



## To Study the Impact of News on Percentage Change in Stock Prices of Renewable Energy Companies in Solar and Wind Sectors

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### ABSTRACT:

The study tries to reveal the connection and relationship between the announcements of any news or event and percentage change in the stock prices of publicly listed companies of wind and solar sectors. Renewable energy is becoming the upcoming sector for huge investment as India will require three or four times more energy to fulfill its needs supported by government initiatives. Having a brief introduction on the topic, in terms of both worlds wide as well as in India, it is supported by some of the well-known literature reviews which support the concept that percentage change in stock prices are affected by announcement of news or event. After having got the motive behind the concept, it goes on to Objectives and Scope of the study and Company profile, its nature of business, areas of operation, type of Industry with Industry profile. Chapter III includes Research methodology of the study- Research Design, type of the problem, Data collection tools, Type of models used, and Research questions. After that the main part of the study comes- Chapter IV Data Analysis and Interpretation, where actual data gathered through this study are mentioned in different forms, giving the reader clear idea about the concept that there is relationship between announcement of news or any event and percentage change in prices in future if news is announced on the basis of staple scale for determining the seniority or minority of the news. Moving towards the end of the study, there are Findings the stock prices. It renders the organizations to forecast the change in the stock of the study given with suggestions, recommendations and scope for further study.

*Index Terms* – Renewable Energy, Stock Prices, Effects of News.

### INTRODUCTION

The idea is to look into the effect of breaking news on the stock prices of renewable energy firms in the Solar and Wind sectors. The goal is to investigate variations in these firms' stock values as a result of the seniority or minority of news released in the market, whether domestic or foreign. Three publicly traded firms from both industries have been considered for this purpose. The percentage change in the stock price in the event window of 11 days (-5 to +5) will be evaluated for news released over a four-year period (2015 to 2018). As a result of this research, it will be determined how much the announcement of news affects stock prices

#### *Objectives of the study*

To study the impact of news on percentage change in stock prices of the selected solar and wind publicly listed companies.

#### *Scope of the study*

- ✓ The study can be used in other industries also for the same purpose.
- ✓ The study can lend two new ventures- one to study the correlation between the announcement of news and variation in the stock price of the company and second for determining the seniority of news.
- ✓ Specialized scales can be framed for each companies depending upon their requirement which will be of great help to understand the correlation between the two variables.

## Industry Profile

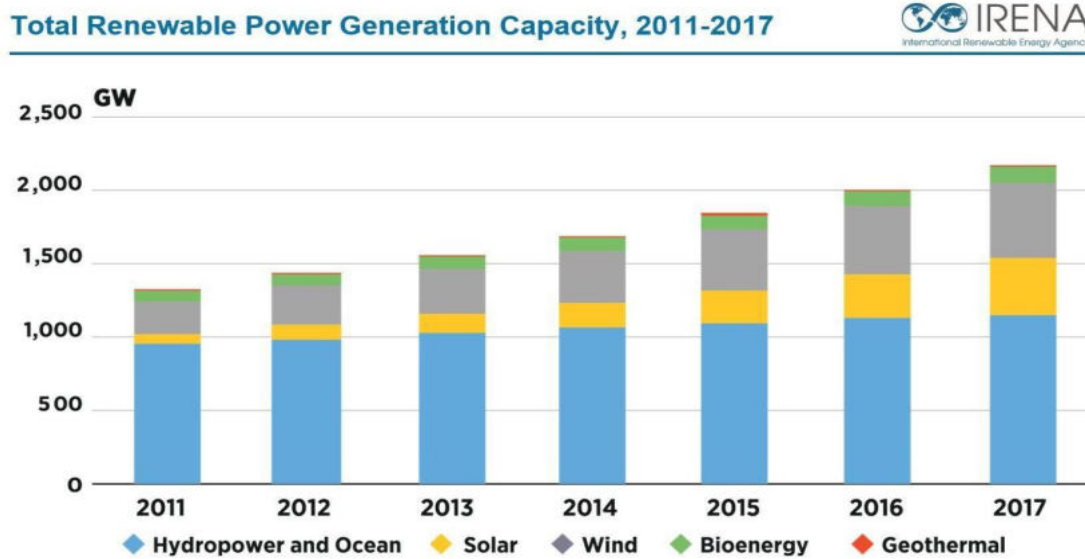


Figure 1 Total Renewable Power Generation Capacity

Abu Dhabi, United Arab Emirates, April 5, 2018 — Global renewable generation capacity had expanded by 167 GW to 2,179 GW by the end of 2017. According to recent data given by the International Renewable Energy Agency, this indicates an annual growth rate of roughly 8.3%, which has been the average for the past seven years (IRENA). The most comprehensive, up-to-date, and accessible numbers on renewable energy capacity statistics are found in Renewable Capacity Statistics 2018. Nearly 15,000 data points from over 200 nations and territories are included.

- According to IRENA Director-General Adnan Z. Amin, "this latest data demonstrates that the global energy transformation continues to move forward at a rapid pace, thanks to rapidly lowering prices, technology improvements, and an increasingly favorable regulatory climate."
- Renewable energy is now the answer for countries trying to boost economic growth and job creation, as well as those seeking to cut carbon emissions, extend energy access, reduce pollution, and improve energy security.
- Despite this strong proof of strength in the power production sector, Mr. Amin noted, a complete energy revolution goes beyond electricity to include the end-use sectors of heating, cooling, and transportation, where renewables have a significant chance for growth.

In 2017, solar photovoltaic (PV) energy increased by 32 percent, followed by wind energy, which increased by 10 percent. Between 2010 and 2017, the cost of power generated by solar PV fell by 73 percent, and the cost of electricity generated by onshore wind fell by roughly one-quarter. Both technologies are now well within the price range of fossil-fuel-generated electricity.

China continued to lead the world in new capacity additions in 2017, accounting for over half of all new capacity installed. India accounted for 10% of all new capacity increases, largely in the solar and wind sectors. In 2017, Asia accounted for 64% of new capacity increases, up from 58 percent the previous year. In 2017, Europe added 24 GW of new capacity, while North America added 16 GW. Brazil embarked on a road of rapid renewable energy deployment, installing 1 GW of solar power, a tenfold increase over the previous year.

### Highlights by technology:

**Hydropower:** In 2017, the quantity of new hydro capacity commissioned was the lowest in a decade. The majority of this expansion was still accounted for by Brazil and China (12.4 GW or 60 percent of all new capacity). In Angola and India, hydro capacity expanded by more than 1 GW.

**Wind energy:** Five countries accounted for three-quarters of new wind energy capacity: China (15 GW), the United States (6 GW), Germany (6 GW), the United Kingdom (4 GW), and India (4 GW). Brazil and France both installed more than 1 GW of solar power.

**Bioenergy:** Asia continued to account for the majority of the increase in bioenergy capacity, with China adding 2.1 GW, India adding 510 MW, and Thailand adding 430 MW. Europe (1.0 GW) and South America (0.5 GW) both had increases in bioenergy capacity, while the growth in South America was modest compared to previous years.

**Solar energy:** Asia continued to lead the global expansion of solar capacity, with 72 GW added. China accounted for the majority of this growth, with rises of 53 GW (+68%), 9.6 GW (+100%), and 7 GW (+17%) in India and Japan, respectively. More than half of all new solar capacity installed in 2017 came from China. The United States (8.2 GW), Turkey (2.6 GW), Germany (1.7 GW), Australia (1.2 GW), South Korea (1.1 GW), and Brazil were among the countries that installed more than 1 GW of solar in 2017. (1 GW).

**Geothermal energy:** In 2017, the capacity of geothermal electricity expanded by 644 MW, with substantial additions in Indonesia (306 MW) and Turkey (243 MW). Turkey reached 1 GW of geothermal capacity by the end of the year, and Indonesia is rapidly approaching 2 GW.

So, from a global perspective, we're aiming to focus on publicly traded wind and solar companies through this project because they're growing at a rapid speed, both in terms of demand and development. So, from a financial standpoint, an attempt has been made to establish a link between news or event releases and percentage changes in stock prices.

### Renewable Energy Industry in India

The Indian renewable energy market is the world's second most appealing renewable energy market. In terms of total installed wind power capacity, the country is ranked fourth in the globe.

Renewable power generation capacity has significantly increased throughout the years, with a CAGR of 9.29% from FY08 to FY18. In 2017-18, India added a total of 11,788 MW of renewable energy capacity, a new high. After ratifying the Paris Agreement, India's government has moved its priority to clean energy. The sector has grown more appealing to investors as a result of increasing government assistance and improved economics. Renewable energy will play an essential part as India attempts to fulfill its own energy demand, which is anticipated to reach 15,820 TW by 2040. India generates about 4% of world electricity and contributes 4.43 percent of global renewable generation capacity.

Renewable energy supply is expected to expand to 4,550 GW globally by 2040, according to the International Energy Agency's World Energy Outlook. In February 2018, the country's total renewable power generation installed capacity was 107.81 GW, accounting for 32.26 percent of the overall installed capacity of 334.15 GW.

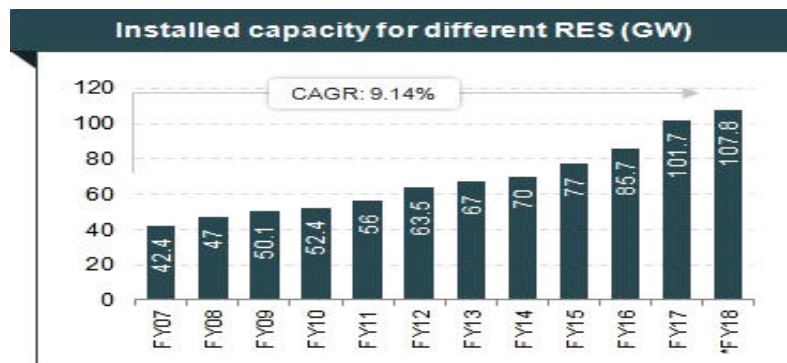


Figure 2 Installed capacity For different RES9 (GW)

Notes: FY-Indian Financial Year(April-March), BU- Billion Unit

Source: BP Statistical Review, Ministry of Power, Aranca Research;

#### Government initiatives:

The Indian government has taken the following initiatives to improve the country's renewable energy sector:

- The Government of India has announced plans to implement a US\$ 238 million National Mission on advanced ultra-supercritical technologies for cleaner coal utilization. The Ministry of New and Renewable Energy (MNRE) has decided to provide customs and excise duty benefits to the solar rooftop sector, which will lower the cost of setting up as well as generate revenue.
- By the end of the 2016-17 fiscal year, the National Biogas and Manure Management Programme (NBMMP) had installed around 4.96 million household-sized biogas plants across the country. The Indian Railways is stepping up its efforts to reduce emissions by 33 percent by 2030 by implementing sustained energy efficiency measures and maximizing the use of clean fuel.

## 2.LITERATURE REVIEW

According to Prof. Divyang J. Joshi, "the fluctuation of the share price is always a fascinating topic for the researcher." The influence of bonus share announcements, stock splits, right shares, earnings announcements, dividend announcements, and company announcements is becoming increasingly studied. More than 500 papers have been published in reputable publications proving that stock prices respond to news (Kothari and Warner) (2006). However, they failed to consider the influence of the published business-specific news and its sentiment. Second, research that focused on the long term neglected to account for the possibility of publication bias (Antweiler and Frank) (2006). The impact of business-specific news was examined in this article using sentiment analysis. A total of 392 business-specific news stories from five companies were gathered and evaluated over the course of three years. The volume reactions were evaluated to see if there was any influence from the announcement. The outcome demonstrates that news has an influence. Second, AAR and CAAR both agreed that well-informed investors can generate extraordinary returns. Positive and negative news returns were analyzed, and it was shown that there is no substantial difference in AAR between positive and bad business news. (1-6)

Henriques Energy security and climate change, I argued, are two of society's most important problems, and both of these issues are likely to increase energy price volatility in the future years. This study creates and estimates a model of a company's energy price vulnerability, as well as evidence that increases in environmental sustainability reduce a company's energy price exposure. This conclusion is consistent across two different energy pricing gauges. Companies seeking new strategies to address energy price risk, as well as governments concerned about the impact of energy price risk on economic growth and prosperity, should find these findings beneficial. (2-6)

"Recent experience from around the world reveals that feed-in tariffs (FITs) are the most effective policy to stimulate the rapid and sustained deployment of renewable energy," Gagnon added. There are various methods to create a FIT policy, each with its own set of advantages and

disadvantages. This paper provides an overview of seven possible approaches to organize a FIT policy's remuneration, which are classified into two categories: those whose remuneration is based on the energy price, and those whose remuneration is not. This study covers the benefits and drawbacks of various FIT models before concluding with an analysis of these design possibilities, focusing on their consequences for both investors and society. (3-6)

We evaluate the stock market performance of publicly-listed Chinese enterprises in the solar panel industry throughout 2012 and 2013 in reaction to European Union announcements of new import restrictions and Chinese government policy changes, according to Crowley, M. A. We evaluate abnormal returns to multiple regulatory changes affecting solar panels made in China using daily stock market prices from the Shanghai-Shenzhen, New York, and Hong Kong markets. We find that, in line with Melitz's (2003) model, larger, more export-oriented enterprises suffered greater stock market losses as a result of European trade restrictions. We also show that, in comparison to state-owned enterprises, European trade policy had a greater detrimental impact on Chinese private sector firms. Finally, we show that corporations listed on US exchanges are more responsive to news events than those listed in China and Hong Kong, using a two-stage least squares estimate technique. (4-6)

According to M. Mazzucato, "Successful financing of renewable energy (RE) innovation necessitates a better knowledge of the relationship between different types of finance and their readiness to engage in RE." We investigate the 'direction' of innovation created by financial actors. We leverage Bloomberg New Energy Finance (BNEF) data to create a global dataset of RE asset finance flows from 2004 to 2014, focusing on the deployment phase of innovation. We examine the asset portfolios of various RE technologies financed by various financial actors in terms of size, skew, and risk. To quantify risk, we employ entropy-based indices to measure skew and create a heuristic risk index that varies with technology, period, and place of investment. We begin by contrasting the behavior of private and public types of finance, then break it down further into 11 different financial entities (such as private banks, public banks, and utilities) and 11 various types of renewable energy technology (e.g. different kinds of power generation from solar radiation, wind or biomass). The makeup of financial actors' investment portfolios varies significantly, resulting in trends toward specific technologies. Public financial actors invest in portfolios with higher-risk technologies, so establishing a trend; they have also drastically expanded their percentage of total investment over time. These preliminary findings are being used to develop new research questions regarding how finance influences innovation directionality and the implications for RE policy. (5-6)

This report explores the roles of policies and preferences in national adoption of solar and wind energy technologies,' claimed Burke, P. J. in their research. For both the European Union and a larger international sample, we use cross-sectional and panel regressions. We discovered that countries that put a price on carbon emissions have increased their use of solar and wind energy. The overall degree of policy assistance for solar energy uptake, assessed in euros per megawatt hour, appears to have been significant. We also discovered that countries with higher numbers of individuals concerned about climate change have adopted solar energy at a faster rate. We also look at the influence of other important explanators including the scale of the financial system and income levels. (6-6)

F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary, F Taghizadeh-Hesary As the importance of solar power in overall energy supply and the market value of solar modules rise globally, the price reduction technique in solar modules has become a hot topic. Many empirical studies have been conducted in order to figure out what is causing this price reduction. However, over the years, research on the mechanism of solar module price reduction has primarily concentrated on the technological element of manufacturing. To provide a precise analysis, economic elements such as interest rate and exchange rate must also be taken into account while examining price. To assess the economic factors that influence solar module prices, we employ an oligopolistic model and an econometric technique. (7-6)

This research is motivated by the need to convert the basis of energy systems from fossil fuels to renewable sources, said Krishna, C. in their article, What Drives Wind and Solar Energy Investment in India and China? This transition is required to generate development trajectories for economies that are truly sustainable over the long term, in addition to the necessity of climate change. As a result, our goals are both environmental and developmental. The key to finding future investment drivers is to understand what drove low-carbon investments in the past. Low-carbon investment decisions are not technical issues of optimal asset allocation in this regard. Rather, comprehending these decisions necessitates a political economy approach that considers the motivations and incentives of the various individuals involved, as well as how they interact. The first step in directing this process is to understand its mechanics. The focus of this study is on private investment. The International Energy Agency (IEA) estimates that US\$45 trillion in investments will be required by 2050 to cut global carbon emissions in half, with the private sector accounting for 85% of the total. This amounts to a little more than \$1 trillion per year on average, half of which will be used to replace old technology, mostly in rich countries. The remaining US\$530 billion will be spent on additional capacity, with the majority (US\$400 billion per year) going to developing countries (IEA 2008). Our research focuses on the factors that influence low-carbon investment in China and India, the world's two largest rising economies. Despite the fact that these countries are the source of the greatest increase in carbon emissions, China is currently the world's largest investor in renewable energy, and India experienced the fastest growth rate in recent years between 2010 and 2011 (BNEF 2012). (8-6)

Rural electrification in developing countries, according to P. Raman, serves to improve people's quality of life. It boosts productivity while also promoting education. It also discourages people from relocating to cities. In India, nearly 70% of the population lives in rural areas, therefore electrifying these villages is critical for achieving inclusive economic growth. The inability to attain 100 percent electrification in the country is due to the transmission and distribution of power to less densely populated areas located far from power generating units. As a result, finding a decentralized energy source to supply power to these hamlets is critical. Because India is blessed with abundant solar energy that can be found in practically every section of the country, a micro grid system based on solar photovoltaic panels appears to be the best alternative. Using the photovoltaic effect, a solar photovoltaic system turns light energy into direct current power. The additional electricity generated during the day is stored in a battery and used at night. Inverters and power conditioning devices are used to convert direct current power generated by solar photovoltaic systems to alternate current,

which is then distributed to the load via a power distribution network, adding to the system cost. This technology currently has a greater capital cost and land need than any other renewable energy power producing method. However, it has a lower operating and maintenance cost than other systems, making it superior. Additionally, when the power requirement rises, extra modules can be added to it. This paper discusses how solar photovoltaic system micro grid system can be used to electrify rural areas in India, as well as the problems that must be solved during deployment. (9-6)

Defining the degree of subsidy is a key factor in reducing overcapacity in Chinese renewable energy firms, according to H. Zhang. In this paper, we use a threshold regression model to examine the effects of government subsidies on wind and solar energy companies' overcapacity. Our data show that solar and wind energy companies have different subsidy thresholds. The findings show that even if the subsidy falls within a relatively effective interval, it will still increase the risk of solar energy firms overcapacity while helping to reduce overcapacity in wind energy companies. The report believes that each industry's level of subsidies should be distinct, and it recommends a wise overhaul of the solar energy subsidy policy. (10-6)

### III. RESEARCH METHODOLOGY

#### Specifications:

##### a) Research Design:

Conclusive – Descriptive Research Design – Longitudinal Research Design, as fixed samples are measured repeatedly over time, over same variables. Figure 1

##### b) Method used for data collection:

- Secondary data
- Quantitative research

##### c) Type of the problem:

It is a marketing research problem as well as management development problem

- MDP: Is there relation between the announcement of news and percentage change in stock prices?
- MRP: It is Marketing Research Problem also, as it is information oriented, focuses on underlying causes (Announcement of news or an event) and how information should be studied.

##### d) Sample size : 6

a) **Sampling type:** Non-Probability – Judgemental Sampling.

b) **Data type:** Secondary Data

c) **Analytical tools:**

The BSE Sensex 30 share Index was used to calculate the daily market return. To avoid the influence of extreme values, the logarithm of the daily market return was used to calculate market return and daily stock return

Where,

$$Rm_t = \ln\left(\frac{P_1}{P_0}\right)$$

$P_1$  is the stock price/Sensex 30 on day t (today)

$P_0$  is the stock price/Sensex 30 on day t-1 (Previous day)

$$R_{jt} = \ln\left(\frac{P_1}{P_0}\right)$$

The Abnormal return is the difference between actual return and expected return. It can be calculated as

$$AR_{jt} = R_{jt} - (R_{jt})$$

The market model was used to calculate abnormal returns around the each event date. Total 252 days were considered to calculate Intercept, Slope- Beta and Error term.

$$R_{jt} = \alpha_j + \beta_j Rm_t + s_{jt}$$

Where,

$R_{jt}$  = the actual daily return on security j at day t

$\alpha_j$  = ordinary least squares intercept  $[E(R_j) - \beta E(Rm_t)]$

$\beta_j$  = stock sensitivity to market return/The slope coefficient

$\varepsilon_{jt}$  = the error term for security j at day t

$$(R_{jt}) = \alpha_j + \beta_j R_{mt}$$

To test for significance of the abnormal returns, the abnormal return of each day of event window is divided by the standard error. If the value is greater than 1.96 at 0.05 confidence level, the abnormal return is statistically significant.

$$\text{Significant T test} = \left( \frac{AR_{jt}}{S_{jt}} \right)$$

The Cumulative Abnormal return was calculated to measure the general impact of the news.

$$CAR = \sum_{i=1}^k AR$$

The abnormal trading volume indicates the impact of the event. If on the news announcement date, change in volume is significant then it can be interpreted that, news has an impact on the stock prices. Surprisingly the volume increases on the announcement and remains above average for the next few days Frazzini & Lamont (2007). The relationship among trading volume around earnings announcements was investigated by Lerman, Livnat, & Mendenhall (2008). They estimated the earnings announcement volume by dividing the average volume of -1 to 1 day by the average daily share volume estimated over days -8 to -63 days. They found that bad news show a stronger immediate price response and a weaker drift (greater negative immediate returns, but less negative subsequent returns) and good news show a stronger immediate stock price response and a stronger subsequent drift (greater positive immediate returns and greater positive drift). In this research study, the percentage change in volume is applied to measure the impact of NEWS. The percentage change in volume is calculated for the 5 days (-2, 0, +2). To check the % change in volume simple return equation was applied.

$$\% \text{ Change in Volume} = \frac{Vol_{Day1} - Vol_{Day0}}{Vol_{Day0}}$$

**d) Research questions:**

1. Is there any relation between the news introduced and variation in stock prices of the company? (Using Linear Equation of market model) Does the stockprice get affected by the announcement of news in the market?
2. Is the percentage change in the stock prices significant?
3. What is the impact on Average Abnormal Return and Cumulative Average/Abnormal Return of the company?

**e) Instrument used for data collection: Secondary data**

**f) Hypothesis:**

- a. **Null Hypothesis (H<sub>0</sub>):** There is no significant difference between percentage change in stock prices and announcement of news in the market.
- b. **Alternative Hypothesis (H<sub>a</sub>):** There is a significant difference between percentage change in stock prices and announcement of news in the market.
- c.

#### IV. DATA ANALYSIS & INTERPRETATION

Table: 1 Datanalysis & interpretation

Name of the Company	Sector	Established	CEO	Current Market Price	Total Capitalization	No. of Shares Outstanding	Lifetime High
Indo Solar	Solar	2005	Mr. H. R. Gupta	Rs. 2.10	79.99 Crore	372,067,116	30.95
Ujaas Energy	Solar	1999	Mr. Anurag Mundra(MD & CFO)	Rs. 6.55	134.62 Crore	200,000,000	51.65
Urja Global	Solar	1992	Mr. Bharat Prajivandas Merchant	Rs. 2.75	139.99 Crore	507,206,000	10.4

Indowind Energy Limited	Wind	1995	Mr. K. V. Bala (MD)	Rs. 5.55	51.42 Crore	89,741,486	211.8
Inox Wind Energy	Wind	2009	Kailash Tarachandani	Rs. 69	1523.47 Crore	221,918,226	494.4
Orient Green	Wind	2006	VenkatachalamAyyar	Rs. 4	315.30 Crore	750,723,976	47.25

**Explanation:**

The above table shows the information about the companies taken into consideration for the analysis. The table indicates information like- Sector, Year of Establishment, CEO of the company, Current Market Price, Total Capitalization, No. of shares Outstanding, and Lifetime High. Details like Current Market Price, Total Capitalization, No. of shares Outstanding and Lifetime High are as on 3<sup>rd</sup> April 2019 Market Data. The oldest Company is from Solar sector- Urja Global and the recent one is from Wind Sector- Inox Wind. But highest Lifetime High is of Inox Wind Energy and lowest if of Urja Global. Highest Capitalization is of Inox Wind Energy again and Lowest is of Indowind Energy Limited. Inox Wind Energy had highest Current Market Price and Indo Solar had the lowest Current Market Price (as on 3<sup>rd</sup> April 2019).

Table: 2 Datanalysis &amp; interpretation

	2015	2016	2017	2018	Total
Indo Solar	7	7	5	1	20
Urja Global	13	5	8	1	27
Ujaas Energy	13	17	15	2	47
Inox Wind	29	37	16	7	89
Indowind Energy	9	3	5	0	17
Orient Green Power	17	9	7	4	37
Total	88	78	56	15	237

**Explanation:**

Two sectors of renewable energy- Solar and Wind were selected for the analysis. Three companies from each sector were considered. Total 237 news were collected, from which 94 were from solar sector and 143 were from Wind sector. Maximum news could be collected from Inoxwind (89) and Minimum number of news could be collected from Indowind (17).

Table: 3 Datanalysis &amp; interpretation

	2015		2016		2017		2018		Total	
	Collect ed	Analys ed	Collect ed	Analys ed	Collect Ed	Analys ed	Collect ed	Analys ed	Collect ed	Analys ed
Indo Solar	7	5	7	5	5	4	1	1	20	15
Urja Global	13	6	5	4	8	8	1	0	27	18
Ujaas Energy	13	7	17	10	15	8	2	2	47	27
Inox Wind	29	8	37	13	16	8	7	3	89	32
Indowind Energy	9	7	3	2	5	3	0	0	17	12
Orient Green Power	17	9	9	7	7	4	4	4	37	24
Total	88	42	78	41	56	35	15	10	237	128

**Explanation:**

Out of 237 total news collected, 128 news were analyzed. To maintain correctness and accuracy in analysis, overlapping news were not considered. Sector wise- Number of news analyzed from Solar sector was- 60 and of Wind sector was- 68 (almost equal from both the sectors). Year wise maximum number of news analyzed was from the year 2015 (42) and minimum was from the year 2018. Company wise maximum number of news analyzed was from Inox Wind and minimum was from Indowind.

Table: 4 Dataanalysis &amp; interpretation

	2015		2016		2017		2018		Total	
	Collect	Analysein %	Collect	Analysein %	Collect	Analysein %	Collect	Analysein %	Collect	Analysein %
Indo Solar	7	71%	7	71%	5	80%	1	100%	20	75%
Urja Global	13	46%	5	80%	8	100%	1	0%	27	67%
Ujaas Energy	13	54%	17	59%	15	53%	2	100%	47	57%
Inox Wind	29	28%	37	35%	16	50%	7	43%	89	36%
Indowind Energy	9	78%	3	67%	5	60%	0	0%	17	71%
Orient Green Power	17	53%	9	78%	7	57%	4	100%	37	65%
Total	88	48%	78	53%	56	63%	15	67%	237	54%

**Explanation:**

Out of total 237 news collected, 54% news were analyzed. Year wise maximum number of percentage of news analyzed was from the year 2018 (67%). Company wise maximum number of percentage of news analyzed was from Indo Solar. Considering the average of percentage news analyzed of both the sectors, average 66.33% news were analyzed from Solar Sector and 57.33% news were analyzed from Wind Sector.

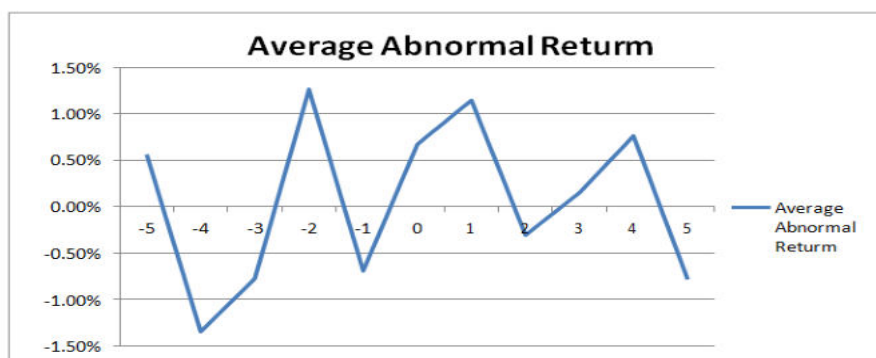
**A. WIND COMPANIES****1. INDO WIND**

Figure 3 Average Abnormal Return

**Explanation:**

The market model was applied to calculate the AAR. To test for significance, the t- statistics for the AR were obtained and compared to the t-table values at 5% level of significance. The AAR was obtained from the calculated AR. The calculated AAR is fitted in a time plot to establish the trends. It is observed from the above figure that AAR started increasing from 3 days before announcement of news in the market. It decreased the day before the event date. It again started increasing on the event date till next day of announcement. Then it again decreased and from the fourth day after the event it started decreasing. So it shows that there is change in AAR due to the event and it decreases in the long run for the company.



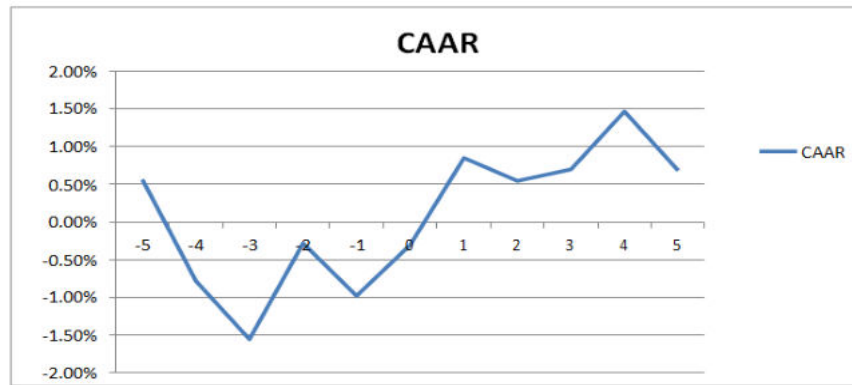


Figure 3 CAAR

**Explanation:**

CAAR was calculated from the AAR. Change in CAAR was observed. From the 5<sup>th</sup> day prior to the event CAAR decreased till day -3 which again increased on the day -2. On day -1 it again decreased. On the event date it increased till the 4<sup>th</sup> day following the event date. But on day +5 it decreased. So it shows that CAAR decreases in the long run.

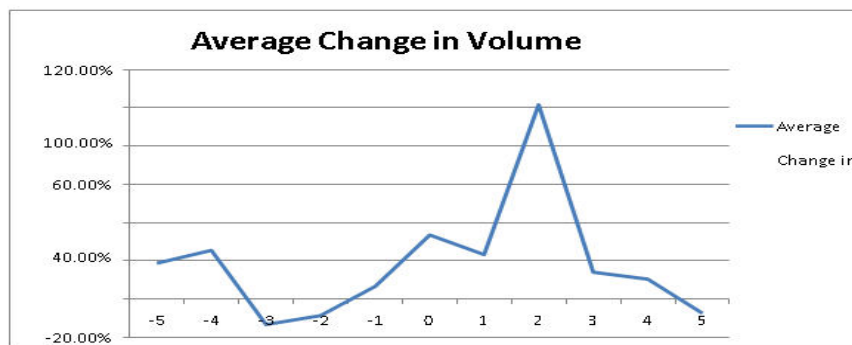


Figure 4 Average Change In Volume

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume. Volume started increasing before 2 days of announcement of the news in the market. On the following day of the announcement, volume decreased which shows that news was absorbed in the market. It again increased on the third day of news announcement and then decreased drastically which shows that investors reacted to the news. So it shows that news does impact on the stock prices and decreases in the long run for the company.

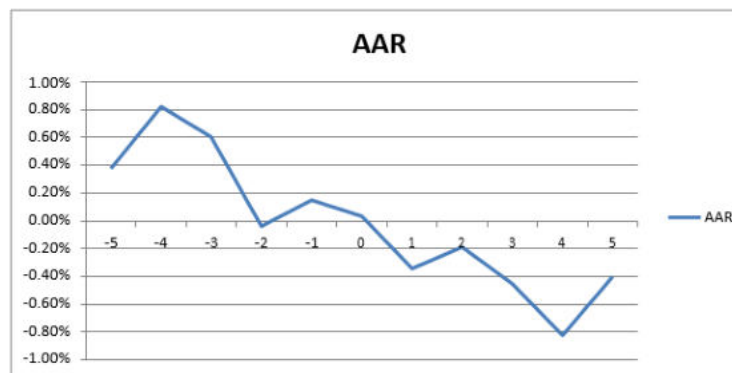
**2. INOX WIND**

Figure 5 AAR

**Explanation:**

It is observed from the above figure that AAR was highest on the day -4, which shows that news was shared among few investors. It started decreasing from the day -3 till the day -2. It again increased on the day prior to the event. It was almost 0 on the event date and again started decreasing from the following day of the event. On the days post event it increased but negatively. So it shows there was negative impact on AAR due to the event.

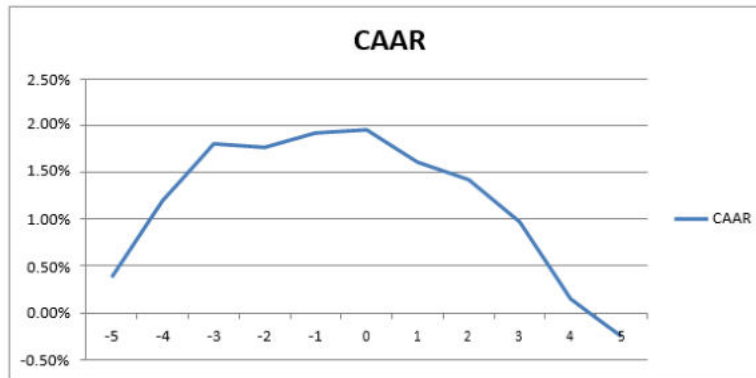


Figure 6 CAAR

**Explanation:**

CAAR was calculated from the calculated values of AAR. It was observed that AAR was impacted negatively over the long run. But in case of Cumulative Average Abnormal Return, it started increasing from the day -5 itself and was highest on the date of event. From the following day of the event it started decreasing and decreased continuously till the day -5, on which day it was negative opportunity to earn abnormal return from the event

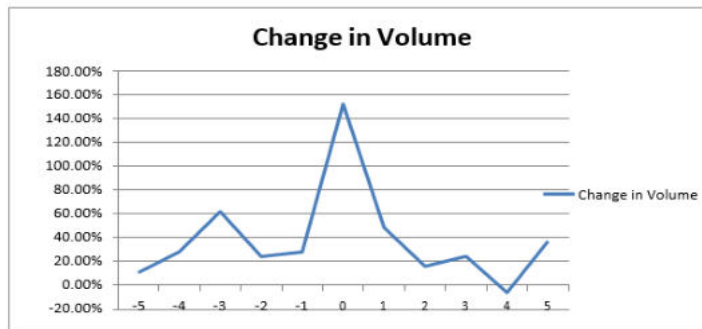


Figure 7 Change in Volume

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume over the day of event and 5 days prior and post event. Percentage change in volume increased from the day -5 till day -3, decreased on the day -2. It started rising from the day -2. Percentage change in volume increased to the highest on the date of event. And from the following day of the event itself it decreased significantly, which shows that news was absorbed in the market. From the day +4 it again started rising. So the figure shows that there is a percentage change in volume due to the impact of the announcement of news in the market

**3. ORIENT GREEN**

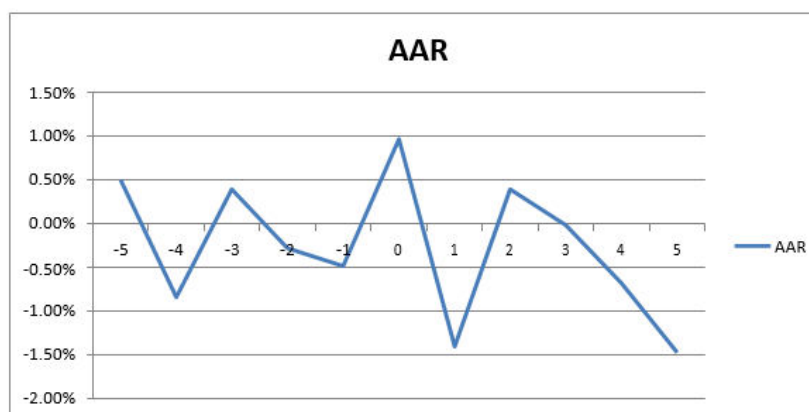
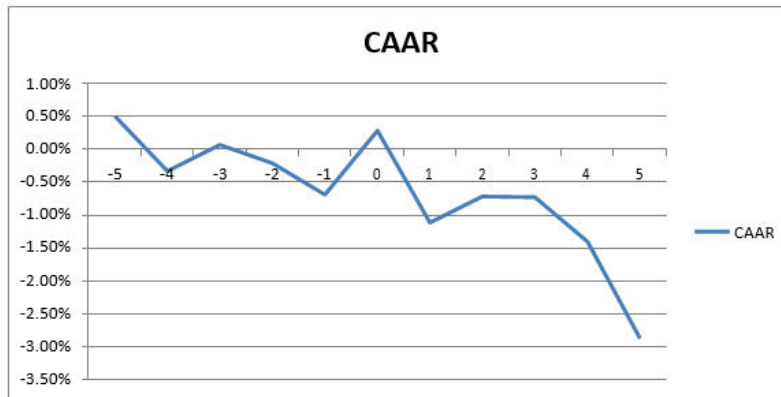


Figure 8 AAR

**Explanation:**

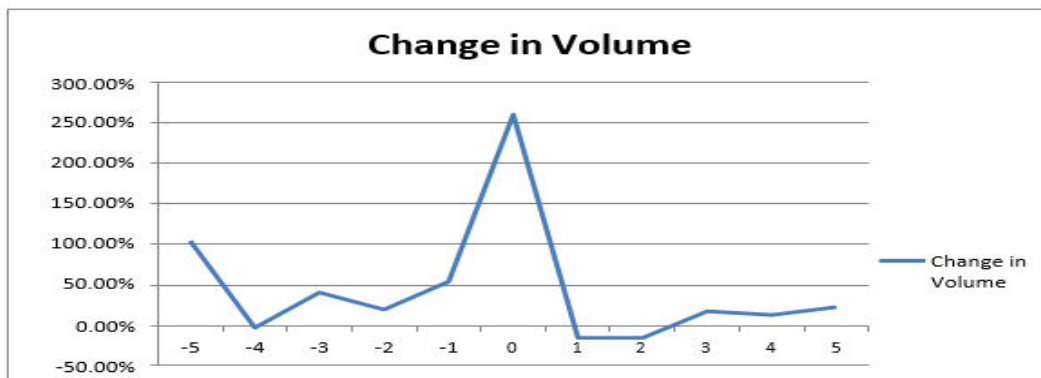
The market model was applied to calculate the AAR. To test for significance, the t- statistics for the AR were obtained and compared to the t-table values at 5% level of significance. The AAR was obtained from the calculated AR. The calculated AAR is fitted in a time plot to establish the trends. It was observed from the above figure that AAR decreased on the day -4, again increased on the day -3, decreased till day -1. It was the highest on the day of the event. On the following day of the event it decreased significantly till almost -1.50%, again increased to 0.40% on the day +2, and then decreased continuously.



*Figure 9 CAAR*

**Explanation:**

CAAR was calculated from the AAR. Change in CAAR was observed. As in AAR, CAAR started decreasing from the day -5 and decreased till the day -1. It was highest and positive on the day of the event. And it continued to decrease in the post event days significantly till -2.90%. So in the long run, there is negative impact on CAAR.



*Figure 10 Change in volum*

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume over the day of event and 5 days prior and post event.. The average change in volume decreased on the day -4, it started increasing till the date of the event. On the day of event announcement it was highest around 250%. On the next day of the event it decreased significantly. It again started rising from the day +2 till the day +5 but not as it increased before the announcement of news.

**B. SOLAR COMPANIES**

**1. INDO SOLAR**

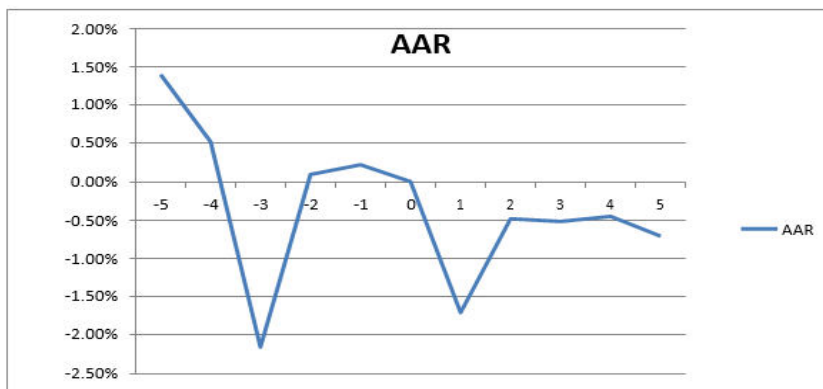


Figure 11 AAR

**Explanation:**

The market model was applied to calculate the AAR. To test for significance, the t- statistics for the AR were obtained and compared to the t-table values at 5% level of significance. The AAR was obtained from the calculated AR. The calculated AAR is fitted in a time plot to establish the trends. It is observed from the above figure that from the fifth day before the announcement of news AAR decreased drastically till the third day before announcement. From that it increased significantly from -2% to 0.2% till the day before the announcement. From the day of announcement it started decreasing continuously.

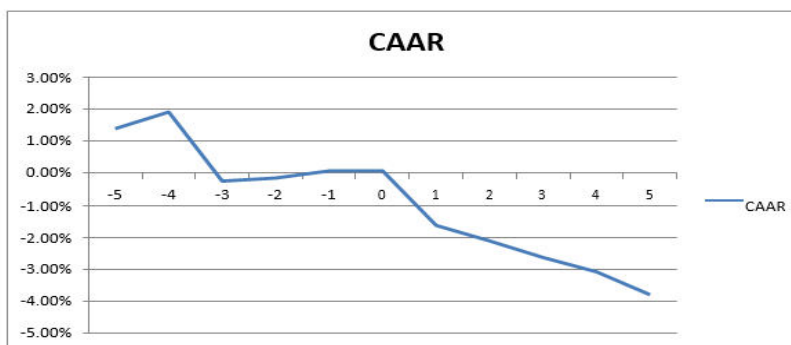


Figure 12 CAAR

**Explanation:**

CAAR was calculated from the AAR. Change in CAAR was observed. It increased only from the day -5(fifth day before the announcement) to the day -4. From the fourth day before the announcement it started decreasing continuously. On the days of -1 and 0 it was nil. After the announcement it further decreased significantly in minus values. So it shows that CAAR is affected from 1.5% before 5 days of announcement to approx -5% on the fifth day after the announcement and it decreases significantly in the long run.

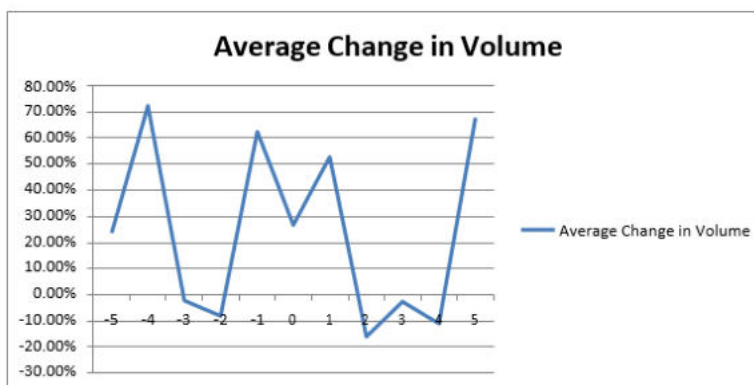
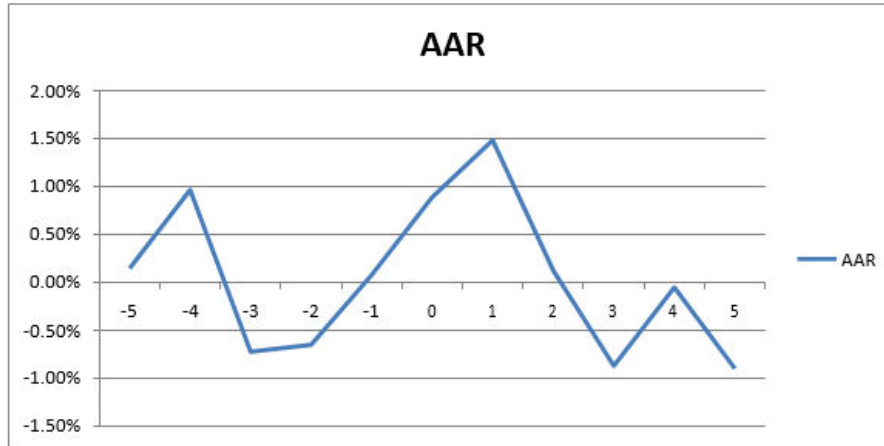


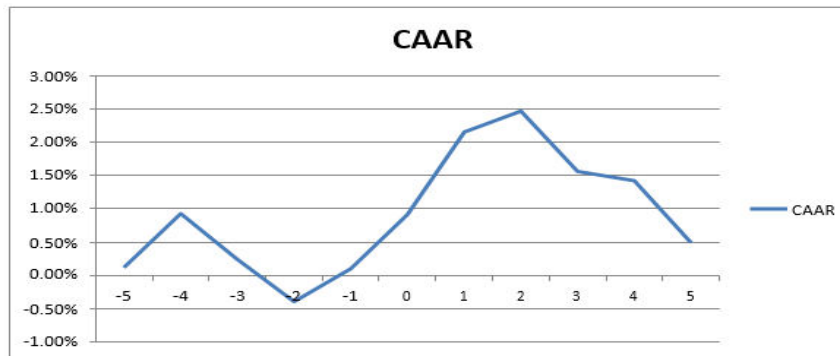
Figure 13 Change in volum

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume. It increased on the day -5 and decreased significantly till day -2. The Volume started increasing before 2 days of announcement of the news in the market from -5% to above 60%. Till announcement of news it decreased. On the following day of the announcement, volume increased again which shows that news was absorbed in the market. The following day it decreased drastically which shows that news was absorbed in the market. From the day +4 it again increased drastically which shows that investors reacted to the news. So it shows that news does impact on the stock prices and increases in the long run for the company.

**2. UJJAS ENERGY***Figure 14 AAR***Explanation:**

It is observed from the above figure that AAR increased on the day -4, decreased to -0.70% on the next day. It increased significantly to 1.50% till the next day of the announcement. It fell drastically again to -0.90% on the fifth day post announcement. So it shows there was negative impact on AAR due to the event.

*Figure 15 CAAR***Explanation:**

CAAR was calculated from the calculated values of AAR. It was observed that AAR was impacted negatively over the long run. But in case of Cumulative Average Abnormal Return, it decreased from the day -4 till the day -2, from that it increased significantly till the day +2 from -0.40% to 2.50%. Then again it decreased till the fifth day post announcement but it remained more than it was on the day -5. So it shows that after the event date, news was absorbed in the market and investors had no opportunity to earn abnormal return from the event.

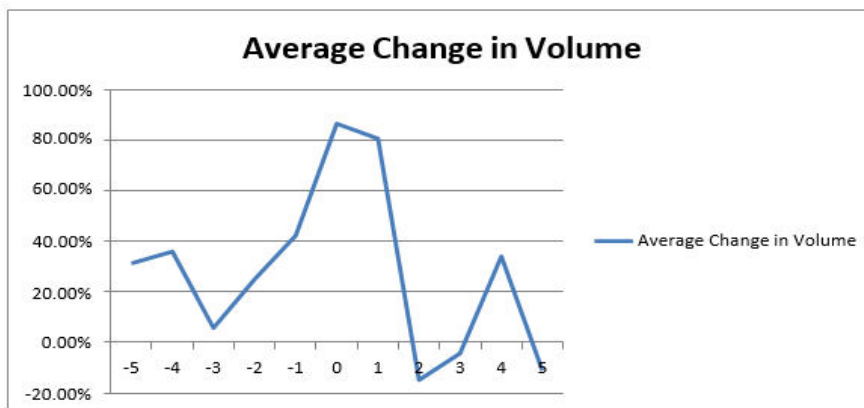


Figure 16 Change in volum

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume over the day of event and 5 days prior and post event. Percentage change in volume increased form the day -5 till day -4, decreased on the day -3. It started rising from the day -3 significantly till the day of announcement of news which shows that news was shared among less number of investors. From the announcement day it decreased drastically till the second day of announcement from 83% to approx -15%. Then it increased again but on the -5<sup>th</sup> day it came to -10%. So the figure shows that there is a percentage change in volume due to the impact of the announcement of news in the market.

**3. UJJAS ENERGY**

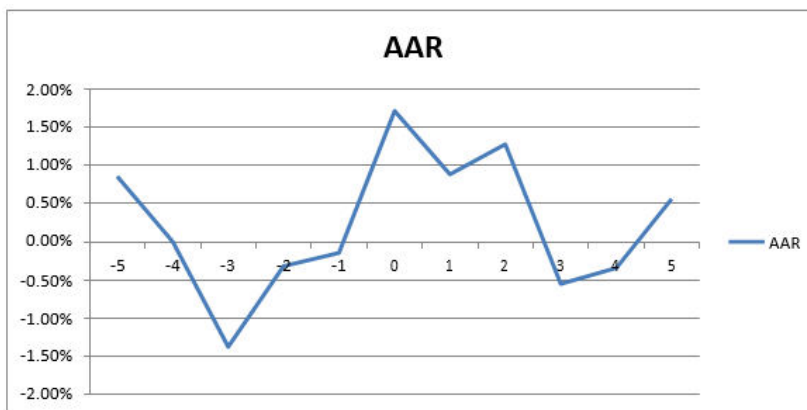


Figure 17 AAR

**Explanation:**

It is observed from the above figure that AAR decreased from the day -5 till the day -3. From that day it started increasing slowly and increased significantly on the announcement day(above 1.50%). It again decreased significantly till the third day post announcement. It was again positive on the last day of analysis.

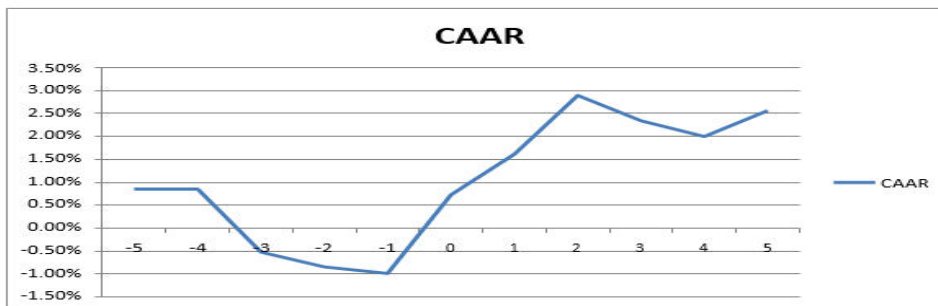


Figure 18 CAAR

**Explanation:**

CAAR was calculated from the calculated values of AAR. It was observed that AAR was not impacted much over the long run. But in case of Cumulative Average Abnormal Return, it started decreasing from the day -4 till the day before the event continuously and significantly. It started increasing drastically till the 2<sup>nd</sup> day post event, on which day it was highest approx 2.90%. Then it again decreased but it was positive again on the fifth day post announcement. So CAAR is impacted positively over the long run for the company. It increased from 0.80% on the fifth day prior announcement to 2.60% post announcement.

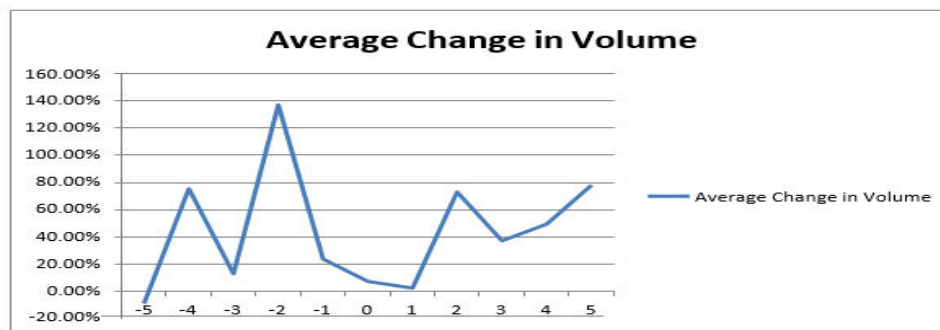


Figure 19 Change in volum

**Explanation:**

Percentage change in volume is applied to check the impact of news. It is shown from the above figure that there is change in volume over the day of event and 5 days prior and post event. Percentage change in volume increased from the day -5 till day -4, decreased on the day -3. It raised to the highest on the day -2 to 140%. Then it decreased till the next day of the announcement to almost 0% which shows that news was absorbed in the market. From the second day of the announcement it increased continuously but less than the highest. It was 80% on the fifth day post announcement from -10% before the announcement. So the figure shows that there is a percentage change in volume due to the impact of the announcement of news in the market.

**V. CONCLUSION**

The aim of the study was to study the impact of news on the percentage change in the stock prices, Checking its Significance, and Impact on its AAR (Average Abnormal Return) and CAAR (Cumulative Average Abnormal Return). With reference to the first question- The stock price does get impacted by the announcement of news event in the market as it led to significant fluctuations in the Average change in Volume. With reference to the second question- In the Solar Sector- all the three companies Percentage change in Stock prices and Volume showed positive result for the Significance. Two companies in the Wind Sector- Inox Wind and Orient Green showed positive result for the Significance test, whereas Indowind didn't show any positive result for the significance test. With reference to the third question, all the companies of both the sectors showed significant fluctuations in the Average Abnormal Return and Cumulative Average Abnormal Return (whether positive or Negative).

The aim of the study is fulfilled as all the companies of both the sectors gave positive results for the analysis of Change in stock prices, Average change in Volume, Significance of Change, Change in Average Abnormal Return and Cumulative Average Abnormal Return. Analysis window for the given project was for 11 days. It can be extended for analyzing more sensitive events and taking decisions. The project included only three companies of two sectors. It can include more number of sectors as well as more number of companies as well.

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