in higher education. Skilled in Analytical Skills, Operations Management, Lecturing, Event Management, and Team Building. Strong education professional with a Ph.D. focused in Management (Finance) from Bangalore University.

### **Acknowledgment**

I am thankful to to vice- chancellor, Registrar, Controller of Examinations and research co-Ordinator, MS Ramaiah university of applied sciences Bangalore for their support to complete my research work.

I am very thankful to my mentor Ms. Chandrakala D.P., N. Suresh, faculty of management and commerce and MS Ramaiah university of applied sciences whose guidance and encouragement enable me to complete my research work.