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Research Article

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Covid's Effect on Beta in the Stock Market

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Abstract Purpose – This research aims to see how COVID affects stock market volatility metrics (beta). Design/methodology/approach – The secondary data was collected from 50 companies in India. The researcher employed a descriptive and exploratory technique to get meaningful results. Automobiles, Cement, Chemicals, Construction, Consumer Goods, Consumer Services, Fertilizers, Pesticides, Financial Services, Health Care, and Industry Manufacturing, were all selected for a thorough stock market analysis. Findings – The findings found that the stock market's beta value has grown, implying that stock market volatility has increased significantly, the overall market has sunk, and therefore a magnified impact on the stock market has led to a rise in the value of beta. Research limitations– An increase in the number of sectors and companies and an extension of the time range could yield better results. The study does not compare how the stock market works before and after COVID; if this portion is included, the results will be more apparent and more prominent. Practical implications – The report examines the state of the stock market following the COVID attack. Overall, the scenario has grown vulnerable, and investors must comprehend this position to have a positive attitude and better follow the principle of patience to overcome the scenario. Originality/value – This document depicts the stock market's progress in terms of several companies; the data was gathered from the companies' websites; thus, it is legitimate and trustworthy.

Keywords Stock Market, Beta, Volatility

Introduction

A stock exchange is a site where you may purchase and sell publicly traded firm shares. Businesses make funds in the primary market by selling shares to the general public in an initial public offering (IPO). Following the main market, new stocks are traded in the secondary market, when one investor purchases shares from another at the current market price or whatever price the buyer and seller agree on. The secondary market, often known as stock exchanges, is governed by a regulating body. India's secondary and main markets are regulated by India's Security and Exchange Board (SEBI). On a stock market, stockbrokers trade business stocks and other securities. It is impossible to buy or sell a stock that is not listed on an exchange. As a consequence, it works similarly to a stock exchange for buyers and sellers. India's two most prominent stock exchanges are the Bombay Stock Exchange and the National Stock Exchange.

Our talk will focus on the stock market and beta volatility. Beta is a risk indicator that depicts how to market variables affect a security's price. To calculate beta, the return on protection is compared to the market return. A stock's beta exceeds one, indicating that it is riskier than the market. When beta equals 0, the risk is equivalent to that of the market. Negative beta is a rather uncommon phenomenon.

Types of Beta Values: Beta values can be characterised into four types:

Aleksandra Kacperczyk, Christine M. Beckman and Thomas P. Moliternoin their research working have explained beta as"When the beta value is equal to 1.0, a stock's price movement is strongly influenced by

demand. Systematic risk exists in a stock with a beta of 1.0. The beta calculation, on the other hand, is unable to detect any unsystematic risk. Adding a stock with a beta of 1.0 to a portfolio does not increase risk, but it does not increase the chances of an excess return. In principle, a beta value of less than 1.0 means that the securities are less volatile than the market. When this stock is included in a portfolio, it reduces the portfolio's risk compared to the one without it. Utility firms, for example, have low betas due to their slower movement than market norms. A security's price will be more volatile than the market if its beta is greater than 1.0. For example, a stock with a beta of 1.2 is expected to be 20% more volatile than the market. Technology and small-cap share often have higher betas than the market. As a result, including the stock in a portfolio increases the portfolio's risk while boosting the expected return theoretically." [1]

Some stocks have negative betas. The stock has a beta of -1.0, indicating that it is unrelated to the market benchmark. The characteristics of this stock are diametrically opposed to those of the benchmarks. Put options and inverse ETFs both have a negative beta. Negative beta is also common in a few industries, including gold miners.

Review of Literature

(Cenesizoglu, Papageorgiou, Reeves, & Wu, 2019) [2] According to this article, the beta projections are based on a realised beta estimator that takes as daily input outcomes from the preceding year.

Abnormal profits from momentum trading have been documented in prior research for periods such as 1969–1989; however, we show that systematic risk assessment error spuriously produced these profits. These findings raise greater doubt on the ability of traditional momentum trading methods to generate abnormal returns.

(Jhamb, Dhaiya10, & Menani, 2019) [3] The capital asset pricing model is one of the oldest methods for establishing a relationship between expected return and market risk. According to the theory, market risk, as measured by beta, may explain returns, making it the most important driver in asset price. On the other hand, recent empirical research has thrown doubt on the validity of a single beta model, with several arguments offered to claim that because beta does not remain constant over time, a single beta model is unsuccessful in capturing the returns of risky assets and/or portfolios. The goal of this paper is to see if a single beta CAPM, as proposed by Sharpe Lintner and Mossin, is effective in explaining the risk-return relationship of stock returns in India using 271 securities listed on the BSE 500 from January 2000 to December 2016, or if a dual beta CAPM that accounts for both upside and downside risk is more effective in explaining the securities' returns.

(Nugraha & Susanti, 2019) [4] The purpose of this research is to show how to utilise the CAPM (capital asset pricing model) to find the best company to buy. The samples utilised were companies that were part of the coal mining sub-sector from 2012 to 2016, 22 companies. However, only 16 were chosen as samples, which was impacted by purposive sampling processes. The data collecting methods used to assist the implementation of this project were library research and Internet research (Online Research).

The purpose of this research is to locate an efficient stock (one that has a greater individual rate of return than predicted). The outcomes of this study reveal that beta and expected return are inversely related, with a high beta value resulting in a low rate of return and vice versa. Eleven of the sixteen businesses examined were efficient, while the remaining five were inefficient. The greatest investment option is to acquire the stock while it is in excellent condition; however, the best investment decision is to sell it when it is not in good condition. This research will assist players in the capital markets in making choices and enforcing laws.

(Cenesizoglu & Reeves, 2018) [5] The goal of this study is to evaluate the CAPM's investment risk and structural change. The time variable beta risk is constructed using the Markov Switching dynamic regression when the market exhibits structural change. The model is tested using Thai stock return data. The empirical results provide considerable evidence of the structural shift in CAPM for four out of five Thai equities with a significant market capitalisation. During the market upheaval, notably during the Thai financial crisis, we observed a lot of volatility in Thai stock prices.

Objective of the Research Work

The primary purpose of the research is to examine the stock market's beta trend following the COVID attack.

Research Methodology

To achieve the study's objectives, the researcher collected secondary data. A total of 50 firms were chosen from the CNX 500. Based on their manufacturing techniques, these businesses were divided into ten broadheads. Automobiles, Cement, Chemicals, Construction, Consumer Goods, Consumer Services, Fertilizers, Pesticides, Financial Services, Health Care, and Industry Manufacturing, were designated as the ten sectors. Beta was chosen as the statistical method to examine the stock market's volatility changes. The software MS-EXCEL is used to compute beta.

Beta Methodology:

The following steps were taken to calculate the beta values for the various companies: Step 1 The equations are used to calculate the returns.

$$\mathbf{R} = Log\frac{P_1 - P_0}{P_0}$$

Where R is for Returns, P1 stands for Current Stock Price, and P0 stands for Yesterday's Stock Price. Step 2 Calculation of Beta

The formula for calculating beta that used was,

$$\beta = \frac{Cov\ Rm,\ \ Rt}{\sigma^2}$$

Rm = Stock return, Rt= CNX 500 return and σ^2= Variance of stock return

Analysis of Data

Secondary data was collected for the period 01-April-2019 to 31-March-2021 and five years before 01- April-2019 for data analysis. When it comes to beta, the general guideline is that the risk is minimal if the beta number is less than one and high if the beta value is larger than one. As shown in the table below, data were acquired from the businesses' websites throughout the given period to analyse the beta trend variation after the COVID period. For this, we needed to look at and compute beta values for the prior five years. The beta was calculated using MS EXCEL.

Table 1: Beta Values

***Low Risk ▼ & High Risk ▲**

S NO	Sector	Company	Last five years	Security Risk	last two years	Security Risk
1	INDUSTRIAL MANUFACTURING	ABB India Ltd.	0.29	▼	1.04	▲
2	INDUSTRIAL MANUFACTURING	AIA Engineering Ltd.	0.33	▼	1.03	▲
3	INDUSTRIAL MANUFACTURING	Balmer Lawrie & Co. Ltd.	0.22	▼	0.96	▼
4	INDUSTRIAL MANUFACTURING	Bharat Electronics Ltd.	0.29	▼	0.97	▼
5	INDUSTRIAL MANUFACTURING	Bharat Forge Ltd.	0.37	▼	0.97	▼
6	HEALTHCARE SERVICES	Apollo Hospitals Enterprise Ltd.	0.29	▼	0.95	▼
7	HEALTHCARE SERVICES	Aster DM Healthcare Ltd.	0.36	▼	0.93	▼
8	HEALTHCARE SERVICES	Narayana Hrudayalaya Ltd.	0.28	▼	0.98	▼

9	HEALTHCARE SERVICES	Syngene International Ltd.	0.27	▼	0.96	▼
10	HEALTHCARE SERVICES	Thyrocare Technologies Ltd.	0.37	▼	0.96	▼
11	FINANCIAL SERVICES	Aditya Birla Capital Ltd.	0.48	▼	0.97	▼
12	FINANCIAL SERVICES	AU Small Finance Bank Ltd.	0.01	▼	0.94	▼
13	FINANCIAL SERVICES	Axis Bank Ltd.	0.35	▼	1.07	▲
14	FINANCIAL SERVICES	Bajaj Finance Ltd.	0.3	▼	1.01	▲
15	FINANCIAL SERVICES	Bajaj Finserv Ltd.	0.4	▼	0.98	▼
16	FERTILISERS & PESTICIDES	Bayer CropScience Ltd.	0.34	▼	0.97	▼
17	FERTILISERS & PESTICIDES	Coromandel International Ltd.	0.32	▼	0.98	▼
18	FERTILISERS & PESTICIDES	Dhanuka Agritech Ltd.	0.36	▼	0.93	▼
19	FERTILISERS & PESTICIDES	PI Industries Ltd.	0.38	▼	0.96	▼
20	FERTILISERS & PESTICIDES	Rallis India Ltd.	0.4	▼	1.02	▲
21	CONSUMER SERVICES	Avenue Supermarts Ltd.	0.32	▼	1.02	▲
22	CONSUMER SERVICES	Delta Corp Ltd.	0.33	▼	0.97	▼
23	CONSUMER SERVICES	Delta Corp Ltd.	0.33	▼	0.97	▼
24	CONSUMER SERVICES	EIH Ltd.	0.3	▼	0.94	▼
25	CONSUMER SERVICES	Future Consumer Ltd.	0.22	▼	0.96	▼
26	CONSUMER GOODS	Advanced Enzyme Tech Ltd.	0.31	▼	0.97	▼
27	CONSUMER GOODS	Akzo Nobel India Ltd.	0.36	▼	0.95	▼
28	CONSUMER GOODS	Amber Enterprises India Ltd.	0.41	▼	1.01	▲
29	CONSUMER GOODS	Asian Paints Ltd.	0.38	▼	0.93	▼
30	CONSUMER GOODS	Avanti Feeds Ltd.	0.32	▼	1.02	▲

31	CONSTRUCTION	Ashoka Buildcon Ltd.	0.38	▼	1.09	▲
32	CONSTRUCTION	Brigade Enterprises Ltd.	0.33	▼	0.96	▼
33	CONSTRUCTION	Dilip Buildcon Ltd.	-0.04	▼	0.93	▼
34	CONSTRUCTION	DLF Ltd.	0.21	▼	1.06	▲
35	CONSTRUCTION	Engineers India Ltd.	0.27	▼	0.96	▼
36	CHEMICALS	Aarti Industries Ltd.	0.38	▼	1.07	▲
37	CHEMICALS	Alkyl Amines Chemicals Ltd.	0.21	▼	1.1	▲
38	CHEMICALS	Atul Ltd.	0.33	▼	0.94	▼
39	CHEMICALS	BASF India Ltd.	0.32	▼	0.96	▼
40	CHEMICALS	Deepak Nitrite Ltd.	0.26	▼	1.03	▲
41	CEMENT & CEMENT PRODUCTS	ACC Ltd.	0.31	▼	0.95	▼
42	CEMENT & CEMENT PRODUCTS	Ambuja Cements Ltd.	0.38	▼	0.94	▼
43	CEMENT & CEMENT PRODUCTS	Birla Corporation Ltd.	0.27	▼	1.05	▲
44	CEMENT & CEMENT PRODUCTS	Grasim Industries Ltd.	0.3	▼	0.97	▼
45	CEMENT & CEMENT PRODUCTS	India Cements Ltd.	0.29	▼	0.94	▼
46	AUTOMOBILE	Amara Raja Batteries Ltd.	0.44	▼	1.02	▲
47	AUTOMOBILE	Apollo Tyres Ltd.	0.36	▼	0.94	▼
48	AUTOMOBILE	Ashok Leyland Ltd.	0.31	▼	0.97	▼
49	AUTOMOBILE	Ashok Leyland Ltd.	0.31	▼	0.97	▼
50	AUTOMOBILE	Balkrishna Industries Ltd.	0.28	▼	1.06	▲

Findings

According to the table, beta values have increased for almost all organisations. A few say minor dangers and a few mentions considerable hazard based on below and more than one rule of beta. Still, the values have all

increased from the previous five years' columns. Even firms with modest beta have seen their beta levels increase, revealing their level of volatility. The value of beta has grown in all of the corporations since the COVID assault.

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