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Research Article

Volatilityspillover Of Pharmaceutical Stocks In Indian Stock Market Listed In The Nse During The Russian &Ukrainewar- An Event Analysis.

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ABSTRACT

Purpose: The volatility of a stock price is defined as the percentage change from one period to another in the stock price. Increased stock price volatility is indicative of more risk and provides investors with a better idea of the possible future swings. A stock's volatility indicates the possible range of price movements over a certain time period and is calculated as the standard deviation of the stock's annualized returns.

Design/Methodology/Approach: The study mainly focusses on the Volatility of Share Prices of selected pharmaceutical stock in the NSE-India during the Russian & Ukraine War for the period of Five months and what are the factors are impact on volatility of stocks in the stock market in India.

Originality/Value: In this study is base for stock market volatility of pharmaceutical stocks based on Russian and Ukraine War. I had selected Five Pharma companies for this analysis Namely Lupin pharma Company, Cipla Pharma Company. Torrent Pharma Company, Sun Pharma Company, Gland Pharma Company for the period of Five Months daily data December 2021 to June 2022.

Findings: The study is restricted to consider only the share prices of the stocks on dividend announcement day.The study is confined to 10 selected cement industries which are listed in National Stock Exchange.Ten years, from 2013 to 2022, make up the research period.

Keywords: Volatility ofShare Price, Pharmaceutical stocks, Arch/Garch Models.

JEL Codes:H50, H51, H2, H53, H54, H55.

1. INTRODUCTION:

The fact that volatility might sometimes reveal entry opportunities that investors can capitalize on doesn't always make it a negative thing. Stocks in firms that investors like may be purchased at cheaper prices during periods of downward market volatility, which is good news for investors who think the market will do well in the long term. For instance, a stock that was worth $100 a few minutes ago may now be available for $50, providing an easy illustration for investors. Buying equities in this manner reduces your average cost-per-share, which enhances the performance of your portfolio upon market recovery. A rapid increase in stock price follows the same procedure. The opportunity here is for investors to cash out and put the money into other sectors with even bigger potential returns. One way for investors to potentially earn big returns over the long term is to invest when market values are higher and volatility is lower. Recessions and periods of increased market

volatility tend to be beneficial for high-quality enterprises with solid foundations. Companies in this industry generally emerge stronger from storms, so investors could do well to ride them out—even if it takes some time for the stock price to reflect this. In a similar vein, rapidly expanding firms' stock values may run amok and become unsustainable. Due to price fluctuations, investors might purchase shares in a developing firm at a discount, with the expectation of future development. Remember that market volatility is a natural part of investing and should not be used as a reason to get out of your portfolio. Those who put in the time and effort to learn about volatility and what causes it may be able to profit from the chances it presents for investing in the long run.

There are a lot of peculiarities of the pharmaceutical industry's structure and commercial practises that aren't well-known outside of the industry but have a major impact on how new medications are introduced to patients. There is a low probability of success in the lengthy, expensive, and risky process of developing a novel medication. Research and development are detailed, along with all the difficulties that come with them, including those that affect the environment. The article begins by discussing the business's present issues and the economic realities and limits that it faces. It then moves on to examine the business's expected future commercial and technological advances, such as the creation of a more environmentally friendly drugstore. In order to better understand the difficulties associated with the medicines in the environment problem, it is necessary to offer some background information on the company. Keep in mind that "drug" may denote either a medicinal substance or an illicit one, depending on the context, and that "medicine," "pharmaceutical," and "drug" are often used interchangeably. The term "pharmaceutical" is used at random to describe the.

Sector Performance is a list of all sectors as provided by the exchanges (BSE/ NSE) and the graphical representation of the % of stocks which are up or down in that sector for the current market session. You can also view the stocks which form a part of the sector by clicking on the sector. This list gives Sector Name, Market Capitalization (in Crores) and % of Stocks Up / Down Breakout Stocks.

2. REVIEW OF LITERATURE:

- **Glassman and Hassett (2022**): This article explain Volatility Spillover of Indian Pharmaceutical industry based on price fluctuation**.**Even if the market was believed to be fully valued or about to fall, stock prices continued going up, and this research tries to figure out why. According to their research, equities carry a higher degree of risk than bonds but also provide higher profits.
- **Shiller (2022):**According to this research, the US market experienced a bubble because of psychological variables that caused speculative favouritism to reach an extreme.
- **Poterba and summers (2021):**This paper explained that the performs an exhaustive analysis. Returns are positively connected over longer periods, according to their analysis. In addition to know the pharmaceutical industry growth rate is increased by year by year.
- **Poterba and summers (2021):**According to the results of this research, a reversing component of stock prices may account for a significant amount of the variance in stock returns. When looking at the stock markets in Europe,
- **Frugier (2021):**This research proved that return patterns acted as if stock pickers prioritized volatility. According to Kurz et al. (2005), one of the major variables influencing the volatility of asset markets is the dynamics of various views.
- **Bekaert and Harvey (2020):**According to this research, developing market volatility is notoriously hard to predict. According to their findings, global influences may be playing a larger role in the volatility of developing markets, and volatility usually decreases as markets are liberalized.
- **Rahman and Anisur (2020):**This research delve into the correlation between dividend policy and share price volatility. It finds that for non-financial enterprises listed on the Dhaka Stock market from 1999 to 2006, there is a positive but minor association between share price volatility and dividend yield.

4. STATEMENT OF PROBLEM:

Researchers are starting to focus on India and China, the two largest and fastest-growing economies in Asia. In this setting, a handful of concerns pertain to these countries' long-term performance, stock index movements, and the volatility spillover mechanism, including sectoral diversity, of their stock indexes.A major topic of study has been analysing the volatility of companies, sectors, and the index overall. It is clearly in the best interest of both academics and corporations to undertake such research, given the increasing diversification of equity investments throughout the world and the rise of a global investment mentality driven by the easing of capital account limitations.

5RESEARCH GAP:

A lot of people think that the capital market reforms that China and India implemented are to blame for their economies' recent boom. After 2008, the stock market performances of the two largest Asian economies became a hot subject throughout the world. This study examines the returns on the Indian and Chinese pharmaceutical indices from 2004 to 2017, a period of thirteen years, and compares their performance and volatility in the stock market. The pharmaceutical industry is a cornerstone of any economy and a key driver of GDP. This research compares the two countries' pharmaceutical sector indices using advanced econometric methods such as the ADF test for stationary variables, statistical tools for comparing performance, and the Garch (1, 1) model for studying the volatility pattern of these indices.

6. OBJECTIVES OF THE STUDY:

- To Study the Volatility of Share Price of Selected Pharma stocks in NSE during the Russian & Ukraine War.
- To examine the factors Using Volatility in the Pharma stocks in NSE during the Russian & Ukraine War.

7. HYPOTHESES OF THE STUDY:

Ho: There is No Volatility of Share Price of Selected Pharma stocks in NSE during the

Russian & Ukraine War.

H1: There is aVolatility of Share Price of Selected Pharma stocks in NSE during the

Russian & Ukraine War.

Ho: There is No Factors influencing volatility in pharma compares stocks during Russian

&Ukraine War.

H1: There is No Factors influencing volatility in pharma compares stocks during Russian

&Ukraine War.

8. RESEARCH METHODOLOGY:

Study period:

According to this study taken from secondary data of selected pharma companies for five months beginning in December 2021 and ending in June 2022, the data was gathered daily using the index values of Russia and Ukraine. The main think of this study is Russian and Ukraine war time what are the Volatility and share prices of Pharma stocks in Indian stock market.

Sample Size:

Basically, my study is secondary data from Various Pharma companies through Internet, my sample side is Five Pharma companies for this analysis Namely Lupin pharma Company, Cipla Pharma Company. Torrent Pharma Company, Sun Pharma Company, Gland Pharma Company.

Stalactitical tools to be used:

- Correlation
- Regression
- Descriptive Statistics
- Stationary test
- Regression Analysis
- OLS (Ordinary Least Square) Method
- ARCH & GARCH Tools.

9. SCOPE OF THE STUDY:

In this study is base for stock market volatility of pharmaceutical stocks based on Russian and Ukraine War. I had selected Five Pharma companies for this analysis Namely Lupin pharma Company, Cipla Pharma Company. Torrent Pharma Company, Sun Pharma Company, Gland Pharma Company.

10. NEED FOR THE STUDY:

The Main purpose of this study is identifying Share Price volatility of various pharmaceutical stocks during Russian and Ukraine war.

11. LIMITATIONS OF THE STUDY:

- The data used in the research comes from secondary sources, namely a number of pharmaceutical businesses in India.
- In this study selected five Pharma companies for my analysis Namely Lupin pharma Company, Cipla Pharma Company. Torrent Pharma Company, Sun Pharma Company, Gland Pharma Company.
- My study period is nearly five months of daily data collected from NSE stocks form the Indian stock market.
- The study data is time series/Panel data of secondary data.

12. RESULT AND DISCUSSION:

1. **To examine the factors Using Volatility in the Pharma stocks in NSE during the Russian & Ukraine War.**

- **Political and economic factors:**

Governments have considerable influence on economies via their choices on trade agreements, laws, and policies, and through their regulation of various businesses. Investor sentiment, which in turn affects stock prices, may be swayed by anything from speeches to elections. Investor sentiment is favourably impacted by economic statistics, so that's another factor to consider. There are a number of factors that might affect market performance, including monthly employment statistics, inflation data, consumer expenditure numbers, and quarterly GDP projections. Market volatility may increase, on the other hand, if they fail to meet expectations.

- **Industry and sector factors:**

An industry or sector may experience volatility due to certain circumstances. Consider the oil industry: when severe weather strikes a key oil-producing region, prices for the commodity tend to rise. Consequently, firms involved in oil distribution may see an increase in their share price due to the anticipated benefits, whereas companies with high oil expenses may see a decrease in their share price. The same holds true for industries: if the government decides to regulate them more heavily, stock values might decline as a consequence of higher compliance and labour expenses, which could stunt future profits growth.

- **Company performance:**

The market as a whole isn't always immune to company-specific volatility. Investors might feel better about the company when they hear excellent news, like a solid earnings report or a new product that is impressing customers. The share price may rise dramatically if a large number of people are interested

in purchasing it. On the other hand, when investors sell off their shares due to a product recall, data breach, or inappropriate CEO conduct, the share price might take a hit. The larger market may also feel the effects of this success or failure, depending on the size of the firm.

2. To Study the Volatility of Share Price of Selected Pharma stocks in NSE during the Russian & Ukraine War.

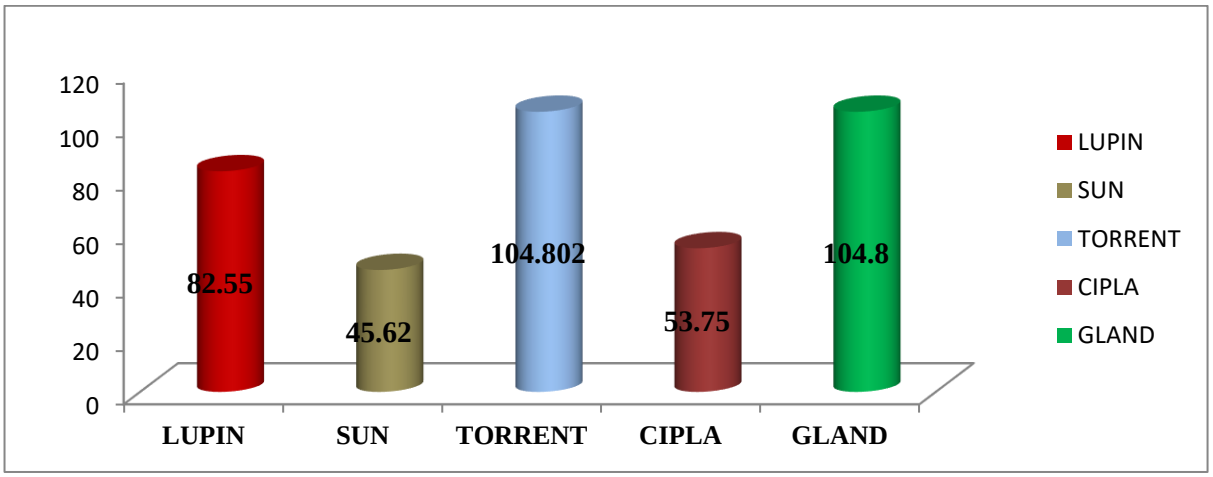
Table No:1Descriptive Statistics of Selected

PharmaceuticalStocks during the Russian & Ukraine war.

DESCRIPTIVE STATASTICS	LUPIN	SUN	TORRENT	CIPLA	GLAND
Mean	822.33	867.28	867.28	959.05	1454.33
Standard Error	8.70	4.80	11.04	5.66	11.04
Median	784.64	867.70	1419.92	945.85	1419.92
Mode	918	920	1405.44	938	1405.44
Standard Deviation	82.55	45.62	104.802	53.75	104.80
Sample Variance	6814.95	2082.03	10984.45	2889.69	10984.45
Kurtosis	-1.48	-0.98	-1.14	-1.00	-1.14S
Skewness	0.39	-0.25	0.51	0.43	0.51
Range	261.95	176.95	350.25	213	350.25
Minimum	697	764.04	1299	864	1299
Maximum	958.95	941	1649.25	1077	1649.25
Sum	74010.10	78055.84	130889.79	86314.64	130889.79
Count	90	90	90	90	90
CL (95.0%)	17.29	9.55	21.95	11.25	21.95

Graph No:1 MarketVolatility of Selected

Pharmaceutical Stocksduring the Russian & Ukraine war.



Result and Discussion:

The pharmaceutical industry is responsible for the research, development, production, and distribution of medications. The market has experienced significant growth during the past two decades, and pharma revenues worldwide totaled 1.48 trillion U.S. dollars in 2022.Above Table shows the mean value of Cipla Pharmaceutical Industry is 959.0516663, so it is above 5% level of significance Position for the NSE stocks, based on 95% of confidential level. The Standard Deviation is 45.62935374 and also Sample Variance is 889.698755Cipla Pharma observed the volatility position is better for floatation of stocks in the study period.

Table No:2 Arch Models of Selected

Pharmaceutical Stocks during the Russian & Ukraine war.

LUPN PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Date: 07/08/22 Time: 08:18				
Sample (adjusted): 3 91				
Included observations: 89 after adjustments				
Convergence achieved after 20 iterations				
Coefficient covariance computed using outer product of gradients				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.448384	18.09950	-0.135274	0.8924
WPC (-1)	1.002686	0.022199	45.16814	0.0000
	Variance Equation			
C	198.7151	38.04458	5.223218	0.0000
RESID (-1) ^2	0.326093	0.133677	2.439408	0.0147
R-squared	0.958695	Mean dependent var		819.3522
Adjusted R-squared	0.958221	S.D. dependent var		83.22815
S.E. of regression	17.01181	Akaike info criterion		8.509336
Sum squared resid	25177.96	Schwarz criterion		8.621185
Log likelihood	-374.6655	Hannan-Quinn criter.		8.554419
Durbin-Watson stat	1.970738			

SUN PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Date: 07/08/22 Time: 08:22				
Sample (adjusted): 3 91				
Included observations: 89 after adjustments				
Failure to improve likelihood (non-zero gradients) after 45 iterations				
Coefficient covariance computed using outer product of gradients				
Pre sample variance: back cast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	59.97220	5.127073	11.69716	0.0000
WPC(-1)	0.931752	0.005866	158.8516	0.0000
	Variance Equation			
C	126.9263	11.86008	10.70197	0.0000
RESID(-1)^2	-0.043144	0.104616	-0.412398	0.6800
R-squared	0.907214	Mean dependent var		869.8326
Adjusted R-squared	0.906148	S.D. dependent var		43.65328
S.E. of regression	13.37331	Akaike info criterion		8.072295
Sum squared resid	15559.56	Schwarz criterion		8.184144
Log likelihood	-355.2171	Hannan-Quinn criter.		8.117378
Durbin-Watson stat	1.980900			

CIPLA PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Date: 07/08/22 Time: 08:24				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 37 iterations				
Coefficient covariance computed using outer product of gradients				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	37.53351	29.33780	1.279356	0.2008
WPC(-1)	0.962309	0.030204	31.86025	0.0000
	Variance Equation			
C	224.0338	28.93805	7.741843	0.0000
RESID(-1)^2	-0.058703	0.119402	-0.491646	0.6230
R-squared	0.917570	Mean dependent var		960.7437
Adjusted R-squared	0.916611	S.D. dependent var		51.12443
S.E. of regression	14.76325	Akaike info criterion		8.270114
Sum squared resid	18744.00	Schwarz criterion		8.382720
Log likelihood	-359.8850	Hannan-Quinn criter.		8.315480
Durbin-Watson stat	1.969733			

GLAND PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Date: 07/08/22 Time: 08:26				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 19 iterations				
Coefficient covariance computed using outer product of gradients				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	103.0307	129.6147	0.794900	0.4267
WPC(-1)	0.968748	0.037677	25.71168	0.0000
	Variance Equation			
C	4000.114	796.7578	5.020489	0.0000
RESID(-1)^2	0.073927	0.220677	0.334999	0.7376
R-squared	0.924520	Mean dependent var		3452.491
Adjusted R-squared	0.923643	S.D. dependent var		240.3836
S.E. of regression	66.42485	Akaike info criterion		11.29225
Sum squared resid	379454.4	Schwarz criterion		11.40486
Log likelihood	-492.8592	Hannan-Quinn criter.		11.33762
Durbin-Watson stat	1.976912			

TORRENT PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (BFGS / Marquardt steps)				
Date: 07/08/22 Time: 08:28				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 27 iterations				
Coefficient covariance computed using outer product of gradients				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	117.8916	37.62122	3.133646	0.0017
WPC(-1)	0.916169	0.026326	34.80114	0.0000
	Variance Equation			
C	377.5226	126.8576	2.975955	0.0029
RESID(-1)^2	1.462551	0.481126	3.039853	0.0024
R-squared	0.899400	Mean dependent var		1433.183
Adjusted R-squared	0.898230	S.D. dependent var		104.4298
S.E. of regression	33.31451	Akaike info criterion		9.718258
Sum squared resid	95447.65	Schwarz criterion		9.830864
Log likelihood	-423.6034	Hannan-Quinn criter.		9.763624
Durbin-Watson stat	2.033395			

Result and Discussion:

Above Table shows Indicates Arch Model of Pharmaceutical industry for the period of 5 Months and This time I identified Stock Volatility on Russian and Ukraine war. It is Observed the Coefficient Values are 117.8916and 0.916169. Arch Model applied in the Gland Pharma is Durbin-Watson is for Linearity is 2.033395and also applied Akaike info criterion for stationary is 9.763624. The R-squared Value is 0.899400for check the Volatility of stocks in this Period. One common metric for selecting a model from a limited pool is the Hannan-Quinn information criterion (HQC), which is 9.76362. HQCs are a measure of how well statistical models match the data. With an observed value of 9.830864, the Schwarz Criterion provides an index to aid in quantifying and selecting the least complicated probability model from a set of alternatives. The model was finally installed. The average distance that

the observed values fall from the regression is 33.31451, which is represented by the standard error of the regression (S), sometimes called the standard error of the estimate.

Table No:3 Stocks during the Russian & Ukraine war.

LUPIN PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (Marquardt / EViews legacy)				
Date: 07/08/22 Time: 08:31				
Sample (adjusted): 3 91				
Included observations: 89 after adjustments				
Convergence achieved after 28 iterations				
Pre sample variance: back cast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-2.209270	18.32004	-0.120593	0.9040
WPC(-1)	1.002725	0.022540	44.48561	0.0000
	Variance Equation			
C	227.3204	99.17192	2.292185	0.0219
RESID(-1)^2	0.338965	0.139303	2.433286	0.0150
GARCH(-1)	-0.112478	0.372671	-0.301817	0.7628
R-squared	0.958587	Mean dependent var		819.3522
Adjusted R-squared	0.958111	S.D. dependent var		83.22815
S.E. of regression	17.03422	Akaike info criterion		8.525717
Sum squared resid	25244.33	Schwarz criterion		8.665528
Log likelihood	-374.3944	Hannan-Quinn criter.		8.582071
Durbin-Watson stat	1.965632			

SUN PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (Marquardt / EViews legacy)				
Date: 07/08/22 Time: 08:34				
Sample (adjusted): 3 91				
Included observations: 89 after adjustments				
Failure to improve Likelihood after 16 iterations				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	60.59966	34.41271	1.760967	0.0782
WPC(-1)	0.932380	0.039170	23.80333	0.0000
	Variance Equation			
C	110.1036	269.0614	0.409214	0.6824
RESID(-1)^2	-0.080508	0.195103	-0.412647	0.6799
GARCH(-1)	0.527088	1.240271	0.424978	0.6709
R-squared	0.907874	Mean dependent var		869.8326
Adjusted R-squared	0.906815	S.D. dependent var		43.65328
S.E. of regression	13.32569	Akaike info criterion		8.054173
Sum squared resid	15448.94	Schwarz criterion		8.193984
Log likelihood	-353.4107	Hannan-Quinn criter.		8.110527
Durbin-Watson stat	1.996341			

CIPLA PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (Marquardt / EViews legacy)				
Date: 07/08/22 Time: 08:37				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 87 iterations				
Pre sample variance: back cast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	47.34298	29.81753	1.587757	0.1123
WPC(-1)	0.952018	0.030762	30.94755	0.0000
	Variance Equation			
C	254.0594	409.7483	0.620038	0.5352
RESID(-1)^2	-0.054162	0.115955	-0.467094	0.6404
GARCH(-1)	-0.151083	1.855439	-0.081427	0.9351
R-squared	0.917743	Mean dependent var		960.7437
Adjusted R-squared	0.916786	S.D. dependent var		51.12443
S.E. of regression	14.74776	Akaike info criterion		8.293503
Sum squared resid	18704.70	Schwarz criterion		8.434261
Log likelihood	-359.9141	Hannan-Quinn criter.		8.350211
Durbin-Watson stat	1.953669			

GLAND PHARMA COMPANY

Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (Marquardt / EViews legacy)				
Date: 07/08/22 Time: 08:42				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 99 iterations				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	69.69809	124.3850	0.560342	0.5752
WPC(-1)	0.977473	0.036285	26.93853	0.0000
	Variance Equation			
C	5602.390	1865.713	3.002814	0.0027
RESID(-1)^2	0.183469	0.187006	0.981083	0.3266
GARCH(-1)	-0.470832	0.356188	-1.321862	0.1862
R-squared	0.924172	Mean dependent var		3452.491
Adjusted R-squared	0.923290	S.D. dependent var		240.3836
S.E. of regression	66.57808	Akaike info criterion		11.26787
Sum squared resid	381207.1	Schwarz criterion		11.40863
Log likelihood	-490.7863	Hannan-Quinn criter.		11.32458
Durbin-Watson stat	1.985040			

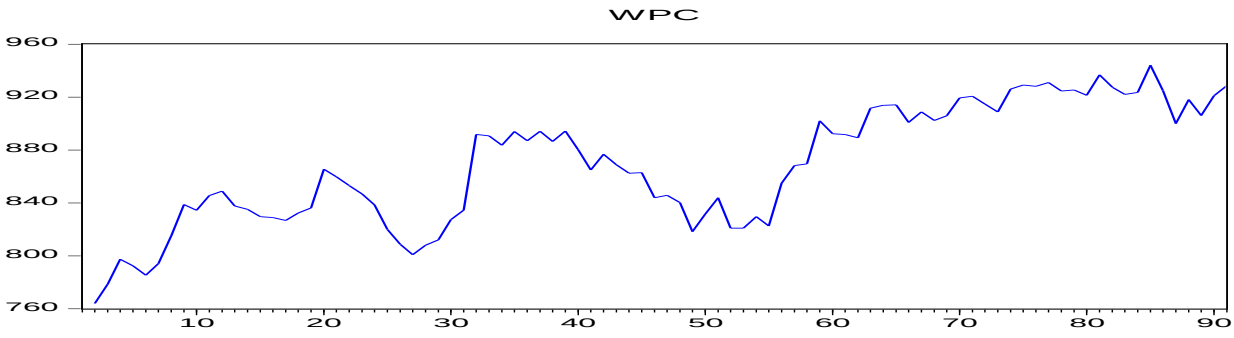
TORRENT PHARMA COMPANY

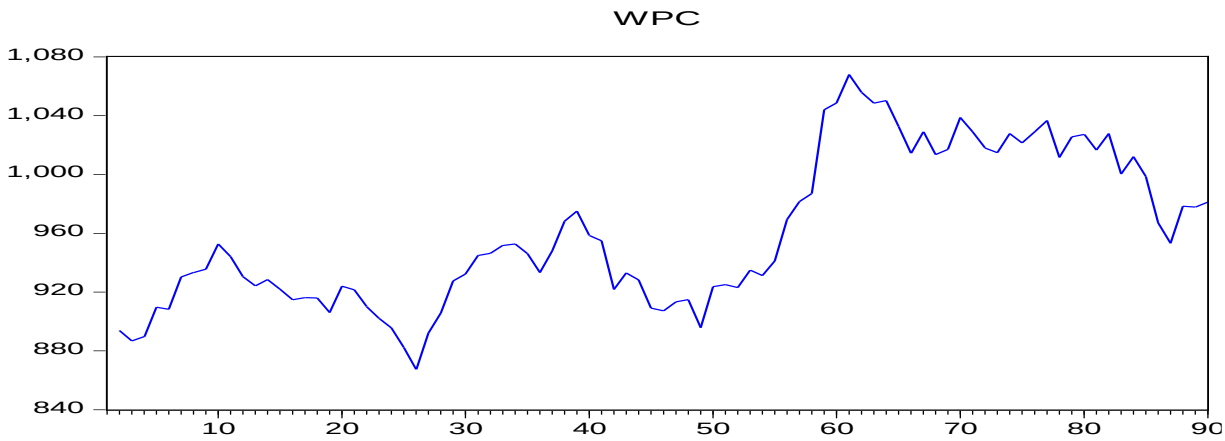
Dependent Variable: WPC				
Method: ML ARCH - Normal distribution (Marquardt / EViews legacy)				
Date: 07/08/22 Time: 08:44				
Sample (adjusted): 3 90				
Included observations: 88 after adjustments				
Convergence achieved after 17 iterations				
Presample variance: backcast (parameter = 0.7)				
GARCH = C(3) + C(4)*RESID(-1)^2 + C(5)*GARCH(-1)				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	62.58334	62.62194	0.999384	0.3176
WPC (-1)	0.954962	0.043967	21.72004	0.0000
	Variance Equation			
C	47.54270	7.024022	6.768586	0.0000
RESID (-1)^2	-0.020150	0.005187	-3.884526	0.0001
GARCH (-1)	0.971678	0.000876	1108.886	0.0000
R-squared	0.900156	Mean dependent var		1433.183
Adjusted R-squared	0.898995	S.D. dependent var		104.4298
S.E. of regression	33.18908	Akaike info criterion		9.762165
Sum squared resid	94730.31	Schwarz criterion		9.902923
Log likelihood	-424.5353	Hannan-Quinn criter.		9.818873
Durbin-Watson stat	2.129523			

Result and Discussion:

Above Table shows Indicates Arch Model of Pharmaceutical industry for the period of 5 Months and This time I identified Stock Volatility on Russian and Ukraine war. It is Observed the Coefficient Values are 103.0307and 0.968748. Arch Model applied in the Gland Pharma is Durbin-Watson is for Linearity is 1.976912and also applied Akaike info criterion for stationary is 11. 29225.. The R-squared Value is 0.924520for check the Volatility of stocks in this Period. As a measure of a statistical model's goodness of fit, the Hannan-Quinn information criterion (HQC) is 8.270114, and it is often used as a criteria for selecting a model from a limited set. The Schwarz Criterion, an index for quantifying and selecting the simplest probability model from a set of alternatives, has an observational value of 11.40486. The model was finally installed. The standard error of the regression, which is also called the standard error of the estimate, is 66.42485 and it shows how far off the regression the observed values are on average.

Graphical Presentation of Garch Models of Selected Pharmaceutical Company Stocks during the Russian & Ukraine war.




WPC
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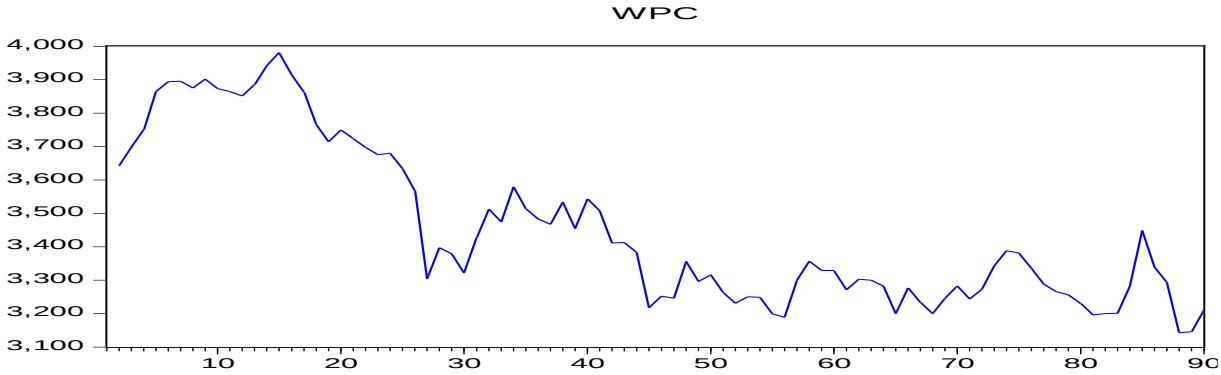
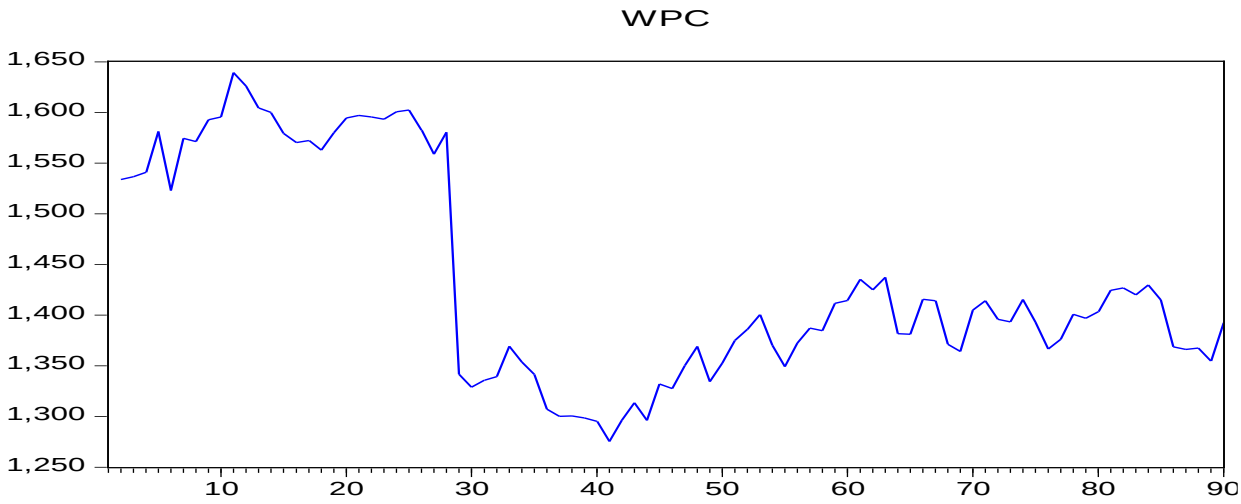
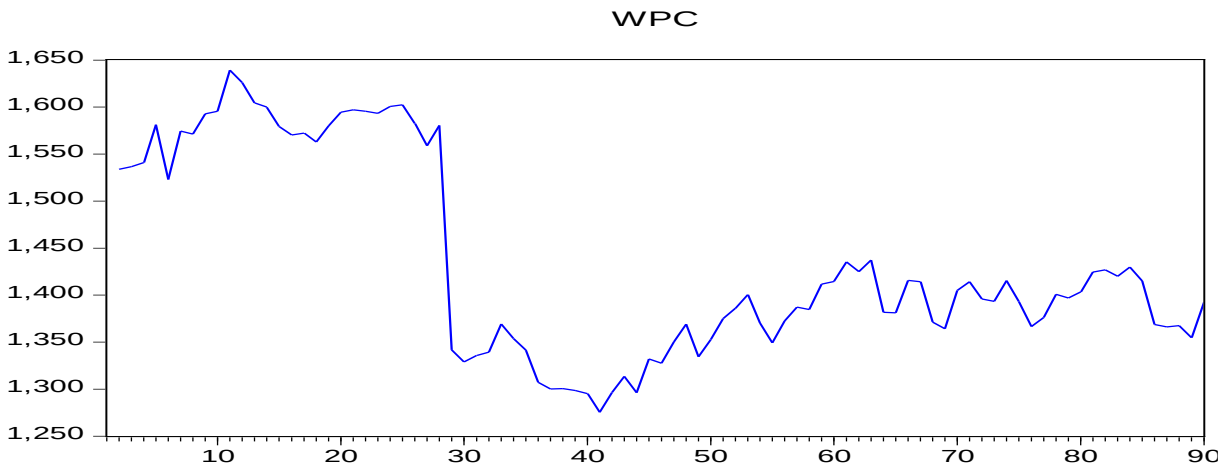
1,040
1,000
960
920
880
840
10
20
30
40
50
60
70
80
90


WPC
4,000
3,900
3,800
3,700
3,600
3,500
3,400
3,300
3,200
3,100
10
20
30
40
50
60
70
80
90


WPC
1,650
1,600
1,550
1,500
1,450
1,400
1,350
1,300
1,250
10
20
30
40
50
60
70
80
90



12. CONCLUSION:

Finally,we conclude this analysis many Companies that produce both prescription and over-the-counter medications, including common cold medicines and aspirin, are considered to be part of the pharmaceutical business according to the New York Stock Exchange. In contrast, businesses in the biotechnology sector do research and development on biological substances with the aim of developing new medications and diagnostic instruments; the sale or licensing of these products is their primary source of income.The Indian pharma industry is growing rapidly, with the government actively promoting the sector through various initiatives. The industry is expected to grow at 12-14% CAGR providing significant growth potential for investors.Pharma stocks are known to be both, growth as well as value stocks, delivering returns along with stability. The industry is poised to grow with higher demand in the domestic market given the rise in chronic diseases such as diabetes and hypertension, as well as non-communicable diseases.

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