Stock Return and Trade Volume Analysis of Selected Indian Cement Companies' Stocks

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Abstract

This work aims to analyze stock return, Trade volume of select cement companies in India. Ten cement companies are selected based on high market capitalization. www.nse.india.com was used to gather information. Investors, stakeholders, and policymakers all pay close attention to the return of stock and volume analysis. Some previous study shows that there is no relationship between stock return and volume, while others show that there is. The beta, correlation, and Granger causality tests are used by researchers to analyses stock return and volume. The beta value of all firms reveals which stocks are worth investing in. The correlation result clearly reveals that stock return and volume have a positive relationship, but the relationship between stock volume and value is the strongest. The causality test, on the other hand, verifies the same conclusion.

Keywords — Stock return, volume, cement sector stocks, causal relationship

1. Introduction

The issue of stock return, volume and has gained a remarkable attention among academics, investors and researchers due to portfolio positioning and liquidity of their investment. However, the issue remains deceptive with regard to weather symmetric or asymmetric impact of internal and external factors affecting market in developing and developed country. In general phenomenon that higher volatility gives higher return. India is the second largest cement producer in the world. India's cement industry is an important part of the Indian economy, in one way or the other it is employing over one million people. Ever because it turned into deregulated in 1982, India`s cement enterprise has attracted sizable funding from each Indian and overseas investors. The cement industry is one of the major

contributors to the Industrial Production Index. Cement is one of the mid-sized industries that has played a significant role in the country's ups and downs. The cement firm has flourished in recent years, fuelled by increases in infrastructure, sports, and residential demand. Investment in infrastructure is the main driving force for cement plants. And with new promises with new authorities, it is clear that infrastructure improvements can become a top priority for authorities. India has amazing improvement ability withinside the infrastructure and production region, and the cement region is predicted to gain significantly from this. Some of the major government initiatives in recent years, such as smart city development, are expected to benefit the sector significantly. In anticipation of this development of the country and with the support of the relevant foreign policy of the government, several foreign players such as Lafarge Holcim, Heidelberg Cement and Vicat have recently invested in the country. An important factor contributing to the growth of this sector is the availability of raw materials for the production of cement, such as limestone and coal.

1.1 Market Size

Cement prices in India increased by 4.7% month on month in April 2020, indicating the likelihood of increased volume and profitability for cement companies in the fiscal quarter ending June 2020. The housing sector is the primary driver of cement demand in India, accounting for roughly 65 percent of overall consumption. Infrastructure contributes for 13% of cement usage, with commercial buildings accounting for 11%. Construction in the industrial sector accounts for 9% of total construction. The total capacity of the cement industry in India is 300 million tonnes (MT) in 2020, with growth expected to be 4-6 percent in 2020 due to the government's emphasis on infrastructure development. The industry currently produces 280 million tonnes for domestic demand and 5 million tonnes for export. The country's per capita consumption is approximately 225 kg. A few businesses dominate the Indian cement sector. Nearly 70% of all cement production in the country is produced by the top 20 cement businesses.

In recent years, there have been numerous investments and developments. According to the Industrial Policy Promotion Agency (DIPP), 77 percent cement and gypsum products were manufactured in Andhra Pradesh, Rajasthan and Tamil Nadu. Between Apr (2000) and Mar(2020), the cement sector in India received FDI of US$ 5.24 billion because of rising demand due to increased construction and infrastructural activity.

1.2 National Stock Exchange(NSE)

The NSE, also acknowledged as the NIFTY 50 or Standard & Poor's CRISIL NSE Index, is the leading index on the Indian stock market (S&P CNX Nifty). Great stocks are divided into 23 sectors of the economy. The banking sector is one of the active trading sectors on the National Stock Exchange.

2. Procedures For Paper Submission
2.1. Review Stage

M. Hakan Berument and Nukhet Dogan (2010) in their study entitled "Stock market return and volatility: day-of-the-week effect" checked out the connection among inventory marketplace returns and volatility. The empirical indication presented here does not support the idea that the return-volatility link exists and is consistent on each day of the week.

Arora, Das & Jain in their study entitled "Stock Returns and Volatility: Evidence from Select Emerging Markets" tested the conduct of inventory returns and volatility in ten rising international locations and

compares it to that of evolved markets the use of numerous frequency metrics (daily, weekly, monthly, and annual) from Jan 2002 to Dec 2006. According to historical data on stock returns in all emerging and developed economies, emerging market mean return to volatility ratios are higher than advanced market mean return to volatility ratios. Return volatility clusters and return distributions aren't regular.

Gulia study entitled "Testing of Relationship Between Trading Volume, Return and Volatility" This study looks empirically at the connection among buying and selling quantity and return on equity volatility withinside the Indian stock marketplace. They observed that the connection among price volatility and volume of the 3 measurements of every day buying and selling quantity become critical for the marketplace as an entire and for individual stocks, irrespective of the direction of price volatility.

Saeedullah & Rehman study entitled "An Empirical Analysis of Market and Industry Factors in Stock Returns of Pakistan Cement Industry" This article aims to create a multi-index version for the cement sector in Pakistan. This version includes 5 precise marketplace and enterprise variables which might be predicted to have an effect on the fairness returns of cement companies. The impartial variables are the Karachi Stock Exchange (KSE) a hundred Index Return, Consumer Price Index (CPI), Industrial Production Index (IPI), Risk-Free Rate of Return (RFR), and Cement Export (EXP). The look at discovered that Pakistan`s cement enterprise fairness returns may be defined with the aid of using a unmarried index version. However, the use of a multi-index version provides a piece of explanatory energy to the version with the aid of using barely enhancing the coefficient of determination (R2).

2.2. Problem of the study

Number of research has been performed to examine the connection among inventory return and volume in numerous aspects. Few preceding research proved robust dating among inventory return and Volume and a few research indicates poor dating and downsides associated with elements of the look at and improvements of the research. It ends in blended empirical end result among stock return, volume and volatility. In addition, an asymmetry dating among inventory return and quantity become discovered. Good information will enhance stock return volatility, if you want to result in an growth in volume, at the same time as horrific information will lower stock return volatility. As a end result, the cause of this look at is to investigate the inventory return, volume, and volatility of some cement shares in India.

2.3. Objectives

1. To evaluate the stock and return of selected cement companies' stocks in India

2. To study the existence of serial correlation in select companies

3. To look into the relationship between stock returns and volume of India's biggest cement companies.

2.4. Hypothesis of the study

H0: The stock returns, volume, value, and trade of the selected businesses are either randomly distributed or have no serial correlation.
H1: The stock returns, volume, value, and trading of the selected firms are not randomly distributed or demonstrate serial correlation.

H0: selected companies stock return series are stationary.

H1: selected companies stock return series are not stationary.

H0: Stock return and volume, stock return and value, and stock return and trade are not linked.

H1: Stock return and volume, stock return and value, and stock return and trade are all intertwined.

3. Research Methodology
3.1. Data used and Analysis

For the purpose of the study, the data set comprises daily stock return and trading volume of 10 cement companies traded in National Stock Exchange. The sample companies were selected based on high market capitulation. Data collected for research is purely secondary. Daily closing

prices were collected from the database of April 1, 2015 to July 31, 2020. The sample companies are Ultra Tech Cement Ltd, Ambuja Cements Ltd, ACC Ltd, India Cements Ltd, Shree Cements Ltd, The Ramco Cements Ltd, Birla Corporation Ltd, J. K. Cement Ltd, JK Lakshmi Cement Ltd, OCL India Ltd,

3.2. Tools used for analysis

A. Descriptive statistics

The first stage is to calculate daily stock returns, as indicated in Equation (1), these are defined as the natural logarithm of the first difference in daily closing prices.

$$R_t = \ln (P_t / P_{t-1}) \quad \text{---------} \quad (1)$$

P_t represents stock closing price at the end of month t, R_t represents stock return during period t, and P_{t-1} represents stock closing price at the end of month t-1.

In literature, the term "trading volume" is most usually employed. Trading volume is used in this study as the natural logarithm of trading volume at time t, as shown in Equation (2). The use of the natural logarithm to calculate trading volume will improve normalcy.

$$V_t = \ln (V_t) \text{--}(2)$$

The trade volume at time t is denoted by V_t. For statistical reasons, such as avoiding heterodascasity, both the stock return and trade volume variables must be transformed to natural logarithms. Because the variables are in log form, they are used to estimate elasticity.

I. SD is a measure of the variables around the mean, is used to assess risk. Standard deviation is calculated using the following formula:

II. Skewness: It is an indicator of symmetry, or rather a lack of symmetry. If the distribution or collection of data looks the same to the left and right of the center point, it is said to be symmetric.

III. Kurtosis: In relation to a normal distribution, kurtosis is a measure of how heavy-tailed or light-tailed the data are. Higher kurtosis data sets are more likely to contain heavy tails or outliers. In low kurtosis data sets, it is common to have light tails or no outliers. The most extreme case is a uniform distribution.

B.   Beta – The beta factor is a measure of how sensitive an asset's returns are to changes in returns across a portfolio of markets. To calculate Beta, the Nifty index was utilized to determine the degree of responsiveness of securities returns to market returns.

C. Pearson r correlation:

Pearson`s correlation is the maximum extensively used correlation statistic for measuring the diploma of dating among linearly associated variables. In this particular study correlation has been measuring the relationship between the variables of stock return, volume, trade and value. The Pearson r correlation is calculated using the following formula:

Where r is the Pearson correlation coefficient and N denotes the number of observations.

xy =∑ paired scores

x =∑x scores

y = ∑ y scores

x2= ∑x2 scores

y2= ∑y2 scores

D. Stationary or Unit root test

ADF Test: The augmented Dickey-Fuller test, sometimes known as the ADF test, is one of the most effective methods for determining if a time series is stationary. Remember that the time series we're looking at is the residuals series. It tells us how likely the series is to be non-stationary. The P value is another name for this probability number. The ADF test formula is as follows:

Where, is the first different operator, is a constant, is the coefficient on a time trend   is the coefficient on a squared time trend

KPSS Test: Because of the unit roots around the mean or linear trend, this test indicates whether a time series is stationary or non-stationary. The constant series has the following statistical qualities that remain constant over time, such as: B. Mean and variance. The KPSS test uses linear regression. Use the regression equation to divide the series into three parts. Deterministic tendency (t), random walk (rt), and steady-state error (t).

xt = rt + βt + ε1

If the data is stationary, the intercept is fixed, or the sequence is stationary at a fixed level. This test uses OLS to calculate the equation. The equation is slightly different depending on whether you are testing the stationarity of the level or trend (Kocenda & Cern). A simplified version without the time trend component is used to test the stationarity of the plane.

E. Co integration test

Cointegration is a concept that may be traced back to Engle and Granger's work (1987). If two variables have a common stochastic tendency, they are cointegrated. When merging integrated variables, the usual rule is that the aggregate will always be included on the higher of the two integration orders. The most common order of integration in time series is either 0 or 1. (Brooks, 2008).

1)   if yt ~ I(0), and xt ~ I(0), then their combination (axt + byt) will also be I(0),

2) if yt ~ I(0), and xt ~ I(1), then their combination (axt + byt) will now be I(1), because I(1) is higher order of integration and dominates the lower order of integration I(0),

3) if yt ~ I(1), and xt ~ I(1), then their combination (axt + byt) will also be I(1), in the general case.

However, if there is a stationary linear combination of non-stationary variables I(1), then cointegration exists between those variables.

Two I(1) non-stationary variables, yt and xt, are included in the following regression model:

$$yt = \mu + \beta xt + u \text{ -------------------------------1}$$

These two variables are cointegrated if the OLS estimate results in a stationary linear combination of yt and xt The error term difference between them remains constant throughout time. (stationary):

$$ut = yt - \beta x t \text{ --------------------------------- 2}$$

Co-integration requires the inclusion of two variables in the same order. If one variable has the fee I(0) and the opposite variable has the fee I(1), they cannot be cointegrated. Cointegration will no longer exist because the best integration order of the two variables will now take precedence. Nonstationary I(1) variables are the stock market returns, extent, and volatility that are the focus of this investigation. If there is a desk bound linear mixture of inventory indices, cointegration exists. Analyzing the connection among inventory go back and extent in monetary marketplace is extra vital for researchers, buyers and coverage makers

F. Granger causality test

Correlation does now no longer constantly suggest causation withinside the significant experience of the word. Granger's (1969) method of determining whether x is a cause of y is to first determine how much of the present y can be explained by past values of y, and then see if the explanation improves by adding lag x values. If x aids in the prediction of y, or if the coefficients of lag x are statistically significant, y is said to have a Granger value due to x. Bidirectional causation is a common occurrence. Granger x calls Granger y, and Granger y calls Granger x. It should be noted that the sentence "x Granger calls y" does not imply that y is or is not the result of x. Granger causality assesses priority and information content but does not represent causation in its broadest sense.

4.Result and Discussion

4.1 Descriptive Statistics

The table 4.1 shows that the descriptive statistics of selected companies. It reveals that Ultra tech cement Ltd; India cement Ltd and JK Lakshmi cement Ltd negatively skewed during the period. The negatives skewness indicates that the higher probability of earning negative return, remaining companies shows the positive skewness. All selected companies stock return shows the higher kurtosis (greater than 3). Higher kurtosis shows that the distribution of return has fat tails compared to normal distribution.

4.2 Beta

Table 4.2 shows the Beta coefficient result for selected cement companies The inclination of a security's returns to respond to market swings is represented by beta. The beta of a security should only be used when the security has a high R-squared value in comparison to the benchmark. A beta of one indicates that the price of the security moves in lockstep through the market. A beta much less than one suggests that the safety is much less risky than the market. A beta extra than one suggests that the rate of the safety is extra risky than the market. To compute the beta coefficient. If the beta value of Ultra Tech Cement Ltd, Ambuja Cement Ltd, or India Cements Ltd is greater than one, It indicates that the share prices of these companies were more volatile than the market. All remaining companies' beta values were less than one, indicating that they were less volatile than the market.

4.3 Pearson correlation

The table 4.3 shows that the correlation of return of stock and Volume, return of stock and Value, return of stock and trade, Volume and value, trading volume and trade, Value and trade was tested in this study. The result shows that return of stock and Volume, return of stock and value, return of stock and trade show positive linear relationship of $0 - 0.30$. the result reveals that Volume and Value has a correlation of 0.90 and above is indicates that Volume and value has correlation. Volume and trade & value and trade shows a correlation between 0.60 to 0.90. it shows a strong positive relationship between Volume and trade & Value and trade of select sample companies.

4.4 Lagrange Multiplier Test

For computing ARCH LM test, ordinary least square method is used to compute the residuals and square residuals of selected cement companies in India. The result is presented in the table 4.4, it shows that the data is suffering from the problem of heteroskedasticity. All the selected companies' P value is higher than the critical value of 0.05. the table shows that the error variance is not constant over the time period taken for the study.

4.5 The result of co integration between stock return & volume, Stock return & value and Stock return & Trade are given in the table 4.5a, 4.5b, 4.8c of all selected cement companies stocks. All selected companies Trace statistics of stock return & volume, Stock return & value and Stock return & Trade were exceeding the critical value (15.49 and 3.84) in none and at most one. So, the null of there is no co integrating vectors is rejected. The max Eigen test showed the confirmation of the result.

4.6 Results show little evidence for lead interactions between series. Some results show a significant causal relationship at the 5% level. Return cause of value is shown in the table except Ambuja Cements Ltd, ACC Ltd and J. K. Cement Ltd. It also depicts the stock return cause for trade six sample companies except Ambuja Cements Ltd, India Cements Ltd, Shree Cements Ltd and J. K. Cement Ltd but no causality from the opposite direction It's also worth noting that the term "Granger causality" is misused because the discovery of "causality" does not physically imply that the movement of one variable causes the movement of another. Causality simply means chronologically arranging a sequence of movements.

5. Conclusion:

Analyzing the connection among inventory go back and quantity in monetary marketplace is extra crucial for researchers, buyers and policy makers. It helps many portfolio managers and traders to make better

decision in short term and medium-term horizon. Very few research was suggested in this problem in rising markets like India. This empirical study for cement sector stocks in Indian stock market. For the purpose of this study Ten cement companies was selected based on high market capitalization. It focuses on stock return and volume of selected stocks. This take a look at effects indicates that the tremendous correlation among charge modifications and volume, cost and trade. Most of the stocks shows asymmetric behavior. Granger causality test shows past return does not show Granger cause trading volume but most of the company's stock return Granger cause for the value.

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Table: 4.1 – Descriptive statistics for selected cement companies stock return in India

	Company	Mean	Std. Dev.	Skewness	Kurtosis	N
1	Ultra Tech Cement Ltd	0.0435	1.5495	-0.1471	4.2629	824
2	Ambuja Cements Ltd	-0.0185	1.6287	0.0503	4.7368	824
3	ACC Ltd	-0.0042	1.5217	0.7307	8.3571	824
4	India Cements Ltd	0.0440	2.8991	-0.4468	6.5917	824
5	Shree Cements Ltd	0.0549	1.8734	0.3541	4.5782	824
6	The Ramco Cements Ltd	0.1034	1.8185	0.6008	6.4404	824
7	Birla Corporation Ltd	0.0755	2.0946	0.9121	10.5523	824
8	J. K. Cement Ltd	0.0181	1.9196	0.6598	7.5046	824
9	JK Lakshmi Cement Ltd	-0.0110	1.8760	-0.1529	5.9058	824
10	OCL India Ltd	0.1164	2.1870	0.9594	10.9598	824

Table 4.2 –Beta co efficient for the selected cement companies stock returns

Company Name	Ultra Tech Cement Ltd	Ambuja Cements Ltd	ACC Ltd	India Cements Ltd	Shree Cements Ltd	The Ramco Cements Ltd	Birla Corporation Ltd	J.K. Cement Ltd	JK Lakshmi Cement Ltd	OCL India Ltd
Beta	1.0722	1.09754	0.95282	2.22792	0.87966	0.90444	0.83584	0.77985	0.93885	0.4595

Table 4.3 – Pearson correlation between Measures of daily stock return, trading volume, value and Trade

	Company Name	Stocks return and Volume	Stock return and value	Stock return and Trade	Volume and value	Volume and Trade	Value and Trade
1	Ultra Tech Cement Ltd	0.0497	0.0564	0.0125	0.9568	0.8035	0.8045
2	Ambuja Cements Ltd	0.0881	0.0937	0.0963	0.9818	0.6828	0.6835
3	ACC Ltd	0.1975	0.1945	0.1492	0.9835	0.8269	0.8138
4	India Cements Ltd	0.1943	0.1573	0.1669	0.8931	0.8847	0.9235
5	Shree Cements Ltd	0.0946	0.0898	0.0772	0.9689	0.7924	0.7883
6	The Ramco Cements Ltd	0.1194	0.0984	0.1247	0.9591	0.7059	0.7729
7	Birla Corporation Ltd	0.2034	0.1753	0.1552	0.9858	0.8809	0.9024
8	J. K. Cement Ltd	0.2035	0.1888	0.1245	0.9761	0.6838	0.7134
9	JK Lakshmi Cement Ltd	0.0965	0.0987	0.0855	0.9864	0.6446	0.6415
10	OCL India Ltd	0.2615	0.2264	0.1794	0.9669	0.7622	0.7965

Table 4.4–ADF & Kpss test result for the selected cement companies stock returns

Company	Test	Test stat	Prob		Test	Test stat	Prob	
Ultra Tech Cement Ltd	ADF	-28.148	0	Unit root	Kpss	0.043	0	Non-Stationary
Ambuja Cements Ltd	ADF	-29.516	0	Unit root	Kpss	0.084	0	Non Stationary
ACC Ltd	ADF	-29.037	0	Unit root	Kpss	0.074	0	Non Stationary
India Cements Ltd	ADF	-28.507	0	Unit root	Kpss	0.162	0	Non Stationary
Shree Cements Ltd	ADF	-28.086	0	Unit root	Kpss	0.083	0	Non Stationary
The Ramco Cements Ltd	ADF	-29.324	0	Unit root	Kpss	0.132	0	Non Stationary
Birla Corporation Ltd	ADF	-27.677	0	Unit root	Kpss	0.164	0	Non Stationary
J. K. Cement Ltd	ADF	-28.304	0	Unit root	Kpss	0.109	0	Non Stationary

JK Lakshmi Cement Ltd	ADF	-26.301	0	Unit root	Kpss	0.110	0	Non Stationary
OCL India Ltd	ADF	-29.093	0	Unit root	Kpss	0.118	0	Non Stationary

Table 4.5 a) Johansen co integration analysis for stock return and volume								
Sl no	Company Name	No. of CE(s) = None				No. of CE(s) = At most one			
		Trace statistic	Critical value	Max Eigen statistic	Critical value	Trace statistic	Critical value	Max Eigen statistic	Critical value
1	Ultra Tech Cement Ltd	223.65	15.49	144.93	14.26	78.72	3.84	78.72	3.84
2	Ambuja Cements Ltd	193.53	15.49	136.85	14.26	56.67	3.84	56.67	3.84
3	ACC Ltd	183.83	15.49	134.85	14.26	48.98	3.84	48.98	3.84
4	India Cements Ltd	224.02	15.49	167.00	14.26	57.03	3.84	57.03	3.84
5	Shree Cements Ltd	237.84	15.49	170.05	14.26	67.79	3.84	67.79	3.84
6	The Ramco Cements Ltd	208.52	15.49	147.90	14.26	60.61	3.84	60.61	3.84
7	Birla Corporation Ltd	176.22	15.49	154.72	14.26	21.50	3.84	21.50	3.84
8	J. K. Cement Ltd	186.94	15.49	118.74	14.26	68.20	3.84	68.20	3.84
9	JK Lakshmi Cement Ltd	200.68	15.49	141.13	14.26	59.56	3.84	59.56	3.84
10	OCL India Ltd	179.72	15.49	149.06	14.26	30.65	3.84	30.65	3.84

Table 4.5 b) Johansen co integration analysis for stock return and value								
Sl. No	Company Name	No. of CE(s) = None				No. of CE(s) = At most one			
		Trace statistic	Critical value	Max Eigen statistic	Critical value	Trace statistic	Critical value	Max Eigen statistic	Critical value
1	Ultra Tech Cement Ltd	227.21	15.49	143.17	14.26	84.03	3.84	84.03	3.84
2	Ambuja Cements Ltd	190.54	15.49	137.76	14.26	52.78	3.84	52.78	3.84
3	ACC Ltd	174.08	15.49	133.96	14.26	40.12	3.84	40.12	3.84
4	India Cements Ltd	194.08	15.49	168.37	14.26	25.71	3.84	25.71	3.84
5	Shree Cements Ltd	217.71	15.49	170.20	14.26	47.51	3.84	47.51	3.84
6	The Ramco Cements Ltd	180.48	15.49	149.02	14.26	31.46	3.84	31.46	3.84
7	Birla Corporation Ltd	170.09	15.49	155.42	14.26	14.67	3.84	14.67	3.84
8	J. K. Cement Ltd	165.00	15.49	119.46	14.26	45.53	3.84	45.53	3.84
9	JK Lakshmi Cement Ltd	189.28	15.49	138.75	14.26	50.53	3.84	50.53	3.84
10	OCL India Ltd	169.27	15.49	150.58	14.26	18.69	3.84	18.69	3.84

Table 4.5 c) Johansen co integration analysis for stock return and trade								
Sl .No	Company Name	No. of CE(s) = None				No. of CE(s) = At most one			
		TS	CV	MS	CV	TS	CV	MS	CV
1	Ultra Tech Cement Ltd	226.71	15.49	152.54	14.26	74.18	3.84	74.18	3.84
2	Ambuja Cements Ltd	212.49	15.49	141.22	14.26	71.27	3.84	71.27	3.84
3	ACC Ltd	184.36	15.49	132.90	14.26	51.45	3.84	51.45	3.84
4	India Cements Ltd	207.38	15.49	166.54	14.26	40.83	3.84	40.83	3.84
5	Shree Cements Ltd	239.42	15.49	169.53	14.26	69.88	3.84	69.88	3.84
6	The Ramco Cements Ltd	183.32	15.49	148.79	14.26	34.52	3.84	34.52	3.84
7	Birla Corporation Ltd	173.79	15.49	154.61	14.26	19.17	3.84	19.17	3.84
8	J. K. Cement Ltd	180.62	15.49	119.37	14.26	61.26	3.84	61.26	3.84
9	JK Lakshmi Cement Ltd	187.11	15.49	135.13	14.26	51.97	3.84	51.97	3.84

| 10 | OCL India Ltd | 173.47 | 15.49 | 150.93 | 14.26 | 22.55 | 3.84 | 22.55 | 3.84 |

TS-Trace statistic, CV- Critical value, MS- Max Eigen statistic.

Table 4.6. Granger causality test

	Company Name	Stock return to Volume		Stock return to value		Stock return to Trade		
		VCS	RCV	VCR	RCV	TCR	RCT	Conclusion
1	Ultra Tech Cement Ltd	yes	Yes	Yes	Yes	No	Yes	Rejection at 5%
2	Ambuja Cements Ltd	No	No	No	No	No	No	Rejection at 5%
3	ACC Ltd	yes	No	Yes	NO	Yes	Yes	Rejection at 5%
4	India Cements Ltd	No	No	No	Yes	No	No	Rejection at 5%
5	Shree Cements Ltd	No	No	No	Yes	No	No	Rejection at 5%
6	The Ramco Cements Ltd	No	No	No	Yes	No	Yes	Rejection at 5%
7	Birla Corporation Ltd	No	No	No	Yes	No	Yes	Rejection at 5%
8	J. K. Cement Ltd	No	No	No	No	No	No	Rejection at 5%
9	JK Lakshmi Cement Ltd	Yes	No	No	Yes	No	Yes	Rejection at 5%
10	OCL India Ltd	No	Yes	No	Yes	No	Yes	Rejection at 5%

VCS-Volume causes Return, RCV- Return Causes Volume, TCR- Trade Causes Return