

## A STUDY OF VOLATILITY IN INDIAN STOCK MARKET WITH REFERENCE TO SELECT STOCKS

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### ABSTRACT:-

Understanding the pattern of stock market volatility is important to investors as well as for investment policy. Volatility is directly associated with risks and returns, higher the volatility the more financial market is unstable. The volatility of the NSE stock market is modeled using 5 Years monthly returns from April 1st 2016 to March 31st 2021. I find the volatility of selected stocks are dr.reddy's laboratories probability value is 0.6744, hero motor crop probability value is 0.01048, and Infosys probability value is 0.1517 in ARCH Model. . The variable hero motor crop probability value is 0.1706, dr.reddy's laboratories probability value is 0.08693, Infosys probability value is 0.5654 is the volatility I find GARCH Model. In hero motor corps the highest standard deviation value is 0.084582 and the lowest standard deviation value is for Infosys 0.072903.

**Key words:** Stock Market, Volatility, ARCH, GARCH

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### INTRODUCTION

Capital market is a spot for purchasing and selling of long haul monetary cases. It is the market where exchanges are made in long haul protections like stocks and securities. The members of this market incorporates different monetary establishments, shared assets, specialists, agents, sellers, individual financial backers and different borrowers and banks of long haul obligation and value capital. Capital market comprises of two significant parts 1) Essential Market and 2) Auxiliary market. The essential market or in any case called as new issue market is one in which long haul capital is raised by corporate straightforwardly from people in general. The optional market or prevalently called as the securities exchange alludes to the market where these drawn out monetary instruments which are now given in the essential market are exchanged.

### INDIAN Financial exchange

Indian financial exchange is one of the most established securities exchange in Asia. It traces all the way back to the end of eighteenth century when the East India Organization used to execute advance protections. During the 1830s, exchanging on corporate stocks and offers in Bank and Cotton presses occurred in Bombay. The exchanging was very little and it bit by bit improved. After a long excursion, a conventional stock trade called Bombay Stock Trade (BSE) has developed. In 1956, the Public authority of India perceived the Bombay Stock Trade as the primary stock trade in the country under the Protections Agreements (Guideline) Act. The most unequivocal period throughout the entire existence of the BSE occurred after 1992. In the outcome of a significant

embarrassment with market control including a BSE part named Harshad Mehta, BSE reacted to calls for change with resoluteness. The foot-hauling by the BSE radicalized the situation of the public authority, which empowered the making of the Public Stock Trade (NSE), which made an electronic commercial center. NSE began exchanging on 4 November 1994. The financial exchange list is the main records of all as it estimates generally speaking business sector feeling through a bunch of stocks that are illustrative of the market. The financial exchange is an indicator of market conduct. It reflects market bearing and shows everyday vacillations in stock costs. The market file reflects assumptions regarding the conduct of economy in general. It is a forerunner of monetary cycles. The capacity of stock file is to furnish financial backers with data in regards to the normal offer cost on the lookout. Stock file is an indicator of country's financial wellbeing as market costs reflect assumption regarding the economies execution. During 1980 development of economy was exceptionally unreasonable as a result of its reliance on borrowings to address the current record shortfall. To lessen the uneven characters, the public authority of India acquainted monetary strategy in 1991 with execute underlying changes. The monetary area around then was a lot of unstructured and its degree was restricted uniquely to securities, value, protection, item showcases, common and annuity reserves. To structure the security market, an administrative authority named SEBI (Protections and Trade Leading group of India) was

set up and first electronic trade Public Stock Trade was additionally set up.

#### **VOLATILITY IN INDIAN Securities exchange**

Instability is essentially the variety from the normal worth over an estimation period. In the event that the everyday variety of the cost of the protections is more, one might say that the unpredictability of it will be high, and on the other hand if the everyday variety is low, the worth of instability will be low also. It is estimated by the standard deviation of logarithmic returns during a specific period. In the monetary year 2008-09 financial exchanges across the globe saw outrageous unpredictability. NSE Clever descended by 179 on sixth May 2015 because of Greek obligation emergency and different issues. It descended by 490 on 24th August 2015 because of emergency in the Chinese securities exchange. On 24th June 2016, the Clever descended by 181 because of Brexit referendum. Over the years it has been seen that the connection between Indian Financial exchange and other world business sectors are on an expanding pattern. This wonder ought to clarify the justification behind expanded instability showed by Indian business sectors during 2008-09 periods. At the point when world business sectors move the valuation of Indian stocks are additionally affected. Investing cash in securities exchange is thought to be unsafe in light of the fact that financial exchanges are unstable. There is instability in securities exchange since full scale monetary factors impact it and influence stock costs. These elements can influence a solitary firm's cost and can be specific to a firm. Unexpectedly, a few factors normally influence every one of the organizations. For instance, when securities exchange smashed in September 2008, the cost of practically totally recorded organizations descended. Instability is the variety in resource costs change throughout a specific time span. It is undeniably challenging to appraise the instability precisely. Unpredictability makes a securities exchange dangerous yet it gives the chance to bring in cash by the people who can get it. It offers the financial backer chance to exploit change in costs, purchase stock when costs fall and sell when costs rise. Thus, to exploit unpredictability the need is to get it.

#### **REVIEW OF THE LITERATURE**

As per "Debjit Chakraborty"(1997)in his review endeavors to set up a connection between major

financial pointers and securities exchange conduct. It additionally examinations the securities exchange responses to changes in the financial environment. The components considered are nation, cash supply, and development in Gross domestic product, scal decit and credit store proportion. To the pattern in the financial exchanges, the BSE Public List of Value Costs (Natex) which contains 100 organizations was taken as the file. The review shows that securities exchange developments are to a great extent influenced by, wide cash supply, ination, C/D proportion and scal decit separated from political steadiness. As indicated by "Redel" (1997) focused on the capital market mix in creating Asia during the period 1970 to 1994 taking into factors, for example, net capital ows, FDI, portfolio value ows and security ows. He saw that capital market mix in Asian non-industrial nations during the 1990s was an outcome of wide based financial changes, particularly in the exchange and financial areas, which is the basic justification behind monetary emergencies which followed the expanded capital market combination during the 1970s in numerous nations won't be rehashed during the 1990s. He inferred that extending and reinforcing the course of financial progression in the Asian agricultural nations is fundamental for limiting the dangers and expanding the benefits from expanded worldwide capital market joining. As indicated by "Avijit Banerjee" (1998) looked into Key Examination and Specialized Investigation to break down the value of the singular protections should have been obtained for portfolio development. Specialized Investigation distinguishes the most proper opportunity to purchase or sell the stock. It intends to keep away from the traps of wrong planning in the venture choices. He additionally expressed that the advanced portfolio writing suggests\beta\value Pas the most satisfactory proportion of hazard of scrip. The protections having low P ought to be chosen for developing a portfolio to limit the dangers. Instability of a resource is estimated by the changeability in the cost over the long run estimated as the fluctuation or the standard deviation of the profits on the resource. The more the standard deviation the more unstable the resource is. This is likewise a proportion of the peril of the resource since the more variety it has the greater eccentricism related with its profits. There are a ton of Market Models that action the leftover changes to gauge instability. The Market

Unpredictability Record (MVIX) cited at Chicago Board Choices Trade (CBOE)1 is built by the weighted normal of the suggested instability of Standard and Helpless 100 List calls and puts. It is a wide proportion of the general instability on the lookout. There have been a ton of observational examinations to test instability in the securities exchanges internationally. As indicated by "Madhusudan"(1998)found that BSE affectability and public lists didn't follow arbitrary stroll by utilizing relationship examination on month to month stock returns information over the period January 1981 to December 1992. As per "Arun Jethmalani" (1999) inspected the presence and estimation of hazard implied in putting resources into corporate protections of offers and debentures. He lauded that hazard not really settled, in light of the logical fluctuation of profits. It is more hard to analyze 80 dangers inside similar class of ventures. He is of the assessment that the financial backers acknowledge the danger estimation made by the credit score offices, however it was addressed after the Asian emergency. He finished up his article by remarking that hazard isn't quantifiable or quantiable. In any case, hazard is determined based on memorable instability. Returns are relative to the dangers, and speculations ought to be founded on the investors' capacity to bear the dangers, he prompted. As indicated by "Suresh G Lalwani"(1999) accentuated the requirement for hazard the board in the protections market with specific accentuation on the value hazard. He remarked that the protections market is a '\vicious animal\' and there is in excess of a reasonable possibility that a long way from advancing, the circumstance could fall apart. As per "Nath and Verma" (2003) analyze the reliance of the three significant financial exchanges in south Asia securities exchange records specifically India (NSE-Clever) Taiwan (Taiex) and Singapore (STI) by utilizing bivariate and multivariate co joining investigation to display the linkages among the securities exchanges, No co - reconciliation was found for the whole time frame (every day information from January 1994 to November 2002).They inferred that there is no since quite a while ago run harmony. As per "Bhanu Gasp and Dr. T.R.Bishnoy" (2001) dissected the conduct of the day by day and week by week returns of the Indian financial exchange lists for irregular stroll during April 1996 to June 2001.They tracked down that Indian Financial exchange Records didn't

follow arbitrary walk. As per "Juhi Ahuja" (2012) presents an audit of Indian Capital Market and its construction. In last decade or somewhere in the vicinity, it has been seen that there has been a change in perspective in Indian capital market. The use of many changes and advancements in Indian capital market has made the Indian capital market equivalent with the worldwide capital business sectors. Presently, the market includes a created administrative component and an advanced market framework with developing business sector capitalization, market liquidity, and activation of assets. The rise of Private Corporate Obligation market is additionally a decent advancement supplanting the financial method of corporate finance. In any case, the market has seen its most noticeably awful time with the new worldwide financial emergency that began from the US sub-prime home loan market and spread over to the whole world as a disease. The capital market of India conveyed a lazy presentation.

## RESEARCH METHODOLOGY

### Need for the Study

Securities exchange instability is unavoidable. It is the idea of the securities exchanges to vacillate and become red and green inside limited capacity to focus time. Instability is a fundamental piece of the securities exchange since it actually looks at the nerve of the market. As a coin has different sides, the same way market has two angles the positive and the negative. It tends to be seen that instability has its drawn out sway in the market so a financial backer is needed to take all potential means to plan his portfolio. Stock returns bear a decent connection with unpredictability likewise with expansion in monetary instability stock costs changes. A normal financial backer gets exceptionally less returns when contrasted with the normal market returns.

### Objectives of the Study

1. To study the causes of volatility in Indian Stock Market.
2. To study the various aspects of Indian Stock Market in detail.
3. To study the measures have been adopted to control volatility

### Data Collection: -

This review depends on auxiliary information. The necessary information identified with Indian Stock Market, National Stock Market (NSE) have been

gathered from different sources for example INFOSYS, AXIS BANK, DR REDDY'S LABORATORIES, HERO MOTOR CROP. The chose period for this examination study is from April first 2016 to walk 31st 2021.Nifty information is down stacked from the sites of NSE. Day by day shutting list esteem are taken and arrived at the midpoint of to get the record an incentive for every year, which is considered as more agent gore of file for the whole long term shutting gore of the file. This Paper utilizes different apparatuses utilizing like distinct measurements, relationship, co-difference, moving norm.

**Limitations of the Study**

- This study relies upon Year to Year data.
- The eventual outcome of assessment may not be pertinent in all over by and large.
- The study has time limit only FIVE – year data I taken

The assessment being quantitative in nature, undeniable and inferential bits of knowledge was used. At the point when the data was accumulated and checked for perfection it was then penniless down. Assessment was done using Microsoft office Excel 2016 and Eviews 7 with the data assessment and solver presented in table and figures and I do standard deviation Descriptive statistics, ARCH and GARCH Model.

**Value of the Study**

The study will be empowered financial backers, people and institutional, to equitably differentiate their portfolio. It will empower them share their assets in the process persuade ideal gets back from their speculations

The study will be useful to administrative organizations, for example, retirement goals authority. In upholding legitimate enhancement to protect financial backer's resources. Venture organizations and monetary counsels will properly guidance their customers on the presentation and pick of recorded protections at the NSE

**DATAANALYSIS & DISCUSSION**

**Expected Return**

Allow us to have n wide assortment of assets. Then, at that point the expected return  $\mu_i$  on resource I,  $I = 1, \dots, n$

$$E(R_p) = \sum_{j=1}^m w_j E(R_j)$$

is determined through (see [2]):

in which  $r_{it}$  is the backpedal on resource I between periods  $t - 1$  and  $t, t = 1, \dots, m$  and  $m$  is the assortment of periods, whose return we have determined.

**Descriptive Statistics**

Expressive insights are brief distinct coefficients that sum up a given informational collection, which can be either a portrayal of the whole or an example of a populace. Elucidating insights are separated into proportions of focal propensity

$$S = \sqrt{\frac{\sum |x - \bar{x}|^2}{n - 1}}$$

**Where:**

X is the first, second, third, etc. data value  
 $\bar{x}$  is the mean of the data set  
 n-1 is the number of sample values decreased  
 $|x - \bar{x}|^2$  represents the deviation from the sample mean

**CLOSING PRICE**

**AXIS BANK**

	2016-17	2017-18	2018-19	2019-20	2020-21
<b>APRIL</b>	472.4	509.65	517.3	766.85	444.9
<b>MAY</b>	515.2	514.05	545.9	808.3	384.95
<b>JUNE</b>	533.5	517.35	510.8	808.55	406.65
<b>JULY</b>	546.15	519.8	550.4	674.1	431.65
<b>AUG</b>	596.85	500.35	649.25	663.9	496.75
<b>SEP</b>	541.35	509.15	613.25	685	424.65
<b>OCT</b>	486.9	523.15	582.4	736.35	492.5
<b>NOV</b>	469.85	535.4	625.75	739.05	601.6
<b>DEC</b>	449.95	563.95	619.9	754.1	620.45
<b>JAN</b>	466	593.6	722.7	729.3	662.9
<b>FEB</b>	506.65	528.75	709.55	697.3	724.8
<b>MARCH</b>	490.8	510.5	777.25	379	697.45

**INFOSYS**

	2016-17	2017-18	2018-19	2019-20	2020-21
<b>APRIL</b>	9.4	7.28	8.835	10.76	9.23
<b>MAY</b>	9.72	7.55	9.095	10.47	9.1
<b>JUNE</b>	8.925	7.51	9.715	10.7	9.66
<b>JULY</b>	8.215	7.9	10.09	11.32	12.85
<b>AUG</b>	7.93	7.5	10.385	11.49	12.6
<b>SEP</b>	7.89	7.295	10.17	11.37	13.81

OCT	7.63	7.425	9.47	9.59	14.27
NOV	7.24	7.78	9.86	9.83	15.22
DEC	7.415	8.11	9.52	10.32	16.95
JAN	6.885	9.005	10.8	10.96	16.88
FEB	7.57	8.83	10.72	10.07	17.12
MARCH	7.9	8.925	10.93	8.21	18.72

#### DR. REDDY'S LABORATORIES

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	3094.3	2604.85	2111.4	2932.8	3937.2
MAY	3184.4	2518.35	1946.8	2677.7	4073.8
JUNE	3383.5	2682.65	2233.8	2549.8	3941
JULY	2937.25	2385.5	2127.15	2574.6	4521.9
AUG	3089.4	2020.4	2491.35	2555.15	4257.9
SEP	3108.7	2329.4	2530.25	2700.85	5187.05
OCT	3360.2	2431.4	2540.7	2782.85	4887.95
NOV	3198.85	2286.35	2713.35	2912.6	4829.6
DEC	3058.5	2414.4	2617	2877.15	5204.1
JAN	3021.05	2225.25	2723.75	3113.75	4598.65
FEB	2853.95	2235.65	2635.65	2925.8	4424.6
MARCH	2632.5	2082.45	2774.15	3117.1	4515.6

#### HERO MOTOR CORP

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	2897.4	3318.6	3732.25	2511.85	2166.7
MAY	3098.9	3745.45	3544.9	2680.25	2360.85
JUNE	3178.25	3701.35	3473.5	2581.5	2546.95
JULY	3203.15	3655.75	3294.45	2356.1	2676.5
AUG	3541.35	3995.1	3253.8	2572.05	3006.05
SEP	3413.7	3774.55	2933.25	2704.75	3147.3
OCT	3351.85	3849.9	2762.35	2704.2	2799.8
NOV	3166.05	3633.65	3055.2	2433.55	3108.85
DEC	3043.65	3785.15	3104.25	2443.05	3110
JAN	3172.35	3691.45	2613.95	2501.85	3256.05
FEB	3138.1	3596.7	2628.1	2051.75	3224
MARCH	3221.95	3542.8	2553.15	1596.45	2913.6

Closing Price of AXIS BANK In the year 2018-19 march the highest closing price is 777.25 and lowest closing price is 384.95 in the year 2020-21 in the month of may. INFOSYS highest Closing price is 18.72 in the year 2020-21 march and the lowest closing price is 6.885 in the year 2016-17. In the month of January. Dr Reddy's laboratories highest closing price is 5187.05 in the year 2020-21 September and the lowest closing price value is 2020.4 in the year 2017-18 in the month of august. Hero motor corps highest closing price is 3995.1 in the year 2017-18 in the month of august and the lowest closing price value is 2166.7 in the year 2020-21 in the month of April.

#### STOCK RETURNS

##### AXIS BANK

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	0	0.037688	0.013232	-0.01347	0.160313
MAY	0.086729	0.008596	0.053813	0.052642	-0.14474
JUNE	0.034904	0.006399	-0.06646	0.000309	0.054839
JULY	0.023435	0.004725	0.074667	-0.18186	0.059662
AUG	0.088772	-0.03814	0.165173	-0.01525	0.140472
SEP	-0.0976	0.017435	-0.05705	0.031287	-0.15682
OCT	-0.10601	0.027126	-0.05162	0.072287	0.148229
NOV	-0.03565	0.023146	0.071793	0.00366	0.200098
DEC	-0.04328	0.051951	-0.00939	0.020159	0.030852
JAN	0.035049	0.05124	0.153436	-0.03344	0.066179
FEB	0.083635	-0.11569	-0.01836	-0.04487	0.089272
MARCH	-0.03178	-0.03513	0.091131	-0.60968	-0.03846

##### INFOSYS

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	0	-0.08173	-0.01014	-0.01568	0.117106
MAY	0.033476	0.036417	0.029004	-0.02732	-0.01418
JUNE	-0.08533	-0.00531	0.065946	0.02173	0.059719
JULY	-0.08289	0.050627	0.037874	0.056327	0.28535
AUG	-0.03531	-0.05196	0.028818	0.014906	-0.01965
SEP	-0.00506	-0.02771	-0.02092	-0.0105	0.091696
OCT	-0.03351	0.017664	-0.07131	-0.17026	0.032766
NOV	-0.05247	0.046704	0.040357	0.024718	0.064451
DEC	0.023884	0.041542	-0.03509	0.048645	0.107658
JAN	-0.07416	0.104682	0.126151	0.060169	-0.00414
FEB	0.094848	-0.01962	-0.00743	-0.08469	0.014118

MARCH	0.04267	0.010701	0.0194	-0.20421	0.089345
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0.305423 in the month of April 2020 – 2021. And lowest stock returns value is -0.05703 in the month of November 2016 – 2017.

**DR. REDDY’S LABORATORIES**

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	0	-0.01056	0.013806	0.055613	0.233567
MAY	0.028702	-0.03377	-0.08116	-0.091	0.034106
JUNE	0.060647	0.063201	0.137517	-0.04894	-0.03314
JULY	-0.14144	-0.1174	-0.04892	0.009679	0.137498
AUG	0.050503	-0.16611	0.158042	-0.00758	-0.06016
SEP	0.006228	0.142315	0.015493	0.055456	0.197389
OCT	0.077796	0.042857	0.004122	0.029909	-0.05939
NOV	-0.04921	-0.06151	0.065744	0.045571	-0.01201
DEC	-0.04487	0.054494	-0.03616	-0.01225	0.074683
JAN	-0.01232	-0.08158	0.039981	0.079028	-0.12368
FEB	-0.0569	0.004663	-0.03288	-0.06226	-0.03858
MARCH	-0.08077	-0.07099	0.051215	0.063335	0.020358

**HERO MOTOR CORP**

	2016-17	2017-18	2018-19	2019-20	2020-21
APRIL	0	0.029556	0.052094	-0.01631	0.305423
MAY	0.067233	0.120999	-0.0515	0.064891	0.085817
JUNE	0.025284	-0.01184	-0.02035	-0.03754	0.075875
JULY	0.007804	-0.0124	-0.05292	-0.09136	0.049613
AUG	0.100373	0.088767	-0.01242	0.087696	0.116117
SEP	-0.03671	-0.05679	-0.10371	0.050306	0.045918
OCT	-0.01828	0.019766	-0.06003	-0.0002	-0.117
NOV	-0.05703	-0.05781	0.100763	-0.10545	0.104705
DEC	-0.03943	0.040848	0.015927	0.003896	0.00037
JAN	0.041415	-0.02507	-0.17191	0.023783	0.045892
FEB	-0.01086	-0.026	0.005399	-0.19834	-0.00989
MARCH	0.026369	-0.0151	-0.02893	-0.25091	-0.10123

AXIS BANK Stock Returns Highest value is 0.200098 in the month of November 2020 – 2021. And lowest stock returns value is -0.14474 in the month of May 2020 – 2021. INFOSYS Stock Returns Highest value is 0.117106 in the month of April 2020 – 2021. And lowest stock returns value is -0.00414 in the month of Jan 2020 – 2021. DR. REDDY’S LABORATORIES Stock Returns Highest value is 0.233567 in the month of April 2020 – 2021. And lowest stock returns value is -0.01056 in the month of April 2017 – 2018. HERO MOTOR CROP Stock Returns Highest value is

**DESCRIPTIVE STATISTICS :-**

	AXIS BANK	DR REDDY S LA BORATORIED	HERO MOTOR_C ROP	INFOSYS
Mean	0.000690	0.006300	9.30E-05	0.011481
Median	0.000705	0.004393	-0.000100	0.016285
Maximum	0.000729	0.233567	0.305423	0.285350
Minimum	0.000000	-0.166110	-0.250910	-0.204210
Std. Dev.	9.30E-05	0.079782	0.084582	0.072903
Skewness	-6.972600	0.453216	0.085842	0.249066
Kurtosis	52.22020	3.379662	5.644027	6.097275
Jarque-Bera	6542.742	2.414405	17.55088	24.60311
Probability	0.000000	0.299033	0.000154	0.000005
Sum	0.041405	0.377978	0.005579	0.688889
Sum Sq. Dev.	5.11E-07	0.375546	0.422090	0.313573
Observations	60	60	60	60

In Descriptive statistics for INFOSYS the highest mean value is 0.011481 and the lowest mean value for AXIS BANK is 0.00069. INFOSYS has the highest median value 0.016285 and the lowest median value is -0.0001 for hero motor corps. In hero motor corps the highest standard deviation value is 0.084582 and the lowest standard deviation value is for Infosys 0.072903.

**ARCH**

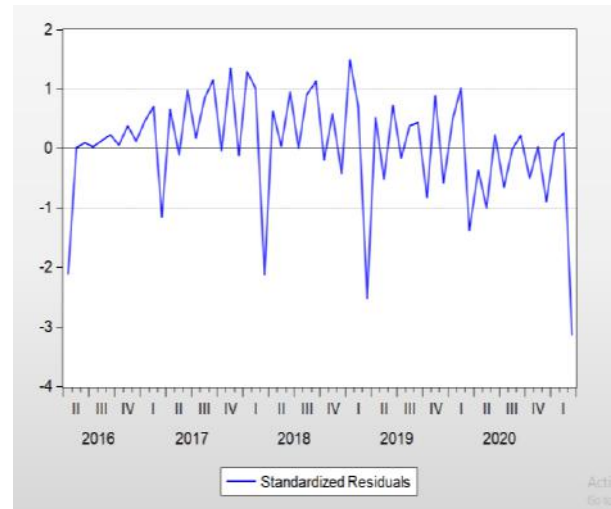
Dependent Variable: AXIS\_BANK  
Method: ML - ARCH (Marquardt) - Normal distribution  
Date: 10/05/21 Time: 15:54  
Sample: 2016M04 2021M03  
Included observations: 60  
Convergence achieved after 14 iterations  
Presample variance: backcast (parameter = 0.7)  
GARCH = C(5) + C(6)\*RESID(-1)^2

Variable	Coefficient	Std. Error	z-Statistic	Prob.
DR_REDDY_S_LABORATORIED	1.92E-05	4.56E-05	0.420181	0.6744
HERO_MOTOR_CROP	5.92E-05	3.65E-05	1.621826	0.1048
INFOSYS	-4.84E-05	3.37E-05	-1.433477	0.1517
C	0.000701	3.56E-06	196.8831	0.0000
Variance Equation				
C	4.04E-10	9.15E-11	4.416526	0.0000
RESID(-1)^2	0.171430	0.019193	8.931716	0.0000
R-squared	-0.011841	Mean dependent var	0.000690	
Adjusted R-squared	-0.066046	S.D. dependent var	9.30E-05	
S.E. of regression	9.60E-05	Akaike info criterion	-18.06492	
Sum squared resid	5.17E-07	Schwarz criterion	-17.85549	
Log likelihood	547.9477	Hannan-Quinn criter.	-17.98300	
Durbin-Watson stat	1.063325			

The income has significant impact on consumption with probability value not is <0.5. R- squared (R2) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. ... It may also be known as the coefficient of determination. R-squared value is -0.011841, The adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance. Adjusted R-squared value is -0.066046. Standard deviation dependent variable is 9.30E05. Mean dependent variable is 0.000690.

value is -0.057772. Standard deviation dependent variable is 9.30E05. Mean dependent variable is 0.000690.

**VOLATILITY CLUSTERING: -**



The above graph shows the all four companies (axis bank (i), Infosys (ii), dr.reddy’s laboratories (iii), hero motor crop (iv) ) Volatility Clustering past five years 2016 – 2020. Here we can see the volatility clustering when large changes are followed by further large changes and periods of small changes are followed by further small changes. So from the graph one can see there is a wild periods and calm period. In other words, volatility high sometimes and the volatility is low sometimes, this means we have low and high volatility at different time. Then we can see there are different clusters.

**GARCH**

Dependent Variable: AXIS\_BANK  
 Method: ML - ARCH (Marquardt) - Normal distribution  
 Date: 10/05/21 Time: 15:33  
 Sample: 2016M04 2021M03  
 Included observations: 60  
 Convergence achieved after 22 iterations  
 Presample variance: backcast (parameter = 0.7)  
 GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1)

Variable	Coefficient	Std. Error	z-Statistic	Prob.
HERO_MOTOR_CROP	5.74E-05	4.19E-05	1.370164	0.1706
DR_REDDY_S_LABORATORIED	7.48E-06	4.55E-05	0.164592	0.8693
INFOSYS	-2.38E-05	4.14E-05	-0.574147	0.5659
C	0.000698	4.54E-06	153.5469	0.0000

Variance Equation				
C	1.23E-10	4.52E-11	2.714966	0.0066
RESID(-1)^2	0.150000	0.177951	0.842929	0.3993
GARCH(-1)	0.599999	0.114430	5.243389	0.0000

R-squared	-0.003987	Mean dependent var	0.000690
Adjusted R-squared	-0.057772	S.D. dependent var	9.30E-05
S.E. of regression	9.57E-05	Akaike info criterion	-17.88796
Sum squared resid	5.13E-07	Schwarz criterion	-17.64362
Log likelihood	543.6387	Hannan-Quinn criter.	-17.79238
Durbin-Watson stat	1.071145		

The income has significant impact on consumption with probability value not is <0.5. R- squared (R2) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. ... It may also be known as the coefficient of determination. R-squared value is -0.003987, The adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance. adjusted R-squared

**SUGGESTIONS:**

1. Stick to Financial Plan must ensure that stock market volatility does not affect your financial plans. Market volatility is for short term and your financial plans are for long term. Therefore, you must know how to manage different types of market conditions. You must always remember that volatility shall not last forever and you must stop worrying about the daily moves in the market. Stock markets are known for creating a huge wealth in the long term i.e. 10 to 15 years and short term volatility or daily volatility of stock should not make you change your financial plans.
2. Invest on a Consistent Basis When there is stock market volatility in index and stock prices are consistently going down, it is the best time to invest. Investing on a consistent basis



in the share market is the key to success in the long term. Sitting on the side-lines and waiting for the market to fall further to make a purchase at a lower price is not the right thing to do in a volatile market. This is because when markets are volatile, it is impossible to predict the next move. By continuously purchasing in all the types of markets, you can get shares of good companies at a very cheap rate. Historically, it has been seen that investment made when the markets are volatile and at lower levels has given astonishing returns to the shareholders in the long term.

3. **Focus on Quality** It has been seen that during stock market volatility, quality stocks perform much better. Good stocks are less volatile because they have good brand name. Their robust business model and continuous demand for their products help them perform better even in the bear markets. Therefore, you must focus on investing in stocks of good companies. You must also remember that overexposing your portfolio to high beta mid and small caps in volatile market can go against you. Therefore, it is always advisable to take exposure in good and quality stocks when there is share market volatility.
4. **Phased Approach** When the markets are volatile, you never know the right level to purchase the stocks. This is because the stock price can further go down after you make a purchase. Therefore, in such stock market volatility, the phased approach is the best approach to follow. In this approach, you can keep purchasing the stocks at different lower levels in a phased manner. The rupee cost average (RCA) will help you in lowering the average price of investment and give you the best purchase price for the long term. The phased approach is also useful in averaging the price of stocks that were purchased by you at a higher price when the market was not volatile. Therefore, the phased approach will help in enhancing your returns and handling the daily volatility of stocks in a better manner.
5. **Diversify** A well-diversified portfolio is always the safest way to tackle stock market volatility. Make a portfolio that is a mix of stocks, short term investments, bonds, etc. The selection of the asset class must be based on your long term financial goals, current financial situation, time

period and risk-taking ability. A diversified portfolio will always have the potential to give you good returns even in an unstable market. In fact, it is advisable to always make a diversified portfolio in the long run, to safeguard your capital and earn higher returns.

6. It has been seen that gold is a better performer when the markets are volatile. Gold prices tend to go up when there is global uncertainty, war or financial crisis. Gold prices also shoot up when the equity market turns volatile. During such times you can allocate 5% to 10% of your portfolio to gold. Gold will handle the market volatility well and enhance the value of your portfolio.

### CONCLUSION

The Indian securities exchange is going through quick changes with industrialization, advancement and monetary changes. The advancement interaction of securities exchange is additionally sped up by globalization and privatization at the appointed time of time. The authorization allowed to FII prompts extension of Indian Financial exchange. The main component of late financial exchange is huge number of issues of private securities, which without a doubt adds some fuel in bringing capital market proficiency. New monetary organizations and instruments in the monetary market have gone to the spotlight, giving more freedoms to financial backers' networks for putting resources into various roads of venture with solid assumptions for getting valid and convenient returns. However, once in a while, the financial backers get redirected or experience the ill effects of dread psychosis either to leave the market or show no premium to into the market. The current review is an ideal way to deal with give some strong strength in modifying their trust in the interest in financial exchange. It can likewise be made helpful to the understudies, academicians, experts, and anybody having unmistakable fascination for the said subject of financial exchange unpredictability.

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