

A Comparative Study of Metal and Electricity Industries in Indian Context

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Abstract

There are many studies has been conducted on relationship between different industries on companies level as well as industry level. In this study I tried to find out relationship between metal industry and electricity industry on firm level and industry level. This research paper attempts to examine empirical status of selected companies from metal and electricity industries in India by using monthly data time series over a nine year period from January 2002 to December 2010 for stocks of metal industry's 79 Companies and electricity industries's 7 Companies total 86 Indian companies of both industries. The study employed the three steps in the first step descriptive study, in the second step augmented dickey-fuller unit root test for checking stationery and in the third step granger causality tests for testing the causality between stock return and trading volume. From analysis result and discussions, we can say that the empirical result of granger causality test on industries level in India, Both industries shows high degree Return cause volume but not volume cause return. Hence, we can say that both of the industries show one side causation return cause volume. It means that the variables trading volume and stock return are not mutually granger cause to each other, in case of empirical analysis of two selected industries from India. Hence changes in Stock Return and trading volume do not reflect the variable each other on industries level. Therefore, there is randomness in the behaviour of stock return and trading volume changes in this study of two industries in India. But in case of empirical analysis of two industries at firm level the result shows very low degree relationship between stock return and trading volume for all 86 companies from metal and electricity industries.

Keywords: Comparative, Electricity, Indian, Industries, Metal

(Date of Acceptance: 03-01-2015; Plagiarism Check Date: 09-01-2015; Peer Reviewed by Three editors blindly: 4-02-2015; Reviewer's Comment send to author: 22-02-2015; Comment Incorporated and Revert by Author: 5-03-2015; Send for CRC: 20-03-2015)

1. Introduction

This research paper empirically investigates the relationship between stock returns and trading volume for 86 Indian stocks from metal and electricity industries. In this context this research paper try to empirically examine the relationship between stock returns and trading volume in India using monthly data time series over a nine year period from January, 2002 to December, 2010 for 86 stocks of metal and electricity industries. The study employed the three steps in the first step descriptive study, in the second step augmented dickey-fuller unit root test for checking stationery and in the third step granger causality tests for testing the causality between stock return and trading volume. From analysis result and discussions we can say that the empirical result of granger causality test on firm level in metal and electricity industries. Out of 86 stock of Electricity industry and Metal industry, 56 (OCTL, OEL, PGFOIL, SAL, SBCL, SAIL, STRLNGT, SISC, TATAML, TATASI, TAYOR, TCIL, PSL, GIL, SIL, JINDSAW, WCL, WISL, USHAM, UGSL, VBC, MIL,

METALIL, MIEL, MUKAND, NSAI, NILE, RGWL, RCL, RSAL, CESLKFIL, LGBB, LPSL, LMEL, LSIL, IFL, IPCL, ISPAT, JSW, JNIL, JCL, MUSL, BSIL, BIL, NECL, ESIL, EGCL, GIL, GPL, HAIL, HZL, GIPCL, RELIANIN, JINDALST, KLYNISTE, BSL) stocks indicate that return cause volume, 1 (BSAL) stocks indicate that volume cause return, 2 (MECL, NLCL) stocks indicate bi-directional causation and the remaining 27 (TATASTL, TIOL, ZENITH, BFUL, NBVL, NTPC, AFL, ACL, CCOM, DNIL, FACL, GSTL, HIL, HTWL, JAIC, JSL, KPTL, LIL, MMFL, MSL, NACL, OSISL, PIL, RSPL, RMTL, SHETRON, STL) shows no causation at all. Hence, we can say that most of the companies show Return cause volume at all other than volume cause return. It means that the variables trading volume and stock return are not mutually granger cause to each other, in case of empirical analysis of 86 selected companies from metal and electricity industries in India. But in case of empirical analysis of two industries at industry level the result shows very low degree relationship between stock return and trading volume for both metal and electricity industries.

2. Review of Literature

During the last decades a number of interesting studies have sought to explain the empirical relationship between trading volume and stock returns.

We argue that the increase in trading volume and stock returns volatility may be attributed to index arbitrage transactions as derivative markets provide more routes for index arbitrageurs to trade. Other index trading strategies such as portfolio insurance and program trading may also contribute to the results. In the literature we reviewed these article and research paper, Campbell et al¹, Christos et al², Chuntao et al³, Deo et al⁴, Fama⁵, Floros and Vougas⁶, Fan et al⁷, Gebka⁸, Gurgul et al⁹, Hasan and Adnam¹⁰, Henery¹¹. The purpose of this paper is to provide a rational economic theory to explain these phenomena. Results of a dynamic programming model with heterogeneous beliefs show that the dynamic interactions between information diffusion and belief changes create continuation and reversals. The duration and magnitude of momentum and price movements are associated with trading volume. Therefore, rational investors should incorporate price and volume information in their trading decisions.

3. Objectives of the Study

- To study the correlation between stock returns changes and trading volume in the Indian stock market for metal and electricity industries.
- To test the causality relationship between the trading volume and stock returns through Granger Causality Test for metal and electricity industries.
- To investigate the trend of trading volume and stock returns in Indian stock market empirically through descriptive statistics for metal and electricity industries.
- To measure the asymmetry of the distribution of the data series for trading volume and stock returns around its mean in Indian stock market for metal and electricity industries.

4. Research Methodology and Sample

This study attempts to analyse the importance of trading volume and stock returns in stocks of 86 metal and electricity industries Indian companies. The literature on the trading volume and price change and return changing put emphasis on the relevance of the modern techniques for checking the relationship. The sample of this study comprises 86 companies of metal and electricity industries Indian companies which is the main companies of Indian industry. These companies are OCTL, OEL, PGFOIL, SAL, SBCL, SAIL, STRLNGT, SISC, TATAML, TATASI, TAYOR, TCIL, PSL,

GIL, SIL, JINDSAW, WCL, WISL, USHAM, UGSL, VBC, MIL, METALIL, MIEL, MUKAND, NSAI, NILE, RGWL, RCL, RSAL, CESLKFIL, LGBB, LPSL, LMEL, LSIL, IFL, IPCL, ISPAT, JSW, JNIL, JCL, MUSL, BSIL, BIL, NECL, ESIL, EGCL, GIL, GPL, HAIL, HZL, GIPCL, RELIANIN, JINDALST, KLYNISTE, BSL, BSAL, MECL, NLCL, TATASTL, TIOL, ZENITH, BFUL, NBVL, NTPC, AFL, ACL, CCOM, DNIL, FACL, GSTL, HIL, HTWL, JAIC, JSL, KPTL, LIL, MMFL, MSL, NACL, OSISL, PIL, RSPL, RMTL, SHETRON and STL (for detail abbreviation see appendix). The data period is from Jan. 2002 to Dec. 2010. In this study, our data comprises stock returns calculated from adjusted monthly closing prices and traded quantity series for a theoretical portfolio consisting assets belonging to sample of all 86 major firms participating in Indian capital market because these firms are well representative of Indian companies. All trading volume and stock return data are primarily provided by CMIE LTD and were collected from finance prowess finance database and newspaper and internet.

5. Statistical Techniques

In this study, in order to observe the relationship between stock return and trading volume, the methodology was used in the current study consists of three steps which are as follow: Descriptive Statistics for preliminary investigation, ADF Test for checking Stationarity of Time Series Data and Granger Causality Tests for testing causal relationship between Trading Volume and Stock Returns.

5.1 First Step: Descriptive Statistics

This displays various summary statistics for the series. It contains entries for histograms, basic statistics, and statistics by classification. All of the statistics are calculated using the observations in the current sample.

5.2 Second Step

5.2.1 Dickey-Fuller Unit Root Test (Stationary Test)

We see that the hypothesis of a unit root is rejected by both the tests are the 1%, 5% and 10% level, indicating both the series are stationary (i.e. a deterministic trend). It appears that there exists strong component of non-randomness in our stock return and trading volume. (E-View, 6)

5.2.2 The Durbin-Watson Statistics

The Durbin-Watson Statistic is a test for first-order serial correlation. It is, the statistical measure for the linear association between adjacent from a regression model. The Durbin-Watson is a test of the hypothesis $p=0$ in the specification:

5.3 Third Step: Granger Causality Test

If we want to know whether

“TQ” causes “RTN” or “RTN” causes “TQ”, or bilateral causes, “Lags to include” is “2”,

6. Descriptive Statistics of Traded Quantity for Electricity and Metal Industries

From the descriptive statistics of traded quantity for both the industries and these industries are Electricity industry have 7 companies and Metal industry have 79 companies from the all 108 observations minimum, maximum, mean, standard deviation, is positive its mean there is a positive trend in the time series of the traded quantity.

In case of skewness null hypotheses; traded quantity do not have positive asymmetry of distribution, null hypotheses is rejected, so the traded quantity have positive asymmetry of distribution. Its mean that the distribution of traded quantity has a long right tail which displays the distribution has high degree asymmetry.

In case of kurtosis of 86 companies, null hypotheses; traded quantity does not have peakiness of the distribution of the series. Null hypotheses is rejected, the kurtosis of the normal distribution is exceeds 3, its mean, the distribution of the traded quantity is peaked (Leptokurtic) relative to the normal. Its mean the data series of traded quantity have more flexibility in the trend. But in case of three companies out of 86 companies TATASTEEL company, the null hypotheses is accepted, the kurtosis of the normal distribution is less than 3, its mean, the distribution of the traded quantity is flat (Platykurtic) relative to the normal. Its mean the data series of traded quantity have less flexibility in the trend.

7. Descriptive Statistics of Stock Return for Electricity and Metal Industries

From the descriptive statistics of stock return %age for both the industries and these industries are Electricity industry have 7 companies and Metalindustry have 79 companies, from the 107 observations minimum values of stock return in %age are negative in the case of most of the companies its mean every company in the analysis will have been in loss atleast one time in the month out of 108 months of 9 years. Maximum, mean, standard deviation is positive its mean there is a positive trend in the time series of the stock returns percent.

In case of the some companies, the skewness values of stock return (present), null hypotheses; traded quantity do not have

positive asymmetry of distribution, null hypotheses is rejected, so the traded quantity have positive asymmetry of distribution. Its mean that the distribution of traded quantity has a long right tail which displays the distribution has high degree asymmetry.

In case of kurtosis some companies (out of 86 companies), null hypotheses; stock returns does not have Peakiness of the distribution of the series. Null hypotheses is rejected, the kurtosis of the normal distribution is exceeds 3, its mean, the distribution of the stock return percent is peaked (Leptokurtic) relative to the normal. Its mean the data series of stock return percent have more flexibility in the trend. But in case of some companies (out of 86 companies) like GIPCL, NLCL, TPC, ACL, BS&A, BSL, ECL, EGCL, GSTL, HAIL, HIL, IFL, ISPAT, JSW, JNIL, JINDALSA, JSL, LGB&, LPSL, LM&E, LSIL, MMFL, MIL, MI&EL, MUKAND, OCTL, PSL, PIL, RGWL, RM&T, SBCL, SAIL, STRLINGT, TATAML, TATASI, TATASTEL, TAYOR, TCIL, TIOL, USHAM, UGSL, WISL) the null hypotheses is accepted, the kurtosis of the normal distribution is less than 3, its mean, the distribution of the stock returns is flat (Platykurtic) relative to the normal. Its mean the data series of traded quantity have less flexibility in the trend.

8. Descriptive Statistics of Stocks Return and Trading Volume Industry Wise as Follow

In the above traded quantity analysis results of 2 industries Electricity industry and Metal industry in Table 1. There are 108 observation involved and absolute trading volumes have positive

Table 1. Descriptive Statistics of Trading Volume for all Industries

	TQ ELECTRICITY	TQ METAL
Mean	226199.2	262956.5
Median	197621.1	229669.1
Maximum	1128371.	690693.1
Minimum	24807.71	14298.13
Std.Dev.	170336.9	157357.7
Skewness	1.921985	0.793341
Kurtosis	9.515786	3.318950
Jarque-Bera	257.5421	11.78679
Probability	0.000000	0.002758
Sum	24429516	28399303
SumSq.Dev.	3.10E+12	2.65E+12
Observations	108	108

Sources: Self constructed table.

skewness, positive kurtosis and high J-B statistics. This implies that the distribution is skewed to the right and that the pdf is leptokurtic. The J-B statistics test indicates the null hypothesis of normality is rejected. The skewness statistics test indicates the null hypotheses; trading volume does not have positive asymmetry of distribution is rejected. Further kurtosis statistics test indicates the null hypotheses; trading volume do not have peakiness of the distribution of series is rejected. The minimum and maximum values are all positive in the analysis of these industries its mean there are no negative values in the data series of trading volume and stock returns and the trend for the two variables is favourable for further testing relationship between two variables because the descriptive statistics of above data provide basic information about the time series data. The probability value is near to zero which displayed that the data series is normally distributed in the descriptive analysis of trading volume and stock returns.

As you can see in the Table 2 stock returns of 2 industries Electricity industry and Metal industry in which 106 observations involved, Both returns and trading volume are obviously not normally distributed. For both series, excess kurtosis is significantly different from zero, indicating a fat tailed distribution for either return or trading volume. Both series also exhibit significant positive skewness. It should be noted that magnitudes of excess kurtosis and skewness are much larger for trading volume. Based on the Jarque-Bera statistics, the null hypothesis of normality can be rejected at the 1% level of significance for both return and trading volume. In both industries absolute trading volume has positive skewness, positive kurtosis and high J-B statistics. This implies that the distribution is skewed to the right and that the pdf is leptokurtic. The J-B statistics test indicates the null

hypothesis of normality is rejected. In addition, the result for the stock return series indicate positive skewness, low positive kurtosis and lower value of J-B statistics (still rejecting normality). Hence, summary statistics for normality is also not rejected, but not as strongly.

9. A Brief Study of Augmented Dickey-Fuller Test Statistic of Stock Returns and Trading Volume for all Companies for the Period of Jan. 2000 to Dec. 2010 is as follows

*The critical values are (-2.586753, -1.943853, -1.614749 at 1%, 5% and 10% significant level, respectively). From the analysis and results about brief study of Augmented Dickey-Fuller test statistic of all companies of these industries are Electricity industry and Metal industry (BFUL, CESL, GIPCL, NBVL, NLCL, RELIANIN, TPC, AFL, ACL, BS&A, BSL, BSIL, BIL, CCOM, DNIL, ECL, ESIL, EGCL, FAFL, GSTL, GIL, GPL, HAIL, HIL, HTWL, HZL, IFL, I&PCL, ISPAT, JSW, JAIC, JNIL, JCL, JINDALSA, JINDALSTE, JSL, KPTL, KLYNISTE, KFIL, LGB&, LPSL, LIL, LM&E, LSIL, MMFL, MECL, MSL, MUSL, MIL, METALIL, MI&EL, MUKAND, NACL, NS&AI, NILE, OCTL, OEL, OSI&S, PGFOIL, PSL, PIL, RGWL, RCL, RS&PRM&T, RS&A, SIL, SAL, SHETRON, SBCL, STL, SAIL, STRLINGT, SI&SC, TATAML, TATASI, TATASTEL, TAYOR, TCIL, TIOL, USHAM, UGSL, VBC, WCL, WISL and ZENITH) for the period of Jan. 2000 to Dec. 2010 (Stock return and trading volume). On Lag 0, The ADF test statistic is less than the critical values are (-2.586753, -1.943853, -1.614749 at 1%, 5% and 10% significant level, respectively), and p-value is also near to zero or zero. We can conclude to reject H_0 . That mean the TQ and RTN series has not a unit root problem and the TQ and RTN series is stationary series. And the all figures in the table for Durbin-Watson statistics is big and is around two that mean the stock return and trading volume may not have serial correlation problem. Hence, stock return data series will be stationary the computed ADF test statistic is smaller than the critical value at 1%, 5% and 10% significant level, significance level and hypothesis is valid.

As we can see in the Table 3 about brief study of Augmented Dickey-Fuller test statistic of both industries Electricity industry and Metal industry, for the period of Jan. 2000 to Dec. 2010 (Stock return and trading volume). On Lag 0, The ADF test statistic is less than the critical values are (-2.586753, -1.943853, -1.614749 at 1%, 5% and 10% significant level, respectively), and p-value is also near to zero or zero. We can conclude to reject H_0 . That

Table 2. Descriptive Statistics of Stock Return for all Industries

	RTN ELECTRICITY	RTN METAL
Mean	4.534659	5.488096
Median	4.421004	4.949342
Maximum	46.83703	74.05762
Minimum	-34.03281	-32.53155
Std.Dev.	14.03600	15.62562
Skewness	0.164531	0.952980
Kurtosis	3.445073	5.914079
Jarque-Bera	1.353141	53.55006
Probability	0.508357	0.000000
Sum	480.6739	581.7382
SumSq.Dev.	20685.97	25636.80
Observations	106	106

Sources: Self constructed table.

Table 3. A brief Study of Augmented Dickey-Fuller Test Statistic of Trading Volume and Stock Return on Industries Level for the Period of Jan. 2000 to Dec. 2010

Industries Name	Lag	ADF Test-Statistics	Probability	Durbin-Watson Statistics
RTN-ELECTRICITY	0	-7.816745	0.0000	1.979415
RTN-METAL	0	-4.193627	0.0000	2.449636
TQELECTRICITY	0	-2.942551	0.0036	2.622285
TQ-METAL	0	-2.306133	0.0210	2.568263

Sources: Self constructed table, for more detail see appendix.

Table 4. Empirical Results of Granger Causality Test of Trading Volume and Stocks Return at Industry Level for the Period of Jan. 2000 to Dec. 2010

Return Cause Vol.	Vol. Cause Return	Bi-directional Causation	No Causation
Industries	F-stat.	Industries	F-stat.
Electricity	3.17		
Metal	7.38		

Sources: Self constructed table, for more detail see appendix.

mean the TQ and RTN series has not a unit root problem and the TQ and RTN series is stationary series. And the all values in the table for Durbin-Watson statistics is big and near to two that mean the stock return and trading volume may not have serial correlation problem. Hence, stock return data series will be stationary the computed ADF test statistic is smaller than the critical value at 1%, 5% and 10% significant level, significance level and hypothesis is valid.

As we can see in the Table 4 the f-statistics are large and probability value is close to 0 in case of both industries these are Electricity industry and Metal industry at 1%, 5%, 10% significance level. It means that the variables are mutually granger cause to each other for both industries group and shows stock return cause traded quantity. We test Null hypothesis for granger non causality that "return do not cause trading volume". Accepting the null hypothesis implies that the return do not lead trading volume and this is consistent with my prediction. A similar hypothesis can test the reverse granger non causality from TQ to RTN. Trading volume is said to be granger-caused by return if return help in prediction of trading volume, or equivalently if coefficient on the lagged returns on stocks are statistically significant.

As the Table 5 shows, to look at the causality between pairs of returns to discover which trading volume exerts stronger influence on the other granger causality test was conducted. It studies the cause and effect relationship between trading volume and stock return. We test Null hypothesis for granger non causality that "return do not cause trading volume". Accepting the null

hypothesis implies that the return do not lead trading volume and this is consistent with my prediction. A similar hypothesis can test the reverse granger non causality from TQ to RTN. Trading volume is said to be granger-caused by return if return help in prediction of trading volume, or equivalently if coefficient on the lagged returns on stocks are statistically significant. Two way causation is the, return cause's volume and volume cause return. Causality must be interpreted as one market reacting more quickly than the other to an outside influence or a shock. the results of granger causality test, F-test at firm level are reported in the table firms of these industries are Electricity industry and Metal industry. The data period is from Jan. 2002 to Dec. 2010. Out of 86 stock of Electricity industry and Metal industry, 56 (OCTL, OEL, PGFOIL, SAL, SBCL, SAIL, STRLNGT, SISC, TATAML, TATASI, TAYOR, TCIL, PSL, GIL, SIL, JINDSAW, WCL, WISL, USHAM, UGSL, VBC, MIL, METALIL, MIEL, MUKAND, NSAI, NILE, RGWL, RCL, RSAL, CESLKFIL, LGBB, LPPL, LMEL, LSIL, IFL, IPCL, ISPAT, JSW, JNIL, JCL, MUSL, BSIL, BIL, NECL, ESIL, EGCL, GIL, GPL, HAIL, HZL, GIPCL, RELIANIN, JINDALST, KLYNISTE, BSL) stocks indicate that return cause volume, 1(BSAL) stocks indicate that volume cause return, 2(MECL, NLCL) stocks indicate bi-directional causation and the remaining 27 (TATASTL, TIOL, ZENITH, BFUL, NBVL, NTPC, AFL, ACL, CCOM, DNIL, FACL, GSTL, HIL, HTWL, JAIC, JSL, KPTEL, LIL, MMFL, MSL, NACL, OSISL, PIL, RSPL, RMTL, SHETRON, STL) shows no causation at all. As you can see, F-statistics are large and probability values are all close to 0 except for some companies. It means the variables are

Table 5. Empirical Result of Pair Wise Granger Causality Tests of Stock Return and Trading Volume at Firm Level for the Period of Jan. 2000 to Dec. 2010

Return Cause Vol.		Vol. Cause Return		Bi-directional Causation		No Causation	
Industry	F-stat.	Industry	F-stat.	Indust.	F-stat.	Industry	F-stat.
OCTL	14.86	BSAL	1.89	MECL	27.01 (4.26*)	TATASTL	.13
OEL	2.77			NLCL	25.85 (7.52*)	TIOL	.72
PGFOIL	43.58	Return Cause Vol.				ZENITH	.03
SAL	18.45	Industry	F-stat.			BFUL	1.96
SBCL	2.47	KFIL	6.00			NBVL	1.61
SAIL	16.12	LGBB	8.51			NTPC	1.53
STRLNGT	5.20	LPSL	18.28			AFL	.39
SISC	6.30	LMEL	4.19			ACL	1.52
TATAML	8.80	LSIL	13.73			CCOM	2.07
TATASI	14.67	IFL	4.15			DNIL	1.68
TAYOR	28.89	IPCL	2.88			FACL	.16
TCIL	3.48	ISPAT	8.25			GSTL	.86
PSL	24.12	JSW	10.18			HIL	1.30
GIL	4.87	JNIL	5.72			HTWL	.08
SIL	11.06	JCL	5.69			JAIC	1.09
JINDSAW	6.51	MUSL	19.74			JSL	1.04
WCL	22.74	BSIL	4.56			KPTL	.38
WISL	5.56	BIL	6.60			LIL	1.84
USHAM	2.90	NECL	10.00			MMFL	1.67
UGSL	7.65	ESIL	3.14			MSL	1.08
VBC	4.85	EGCL	3.84			NACL	1.06
MIL	5.74	GIL	9.63			OSISL	.54
METALIL	4.22	GPL	5.56			PIL	1.31
MIEL	25.29	HAIL	16.49			RSPL	.09
MUKAND	3.71	HZL	7.77			RMTL	1.81
NSAI	14.31	GIPCL	18.26			SHETRON	.46
NILE	8.95	RELIANIN	3.20			STL	2.20
RGWL	8.83	JINDALST	2.67				
RCL	11.77	KLYNISTE	17.14				
RSAL	24.37	BSL	7.35				
CESL	3.86						

Sources: Self constructed table, for more detail see appendix. Prowess Database (CMIE Ltd). * Values is reported for RTN \Rightarrow TQ for showing bi-directional value. * Test-statistic mean Augmented Dickey-Fuller test statistic.

mutually granger cause to each other accepts some companies whose F-statistics are not large and probability values are not all close to 0. Granger causality test find that there is high degree causality between stock return and trading volume in Indian stock market because out 86 stocks of Electricity industry and Metal industry.

10. Conclusion

In the conclusion we can say that analysis on firm's level and industries level both shows there is a very low degree relationship between stock return and trading volume. The study employed the three steps in the first step descriptive study, in the

second step augmented dickey-fuller unit root test for checking stationery and in the third step granger causality tests for testing the causality between stock return and trading volume. From analysis result and discussions, we can say that the empirical result of granger causality test on industries level in India, Both industries shows Return cause volume. Hence, we can say that both of the industries show causation. It means that the variables trading volume and stock return are strongly mutually granger cause to each other, in case of empirical analysis of two selected industries from India. Hence changes in Stock Return and trading volume do reflect the variable each other on industries level. Therefore, there is no randomness in the behaviour of stock return and trading volume changes in this study of two industries in India. But in case of empirical analysis of two industries at firm level the result shows high degree relationship between stock return and trading volume from all 86 companies from automobile and chemical industries. The data period is from Jan. 2002 to Dec. 2010. Out of 86 stock, 56 stocks indicate that return cause volume, 1 stocks indicate that volume cause return, 2 stocks indicate bi-directional causation and the remaining 27 shows no causation at all. From analysis result and discussions, we can say that the empirical result of granger causality test on industries level in India, Both industries shows high degree Return cause volume but not volume cause return. Hence, we can say that both of the industries show one side causation return cause volume. It means that the variables trading volume and stock return are not mutually granger cause to each other, in case of empirical analysis of two selected industries from India. Hence changes in Stock Return and trading volume do not reflect the variable each other on industries level. Therefore, there is randomness in the behaviour of stock return and trading volume changes in this study of two industries in India. But in case of empirical analysis of two industries at firm level the result shows very low degree relationship between stock return and trading volume for all 86 companies from metal and electricity industries.

11. References

1. Campbell, Ramadorai, Schwartz, Allie. Caught on Tape: Institutional Trading, Stock Returns, and Earnings Announcements. *Journal of Financial Economics*. 2007; 92:66–91.
2. Christos F, Vougas DV. Trading Volume and Returns Relationship in Greek Stock Index Futures Market: GARCH vs. GMM. *International Research Journal of Finance and Economics*. 2007; 12. ISSN 1450-2887. © EuroJournals Publishing, Inc. 2007.
3. Li C, Ding J. The Relationship between Risk, Return and the Change of Volume in Shanghai Stock Exchange. *USA-China Business Review (Journal)*. 2003; 3(6). ISSN 1536-9048. Inc., USA.
4. Deo M, Srinivasan K, Devanadhen K. The Empirical Relationship Between Stock Returns, Trading Volume and Volatility: Evidence from Selected Asia-Pacific Stock Market. *European Journal of Economics, Finance and Administrative Sciences*. 2008; 12. ISSN 1450-2275.
5. Fama E. Efficient Capital Markets II. *Journal of Finance*. 1991 Dec; 1–18.
6. Floros, Vougas. Trading Volume and Returns Relationship in Greek Stock Index futures Market: GARCH vs. GMM. *Economic Bulletin*. 2007; 29(2).
7. Fan X, Groenwold N, Wu Y. The stock return-volume relation and policy effects : the case of the Chinese energy sector. Tingsong Jiang and other participants of the 15th Annual Conference of the Association for Chinese Economic Studies Australia; 2003 Oct; RMIT University, Melbourne.
8. Gebka B. Dynamic volume-return relationship: evidence from an emerging capital market. *Applied Financial Economics*. 2005 Oct; 15(14):1019–29.
9. Gurgul H, Paweł M, Roland M. Joint Dynamics of Prices and Trading Volume on the Polish Stock Market. *Managing Global Transitions University of Primorska, Faculty of management Koper*. 2005; 3(2):139–56.
10. Hasan B, Adnam K. An Empirical Analysis of Trading Volume And Return Volatility Relationship in the Turkish Stock Market. *Ede Academic Review*. 2006; 6(2):115–25.
11. Henery PB. Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices. *Forthcoming Journal of Finance*. 1999; 1–12.

Citation:

Ravi Kant

“A Comparative Study of Metal and Electricity Industries in Indian Context”, *Global Journal of Enterprise Information System*. 2015 April-June; 7(2)(www.gjeis.org)

Conflict of Interest:

Author of a Paper had no conflict neither financially nor academically

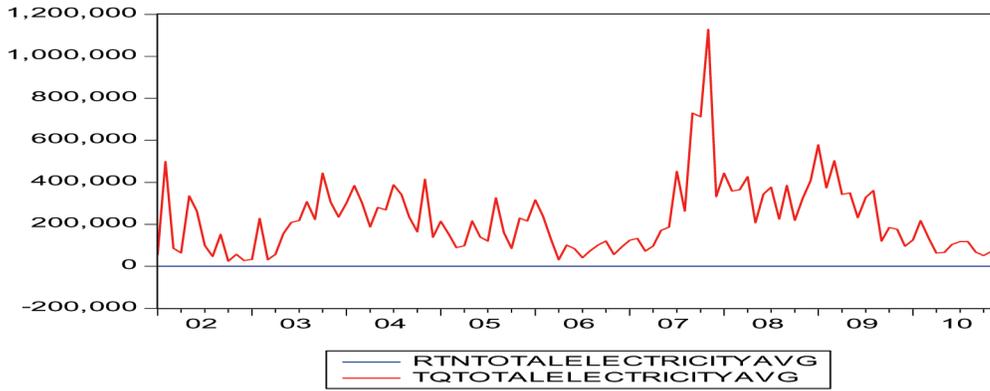
APPENDIX

List of All companies from both industries Metal and Electricity used in sample.

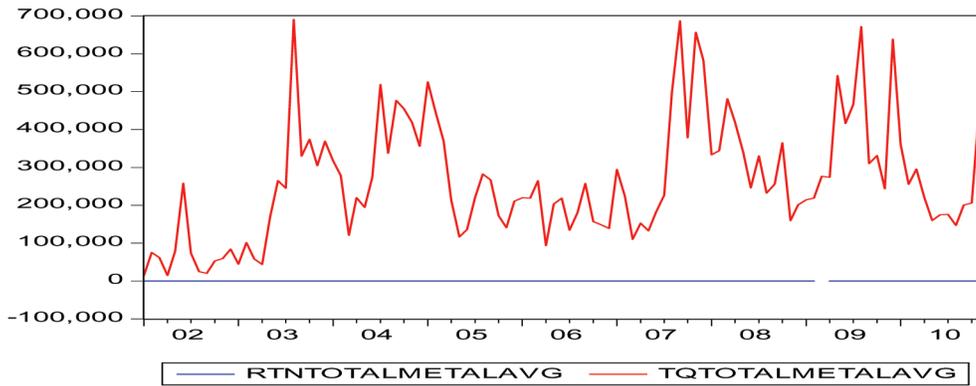
1. B F Utilities Ltd	BFUL	Electricity
2. C E S C Ltd.	CESL	“
3. Gujarat Indust. Power Co Ltd	GIPCL	“
4. Nava Bharat Ventures Ltd.	NBVL	“
5. Neyveli Lignite Corpn. Ltd.	NLCL	“
6. Reliance Infrastructure Ltd.	RELIANIN	“
7. Tata Power Co. Ltd.	TPC	“
8. Ahmednagar Forgings Ltd	AFL	Metal
9. AliconCastalloy Ltd.	ACL	“
10. Bellary Steels & Alloys Ltd.	BS&AL	“
11. Bhushan Steel Ltd.	BSL	“
12. Bhuwalka Steel Inds. Ltd.	BSIL	“
13. Binani Industries Ltd.	BIL	“
14. CoventryCoilOMatic(Hr)Ltd	CCOM	“
15. De Nora India Ltd.	DNIL	“
16. Electrosteel Castings Ltd.	ECL	“
17. Ensa Steel Inds. Ltd.	ESIL	“
18. Expo Gas Containers Ltd.	EGCL	“
19. Ferro Alloys Corpn. Ltd.	FACL	“
20. Gandhi Special Tubes Ltd.	GSTL	“
21. Gillette India Ltd.	GIL	“
22. Gonterman-Peiper (India) Ltd	GPL	“
23. Hind Aluminium Inds. Ltd.	HAIL	“
24. Hindalco Industries Ltd.	HIL	“
25. Hindustan Tin Works Ltd.	HTWL	“
26. Hindustan Zinc Ltd.	HZL	“
27. India Foils Ltd. [Merged]	IFL	“
28. Invt. & Precision Casting Ltd	I&PCL	“
29. Ispat Industries Ltd.	ISPAT	“
30. J S W Steel Ltd.	JSW	“
31. Jai Corp Ltd.	JAIC	“
32. JayaswalNecoInds. Ltd.	JNIL	“
33. Jhagadia Copper Ltd.	JCL	“
34. Jindal Saw Ltd.	JINDALSAW	“
35. Jindal Steel & Power Ltd.	JINDALSTEEL	“
36. Jyoti Structures Ltd.	JSL	“
37. Kalpataru Power Transm. Ltd	KPTL	“
38. Kalyani Steels Ltd.	KALYANISTEEL	“
39. Kirloskar Ferrous Inds. Ltd.	KFIL	“
40. L G Balakrishnan& Bros Ltd	LGB&B	“
41. Lakshmi Precision Screw Ltd	LPSL	“

(Continued)

42. Lanco Industries Ltd.	LIL	“
43. Lloyds Metal & Engineer Ltd	LM&EL	“
44. Lloyds Steel Inds. Ltd.	LSIL	“
45. M M Forgings Ltd.	MMFL	“
46. Magna Electro Castings Ltd.	MECL	“
47. Maharashtra Seamless Ltd.	MSL	“
48. Mahindra Ugine Steel Co.Ltd	MUSL	“
49. Man Industries (India) Ltd.	MIL	“
50. Metalman Industries Ltd.	METALIL	“
51. Monnet Ispat& Energy Ltd.	MI&EL	“
52. Mukand Ltd.	MUKAND	“
53. National Aluminium Co. Ltd.	NACL	“
54. National Steel&AgroInd.Ltd	NS&AI	“
55. Nile Ltd.	NILE	“
56. Oil Country Tubular Ltd.	OCTL	“
57. Oricon Enterprises Ltd.	OEL	“
58. Orissa Sponge Iron&Stel Ltd	OSI&SL	“
59. P G Foils Ltd.	PGFOIL	“
60. P S L Ltd.	PSL	“
61. Pennar Industries Ltd.	PIL	“
62. Rajratan Global Wire Ltd.	RGWL	“
63. Rapicut Carbides Ltd.	RCL	“
64. Rathi Steel & Power Ltd.	RS&PL	“
65. Ratnamani Metals &Tube Ltd	RM&TL	“
66. Ruchi Strips & Alloys Ltd.	RS&AL	“
67. SathavahanaIspat Ltd.	SIL	“
68. Shah Alloys Ltd.	SAL	“
69. Shetron Ltd.	SHETRON	“
70. Shivalik Bimetal Control Ltd.	SBCL	“
71. Siddhartha Tubes Ltd.	STL	“
72. Steel Authority Of India Ltd.	SAIL	“
73. Sterling Tools Ltd.	STERLINGTL	“
74. Sunflag Iron & Steel Co. Ltd.	SI&SC	“
75. Tata Metaliks Ltd.	TATAML	“
76. Tata Sponge Iron Ltd.	TATASI	“
77. Tata Steel Ltd.	TATASTEEL	“
78. Tayo Rolls Ltd.	TAYOR	“
79. Tinplate Co. Of India Ltd.	TCIL	“
80. Tube Investment Of India Ltd	TIOL	“
81. Usha Martin Ltd.	USHAM	“
82. Uttam Galva Steels Ltd.	UGSL	“
83. V B C Ferro Alloys Ltd.	VBC	“
84. Welspun Corp Ltd.	WCL	“
85. Western India Shipyard Ltd.	WISL	“
86. Zenith Birla (India) Ltd.	ZENITH	“



Graph shows Trend of Stock Return and Traded Quantity for Electricity industry.



Graph shows Trend of Stock Return and Traded Quantity for Metallic industry.