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CHALLENGES IN AUTOMOBILE INDUSTRY IN INDIA IN THE AFTERMATH OF COVID-19

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Abstract

This paper attempts to study the challenges faced by the companies engaged in the automobile business in India post emergence of lockdown conditions imposed due to the spread of novel coronavirus. Since the nature of automobile industry is manufacturing in nature, the damage to the sector is obvious because of halt in production due to lockdown restricting physical movement of people. A statistical comparison between the automobile index and Nifty 50 index has also been done.

Introduction

India was on the anvil of achieving the milestone of becoming third ranked market in world in the field of automobile industry by the year 2026. With manufacturing capacity of approximately 25 million vehicles having 15% export ratio, India's automobile sector also boasts of the fact that it is the second largest bus manufacturer. The damage caused to the sector can be understood by realizing the fact that there was 2.7% increase in the sale of passenger vehicles followed by 4.86% and 10.27% in the financial year 2018-2019 in the segments of two wheeler and three wheeler respectively. The total FDI attracted in the sector is \$22.4 billion during the year 2000 and 2019 which comprised of 5.1% of the total flows in foreign direct investment. The contribution of automobile sector in India as percentage of Gross Domestic Product is 7.1% as at the end of the fiscal year 2019. The NiftyAuto Index helps in depicting the overall sentiment and performance of the Automobiles industry which comprises of car manufacturers, motorcycle manufacturers, heavy vehicles manufacturers, auto ancillaries manufacturers,

tyre manufacturers. The NiftyAuto Index has a total 15 stocks being listed on the National Stock Exchange.

Table 1: List of Nifty Auto Companies as on 20-May-2020

S.No	Company Name	Industry	Last Price	Mkt Cap
				(Rs cr)
1	Amara Raja Batt	Batteries	569	9,719.23
2	Apollo Tyres	Auto Ancillaries - Tyres & Rubber Products	90.35	5,168.47
3	Ashok Leyland	Automobile - Truck & Light Commercial Vehicles	43.35	12,725.51
4	Bajaj Auto	Automobile - 2 & 3 wheelers	2,557.75	74,012.85
5	Bharat Forge	Metals- Castings/ Forgings	281.9	13,124.94
6	Bosch	Auto Ancillaries - Auto, Truck & Motorcycle Parts	9,264.30	27,323.79
7	Eicher Motors	Automobile - Truck & Light Commercial Vehicles/HVCs	13,675.10	37,340.51

8	Exide Ind	Batteries	149.4	12,699.00
9	Hero Motocorp	Automobile - 2 & 3 wheelers	2,023.60	40,419.26
10	M&M	Automobile - Auto & Truck Manufacturers	405.05	50,355.51
11	Maruti Suzuki	Automobile - Passenger Cars	4,891.95	147,776.05
12	Motherson Sumi	Auto Ancillaries - Auto, Truck & Motorcycle Parts	82	25,895.06
13	MRF	Auto Ancillaries - Tyres & Rubber Products	57,298.90	24,301.28
14	Tata Motors	Automobile - LCVS/ HVCS	83.45	25,777.49
15	TVS Motor	Automobile - 2 & 3 Wheelers	309	14680.19

Source- National Stock Exchange

Objectives

To study the correlation between Nifty Auto Index and Nifty 50 Index post COVID 19...

It is clearly evitable from Table 1 above that there are 15 stocks listed in NSE. The table also displays the corresponding market capitalization of each company. Maruti is the number one company with market capitalization of Rs 147776 crores. The companies listed in Nifty Auto vary from different business products such as batteries, two wheeler and three wheeler manufacturers.

Research Methodology

Secondary data has been used. Following statistical tools have been applied:

1. Z test with two samples for means has been applied between two variables i.e. Nifty Auto Index and Nifty 50 during 24 March 2020 and 19 May 2020 for hypothesis testing with significance level of 5%.
2. Correlation between Nifty 50 Index & Nifty 50 Index Turnover.
3. Correlation between Nifty Auto Index & Nifty Auto Index Turnover

Ho – The assumption that there is no significant difference between the indices of Nifty 50 Index and Nifty Auto Index.

H1 – The assumption that there is significant difference between the indices of Nifty 50 Index and Nifty Auto Index.

Table 2: Closing Prices of Nifty 50 during 24 Mar 2020 & 18 May 2020

Trading day	Closing Price of Nifty 50	No of Shares traded	Turnover (Rs. Cr)
24-Mar-20	7801.05	739354439	28282.09
25-Mar-20	8317.85	738114713	28482.01
26-Mar-20	8641.45	866534643	32228.31
27-Mar-20	8660.25	801923401	31336.86
30-Mar-20	8281.1	593953051	24724.44
31-Mar-20	8597.75	713390935	27401.3
1-Apr-20	8253.8	507509685	21307.3
3-Apr-20	8083.8	697752438	26561.18

7-Apr-20	8792.2	815245226	35206.69
8-Apr-20	8748.75	897562690	37641.68
9-Apr-20	9111.9	743036134	32907.82
13-Apr-20	8993.85	644468815	26749.06
15-Apr-20	8925.3	880159358	41878.64
16-Apr-20	8992.8	720116479	31318.29
17-Apr-20	9266.75	684910520	33334.73
20-Apr-20	9261.85	726364699	28620.91
21-Apr-20	8981.45	655122903	28273.89
22-Apr-20	9187.3	734383388	33981.82
23-Apr-20	9313.9	666650462	30270.55
24-Apr-20	9154.4	659439249	32859.05
27-Apr-20	9282.3	512793298	26696.54
28-Apr-20	9380.9	614548983	30091.41
29-Apr-20	9553.35	653026950	31673.23
30-Apr-20	9859.9	931173802	39332.46
5-May-20	9205.6	725196178	29700.2
6-May-20	9270.9	722185448	30798.1
7-May-20	9199.05	708740416	59705.53
8-May-20	9251.5	609053504	30743.45
11-May-20	9239.2	704647074	31048.47
12-May-20	9196.55	805458787	37706.27
13-May-20	9383.55	846395245	36488.9
14-May-20	9142.75	602555564	29541.59
15-May-20	9136.85	575857112	25847.33
18-May-20	8823.25	772983297	33347.46

Source: <https://www.nseindia.com>

Table 3: Closing Prices of Nifty Auto Index during 24 Mar 2020 & 18 May 2020

Trading day	Closing Price of Nifty Auto Index	No of Shares traded	Turnover (Rs. Cr)
24-Mar-20	4693.35	146706064	2604.83
25-Mar-20	4936.15	147442630	2444.29
26-Mar-20	5061.3	208806955	3065.83
27-Mar-20	4938.7	175519110	2782.11
30-Mar-20	4669.15	95603443	2336.7

31-Mar-20	4731.3	111576333	2635.69
1-Apr-20	4657.55	108107529	2264.91
3-Apr-20	4517.75	104162675	2376
7-Apr-20	4951.55	140084138	3358.07
8-Apr-20	5043.6	219644053	3973.55
9-Apr-20	5568.45	226178245	5529.49
13-Apr-20	5432.1	153555220	3207.55
15-Apr-20	5333	221470743	4141.98
16-Apr-20	5394.15	168466689	3453.68
17-Apr-20	5668.9	196606439	4664.01
20-Apr-20	5591	228792177	4118.78
21-Apr-20	5294.05	146929307	3117.44
22-Apr-20	5426.85	144746153	3758.42
23-Apr-20	5464.75	109244052	2888.77
24-Apr-20	5377.25	88175839	2300.02
27-Apr-20	5433.2	106148950	2628.85
28-Apr-20	5447.1	99044323	2268.15
29-Apr-20	5543.75	200005473	3237.16
30-Apr-20	5901.4	337079062	6263.07
5-May-20	5451.9	161356727	3311.1
6-May-20	5552.4	142224254	3461.77
7-May-20	5519	101010878	2642.7
8-May-20	5447.75	120922862	2908.32
11-May-20	5679.7	301862752	6202.69
12-May-20	5708.95	164451576	4476.39
13-May-20	5844.6	179261745	5172.32
14-May-20	5804.05	109783296	3550.22
15-May-20	5745.7	124232994	3689.93
18-May-20	5430.05	142416404	4170.16

Source: <https://www.nseindia.com>

Table 4: Comparison of Closing Prices of Nifty Auto Index during Auto Index during 24 Mar 2020 & 18 May 2020

Trading day	Closing Price of Nifty 50	Turnover (Rs. Cr)	Closing Price of Nifty Auto Index	Turnover (Rs. Cr)
24-Mar-20	7801.05	28282.09	4693.35	2604.83
25-Mar-20	8317.85	28482.01	4936.15	2444.29
26-Mar-20	8641.45	32228.31	5061.3	3065.83
27-Mar-20	8660.25	31336.86	4938.7	2782.11
30-Mar-20	8281.1	24724.44	4669.15	2336.7
31-Mar-20	8597.75	27401.3	4731.3	2635.69
1-Apr-20	8253.8	21307.3	4657.55	2264.91
3-Apr-20	8083.8	26561.18	4517.75	2376
7-Apr-20	8792.2	35206.69	4951.55	3358.07
8-Apr-20	8748.75	37641.68	5043.6	3973.55
9-Apr-20	9111.9	32907.82	5568.45	5529.49
13-Apr-20	8993.85	26749.06	5432.1	3207.55
15-Apr-20	8925.3	41878.64	5333	4141.98
16-Apr-20	8992.8	31318.29	5394.15	3453.68
17-Apr-20	9266.75	33334.73	5668.9	4664.01
20-Apr-20	9261.85	28620.91	5591	4118.78
21-Apr-20	8981.45	28273.89	5294.05	3117.44
22-Apr-20	9187.3	33981.82	5426.85	3758.42
23-Apr-20	9313.9	30270.55	5464.75	2888.77
24-Apr-20	9154.4	32859.05	5377.25	2300.02
27-Apr-20	9282.3	26696.54	5433.2	2628.85
28-Apr-20	9380.9	30091.41	5447.1	2268.15
29-Apr-20	9553.35	31673.23	5543.75	3237.16
30-Apr-20	9859.9	39332.46	5901.4	6263.07
5-May-20	9205.6	29700.2	5451.9	3311.1
6-May-20	9270.9	30798.1	5552.4	3461.77
7-May-20	9199.05	59705.53	5519	2642.7
8-May-20	9251.5	30743.45	5447.75	2908.32
11-May-20	9239.2	31048.47	5679.7	6202.69
12-May-20	9196.55	37706.27	5708.95	4476.39
13-May-20	9383.55	36488.9	5844.6	5172.32
14-May-20	9142.75	29541.59	5804.05	3550.22
15-May-	9136.85	25847.33	5745.7	3689.93

20				
18-May-20	8823.25	33347.46	5430.05	4170.16

Source: <https://www.nseindia.com>

Findings & Discussions

Critical Values at different levels of significance				
Level of significance	$\alpha = 0.10$	$\alpha = 0.05$	$\alpha = 0.01$	$\alpha = 0.005$
Critical Value Z (One tailed)	-1.28 to +1.28	-1.645 to +1.645	-2.33 to +2.33	-2.58 to +2.58
Critical Value Z (Two tailed)	-1.645 to +1.645	-1.96 to +1.96	-2.58 to +2.58	-2.81 to +2.81

Table 5: Critical values Z test with two sample for means

Z test with two samples for means has been applied in following cases during 24 March 2020 and 19 May 2020 between Nifty Auto Index and Nifty 50.

z-Test: Two Sample for Means

	<i>Nifty Index</i>	<i>Auto Nifty 50 Index</i>
Mean	5331.189706	8979.210294
Known Variance	140976	194885
Observations	34	34
Hypothesized Mean Difference	0	
Z	-36.70430042	
P(Z<=z) one-tail	0	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0	
z Critical two-tail	1.959963985	

Since the value of z statistic in this case is -36.70 does not lie between -1.96 to +1.96 of z critical two tail, therefore we can reject the null hypothesis. Furthermore, since the “p” value is less than or equal to alpha, it also signals to rejection of null hypothesis.

Hence we can conclude that the two variables are significantly statistically different.

Ho – The assumption that there is no significant difference between the indices of Nifty 50 Index and Nifty Auto Index. (Rejected)

H1 – The assumption that there is significant difference between the indices of Nifty 50 Index and Nifty Auto Index. (Accepted).

Correlation between Nifty 50 Index & Nifty 50 Index Turnover stands at 0.35 whereas

Correlation between Nifty Auto Index & Nifty Auto Index Turnover stands 0.64. It can be therefore said that the market breadth in case of Nifty Auto Index is greater than Nifty 50 Index

Conclusion

We can expect that the slowdown in the automobile industry to be short lived since there has been only deferral or delay in the demand. However, the jolt to the automobile industry is significant in the sense that India ranked amongst the top countries in the world. In case of any continuous slowdown, the automobile sector may suffer a lot. But with the right kind of initiatives announced by the Government of India for the sector, it will soon come out of the trying times given the permission granted by the government authorities to reopen the manufacturing units with the social distancing and other conditions as specified. It is pertinent to mention the case of Ashok Leyland which is not only the second largest manufacturer of commercial vehicles in India but also a leading manufacturer of buses and trucks at international level. It was shocking news when Ashok Leyland reported zero production and zero sales for the month of April 2020. If this is the case of a market leader due to COVID lockdown situation, what would have been the plight of small-scale businesses dealing with the manufacturing of spare parts for automobile industry?

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