Chapter – 4 Data Analysis & Interpretations

The Main objective was to study the factors that lead to Responsible Business Behaviour of Chemical / Petrochemical and Pharmaceuticals companies operating in Gujarat for bringing in Sustainable Society and Business.

Study includes analysis of 50 sample companies for the financial year 2017, 2018, 2019. The present study analyses the response of 50 respondent companies, out of which 25 are listed and 25 are unlisted companies, the data (primary and secondary) of which were complete in all sense. A detailed list of sample organizations has been attached as annexure 2.

Analysis of the data received from 50 sample companies was done using descriptive statistics, normality test, Cronbach's Alpha test, exploratory factor analysis, cross tabulations and chi-square test. Before finalizing the instrument (questionnaire tool), validity and reliability was checked during the stage of pilot testing (n=7) and after getting confirmed, the final instrument was administered, hypothesis were tested, discussion and implementation were done on them. The statistics related to the research variables were tested at 0.05 level of significance using SPSS 22.00 statistical software. All the figures shown for Avg. Revenue, PAT and Reserves are in Rupees Crores and all figures of ROE, ROCE, ROA & NPM are in Percentage.

Descriptive statistics

Types of descriptive statistics used in the study were measures of frequency (frequency, percent), measures of central tendency (mean, median and mode), and measures of dispersion or variation (SD, standard error). A measure of frequency has been used for the categorical data while others were used for quantitative data.

Normality & Reliability test

Normality of data were assessed for deciding parametric or non-parametric tests to be applied in the study which was assessed using two methods - Graphical methods like histograms, Box & whisker plots, Normal Q-Q plots etc...and numerical methods like mean, median, SD, Skewness, Kurtosis, Shapiro Wilk test. Numerical methods like Shapiro–Wilk test was applied as it was appropriate method for small sample sizes (< 50) although it can also be applied for larger sample size, where Null hypothesis states that data were taken from normal distributed population. When $P > 0.05$, null hypothesis accepted, and data were called as normally distributed. A distribution of data was considered as approximately normal if the value of skewness and kurtosis lies between ± 1.

Further z-test was also applied for checking normality using skewness and kurtosis. A Z-score was obtained by dividing the skewness values or kurtosis value by their standard errors. For small sample size (n<50), z value ± 1.96 are sufficient to establish normality of the data. (Ghasemi A, Zahediasl S., 2012; Mishra, P. *et.al.*, 2019). Reliability was checked using Cronbach's Alpha. Coefficient under Cronbach's Alpha ranges between 0 and 1.

Parametric & Non-Parametric test

When Normality of the data was confirmed, parametric tests like Independent T Test was applied to evaluate whether the means of various Dependent variables / Factors related to Responsible Business Behaviour differ significantly across two groups of the study. When data was confirmed as non-normal, non-parametric test, Mann-Whitney U was performed to assess significant differences in a scale or ordinal dependent variable by a single dichotomous independent variables of the study. It was used to analyze differences between the medians of two data sets. To accomplish research objectives and test various hypothesis of the study, cross tabulations and chi-square test of independence was applied to ascertain statistical significance and strength of association of cross-tabulated variables.

Exploratory Factor Analysis (EFA)

EFA was used in this study as researcher had few ideas regarding the mechanism of the phenomenon under study and a quest to explore relationship between the variables. EFA was employed to identify number of latent constructs and the underlying factor structure, check construct validity, adequacy of data and reliability. As far as sample size for EFA are concerned, Nunnally (1978) believed that the ratio of a sample to a variable must be ten samples to one variable. Keeping these assumptions in mind, the sample size (n=50) of the study was appropriate.

Demographic Profile of Respondent companies

The demographic composition of the respondent companies has been presented with the help of descriptive statistics in tabular form (refer table 8). Table no. 8, reflects demographic description about respondent companies, participated in this study. The following description is evident from the table.

1) Based on the Type of Industry and Location of Plant of Respondent Companies

Study consists of total 50 companies (n=50) having their businesses around Chemicals/ Petrochemicals and Pharmaceuticals, out of which 72% (n=36) belong to

Chemicals/Petrochemicals sector and remaining 28% (n=14) belongs to pharmaceuticals sector (refer table 8).

Table - 8

Demographic Profile of Respondent Companies

Respondent Companies Profile	Frequency (n)	Percent (%)
Type of Industry		
Chemical & Petrochemicals Industries	36	72
Pharmaceuticals Industry	14	28
Total	50	100
Location of Plant / Unit of Respondent Companies		
Ahmedabad (GIDC & Industrial Estate)	04	08
Vadodara (Nandesari, Padra & GIDC)	07	14
Bharuch (Dahej, Vilayat, Zhagadia, GIDC)	23	46
Ankleshwar / Panoli / Vapi	16	32
Total	50	100
Based on Sector Ownership		
Government Controlled	06	12
Non-Government Controlled	44	88
Total	50	100
Legal Status of the companies		
Unlisted Companies	25	50
Listed Companies	25	50
Total	50	100
Age of the Company (No. of Years / experience in this Business)		
Up to 25 years	07	14
More than 25 Years	43	86
Total	50	100
Age of the Plant (No. of years of Commencement of Plant)		
Up to 25 years	34	68
More than 25 Years	16	32
Total	50	100
Size of the Company		
Large sized	40	80
Medium & Small sized	10	20
Total	50	100
Employees size of the Respondent Plant		
< than 200	19	38
201 to 400	12	24
> than 400	19	38
Total	50	100

For conducting this study, samples were considered from across the state of Gujarat. But all the responses were received from Ahmedabad to Vapi Location (known as 'Golden Corridor of Gujarat') as major Chemicals, Petrochemicals and Pharmaceutical clusters are located in these regions. About 35% of the major hazardous units of India are housed in this belt (The Indian Express, March 15, 2018). Therefore, on the basis of Location, 8% (n=4) of the sample companies belong to Ahmedabad region, 14% (n=7) of the respondent companies belong to Vadodara region, 46% (n=23) of the sample companies were from Bharuch location (Dahej, Vilayat, Zhagadia and Bharuch GIDC) and remaining 32% (n=16) belongs to Ankleshwar / Panoli and Vapi region (refer table 8).

2) Based on Ownership and Legal Status of the Companies

Out of total 11 central and state-owned government based chemical and petrochemical companies operating in the state of Gujarat (source - list of PSUs as on 7/2/2019, finance department, Govt. of Gujarat), this study includes responses of 06 central and state-owned government companies. There are no government owned pharma companies in the state of Gujarat. Therefore, on the basis on the basis of ownership, this study includes 12% (n=6) of the responding companies as Government owned chemical and petrochemical companies while remaining 88% (n=44) were Non – Government owned companies in chemicals, petrochemicals and pharmaceutical business operating in Gujarat. (Refer table 8).

Samples were equal in distribution on the basis of Legal status of the Companies i.e. 50% (n=25) were Listed Companies and other 50% (n=25) of the Sample companies were Unlisted Companies (refer table 8).

3) Based on Age of the Company (No. of years spent in this sector) and Age of the Plant (No. of years of Plant experience of respondent companies)

In this study, 14% (n=7) of the sample companies have experience up to 25 years (considered as new companies for study purpose) in Chemicals / Petrochemicals and Pharmaceuticals business whereas 86% (n=43) of samples have more than 25 years of experience (considered as old companies for study purpose) in managing these businesses (refer table 8).

Study includes 68% (n=34) of the sample companies Plants (from where the response was elicited) operationalized for the past 25 years while 32% (n=16) of the respondent Companies plants were in operations for more than 25 years (refer table 8).

4) Based on Size of the Company and Number of Employees employed in the Plant

As far as size of the firms are concerned, study includes the responses from Large, Medium and Small sized companies. The classification was done based on annual turnover of the companies. If the responding company's average annual turnover for three financial years i.e. 2017, 2018 and 2019 were more than 250 crores, such participating companies were considered as Large sized firms, where if average annual turnover was more than 50 crores but less than 250 crores, such companies were taken as Medium sized firms and if average annual turnover was less than 50 crores, then it was considered as Small sized firms (Source - MSME, As per revised classification applicable with effect from 1st July, 2020). Based on this classification, study includes 80% (n=40) of sample companies as Large sized firms whereas remaining 20% (n=10) as Medium and small sized firms (refer table 8).

On the basis of number of Employees, in the respondent Plants, 38% (n=19) of sample company's respondent plants have less than 200 employees, 24% (n=12) have employee size between the range of 201 to 400 and 38% (n=9) were having more than 400 employees in their Plants (refer table 8).

Financial Performance analysis of Sample Organizations

To expound various parameters of organizational economic sustainability, financial analysis of sampled organizations was carried out. Descriptive financial analysis in terms of average growth in Revenue/ sales, Profit after tax (PAT), Reserves and Surplus, Profitability ratios like ROE, ROCE, ROA and NPM were studied for three consecutive financial years viz. 2017, 2018 and 2019. Financial year 2016 was considered as a base year for analysis. Listed companies' financial data were referred through published annual reports taken from each sample Company's website whereas financial data of the Unlisted sample companies were managed from Prowess and Capital line plus database subscribed by Hansa Mehta Library, M.S University and IIM – A.

Basic characteristics of financial performance data w.r.t Revenue / sales, PAT, Reserves and Surplus (average performance in three years in Rs. crores), Profitability Ratios like ROE, ROCE, ROA & NPM (in %) for sample companies (n=50), was analyzed

using both categorical and continuous data form. Profitability ratios performance data of the sample companies in terms of ROE, ROCE, ROA and NPM (in %), has been coded by -1, 0 and +1. Constant decrease in ROE (%) in three financial years has been coded as -1. Variation in 3 years in ROE has been coded as 0 and constant increase in ROE in three financial years has been coded as +1. Normality of the data was checked using Shapiro–Wilk test, assuming Null hypothesis (H0) that Data are normally distributed. When the significance value of $p < 0.05$, null hypothesis has been rejected, stating that data are non-normal and vice versa.

Average financial performance in terms of Sales, PAT, Reserves & surplus, Profitability ratios (ROE, ROCE, ROA, and NPM) of all the sampled companies were taken for the study. Below table 9 shows description of financial performance of the sample companies in categorical form.

Table – 9

Financial Performance of Respondent Companies (n=50)

(Amt. in Rs.)

Respondent Companies financial performance	Frequency (n)	Percent (%)
Revenue / Sales (Rs. in crores & Average of 3 yrs)		
Up to 3000 crs	35	70
More than 3000 crs	15	30
Total	50	100
PAT (Rs. in crores & Average of 3 yrs)		
Up to 100crs	27	54
More than 100 crs	23	46
Total	50	100
Reserves & Surplus (Rs.in crores & Average of 3 yrs)		
Up to 1000 crs	25	50
More than 1000 crs	25	50
Total	50	100
Profitability Ratio – Return on Net Worth / Equity (ROE in % & Average of 3 yrs)		
Constant Decrease in three years (coded by -1)	09	18
Variation in three years (coded by 0)	29	58
Constant Increase in three years (coded by +1)	12	24
Total	50	100
Profitability Ratio – Return on Capital Employed (ROCE in % & Average of 3 yrs)		
Constant Decrease in three years (coded by -1)	10	20
Variation in three years (coded by 0)	28	56
Constant Increase (coded by +1)	12	24
Total	50	100
Profitability Ratio – Return on Assets (ROA in % & Average of 3 yrs)		
Constant Decrease in three years (coded by -1)	11	22

Variation in three years (coded by 0)	29	58
Constant Increase (coded by +1)	10	20
Total	50	100
Profitability Ratio – Net Profit Margin (NPM in % & Average of 3 yrs)		
Constant Decrease in three years (coded by -1)	12	24
Variation in three years (coded by 0)	24	48
Constant Increase (coded by +1)	14	28
Total	50	100

Above data shows the outcome of sample organizations financial performance for the study period i.e., three financial years viz. 2017, 2018 and 2019 in categorical form

Data revealed that 70% (n=35) of the sample companies' average revenue / sales were up to 3000 crores, while remaining 30% (n=15) companies' average revenue / sales were more than 3000 crores; 54% (n=27) of the sample companies average PAT performance were found up to 100 crs out of which 10% (n=5) of the sample companies average PAT performance were found in loss figures, while remaining 46% (n=23) companies average PAT performance were more than 100 crores; 50% (n=25) of the sample companies average Reserves performance were found up to 1000 crores out of which 6% (n=3) companies' average Reserves performance were in loss figures, while remaining 50% (n=25) companies' average Reserves were more than 1000 crores.

Table 9, also shows average performance of ROE/ROCE/ROA/NPM data (in %) of sample companies for the three financial years viz. 2017, 2018 and 2019 in categorical form. Considering coding as a base, (-1 as constant decrease, 0 as variation and +1 as constant increase) it was found that, 18% (n=9) of the sample companies showed constant decrease in ROE, 58% (n=29) showed variation in ROE and 24% (n=12) showed constant increase in ROE during the study period; similarly, it was noted that 20% (n=10) of the sample companies showed constant decrease in ROCE, 56% (n=28) showed variation and 24% (n=12) showed constant increase in ROCE; 22% (n=11) of the sample companies showed constant decrease in ROA, 58% (n=29) showed variation in ROA and 20% (n=10) showed constant increase in ROA in three financial study period; 24% (n=12) of the sample companies showed constant decrease in NPM, 48% (n=24) showed variation and 28% (n=14) companies showed constant increase in NPM in three financial period.

Table 10

Descriptive Statistics & Normality tests of Revenue / PAT / R&S data of Sample Companies(n=50) conducted on a Continuous Data (Rs. in crores & Average of 3 yrs)

Vari-ables	Min.	Max	Mean	Mdn nn	S.D	Skewness with S.E as (0.337)		Kurtosis with S.E as (0.667)		Sig. value
						Value	Z	Value	Z	
Reve-nue	15	523728	20509	1571	86000	5.183	15.4	27.42	41.4	0.00
PAT	-1409	33400	1347	85	5392	5.22	15.5	28.35	42.8	0.00
R&S	-725	330779	12201	972	48521	6.131	18.2	39.91	60.3	0.00

Above data shows descriptive characteristics and normality test of average Revenue / PAT / Reserves data of Sample Companies (n=50) conducted on a Continuous Data (Rs. in crores & Average of 3 yrs)

As per table 10, the Mean, Median and SD value of average Revenue / Sales data of all sample companies (n=50) were $\bar{x}$=20,509 and *Mdn* =1571 with s=86000.030. The minimum value was 15 and maximum value was 5,23,728. Result depicts that data were non-normally distributed as Mean & Median values have huge differences. Also, the value of skewness (5.183) and kurtosis (27.42) individually were not within $\pm$1 range. Critical ratio (z value) of the skewness (15.4) and kurtosis (41.4) were also not within ±1.96, thus the outcome with respect to dispersion also specifies that data was not normally distributed. Even the Normality test using Shapiro Wilk test results in rejection of Null hypothesis as sig. value of $p < 0.05$, stating that average Revenue data were not normally distributed; it was noted that the Average and Median and Standard Deviation value of PAT data of all sample companies (n=50) as ($\bar{x}$=1347) and (*Mdn*=85) with (s=5391.489). The minimum average PAT value was (-1409) and maximum value was 33400. Results depict that data were non-normally distributed as values of Mean and Median were not the same. Moreover, the values of skewness (5.220) and kurtosis (28.35) individually were not within $\pm$1. Critical ratio (z value) of the skewness (15.49) and kurtosis (42.83) were also not within ±1.96. Such outcome w.r.t. dispersion indicates data was not normally distributed. Normality tests were further checked using Shapiro–Wilk test results in rejection of Null hypothesis as sig. value of $p < 0.05$, stating that average PAT data were not normally distributed; further, the Mean, Median and Standard Deviation values of average Reserves & Surplus data of sample companies (n=50) were ($\bar{x}$=12201.27), (*Mdn*=972) with (s=48521.116). The minimum Reserve value found in the samples was (-

725) and maximum value was 3,30,779. The huge difference between Mean and median values reveals that data were non-normally distributed. Even the value of skewness (6.131) and kurtosis (39.912) individually were not within ±1. Critical ratio (z value) of the skewness (18.19) and kurtosis (60.29) were not within ±1.96. Thus, dispersion values also specify that data were not normally distributed. Normality tests were checked using Shapiro–Wilk test, results in rejection of Null hypothesis as sig. value of $p < 0.05$, stating that average Reserves data were not normally distributed.

Table 11

Descriptive Statistics & Normality test of Profitability Ratios data in terms of ROE, ROCE, ROA & NPM of Sample Companies(n=50) conducted on a Continuous Data (in % & Avg. of 3 yrs., Amt in Rs.)

Varia-bles	Min	Max	Mean	Mdn	SD	Skewness with S.E as (0.337)		Kurtosis with S.E as (0.662)		Sig. Val.
						Value	Z	Value	Z	
ROE	-225	185	17.36	14.89	47.43	-1.459	-4.33	17.19	25.98	0.000
ROCE	-34	51	9.89	10.28	12.68	-0.574	-1.70	4.914	7.42	0.000
ROA	-10	17	6.84	6.46	5.824	-0.451	-1.33	0.529	0.799	0.200
NPM	-499	27	-2.65	8.22	72.06	-6.941	-20.59	48.73	73.62	0.000

Above data shows descriptive characteristics and normality test of various profitability ratios like ROE, ROCE, ROA and NPM of Sample Companies(n=50) conducted on a Continuous Data (Rs. in crores & Average of 3 yrs)

Table 11, shows that the Mean, Median and SD value of ROE data of sample companies (n=50) for three financial years i.e. 2017, 2018 and 2019 were ($\bar{x}$=17.36), (Mdn =14.89) with (s=47.43). The minimum ROE value was (-225) and maximum value was 185 in the sample data. As observed, there exists a difference between mean and median value, leading to non-normal distribution of data. Also the value of skewness (-1.459) and kurtosis (17.19) individually were not within ±1 range. Critical ratio (z value) of the skewness (-4.33) and kurtosis (25.98) were too not within ±1.96, thus the outcome with respect to dispersion also specifies that data were non-normally distributed. Normality

tests using the Shapiro–Wilk test, results in rejection of the Null hypothesis as $P < 0.05$. Similarly, the Mean, Median and SD value of ROCE data of sample companies (n=50) were ($\bar{x}$=9.89), *(Mdn* =10.28) with (s=12.68). The minimum ROCE value found was (-34) and maximum value was 51. As observed in the table 11, there exists a minor difference between mean and median value, leading to approx. normal distribution curve. The value of skewness (-0.574) was found within $\pm$1 range and critical ratio (z value) of the skewness (-1.70) was also within ±1.96 range but the value of kurtosis (4.914) individually was not within $\pm$1 range and critical ratio (z value) of the kurtosis (7.42) were too not within ±1.96 range, thus, we need to rely on normality tests outcomes to confirm whether data were normal or non-normal. The significance value of Shapiro–Wilk test (P = 0.003) for ROCE data, states that data were non-normally distributed as the value of P < 0.05; the value of Mean, Median and SD for ROA data of sample companies (n=50) were ($\bar{x}$=6.84), (Mdn=6.46) with (s=5.824). The minimum ROA value found was (-10) and maximum value was 17. As observed in the table 11, there exists a very minor difference between mean and median value, revealing that data are normally distributed. Even the value of skewness (-0.451) and kurtosis (0.529) individually were within $\pm$1 range. Critical ratio (z value) of the skewness (-1.33) and kurtosis (0.799) were too within ±1.96 range, thus the outcome with respect to dispersion also specifies that data were normally distributed. Even Normality test indicates that data were normal as the significance value of Shapiro–Wilk test results in (P = 0.200). As the value of P > 0.05, the outcome reveals that ROA sample data were normally distributed; and finally, the Mean, Median and SD value for NPM data of sample companies (n=50) were ($\bar{x}$= -2.65), (*Mdn*= 8.22) with (s=72.06). The minimum NPM value was (-499) and maximum value was 27 in the sample data. As observed, there exists a huge difference between mean and median value, leading to non-normal distribution of data. Also, the value of skewness (-6.941) and kurtosis (48.73) individually were not within $\pm$1 range. Critical ratio (z value) of the skewness (-20.59) and kurtosis (73.62) were too not within ±1.96, thus the outcome with respect to dispersion also specifies that data were non-normally distributed. Normality test using Shapiro –Wilk test (P = 0.000) confirms that data were non-normally distributed. As the value of P < 0.05, this leads to rejection of the Null hypothesis revealing that data are not normally distributed.

Cross tabulations

Cross tabulations between financial variables and demographical variables of study

Cross tabulations were conducted between various financial variables of the study (Revenue, PAT, Reserves, ROE, ROCE, ROA and NPM) in average of three years and demographic variables of the study (types of Industry, sector ownership, legal status of the firm, age/experience of the firm, and size of the firm) so as to find economic sustainability of sample organizations. Below tables revealed the results of the same.

Table 12

Cross tabulations between financial variables (Average Revenue) and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	Average Revenue performance of companies					
	Up to 3000 crs		More than 3000 crs		Full sample	
	Count	%	Count	%	Count	%
Types of Industry						
Chemical/Petrochemicals	25	69	11	31	36	100
Pharmaceuticals	10	71	04	29	14	100
Sector Ownership						
Government	01	17	05	83	06	100
Non-government	34	77	10	23	44	100
Legal status of the firm						
Unlisted	24	96	01	04	25	100
Listed	11	44	14	56	25	100
Age / experience of the firm						
Up to 25 years	06	86	01	14	07	100
More than 25 years	29	67	14	33	43	100
Size of the firm						
Medium & Small sized	10	100	00	00	10	100
Large sized	25	62	15	38	40	100

Above cross tabulation shows the average revenue performance of sample companies based on various demographic variables of the study.

Table 12, revealed that 69% (n=25) of chemical/petrochemical sample companies 'average revenue performance was up to Rs.3000 crs and 31% (n=11) earned more than Rs. 3000 crs, whereas in case of pharmaceutical companies, 71% (n=10) of companies' average revenue were found up to 3000 crs and 29% (n=4) of pharma companies' earned more than 3000 crs; 17% (n=1) of government companies average revenue were up to 3000 crs and 83% (n=5) of government companies' earned more than 3000crs, while in

case of non-government, 77% (n=34) companies earned avg. revenue up to 3000 crs and 23% (n=10) earned more than 3000 crs; 96% (n=24) of Unlisted companies' average revenue were up to 3000 crs. and 4% (n=1) unlisted companies earned average revenue more than 3000 crs; whereas 44% (n=11) of listed companies average revenue were up to 3000 crs and 56% (n=14) of listed companies' earned average revenue more than 3000 crs; 86% (n=6) of companies having experience up to 25 years earned average revenue up to 3000 crs and 14% (n=1) of companies having experience more than 25 years earned average revenue more than 3000 crs, while in case of companies having experience more than 25 years, 67% (n=29) of such companies earned average revenue up to 3000 crs and 33% (n=14) of companies' earned average revenue more than 3000 crs;100% (n=10) medium and small sized sample companies average revenue were found up to 3000 crs while in case of large sized, 62% (n=25) of sample companies' average revenue were up to 3000 crs and 38% (n=15) large sized companies average revenue were found more than 3000 crs.

Table 13

Cross tabulations between financial variables (Avg. PAT) and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	Avg. PAT Performance of Respondent companies					
	Up to 100 crs		More than 100 crs		Full sample	
	Count	%	Count	%	Count	%
Types of Industry						
Chemical/Petrochemicals	18	50	18	50	36	100
Pharmaceuticals	09	64	05	36	14	100
Sector Ownership						
Government	01	17	05	83	06	100
Non-government	26	59	18	41	44	100
Legal status of the firm						
Unlisted	21	84	04	16	25	100
Listed	06	24	19	76	25	100
Age / experience of the firm						
Up to 25 years	07	100	00	00	07	100
More than 25 years	20	46	23	54	43	100
Size of the firm						
Medium & Small size	10	100	00	00	10	100
Large sized	17	43	23	57	40	100

Above cross tabulation shows the average PAT performance of sample companies based on various demographic variables of the study.

Table 13, revealed that 50% (n=18) of chemical/petrochemical companies' had average PAT up to 100 crs and rest 50% (n=18) companies earned average PAT more than 100 crs, whereas in case of pharmaceutical companies, 64% (n=9) of companies' PAT were up to 100 crs and 36% (n=5) companies' had average PAT more than 100 crs; 17% (n=1) of government companies' average PAT were up to 100 crs and 83% (n=5) government companies earned avg. PAT more than 100crs, while in case of non-government companies' average PAT, 59% (n=26) earned up to 100 crs and 41% (n=18) earned more than 100 crs; 84% (n=21) of Unlisted companies' had avg. PAT up to 100crs and 16% (n=4) unlisted companies earned average PAT more than 100 crs whereas 24% (n=6) of listed companies' PAT were up to 100 crs and 76% (n=19) had their average PAT more than 100 crs; 100% (n=7) of companies having experience up to 25 years earned average PAT up to 100 crs while in case of companies having experience more than 25 years, 46% (n=20) of such companies had average PAT up to 100 crs and 54% (n=23) had average PAT more than 100 crs;100% (n=10) medium and small sized sample companies' average PAT performance were up to 100 crs while in case of large sized sample organization, 43% (n=17) of companies average PAT were up to 100 crs and 57% (n=23) had average PAT more than 100 crs.

Table 14 cross tabulation shows the average Reserves & Surplus performance of sample companies based on various demographic variables of the study.

Table 14, revealed that 47% (n=17) of chemical/petrochemical sample companies' average Reserves were up to 1000 crs and 53% (n=19) of companies had average reserves more than 1000 crs, whereas in case of pharmaceutical companies, 57% (n=8) of companies' average Reserves were up to 1000 crs and 43% (n=6) pharma companies' had average reserves more than 1000 crs; 17% (n=1) of government companies' average reserves were up to 1000 crs and 83% (n=5) of government companies' average reserves were more than 1000 crs, while in case of non-government companies', 54% (n=24) had their average reserves up to 1000 crs and 46% (n=20) had average reserves more than 1000 crs; 84% (n=21) of Unlisted companies' average reserves were found up to 1000crs and 16% (n=4) unlisted companies had average reserves more than 1000 crs, whereas 16% (n=4) of listed companies' average reserves were up to 1000 crs and 84% (n=21) of listed companies' average reserves were more than 1000 crs.

Table 14

Cross tabulations between financial variable (Reserves) in average *and demographical variables of the study (n=50)*

(Amt.in Rs.)

Demographic Variables	Avg. Reserves Performance of companies					
	Up to 1000 crs		More than 1000 crs		Full sample	
	Count	%	Count	%	Count	%
Types of Industry						
Chemical/Petrochemicals	17	47	19	53	36	100
Pharmaceuticals	08	57	06	43	14	100
Sector Ownership						
Government	01	17	05	83	06	100
Non-government	24	54	20	46	44	100
Legal status of the firm						
Unlisted	21	84	04	16	25	100
Listed	04	16	21	84	25	100
Age / experience of the firm						
Up to 25 years	06	86	01	14	07	100
More than 25 years	19	44	24	56	43	100
Size of the firm						
Medium & Small sized	10	100	00	00	10	100
Large sized	15	37	25	63	40	100

86% (n=6) of companies having experience up to 25 years had average reserves up to 1000 crs and 14% (n=1) had their average reserves more than 1000 crs, while in case of companies having experience more than 25 years, 44% (n=19) of such companies had average reserves up to 1000 crs and 56% (n=24) companies' had average reserves more than 1000 crs; 100% (n=10) medium and small sized sample companies' average reserves performance were up to 1000 crs while in case of large sized companies, 37% (n=15) of companies average reserves were up to 1000 crs and 63% (n=25) large sized companies' had average reserves more than 1000 crs.

Table no. 15 cross tabulation shows the ROE performance of sample companies based on various demographic variables of the study.

Table 15

Cross tabulations between financial variable (ROE) in average and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	Avg. ROE performance of Companies						
	Constant Decrease		Variation		Constant Increase		
	Count	%	Count	%	Count	%	Total
Types of Industry							
Chemical/Petrochemicals	08	22	20	57	08	22	36
Pharmaceuticals	01	07	09	64	04	29	14
Sector Ownership							
Government	02	33	01	17	03	50	06
Non-government	07	16	28	67	09	21	44
Legal status of the firm							
Unlisted	04	16	18	72	03	12	25
Listed	05	20	11	14	09	36	25
Age / experience of the firm							
Up to 25 years	01	14	05	71	01	14	07
More than 25 years	08	19	24	56	11	26	43
Size of the firm							
Medium & Small	00	00	08	80	02	20	10
Large	09	18	29	58	12	24	40

It can be noted from table no. 15, that 22% (n=8) of chemical/petrochemical companies' had observed constant increase and constant decrease in ROE performance and 57% (n=20) chemical / petrochemical companies had observed variation in ROE, while in case of pharma companies, 7% (n=1) pharma companies had observed constant decrease, 64% (n=9) observed variation and 29% (n=4) observed constant increase in ROE performance; 33% (n=2) of government companies had observed constant decrease, 17% (n=1) had variation and 50% (n=3) had observed constant increase in ROE performance while in case of non-government companies, 16% (n=7) companies had observed constant decrease, 67% (n=28) had variation and 21% (n=9) had constant increase in ROE performance; 16% (n=4) unlisted companies had observed constant decrease, 72% (n=18) had variation and 12% (n=3) had observed constant increase in ROE performance while in case of listed companies, 20% (n=5) companies had observed constant decrease, 14% (n=11) had variation and 36% (n=9) had observed constant increase in ROE performance;

14% (n=1) of companies having experience / age up to 25 years observed constant decrease, 71% (n=5) had variation and 14% (n=1) had observed constant increase in ROE performance while in case of companies having experience / age more than 25 years, 19% (n=8) companies had observed constant decrease, 56% (n=24) observed variation and 26% (n=11) had observed constant increase in ROE performance; none of the medium and small sized companies had observed constant decrease in ROE, 80% (n=8) such companies had variation and 20% (n=2) had constant increase in ROE performance while in case of large sized companies 18% (n=9) had constant decrease, 58% (n=29) had variation and 24% (n=12) had constant increase in ROE performance.

Table 16

Cross tabulations between financial variable (ROCE) and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	ROCE performance of Respondent companies						
	Constant Decrease		Variation		Constant Increase		
	Count	%	Count	%	Count	%	Total
Types of Industry							
Chemical/Petrochemicals	07	19	22	61	07	19	36
Pharmaceuticals	03	21	06	43	05	36	14
Sector Ownership							
Government	01	17	02	33	03	50	06
Non-government	09	21	26	59	09	21	44
Legal status of the firm							
Unlisted	04	16	17	68	04	16	25
Listed	06	24	11	44	08	32	25
Age / experience of the firm							
Up to 25 years	01	14	03	43	03	43	07
More than 25 years	09	21	25	58	09	21	43
Size of the firm							
Medium & Small	02	20	06	60	02	20	10
Large	08	20	22	55	10	25	40

Above cross tabulation shows the ROCE performance of sample companies based on various demographic variables of the study.

It can be noted from table 16, that 19% (n=7) of chemical/petrochemical companies' had observed constant decrease, 61% (n=22) had observed variation and 19% (n=7) had constant increase in ROCE performance and while in case of pharma companies, 21%

(n=3) had observed constant decrease, 43% (n=6) observed variation and 36% (n=5) observed constant increase in ROCE performance; 17% (n=1) of government companies had observed constant decrease in ROCE, 33% (n=2) had variation and 50% (n=3) government companies had observed constant increase in ROCE performance while in case of non-government companies 21% (n=9) sample companies had observed constant decrease, 59% (n=26) had variation and 21% (n=9) had observed constant increase in ROCE performance; 16% (n=4) unlisted companies had observed constant decrease and increase in ROCE and 68% (n=17) had observed variation, while in case of listed companies, 24% (n=6) companies had observed constant decrease, 44% (n=11) had variation and 32% (n=8) had observed constant increase in ROCE performance; 14% (n=1) of companies having experience / age up to 25 years observed constant decrease, 43% (n=3) had observed variation and constant increase in ROCE performance; while in case of companies having experience / age more than 25 years, 21% (n=9) companies had observed constant decrease and increase and 58% (n=25) had observed variation in ROCE performance; 20% (n=2) of the medium and small sized companies had observed constant decrease and increase in ROCE and 60% (n=6) had observed variation, while in case of large sized companies 20% (n=8) had constant decrease, 55% (n=22) had variation and 25% (n=10) had constant increase in ROCE performance.

Table 17, cross tabulation, shows the ROA performance of sample companies based on various demographic variables of the study.

It can be noted from table 17, that 25% (n=9) of chemical/petrochemical companies' had observed constant decrease, 56% (n=20) had observed variation and 19% (n=7) had constant increase in ROA performance and while in case of pharma companies, 14% (n=2) had observed constant decrease, 64% (n=9) had observed variation and 21% (n=3) had observed constant increase in ROA performance; 17% (n=1) of government companies had observed constant decrease in ROA, 33% (n=2) had variation and 50% (n=3) had observed constant increase in ROA performance while in case of non-government companies 23% (n=10) sample companies had observed constant decrease, 61% (n=27) had variation and 16% (n=7) had observed constant increase in ROA performance; 24% (n=6) unlisted companies had observed constant decrease, 68% (n=17) had observed variation and 8% (n=2) had observed constant increase in ROA while in case of listed companies, 20% (n=5) companies had observed constant decrease, 48% (n=12) had variation and 32% (n=8) had observed constant increase in ROA performance; 14% (n=1) of companies having experience / age up to 25 years observed constant decrease,

57% (n=4) had observed variation and 29% (n=2) had observed constant increase in ROA performance while in case of companies having experience / age more than 25 years, 23% (n=10) companies had observed constant decrease, 58% (n=25) had observed variation and 19% (n=8) had observed constant increase in ROA performance; 10% (n=1) of the medium and small sized companies had observed constant decrease, 70% (n=7) had observed variation and 20% (n=2) had observed constant increase in ROA while in case of large sized companies, 25% (n=10) had constant decrease, 55% (n=22) had variation and 20% (n=8) had constant increase in ROA performance.

Table 17

Cross tabulations between financial variable (ROA) and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	ROA performance of Respondent companies						
	Constant Decrease		Variation		Constant Increase		
	Count	%	Count	%	Count	%	Total
Types of Industry							
Chemical/Petrochemicals	09	25	20	56	07	19	36
Pharmaceuticals	02	14	09	64	03	21	14
Sector Ownership							
Government	01	17	02	33	03	50	06
Non-government	10	23	27	61	07	16	44
Legal status of the firm							
Unlisted	06	24	17	68	02	08	25
Listed	05	20	12	48	08	32	25
Age / experience of the firm							
Up to 25 years	01	14	04	57	02	29	07
More than 25 years	10	23	25	58	08	19	43
Size of the firm							
Medium & Small	01	10	07	70	02	20	10
Large	10	25	22	55	08	20	40

Table 18, cross tabulation shows the NPM performance of sample companies based on various demographic variables of the study.

It can be noted from table 18, that 25% (n=9) of chemical/petrochemical companies' had observed constant decrease, 50% (n=18) had observed variation and 25% (n=9) had constant increase in NPM performance and while in case of pharma companies, 21% (n=3) had observed constant decrease, 43% (n=6) had observed variation and 36%

(n=5) had observed constant increase in NPM performance; 17% (n=1) of government companies had observed constant decrease in NPM, 33% (n=2) had variation and 50% (n=3) had observed constant increase in NPM performance while in case of non-government companies 25% (n=11) sample companies had observed constant decrease and increase, 50% (n=22) had variation in NPM performance; 20% (n=5) unlisted companies had observed constant decrease, 52% (n=13) had observed variation and 28% (n=7) had observed constant increase in NPM while in case of listed companies, 28% (n=7) companies had observed both constant decrease and increase, and 44% (n=11) had observed variation in NPM.

Table 18

Cross tabulations between financial variables (NPM) and demographical variables of the study (n=50)

(Amt.in Rs.)

Demographic Variables	NPM performance of Respondent Companies						
	Constant Decrease		Variation		Constant Increase		
	Count	%	Count	%	Count	%	Total
Types of Industry							
Chemical/Petrochemicals	09	25	18	50	09	25	36
Pharmaceuticals	03	21	06	43	05	36	14
Sector Ownership							
Government	01	17	02	33	03	50	06
Non-government	11	25	22	50	11	25	44
Legal status of the firm							
Unlisted	05	20	13	52	07	28	25
Listed	07	28	11	44	07	28	25
Age / experience of the firm							
Up to 25 years	01	14	02	29	04	57	07
More than 25 years	11	26	22	51	10	23	43
Size of the firm							
Medium & Small	02	20	05	50	03	30	10
Large	10	25	19	48	11	28	40

Table 18 further reveals that 14% (n=1) of companies having experience / age up to 25 years observed constant decrease, 29% (n=2) had observed variation and 57% (n=4) had observed constant increase in NPM performance while in case of companies having experience / age more than 25 years, 26% (n=11) companies had observed constant decrease, 51% (n=22) had observed variation and 23% (n=10) had observed constant

increase in NPM performance; 20% (n=2) of the medium and small sized companies had observed constant decrease, 50% (n=5) had observed variation and 30% (n=3) had observed constant increase in NPM while in case of large sized companies 25% (n=10) had constant decrease, 58% (n=19) had variation and 28% (n=11) had constant increase in NPM performance.

The Compliant Behaviour of the sample companies: Vision, Mission & Values of respondents and their non-compliance by the companies reflected in the media.

Various long term & short-term Business Objectives of chemical, petrochemical and pharmaceutical respondent companies were studied through their Vision, Mission and Value statements. This was done, so as to identify whether these companies have imbibed elements/aspects of economic, environmental and societal sustainability in their vision, mission and values statements. Further, this study also tried to trace involvement of participating companies in any non-compliances, unethical or irresponsible acts (like fire, fatalities, termination, GPCB closure notice etc…) in the last 10 years (from FY 2011-2021) based on data reflected in the media.

Table 19, shows the description on No. of participating companies that has reflected sustainability measures in their Vision, Mission & Value statements. It is observed from the table, that all the participating companies in the study i.e. 100% (n=50) have reflected economical sustainability in their vision, mission and value statements (refer table 19), 84% (n=42) of the participating companies have reflected social sustainability (refer table 19), and only 50% (n=25) of the sample companies reflected environmental sustainability as part of their vision mission and value statements of the company (refer table 19).

Table 19 also describes about no. of participating companies involved in non-compliance, unethical and irresponsible acts reflected in media, where it was observed that out of 50 participating companies, 52% (n=26) companies were found to be non-compliant/ having unethical and/ or irresponsible behaviour (like fire, fatalities, termination, GPCB closure notice etc…) in last 10 years (from FY 2011-2021) based on data reflected in media.

Cross Tabulations

Cross tabulations based on inclusion of environmental and social sustainability aspects in Vision, Mission & Values statements of respondent companies and various demographic profile of the respondents

Table 19

Frequency table of various sustainability measures mirrored in Vision, Mission & Values of respondent companies and their non-compliance by the companies reflected in media (n=50)

Sustainability measures mirrored in Vision, Mission & Values	Frequency (n)	Percent (%)
Presence of Economic sustainability in vision, mission & values statements of sample companies		
Yes	50	100
No	00	00
Total	50	100
Presence of Environment sustainability in vision, mission & values statements of sample companies		
Yes	25	50
No	25	50
Total	50	100
Presence of Social sustainability in vision, mission & values statements of sample companies		
Yes	42	84
No	08	16
Total	50	100
Irresponsible or Unethical acts (fire, fatalities, termination, GPCB closure notice) exhibited by sample companies in last 10 years (from FY 2011-2021)		
Yes	26	52
No	24	48
Total	50	100

Cross tabulations between various demographic variables of the study and inclusion of environmental and social sustainability aspects in Vision, Mission & Values statements of respondent companies was conducted.

The 2*2 table 20, depicts results of Cross tabulations between various demographic variables and inclusion of environmental sustainability aspects in Vision, Mission & Values statements of respondent companies.

i) Based on Types of Industry - It was observed that 61% (n=22 out of 36) of the sample chemical and petrochemical companies had included environmental sustainability aspects in their vision, mission and values statements while 39% (n=14) had not included. In the case of pharmaceutical companies, only 21% (n=3 out of 14) of the respondent companies had included environmental sustainability aspects in their vision, mission and values statements while 79% (n=11) had not included (refer table, 20).

ii) Based on Sector Ownership – It was noted that 100% (n=06) government owned companies included environmental sustainability aspects in their vision, mission

and values statements. In case of non-government companies, 43% (n=19 out of 44) had included and 57% (n=25 out of 44) had not included environmental sustainability aspects in their vision, mission and values statements (refer table, 20)

Table 20

Cross Tabulations between various demographic variables & inclusion of environmental sustainability aspects in Vision, Mission & Values statements (n=50)

Demographic Variables	Inclusion of Environment sustainability in Company's Vision / mission / values statements					
	No		Yes		Full sample	
	Count	%	Count	%	Count	%
Types of Industry						
Chemical/Petrochemicals	14	39	22	61	36	100
Pharmaceuticals	11	79	03	21	14	100
Sector Ownership						
Government	00	00	06	100	06	100
Non-government	25	57	19	43	44	100
Legal status of the firm						
Unlisted	13	52	12	48	25	100
Listed	12	48	13	52	25	100
Age / experience of the firm						
Up to 25 years	05	71	02	29	07	100
More than 25 years	20	46	23	54	43	100
Size of the firm						
Medium & Small	07	70	03	30	10	100
Large	18	45	22	55	40	100
Average Revenue of the firm						
Up to 3000 crs	19	54	16	46	35	100
More than 3000 crs	06	40	09	60	15	100
Average PAT of the firm						
Up to 100 crs	14	52	13	48	27	100
More than 100 crs	11	48	12	52	23	100
Reserve of the firm						
Up to 1000 crs	11	44	14	56	25	100
More than 1000 crs	14	56	11	44	25	100

iii) Based on Legal status of the firm - Out of 25 unlisted respondent companies participating in the study, 48% (n=12) included environmental sustainability aspects in their vision, mission and values statements, while 52% (n=13) unlisted companies had not included the same. Whereas in case of 25 listed participating companies, 52% (n=13) had included and 48% (n=12) had not included environmental sustainability measures in their vision, mission and values statements (refer table, 20).

iv) Based on Age of the company - Out of 07 participating companies having no. of experience up to 25 years, 29% (n=2) companies included environmental sustainability aspects in their vision, mission and values statements, while 71% (n=05) had not included. Whereas in case of 43 sample companies having total experience more than 25 years, 54% (n=23) had included and 46% (n=20) companies have not included environmental sustainability measures in their vision, mission and values statements (refer table, 20)

v) Based on size of the company -It was observed that out of 10 medium / small sized participating companies, 30% (n=3) of the sample companies have included environmental sustainability aspects in their vision, mission and values statements, while 70% (n=07) of the had not included. Whereas in case of 40 large sized sample companies, 55% (n=22) had included environmental sustainability aspects in their vision, mission and values statements while 45% (n=18) have not included (refer table, 20).

vi) Based on Average Revenue of the firm –It was noted that 46% (n=16 out of 35) of sample companies having average revenue up to 3000 crs included environmental sustainability aspects in their vision, mission and values statements, while 54% (n=19) have not included. In case of companies having average revenue more than 3000 crs, 60% (n=9 out of 15) had included environmental sustainability aspects in their vision, mission and values statements, while 40% (n=6) companies had not included (refer table, 20).

vii) Based on average PAT of the firm –It was observed that 48% (n=13 out of 27) of sample companies having average PAT up to 100 crs included environmental sustainability aspects in their vision, mission and values statements, while 52% (n=14) had not included. In case of companies having average PAT more than 100 crs, 52% (n=12 out of 23) had included environmental sustainability aspects in their vision, mission and values statements, while 48% (n=11) companies had not included (refer table, 20).

viii) Based on average Reserves of the firm –It was noted that 56% (n=14 out of 25) of sample companies having average reserves up to 1000 crs included environmental sustainability aspects in their vision, mission and values statements, while 44% (n=11) had not included. In case of companies having average reserves more than 1000 crs, 44% (n=11 out of 25) included environmental sustainability aspects in their vision, mission and values statements, while 56% (n=14) companies had not included (refer table, 20).

The 2*2 table 21, depicts Cross tabulations between various demographic variables and inclusion of social sustainability aspects in Vision, Mission & Values statements of respondent companies.

Table 21

Cross Tabulations between various demographic variables & inclusion of social sustainability aspects in Vision, Mission & Values statements

Demographic Variables	Inclusion of Social sustainability in Company's Vision / mission / values statements					
	No		Yes		Full sample	
	Count	%	Count	%	Count	%
Types of Industry						
Chemical/Petrochemicals	03	08	33	92	36	100
Pharmaceuticals	05	36	09	64	14	100
Sector Ownership						
Government	00	00	06	100	06	100
Non-government	08	18	36	82	44	100
Legal status of the firm						
Unlisted	07	28	18	72	25	100
Listed	01	04	24	96	25	100
Age / experience of the firm						
Up to 25 years	04	57	03	43	07	100
More than 25 years	04	09	39	91	43	100
Size of the firm						
Medium & Small	07	70	03	30	10	100
Large	01	03	39	97	40	100
Average Revenue of the firm						
Up to 3000 crs	08	23	27	77	35	100
More than 3000 crs	00	00	15	100	15	100
Average PAT of the firm						
Up to 100 crs	08	30	19	70	27	100
More than 100 crs	00	00	23	100	23	100
Average Reserves of the firm						
Up to 1000 crs	08	32	17	68	25	100
More than 1000 crs	00	00	25	100	25	100

i) Based on Types of Industry - It was observed that out of 36 respondent companies into chemical and petrochemicals business, 92% (n=33) had included social sustainability aspects in their vision, mission and values statements while 8% (n=3) had not included. In the case of pharmaceutical companies, out of 14 sample companies, 64% (n=09) companies had included social sustainability aspects while 36% (n=5) had not included social sustainability aspects in their vision, mission and values statements (refer table, 21).

ii) Based on ownership of the firm- It was observed that out of 06 Government owned chemicals and petrochemicals companies, 100% (n=06) companies had included social sustainability aspects in their vision, mission and values statements. Whereas in case

of 44, non-government, 82% (n=36) had included social sustainability aspects in their vision, mission and values statements while 18% (n=08) of the non-government companies had not included (refer table, 21).

iii) Based on Legal status of firm - It was observed that out of 25 Unlisted companies, 72% (n=18) had included social sustainability aspects in their vision, mission and values statements while 28% (n=07) had not included. Whereas out of 25 listed respondent companies, 96% (n=24) of the sample listed companies included social sustainability aspects in their vision, mission and values statements, while only 4% (n=01) listed companies had not included (refer table, 21).

iv) Based on Age of the firm - It was observed that out of 07 participating companies having no. of experience up to 25 years, 43% (n=3) of such companies included social sustainability aspects in their vision, mission and values statements, while 57% (n=4) of the respondent companies have not included, whereas in case of 43 sample companies having total experience more than 25 years, 91% (n=39) of the respondent companies included social sustainability aspects in their vision, mission and values statements while only 9% (n=4) of the had not included (refer table, 21).

v) Based on size of the firm - Out of 10 medium / small sized participating companies, 30% (n=3) of the sample companies had included social sustainability aspects in their vision, mission and values statements, while 70% (n=07) had not included. Whereas in case of 40 large sized companies, 97% (n=39) of the respondent companies had included social sustainability aspects in their vision, mission and values statements while 3% (n=1) have not included (refer table, 21)

vi) Based on average Revenue of the firm –It was noted that 77% (n=27 out of 35) of sample companies having average revenue up to 3000 crs included social sustainability aspects in their vision, mission and values statements, while 23% (n=8) had not included. In case of companies having average revenue more than 3000 crs, 100% (n=15) had included social sustainability aspects in their vision, mission and values statements (refer table, 21)

vii) Based on average PAT of the firm –It was observed that 70% (n=19 out of 27) of sample companies having average PAT up to 100 crs included social sustainability aspects in their vision, mission and values statements, while 30% (n=8) sample companies have not included. In case of companies having average PAT more than 100 crs, 100% (n=24) companies had included social sustainability aspects in their vision, mission and values statements.

viii) Based on average Reserves of the firm –It was noted that 68% (n=17 out of 25) of sample companies having average reserves up to 1000 crs had included social sustainability aspects in their vision, mission and values statements, while 32% (n=8) sample companies had not included. In case of companies having average reserves more than 1000 crs, all 100% (n=25) companies had included social sustainability aspects in their vision, mission and values statements.

Section -1

CSR & Other Legal Compliances

This section tries to analyze sample companies' Responsible behaviour towards Corporate Social Responsibility and other legal compliances. Section includes analysis of first five questions from the questionnaire.

First question attempts to identify Sample companies' engagement in CSR activities for the three- study period (FY 2017 to 2019) on a 5-point Likert scale (Always to Never) having 25 scale items. Second question tries to detect companies' attitude towards CSR activities on a 5-point Likert scale (Strongly Disagree to Strongly Agree) having 11 scale items. Question third and fourth explores types of legal issues faced by the sample companies and by whom such legal compliances were managed during FY 2017 to 2019 and finally fifth question identifies how the companies responded to mitigate such legal issues. Responses to these questions were elicited in a dichotomous form (yes/no).

1. Companies Engagement in CSR activities

First question of this section explores respondent companies' engagement in various types of CSR activities. Question was asked using 5-point Likert (1-Never to 5-Always) rating items. Below table shows the descriptive characteristics (Mean score & SD) of each 25 items related to Companies engagement in CSR activities for 50 valid responses.

Table 22 demonstrates an outcome of descriptive analysis on respondent companies (n=50) engagement on CSR activities. The mean of each items ranged between 1.69 to 4.60. The highest mean with SD ($\bar{x}$=4.60, s=0.808) was found for a variable item – Arrangement of tree plantation programmes by companies.

The next highest mean score with SD were found for two variable items – first item, arrangement of health awareness programmes by companies ($\bar{x}$=3.64, s=1.290) and second item, arrangement of free health check-up camps by the companies ($\bar{x}$=3.64, s=1.225). Lowest mean score with SD ($\bar{x}$=1.69, s=0.999) was noted for a variable item – giving insurance policies for rural and urban poor women followed by next lowest mean score with SD ($\bar{x}$=1.90, s=1.015) for an item promoting wild animal protection projects by respondent companies.

Table 22

Descriptive statistics on Companies Engagement in CSR activities (n=50)

Engagement in CSR Activities	Mean	SD	Total Mean
Education			
Support low income family (by providing Computer, Learning materials for enhancement of knowledge)	3.46	1.417	
Provide free uniforms & books to the students	3.36	1.321	
Arrange motivational camps for students	2.92	1.368	
Give sponsorship for students	2.88	1.466	
Adopt the school projects	3.34	1.409	
Give donation to the schools	3.36	1.509	
Total Mean – Education			3.22
Community Welfare			
Give donation to orphanages	2.42	1.311	
Arrange health awareness program	3.64	1.290	
Arrange free health check-up camps	3.64	1.225	
Construct the toilets, community halls and dispensaries	2.90	1.607	
Help the NGOs	2.68	1.449	
Total Mean – Community welfare			3.06
Women Welfare			
Give free education for poor girls	3.00	1.294	
Arrange projects for women welfares in small villages	3.14	1.429	
Give insurance policies for rural and urban poor women	1.69	0.999	
Give seminars on women employment	2.84	1.299	
Total Mean – Women welfare			2.67
Environment Protection			
Arrange the awareness program about avoiding the use of Plastic bags	3.22	1.266	
Promoting and financing in energy saving and solar energy projects	3.10	1.374	
Funding the energy saving & solar energy projects	2.80	1.385	
Promoting wild animal protection projects	1.90	1.015	
Arrange tree plantation programs	4.60	0.808	
Total Mean – Environment Protection			3.12
Priority sector			

Leading to promote agriculture	2.90	1.542	
Promote small scale and ancillary industry	2.56	1.296	
Promote new and renewable source of energy	3.20	1.385	
Promote cottage industry, food & agro based processing Sector	2.22	1.055	
Promotion of government initiatives / schemes	3.16	1.361	
Total Mean – Priority sector			2.81

Further, under the category of CSR activities in education (refer table, it was observed that lowest mean score was found for an item - Giving sponsorship for students under education ($\bar{x}$=2.88, s=1.466) followed by next lowest mean item - Arranging motivational camps for students ($\bar{x}$=2.92, s=1.449). Highest mean score with its SD was observed for an item- Supporting low income family ($\bar{x}$=3.46, s=1.368). Under the category of CSR activities in community welfare (refer table 22) lowest mean score was found for an item - Giving donation to orphanages ($\bar{x}$=2.42, s=1.311) followed by next lowest mean item – Helping & supporting the NGOs ($\bar{x}$=2.68, s=1.449). Highest mean score with its SD was observed for items- arranging health awareness program ($\bar{x}$=3.46, s=1.290) and arranging free health check-up camps ($\bar{x}$=3.46, s=1.225). As far as CSR activities in women welfare was concerned (refer table 22, lowest mean score was found for an item - Giving insurance policies for rural and urban poor women ($\bar{x}$=1.69, s=0.999) followed by next lowest mean item – Giving seminars on women employment ($\bar{x}$=2.84, s=1.299). Highest mean score with its SD was observed for an item- arranging projects for women welfares in small villages ($\bar{x}$=3.14, s=1.429). For CSR activities in Environment Protection (refer table, lowest mean was found for an item - promoting wild animal protection projects ($\bar{x}$=1.90, s=1.015) followed by next lowest mean item - funding the energy saving & solar energy projects ($\bar{x}$=2.80, s=1.385). Whereas highest mean score with its SD was observed for an item - Arranging tree plantation programs ($\bar{x}$=4.60, s=0.808) and finally, under CSR activities in priority sector (refer table, lowest mean was observed for an item - Promoting cottage industry, food & agro based processing section ($\bar{x}$=2.22, s=1.055) followed by next lowest mean item – Promoting small scale and ancillary industry ($\bar{x}$=2.56, s=1.296). Whereas highest mean score with its SD was observed for an item – promoting new and renewable source of energy ($\bar{x}$=3.20, s=1.385).

Highest overall weighted mean was observed for CSR activities in education ($\bar{x}$=3.22) while lowest weighted mean was observed for CSR activities towards women welfare ($\bar{x}$=2.67) and priority sector ($\bar{x}$=2.81).

Descriptive statistics (overall), Reliability test, Normality test on Companies Engagement on CSR Activities scale

Composite score was calculated for each of the 25 items, given under different domains so to gauge an overall score on Companies engagement on CSR. Reliability using Alpha and Normality of the data were checked using numerical and graphical methods**.**

Table 23

Descriptive Statistics, Reliability & Normality test statistics on companies' engagement in CSR activities during three financial years from FY 2016-17, 2017-18, 2018-19.

Scale	Mean	Mdn	SD	Skewness with SE as 0.337		Kurtosis with SE as 0.662		Shapiro Sig. value	Cronbach α
				Value	Z	Value	Z		
Companies Engage-ment in CSR activities	3.01	2.91	0.81	-0.131	-0.388	-0.224	-0.338	0.466	0.931 (25 items)

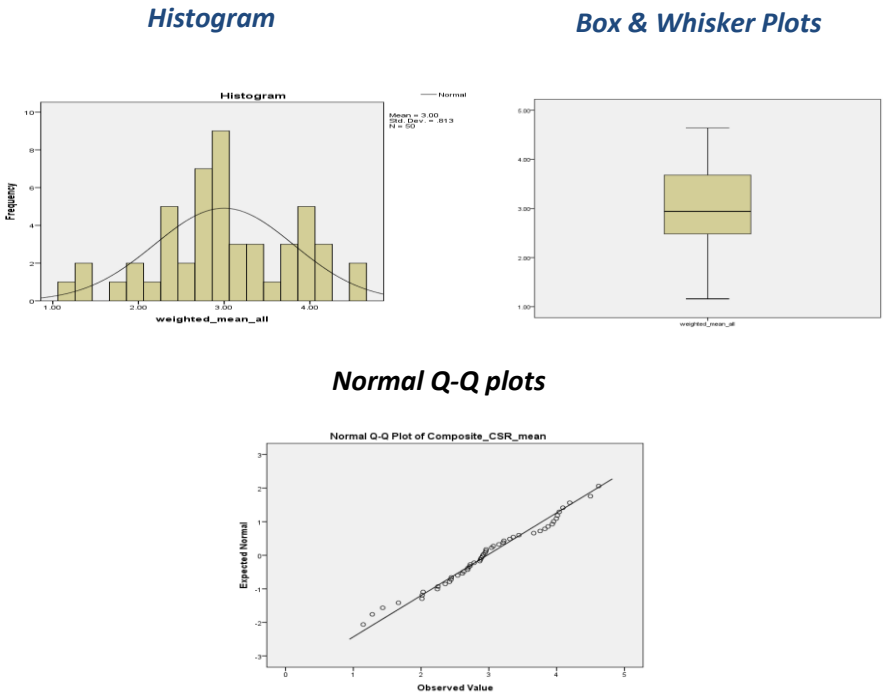
Table 23, specifies descriptive characteristics, normality test and reliability test results of sample companies' (n=50) engagement on CSR activities. The scale on CSR activities was found highly reliable as their Cronbach alpha (α) value was 0.931 which means 93.1% internal consistency exist amongst items considered by scaling Never to Always (5-point Likert Scale items).

As per table 23, the Mean, Median and SD value on composite mean score of Companies' Engagement on CSR activities were $\bar{x}$=3.01 and *Mdn*= 2.91 with s=0.81. Normality of the data were checked through both numerical and graphical methods. From the numerical methods point of view, it was observed that values of Mean (3.01) & Median (2.91) were approximately same stating that data were normally distributed. The value of skewness (-0.131) and kurtosis (-0.224) individually were found within $\pm$1 range. Critical ratio (z value) of the skewness (-0.388) and kurtosis (-0.388) found same were also within ±1.96 range, thus the outcome with respect to dispersion also specifies that data were normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value (p = 0.466) was greater than

significant value 0.05, retaining null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the dependent variable Companies' engagement in CSR activities (refer figure below).

Figure 11

Histogram, Box plots, Normal Q-Q plots for Companies' engagement in CSR activities



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were approximately near to normal distribution. Figure 11, displays Histogram of Companies engagement in CSR activities (DV) confirming normality of data as bell shaped curve was derived showing symmetric distribution with no outliers. Above Figure presents Box and whiskers plot stating normality of the data as median line was found approximately at the center of the box and that the box was nearly centered between the whiskers having no outliers. Normal Q-Q plot as shown in above figure, confirms normal distribution as observed data were found near to expected data having all dots on or near to diagonal line.

Cross tabulations & Chi-square Test

Cross tabulations & Chi-square test to check the associations between various Demographic variables and Company's engagement in CSR activities

Cross tabulation and chi-square was used to analyze the association between Companies engagement in CSR activities (DV) and various demographic variables of the

study. All independent variables used in the analysis were in nominal data and dependent variable i.e. companies' engagement in CSR activities were in Ordinal form (Likert items).

Table 24

Cross Tabulation & Chi-square test between demographic variables and Companies through engagement in CSR activities.

Demographic Variables	Companies Engagement in CSR						Significance
	Less engaged		Highly Engaged		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petrochem	18 (20.9)	50	18 (15.1)	50	36	100	$\chi2_{(1)}$ =3.378, p = 0.066 (ns) Phi = 0.260
Pharmaceuticals	11 (8.1)	79	03 (5.9)	21	14	100	Fail to Reject H0
Total	29	58	21	42	50	100	
Sector Ownership							
Government	02 (3.5)	33	04 (2.5)	67	06	100	$\chi2_{(1)}$ =1.703, p = 0.223 (ns), Phi = 0.185
Non-government	27 (25.5)	61	17 (18.5)	39	44	100	Fail to Reject
Total	29	58	21	42	50	100	H0
Legal status of the firm							
Unlisted	19 (14.5)	76	06 (10.5)	24	25	100	$\chi2_{(1)}$ =6.650, p= 0.010**
Listed	10 (14.5)	40	15 (10.5)	60	25	100	Phi = 0.365 Reject H0
Total	29	58	21	42	50	100	
Age / experience of the firm							
Up to 25 years	05 (4.1)	71	02 (2.9)	29	07	100	$\chi2_{(1)}$ =0.603, p =0.684 (ns), Phi = 0.110
More than 25 yrs	24 (24.9)	56	19 (18.1)	44	43	100	Fail to Reject
Total	29	58	21	42	50	100	H0
Size of the firm							
Medium & Small	10 (5.8)	100	00 (4.2)	00	10	100	$\chi2_{(1)}$ =9.052, p = 0.003**
Large	19 (23.2)	48	21 (16.8)	52	40	100	Phi = 0.425 Reject H0
Total	29	58	21	42	50	100	

Average Revenue of the firm							
Up to 3000 crs	23 (20.3)	66	12 (14.7)	34	35	100	$\chi 2_{(1)}$ =2.850, p =0.091(ns) Phi = 0.239 Fail to Reject H0
More than 3000 crs	06 (8.7)	40	09 (6.3)	60	15	100	
Total	29	58	21	42	50	100	
Average PAT of the firm							
Up to 100 crs	20 (15.7)	74	07 (11.3)	26	27	100	$\chi 2_{(1)}$ =6.226, p = 0.013* Phi = 0.353 Reject H0
More than 100 crs	09 (13.3)	39	14 (9.7)	61	23	100	
Total	29	58	21	42	50	100	
Reserve of the firm							
Up to 1000 crs	09 (14.5)	76	06 (10.5)	24	25	100	$\chi 2_{(1)}$ =6.650, p = 0.01** Phi = 0.365 Reject H0
More than 1000 crs	10 (14.5)	40	15 (10.5)	60	25	100	
Total	29	58	21	42	50	100	

*(E.C)- expected count is written in parenthesis, ns- not significant, *p ≤ 0 .05, **p<0.01, *** p<0.001*

To fulfil chi-square test assumptions, composite mean score (continuous scale) derived from individual summated mean on 25 items was further converted into categorical data (Nominal scale). Here, an attempt was made to combine some of the groups together, to obtain bigger sample within the group so that expected counts (EC) in each of the cells can be managed (should be more than 5) in chi-square test. Responses with respect to Never, Rarely and Sometimes were merged in one category (≤ 3) named as 'less engaged' whereas responses related to Often and Always was merged in another category (> 3), named as 'highly engaged'. Below table shows the analysis results on cross tabulation and chi-square test between different independent variables and Companies engagement on CSR activities.

Hypothesis testing to find out association between demographic variables and companies Behaviour through engagement in CSR activities.

Table 24**,** reports crosstab & chi-square values on *'*Companies behaviour through engagement in CSR,

i) Based on Types of Industry - From the 2*2 crosstab table, it was noted that out of 36 chemical & petrochemical companies, 50% (n=18) companies were less engaged and 50% (n=18) highly engage themselves in major CSR activities. Out of 14 pharma

companies, 79% (n=11) companies were less engaged and 21% (n=3) were highly engaged themselves in CSR activities.

Chi-square test shows NO significant association between types of industry and companies' engagement in CSR activities $\chi 2$ (1, N= 50) = 3.378, p = 0.066 (ns) (refer table 24). Here, chi square test value was applicable as 0 cell (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.260 suggest weak association between two tested variables. In 2*2 table, Phi values varies between 0 and 1 without any negative values (Akoglu, 2018).

ii) Based on sector ownership - From the 2*2 crosstab table, it was noted that out of 06 government companies, 33% (n=2) were less engaged and 67% (n=4) companies were highly engage in CSR activities. Whereas, in case of 44 non-government companies, 61% (n=27) were less engaged and 39% (n=17) were highly engaged in CSR activities.

Chi-square test shows NO significant association between sector ownership and companies' engagement in CSR activities $\chi 2$ (1, N= 50) = 1.703, p = 0.223 (ns) (refer table 24). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Further, Phi coefficient value 0.185 shows weak relationship between two tested variables.

iii) Based on Legal status of the firm - From the 2*2 crosstab table, it was noted that out of 25 unlisted companies, 76% (n=19) companies were less engaged and 24% (n=6) were highly engaged in major CSR activities. While in case of 25 listed companies, 40% (n=10) were less engaged and 60% (n=15) companies were highly engaged in CSR activities.

Chi-square test shows significant association between legal status of the firm and companies engagement in CSR as $\chi 2$ (1, N= 50) =6.650, p=0.010 (refer table 24). Here, chi-square significance value was applicable as 0 cells (0.0%) have expected count less than 5. Further, even Phi coefficient value 0.365 suggest moderate association between two tested variables.

iv) Based on Age of the firm - From 2*2 crosstab table, it was noted that out of 07 companies having experience up to 25 years, 71% (n=5) companies were less engaged and 29% (n=2) companies were highly engaged in CSR activities. In case of companies having more than 25 years of experience, it was found that out of 43 companies, 56% (n=24) were less engaged and 44% (n=19) companies were highly engaged in CSR activities.

Chi-square test shows NO significant association between age of the firm and companies' engagement in CSR activities $\chi 2$ (1, N= 50) = 0.603, p = 0.684 (ns) (refer table 24). Here, fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Further, even Phi coefficient value 0.110 suggest weak association between two tested variables.

v) Based on size of the firm - The 2*2 crosstab table shows that, out of 10 medium and small sized companies, 100% (n=10) such companies were found less engaged in CSR activities. In case of large sized companies, out of 40 companies, 48% (n=19) companies were less engaged while 52% (n=21) large companies, were highly engaged in CSR activities.

Chi-square test shows significant association between size of the firm and companies engagement in CSR as $\chi 2$ (1, N= 50) =9.052, p=0.003 (refer table 24). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Further, Phi coefficient value 0.425 shows moderate relationship between two tested variables.

vi) Based on average Revenue of the firm - The 2*2 crosstab table depicts that out of 35 companies earning average revenue upto 3000 crs, 66% (n=23) companies were less engaged and 34% (n=12) companies were highly engaged in CSR activities. In case of companies having average revenue more than 3000crs, it was found that out of 15 such companies, 40% (n=6) were less engage and 60% (n=9), were highly engaged in CSR activities.

Chi-square test shows NO significant association between Average Revenue of the firm and companies' engagement in CSR activities $\chi 2$ (1, N= 50) = 2.850, p = 0.091(ns) (refer table 24). Here, chi-square significance value was applicable as 0 cells (00%) have expected count less than 5. Further, even Phi coefficient value 0.239 suggest weak association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table shows that out of 27 companies earning average PAT upto 100crs, 74% (n=20) of such companies were less engaged while 26% (n=7) companies were highly engaged in CSR activities. In case of 23 companies earning average PAT more than 100crs, 39% (n=9) companies were less engaged and 61% (n=14) companies were highly engaged in CSR activities.

Chi-square test shows significant association between Average PAT of the firm and companies engagement in CSR as $\chi 2$ (1, N= 50) = 6.226, p=0.013 (refer table 24).

Here, chi-square significance value was applicable as 0 cells (00%) have expected count less than 5. Further, Phi coefficient value 0.353 indicates moderate relationship between two tested variables.

viii) Based on Average Reserves of the firm - The 2*2 crosstab table depicts that out of 25 companies having average Reserves upto 1000crs, 76% (n=9) companies were less engaged while 24% (n=6) companies were highly engaged in CSR activities. Whereas in case of 25 companies having their average reserves more than 1000crs, 40% (n=10) companies were less engaged while 60% (n=15) companies, were highly engaged in CSR activities.

Chi-square test shows significant association between Average PAT of the firm and companies engagement in CSR as $\chi 2$ (1, N= 50) = 6.650, p=0.010 (refer table 24). Here, chi-square significance value was applicable as 0 cells (00%) have expected count less than 5. Further, Phi coefficient value 0.365 indicates moderate relationship between two tested variables.

Independent sample t-test

Independent sample t-test on Companies engagement in CSR activities

Table 25

Group statistics table showing Difference in Mean & SD on Companies engagement in CSR (n=50)

Variables	N	Mean	SD	Std. Error Mean
Types of Industry				
Chemicals/petrochemicals	36	3.1122	.79356	.13226
Pharmaceuticals	14	2.7000	.81430	.21763
Sector Ownership				
Government owned	06	3.7067	.81336	.33205
Non-government owned	44	2.9000	.77205	.11639
Legal status of firm				
Unlisted	25	2.6288	.71391	.14278
Listed	25	3.3648	.74640	.14928
Age of the firm				
Up to 25 years	07	2.6000	.77080	.29134
More than 25 years	43	3.0614	.80958	.12346
Size of the firm				
Medium & Small	10	1.9640	.56551	.17883
Large	40	3.2550	.64375	.10179

Average Revenue of the firm				
Up to 3000crs	35	2.7806	.76999	.13015
More than 3000crs	15	3.5013	.69494	.17943
Average PAT of the firm				
Up to 100 crs	27	2.6830	.75991	.14625
More than 100crs	23	3.3652	.72546	.15127
Average Reserves of the firm				
Up to 1000crs	25	2.6080	.72645	.14529
More than 1000crs	25	3.3856	.71151	.14230

Independent sample t-test was used to check for the equality of means of two populations. Independent sample t-test was conducted using Companies engagement in CSR activities as Dependent Variable (continuous scale) and various demographic variables of the study as Independent variables (categorical scale). Below table shows group statistics on Companies engagement in CSR calculated through Mean, SD across different variables of the study.

Table 26

Independent Sample t-test on Companies engagement in CSR across different variables

	Levene's test Equality of Variances		t-test for Equality of Means						
					Sig. (2-	Mean	Std. Error	95% CI of the Difference	
Variables	F	Sig.	t	df	tailed	Diff	Diff.	LL	UL
Types of Industry									
Equal Var. assumed	.034	.855 (ns)	1.638	48	.108 (ns)	.4122	.25173	-.0939	.91837
Equal var. not assumed			1.619	23.20	.119	.4122	.25467	-.1143	.93879
Sector Ownership									
Equal Var. assumed	.125	.725 (ns)	2.387	48	.021*	.8066	.33791	.1272	1.4860
Equal var. not assumed			2.293	6.293	.060	.8066	.35186	-.0446	1.6580
Legal status of firm									
Equal Var. assumed	.542	.465 (ns)	-3.563	48	.001 ***	-.7360	.20657	-1.151	-.32066

Equal var. not assumed			-3.563	47.905	.001	-.7360	.20657	-1.151	-.32064
Age of the firm									
Equal Var. assumed	.004	.948 (ns)	-1.407	48	.166 (ns)	-.4614	.32803	-1.120	.19814
Equal var. not assumed			-1.458	8.310	.182	-.4614	.31641	-1.186	.26355
Size of the firm									
Equal Var. assumed	.410	.525 (ns)	-5.798	48	.000***	-1.291	.22268	-1.738	-.84328
Equal var. not assume			-6.274	15.403	.000	-1.291	.20577	-1.728	-.85341
Average Revenue of the firm									
Equal Var. assume	.022	.881 (ns)	-3.119	48	.003**	-.7207	.23111	-1.185	-.25609
Equal var. not assume			-3.252	29.271	.003	-.7207	.22167	-1.173	-.26759
Average PAT of the firm									
Equal Var. assume	.153	.698 (ns)	-3.230	48	.002**	-.6822	.21120	-1.106	-.25760
Equal var. not assume			-3.243	47.346	.002	-.6822	.21040	-1.105	-.25906
Average Reserves of the firm									
Equal Var. assume	.182	.671 (ns)	-3.824	48	.000***	-.7776	.20337	-1.186	-.36870
Equal var. not assume			-3.824	47.979	.000	-.7776	.20337	-1.186	-.36869

*ns- not significant, *p ≤ 0 .05, **p<0.01, ***p< 0.001*

Hypothesis testing to find out significant differences in Companies engagement in CSR activities across various demographical variables of the study

Table 25 & 26, reports group statistics and Independent t test values on 'Companies responsible behaviour towards CSR.

(i) **On the basis of types of Industry** - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of types of industry.

H0: μ chemical/petrochemicals = μ pharmaceuticals

Ha: μ chemical/petrochemicals ≠ μ pharmaceuticals

Group statistics table 25, shows descriptive statistics for the two groups (chemical / petrochemicals and pharmaceutical) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.855, which is > 0.05, hence there exists an equality of variance.

Above tables, report values for chemical/petrochemicals (M = 3.1122, S.D. =.79356) and pharmaceuticals (M= 2.7000, S.D. =.81430), t (48) = 1.638, p = 0.108 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus there was no significant difference in mean between chemicals/petrochemicals companies and pharmaceutical companies with context to engagement of companies in CSR activities.

(ii) On the basis of Sector based on Ownership - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of Sector Ownership.

H0: μ Government owned = μ Non-government owned

Ha: μ Government owned ≠μ Non-government owned

Group statistics table 25, shows descriptive statistics for the two groups (government owned companies & non-government companies) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.725, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for government owned companies (M = 3.7067, S.D. =.81336) and non-government companies (M=2.9000, S.D. =.77205), t (48) = 2.387, p = 0.021< 0.05. As p value was <0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that government owned companies were found significantly better than non-government companies. Thus, there exists significant difference in companies' engagement in CSR activities on the basis of Sector based on Ownership

(iii) On the basis of Legal status of the company - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of Legal status of the company

H0: μ Unlisted companies = μ Listed companies

Ha: μ Unlisted companies ≠μ Listed companies

Group statistics table 25 shows descriptive statistics for the two groups (unlisted companies &listed companies) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.465, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for unlisted companies (M = 2.6288, S.D. =0.71391) and listed companies (M=3.3648, S. D=.74640), t (48) = -3.563, p = 0.001< 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that listed companies were found significantly better than unlisted companies in terms of companies' engagement in CSR activities. Thus, there exists significant difference in companies' engagement in CSR activities on the basis of legal status of the firm

(iv) On the basis of Age of the company - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of Age of the company

H0: μ Up to 25 years = μ More than 25 years

Ha: μ Up to 25 years ≠μ More than 25 years

Group statistics table 25, shows descriptive statistics for the two groups (companies age up to 25 years and companies age more than 25 years) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.948, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for age up to 25 years (M = 2.6000, S.D =0.77080) and age more than 25 years (M= 3.0614, S.D. = 0.80958), t (48) = -1.407, p =0.166 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between companies having age up to 25 years and companies having age more than 25 years with context to engagement of companies in CSR activities.

(v) On the basis of size of the company - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of size of the company

H0: μ medium & small size = μ large size

Ha: μ medium & small size ≠μ large size

Group statistics table 25, shows descriptive statistics for the two groups (medium & small sized companies &large sized companies) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.525, which is > 0.05, hence there exists an equality of variance.

Tables also report values for medium & small sized companies (M =1.9640, S.D. =0.56551) and large sized companies (M=3.2550, S.D =.64375), t (48) = -5.798, p = 0.000< 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that large sized companies were found significantly better than medium & small sized companies in terms of companies' engagement in CSR activities. Therefore, there exists significant difference in companies' engagement in CSR activities on the basis of size of the firm.

(vi) On the basis of Average Revenue of the firm - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of average revenue of the company

H0: μ Revenue Up to 3000crs = μ Revenue More than 3000crs

Ha: μ Revenue Up to 3000crs ≠μ Revenue More than 3000crs

Group statistics table 25, shows descriptive statistics for the two groups (companies earning average revenue up to 3000crs & companies earning average revenue more than 3000crs) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.881, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for companies earning average revenue up to 3000crs (M = 2.7806, S.D. = 0.76999) and companies earning average revenue more than 3000crs (M=3.5013, S.D.= 0.69494), t (48) = -3.119, p = 0.003< 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that companies earning average revenue more than 3000crs were found significantly better than companies earning revenue up to 3000crs in terms of companies' engagement in CSR activities. Therefore, there exists significant difference in companies' engagement in CSR activities on the basis of average revenue of the firm.

(vii) On the basis of average PAT of the firm - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of average PAT of the company

H0: μ PAT Up to 100 crs = μ PAT More than 100crs

Ha: μ PAT Up to 100crs ≠μ PAT More than 100crs

Group statistics table 25, shows descriptive statistics for the two groups (companies earning average PAT up to 100crs & companies earning average PAT more than 100 crs) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.698, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for companies earning average PAT Up to 100crs (M = 2.6830, S.D. = .75991) and companies earning average PAT more than 100crs (M=3.3652, S.D =.72546), t (48) = -3.230, p = 0.002< 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that companies earning average PAT more than 100crs were found significantly better than companies earning average PAT up to 100crs in terms of companies' engagement in CSR activities. Therefore, there exists significant difference in companies' engagement in CSR activities on the basis of average PAT of the firm.

(viii) On the basis of average Reserves of the firm - An independent-samples t-test at 5% α level was conducted to compare companies' engagement in CSR activities on the basis of average Reserves of the company

H0: μ Reserves Up to 1000 crs = μ Reserves more than 1000 crs

Ha: μ Reserves Up to 1000 crs ≠μ Reserves more than 1000 crs

Group statistics table 25, shows descriptive statistics for the two groups (companies having average Reserves up to 1000crs & companies having average Reserves more than 1000 crs) separately. Table 26, shows 'Levene's Test for Homogeneity of Variances' 0.671, which is > 0.05, hence there exists an equality of variance.

Above tables also report values for companies having average Reserves up to 1000crs (M = 2.6080, S.D. = 0.72645) and companies having average Reserves more than 1000crs (M=3.3856, S.D =0.71151), t (48) = -3.824, p = 0.000< 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that Companies having average Reserves more than 1000 crs were found significantly better than companies having average Reserves up to 1000crs in terms of companies' engagement in CSR activities. Therefore, there exists significant difference in companies' engagement in CSR activities on the basis of average Reserves of the firm.

2. Attitude of Companies towards CSR compliances

Attitude of the companies towards CSR compliance were explored to understand corporate behaviour towards CSR. Factor Analysis was conducted with the intention to reduce variable dimensions related to attitude of companies towards CSR compliance. Before running factor analysis, Descriptive Statistics of 11 items for 50 cases were studied. Below table describes Descriptive characteristics of respondent companies on their attitude towards CSR compliances.

Table 27

Descriptive statistics on Attitude of companies towards CSR compliance (n=50)

	Variables	Mean	SD
1	Company's follows all the mandatory requirements specified as per New Companies Act 2013	4.66	0.593
2	Company's CSR takes the form of philanthropic / charitable activities without a profit making goal	4.30	0.953
3	Company makes and implements proper CSR policy	4.36	0.985
4	Company's CSR is based on Utilitarianism approach (benefits to all)	3.98	1.000
5	Company makes a benchmark in CSR activities	3.60	1.161
6	Company takes preventive measures to curb down environment pollution	4.26	0.751
7	It is an image building exercise for the company to have competitive advantage	3.60	1.010
8	Company believes in doing CSR for addressing societal challenges in the society	4.28	0.882
9	Actual CSR is much better than doing it just for the sake of disclosure	4.20	0.969
10	CSR strategies are made to add value to business	3.98	0.915
11	CSR is an inevitable part of business model of the company	4.12	0.940

Table 27, describes descriptive characteristics (Mean & Standard Deviation) for all variables related to attitude of companies towards CSR for 50 valid responses. The highest Mean with SD ($\bar{x}$=4.66, s=0.593) was observed for a variable - Companies follows all the mandatory requirements specified as per New Companies Act 2013 followed by next highest mean score & SD ($\bar{x}$=4.36, s=0.985) for a variable item - Company makes and implements proper CSR policy. Lowest mean score with SD were observed for a two

variable items first, Company makes a benchmark in CSR activities ($\bar{x}$=3.60, s=1.010) and another for an item - CSR as an image building exercise for the company to have competitive advantage ($\bar{x}$=3.60, s=1.161).

Factor Analysis

Factor Analysis on Attitude Measurement of Companies towards CSR

Initially, taking into account assumptions of the test, factorability of the 11 items was examined. Principal Component Analysis (PCA) was conducted on the 11 items with orthogonal rotation- Varimax Method.

Correlation Matrix- Initial correlation matrix table, revealed how each of the 11 items were associated with other items. From the output table, it was observed that there were 8 variables out of 11, with values more than $\pm$ 0.5 showing moderate or high correlations. There was only one variable with a value less than $\pm$0.20 found for a statement – 'CSR is an image building exercise for the company to have competitive advantage' showing low correlation. One assumption was that the determinant (located under the correlation matrix table) should be more than 0.0001. Here, determinant value was 0.001 so this assumption was met. If the determinant would have been zero, then a factor analytic solution cannot be obtained.

SPSS software was re-run for second time with 10 items after dropping one item – 'CSR is an image building exercise for the company to have competitive advantages', the correlation matrix table showed that out of 10 variable items, 8 items had values greater than $\pm$ 0.5. and none of the variables had a value less than $\pm$0.20.

KMO & Bartlett test of Sphericity - KMO measures the sampling adequacy and its value should be greater than 0.5 for a satisfactory factor analysis to proceed. In our case, Initial KMO value found was 0.855, considered as meritorious (Kaiser, 1974), and KMO value higher than 0.5 is acceptable. Bartlett's test of Sphericity checks whether a correlation matrix is significantly different from an identity matrix (Bartlett, 1951). The Bartlett test should be significant (i.e., a significance value should be less than 0.05) means that the variables are correlated highly enough to provide a reasonable basis for factor analysis. In this case, Bartlett test of Sphericity was found significant having $\chi 2$ (55) = 320.024, p =0.000.

After the software was re-running software for second time with 10 items, KMO value, measuring sampling adequacy was found 0.856 this time, considered as meritorious

(Kaiser, 1974), as KMO value higher than 0.5 is acceptable. Bartlett test of Sphericity was found significant having $\chi 2$ (45) = 314.804, p =0.000.

Anti-image &Communalities table - Anti-image matrices values to be observed on the diagonal, serve as a measure for determining the sample size, marked with a superscripted "a." All elements on the diagonal of this matrix should be greater than 0.5 if the sample is adequate (Field, 2000).

In the present case, the diagonal of the anti-image correlation values was found between 0.745 and 0.946, i.e. all values were greater than 0.5. It therefore follows that all variables can be included in the factor analysis.

Communalities table indicates the proportion of the variable's variance explained by the extracted factors. Communalities values can range between 0 (no variance explained) to 1 (all variance explained). Communalities values should be greater than 0.5. In the present case, all the communality values were above 0.5 except two items having communality value as 0.468 for an item - Companies take preventive measures to curb down pollution and 0.153 for an item - CSR – is an image building exercise for the company to have competitive advantages. These items were not discarded at this stage as their anti-image values (0.805 & 0.845) were found greater than 0.5.

Software was re-run for the second time with 10 items, the diagonal of the anti-image correlation values was found greater than 0.5. It was observed that all the anti-image values lie between 0.733 and 0.945. It therefore follows that all variables can be included in the factor analysis. All the communality values were above 0.5 except one items having communality value as 0.433 for an item - Companies take preventive measures to curb down pollution. But this item was not deleted as its anti-image values (0.807) was found greater than 0.5.

Total Variance explained - This table lists eigenvalues associated with each factor before extraction, after extraction and after rotation. All factors with eigenvalues greater than 1 are extracted, leaving with two factors. The Eigen values associated with these factors and the % of variance explained are displayed under the heading of Extractions Sums of Squared loadings. Eigenvalues of the factors after rotation are displayed in the last part of the table labelled as Rotation Sums of squared loadings. Before rotation, factor 1 accounted for considerably more variance than the factor 2 (51,165% and 12,004%), but after rotation, first component accounts for only 39.546% of the variance and the second

component accounted for 23.623% of the variance, hence cumulative 63.169% of variance explained.

Total Variance table with 10 items showed that - Before rotation, factor 1 accounted for considerably more variance than the factor 2 (55,251% and 13,116%), but after rotation, first component accounts for only 44.456% of the variance and the second component accounted for 23.911% of the variance, hence cumulative 68.367% of variance explained. Below table 28, depicts the results of total Variance explained with 10 items.

Table - 28

Total Variance Explained Table with 10 items

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Com-ponents	Total	% of Variance	Cumul-ative %	Total	% of Varia-nce	Cumul-ative %	Total	% of Varia-nce	Cumul-ative %
1	5.525	55.251	55.251	5.525	55.251	55.251	4.446	44.456	44.456
2	1.312	13.116	68.367	1.312	13.116	68.367	2.391	23.911	68.367
3	.842	8.420	76.787						
4	.678	6.778	83.565						
5	.515	5.154	88.720						
6	.351	3.512	92.232						
7	.269	2.689	94.921						
8	.207	2.072	96.992						
9	.185	1.853	98.845						
10	.115	1.155	100.000						

Extraction Method: Principal Component Analysis.

Rotated component matrix table - This table shows a matrix of the factor loadings for each variable on each factor. Factor loadings less than 0.4 were not observed in the table as it was suppressed. Variables were listed in the order of size of their factor loadings.

Following criteria were considered while dealing with factor loadings decision – first, each factor must have at least three items loadings $\geq$ 0.5; second, individual items must have at least one loading $\geq$ 0.5; third in case of cross loadings the item will be placed only in the factor on which it has higher factor loadings; and finally if cross loadings were found $\leq$

0.5 on both factors, the item was considered for deletion. It was noted that all factors had loadings greater than 0.6 but no loadings were found for a variable –CSR – is an image building exercise for the company to have competitive advantages (refer output table below). Thus, a decision was taken to discard this variable at this stage and then the software was re-run. Final Rotated component matrix displays 10 items and their component loadings for the rotated components, with loadings less than 0.4. Below table 29, demonstrates output on factor loadings on both factors and communalities values of each items.

Table - 29

Factor loadings from Principal Component Analysis with Varimax Rotation for a Two Factor Solution for assessing factors related to Attitude of companies towards CSR with 10 items

Items	**Components**		**Comm-unality**
	1	2	
Company makes and implements proper CSR policy	.831		.766
Company CSR is based on Utilitarianism approach (benefits to all)	.829		.763
Company believes in doing CSR for addressing societal challenges in the society	.815		.731
Company makes a benchmark in CSR activities	.791		.720
Company follows all the mandatory requirements specified as per New Companies Act 2013	.748		.620
Company takes the form of philanthropic / charitable activities without a profit making goal	.696		.576
Company takes preventive measures to curb down environment pollution	.655		.433
Company's CSR strategies are made to add value to business		.893	.798
Company's CSR - is an inevitable part of business model of the company	.423	.783	.792
Company's actual CSR is much better than doing it just for the sake of disclosure		.714	.638
Eigen values	4.446	2.391	
% of variances	44.456	23.911	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 3 iterations.

Note. Factor loadings < .4 are suppressed.

Two components were obtained, and indexed as 'Corporate Compliant Behaviour towards CSR' and 'Responsible Business Behaviour towards CSR'

It was noted that all factors loadings were greater than 0.5 (refer output table below) except item - 9 having a case of cross loading. It was noted that Item -9 i.e. Company's CSR is an inevitable part of business model of the company loads on both the factors 1 &2, but loading for factor 2 (0.783) is greater than for factor 1 (0.423), thus as it is making bigger contribution to factor 2 than factor 1, it was considered as a part of factor 2.

The first component, which was indexed as 'Corporate Compliant Behaviour towards CSR' had strong loadings on the first seven factors and the second component, indexed as 'Responsible Business Behaviour towards CSR', had high loadings on the next three includes item 'CSR as an inevitable part of business model of the company'

Descriptive statistics, Reliability & Normality test conducted on the factors obtained

Composite mean scores were obtained to measure the level of corporate attitudes towards both factors obtained. Normality test was also conducted through numerical and graphical methods. Below table shows the descriptive characteristics and normality test results on both factors.

Table – 30
Descriptive statistics for the two components (n = 50)

Constructs / Compo-nents	No Items	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		Cron-bach α	Sha-piro sig. val.
					Value	Z	Value	Z		
Corporate Compliant Beh. towards CSR	07	4.28	4.35	0.73	-1.237	-3.67	1.747	2.64	0.904	0.000
Respon-sible Bus. Behaviour towards CSR	03	4.15	4.00	0.79	-0.842	-2.49	0.172	0.26	0.798	0.000

Valid N (list wise)

Components 'Corporate Compliant Behaviour towards CSR' and 'Responsible Business Behaviour towards CSR' have been considered on reflective scale, and item like *'Companies CSR is an image building exercise for the company to have competitive*

advantage' has been considered on a formative scale for data analysis w.r.t. various independent variables. No further any statistics were applied on dropped variable. Cross tabulations, chi-square test & Mann Whitney U test has been applied on two factors obtained from factor analysis.

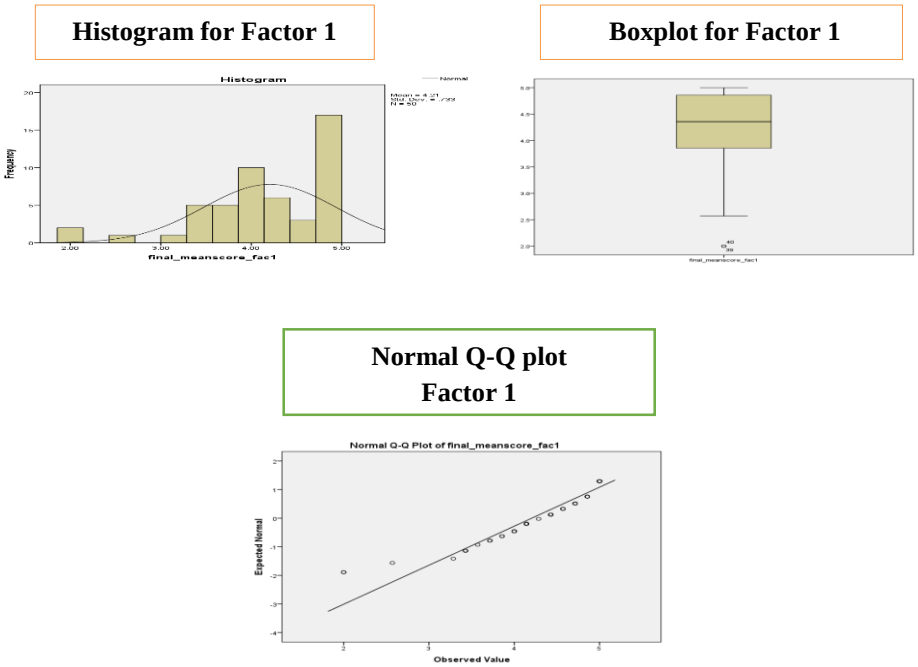
For Internal consistency of components obtained from PCA, Cronbach alpha was applied. Table 30, shows that the components were found reliable as their Cronbach alpha levels for first component 'Corporate Compliant Behaviour towards CSR' with seven items were found α= 0.904 considered as 'excellent', showing 90% internal consistency amongst the items. Cronbach alpha value for second factor/component 'Responsible Business Behaviour towards CSR' having three items was found α= 0.798 considered as 'good' showing 80% internal consistency amongst items.

As per above table 30, the Mean, Median and SD value on first factor 'Corporate Compliant behaviour towards CSR' derived from EFA were $\bar{x}$=4.28 and *Mdn* = 4.35 with s=0.73. Normality of the data were checked through both numerical and graphical methods. From the numerical methods point of view, it was observed that values of Mean (4.28) & Median (4.35) were having difference showing that data were non-normal. The value of kurtosis (1.747) and the value of skewness (-1.237) individually were not found within $\pm$1 range. Even critical ratio (z value) of the skewness (-3.67) and kurtosis (2.64) were also not within ±1.96 range, thus the outcome with respect to dispersion specifies that data were non-normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p = 0.000) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for first factor 'Corporate Compliant Behaviour towards CSR' acting as dependent variable (refer figure below).

The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non-normally distributed. Figure 12, displays Histogram for factor 1 'Compliance behaviour towards CSR' confirms non-normality of data as bell shaped curve was not derived. Box plot was found asymmetric having many outliers indicating that data were non-normally distributed. Normal Q-Q Plot was also observed as non-normal as observed data were not found near to expected data having major dots not on or near to diagonal line.

Figure 12

Histogram, Box plots, Normal Q-Q plots for Factor - 1 'Corporate Compliant Behaviour towards CSR'.



As per table 30, the Mean, Median and SD value on second factor 'Responsible Business Behaviour towards CSR' derived from EFA were $\bar{x}$=4.15 and *Mdn*= 4.00 with s=0.79. Normality checked using numerical methods shows that values of Mean (4.15) & Median (4.00) were having minor difference showing that data were near to normal distribution. The value of skewness (-0.842) and the value of kurtosis (0.172) individually were found within $\pm$1 range. Critical ratio (z value) of the kurtosis (0.26) was within the range of $\pm$ 1.96 but skewness value (-2.49) was not within ±1.96 range, thus the outcome with respect to dispersion specifies that data were non-normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p = 0.000) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for second factor 'Responsible Business Behaviour towards CSR' acting as dependent variable (refer figure below)

The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non-normally distributed. Figure 13, displays histogram for factor 2 Responsible behaviour towards CSR confirming non-normality of data as bell shaped curve was not derived.

Figure - 13

Histogram, Box plots, Normal Q-Q plots for Factor 2 - 'Responsible Business Behaviour towards CSR

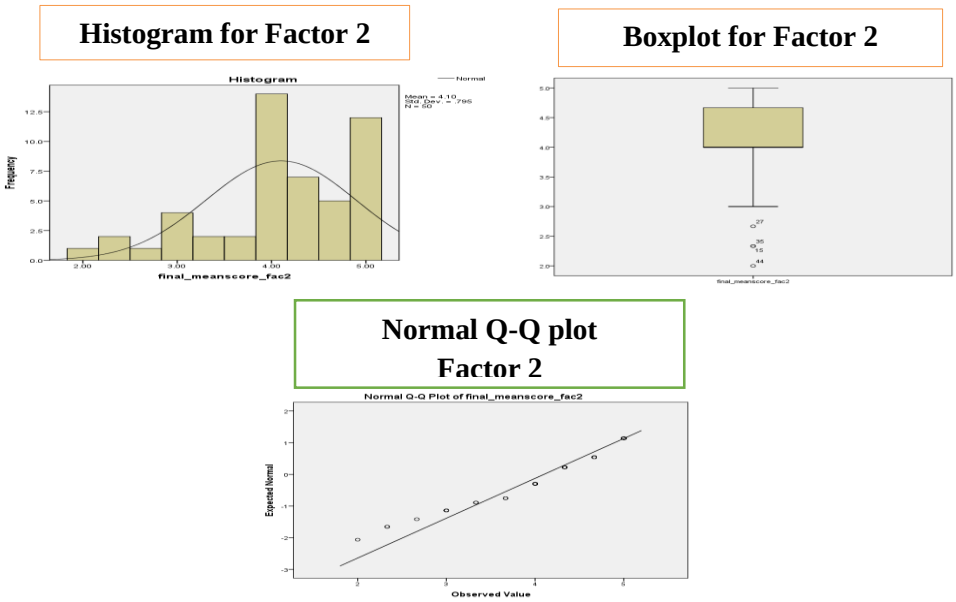


Figure also depicts Box plot found asymmetric having many outliers indicating that data are non-normally distributed. Normal Q-Q Plot was also observed as non-normal as observed data were not found near to expected data having major dots not on or close to diagonal line.

Cross tabulations & chi-square test on factors obtained

Cross tabulations and chi square test between various demographic variable and Corporate Compliant behaviour towards CSR (factor -1 derived from EFA).

Cross tabulations and chi square test was applied between various demographic variables of the study (IV) and Corporate Compliant behaviour towards CSR as DV (factor -1 derived from EFA). Dependent Variable in continuous scale was then converted into categorical data for applying chi-square test. Responses of the Dependent Variable were suppressed into two categories - agreement and low agreement. Below table shows the results.

Hypothesis testing to find out association between demographic variables and Compliant Behaviour of companies towards CSR.

Table 31, reports crosstab & chi-square values on 'compliant behaviour of companies towards CSR.

Table 31

Cross Tabulation & Chi-square test table between different demographical variables and Corporate Compliant behaviour towards CSR (factor-1)

Demographic Variables	Corporate Compliant behaviour towards CSR						Sig.
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochem	06 (5.8)	17	30 (30.2)	82	36	100	$\chi 2_{(1)} = 0.43$, $p = 1.000$ (ns), Phi = 0.029
Pharmaceuticals	02 (2.2)	14	12 (11.8)	86	14	100	Fail to Reject H0
Total	08	16	42	84	50	100	
Sector Ownership							
Government	01 (1.0)	17	05 (5.0)	83	06	100	$\chi 2_{(1)} = 0.002$, $p = 1.000$(ns)
Non-government	07 (7.0)	16	37 (37.0)	84	44	100	Phi = 0.007 Fail to Reject H0
Total	08	16	42	84	50	100	
Legal status of the firm							
Unlisted	08 (4.0)	32	17 (21.0)	68	25	100	$\chi 2_{(1)} = 9.524$, p=0.004**
Listed	00 (4.0)	00	25 (21.0)	100	25	100	Phi = 0.436 Reject H0
Total	08	16	42	84	50	100	
Age / experience of the firm							
Up to 25 yrs.	03 (1.1)	43	04 (5.9)	57	07	100	$\chi 2_{(1)} = 4.368$, p= 0.071(ns)
More than 25 yrs	05 (6.9)	12	38 (36.1)	88	43	100	Phi = 0.296 Fail to Reject H0
Total	08	16	42	84	50	100	
Size of the firm							
Medium / Small	05 (1.6)	50	05 (8.4)	50	10	100	$\chi 2_{(1)} = 10.751$, p= 0.005**
Large	03 (6.4)	08	37 (33.6)	92	40	100	Phi = 0.464 Reject H0
Total	08	16	42	84	50	100	

Average Revenue of the firm							
Up to 3000 crs	07 (5.6)	20	28 (29.4)	80	35	100	$\chi 2_{(1)} = 1.389$, $p = 0.407$ (ns), Phi = 0.167 Fail to Reject H0
More than 3000 crs	01 (2.4)	07	14 (12.6)	93	15	100	
Total	08	16	42	84	50	100	
Average PAT of the firm							
Up to 100 crs	07 (4.3)	26	22(23.8)	84	27	100	$\chi 2_{(1)} = 4.303$, p= 0.05*, Phi = 0.293 Reject H0
More than 100 crs	01 (3.7)	04	22(19.3)	96	23	100	
Total	08	16	42	84	50	100	
Average Reserve of the firm							
Up to 1000 crs	07 (4.0)	28	18(21.0)	72	25	100	$\chi 2_{(1)} = 5.357$, $p = 0.049$*, Phi = 0.327 Reject H0
More than 1000 crs	01(4.0)	04	24(21.0)	96	25	100	
Total	08	16	42	84	50	100	

*(E.C)- expected count is written in parenthesis, ns- not significant, *p ≤ 0 .05, **p<0.01, ***p<0.001*

i) Based on types of Industry - From the 2*2 crosstab table, it was noted that 82% (n=30 out of 36) of chemical and petrochemical companies and 86% (n=12 out of 14) of pharma companies had high agreement for compliant behaviour towards CSR while 17% (n=6 out of 36) in case of chemical and petrochemical companies and 14% (n=2 out of 14) in case of pharma companies had less agreement for compliant behaviour towards CSR.

Chi-square test shows NO significant association between types of industry and compliant behaviour towards CSR$\chi 2$ (1, N= 50) = 0.43, p = 1.000 (ns) (refer table 31). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.029 shows negligible association between two tested variables.

ii) Based on Sector ownership - The 2*2 crosstab table demonstrates that 83% (n=5 out of 6) of government companies and 84% (n=37 out of 44) of non-government companies had high agreement, while 17% (n=1 out of 6) government companies and 16%

(n=7 out of 44) of non-government companies had low agreement for compliant behaviour towards CSR.

Chi-square test shows NO significant association between sector ownership and compliant behaviour towards CSR$\chi 2$ (1, N= 50) = 0.002, p = 1.000 (ns) (refer table 31). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.007 shows negligible association between two tested variables.

iii) Based on Legal status of the firm - From the 2*2 crosstab table, it was noted that 68% (n=17 out of 25) of the unlisted companies and 100% (n=25) all sampled listed companies had high agreement, while 32% (n=8) of the unlisted companies had less agreement for compliant behaviour towards CSR.

Chi-square test shows significant association between legal status of the firm and compliant behaviour towards CSR $\chi 2$ (1, N= 50) = 9.524, p = 0.004 (refer table 31). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.436 shows moderate association between two tested variables.

iv) Based on Age of the firm - The 2*2 crosstab table, shows that 57% (n=4 out of 7) of companies having experience up to 25 years and 88% (n=38 out of 43) of companies having experience more than 25 years had high agreement, while 43% (n=3 out of 7) in case of companies with experience up to 25 years and 12% (n=5 out of 43) companies having more than 25 years of experience had less agreement for compliant behaviour towards CSR.

Chi-square test shows NO significant association between age of the firm and compliant behaviour towards CSR$\chi 2$ (1, N= 50) = 4.368, p = 0.071 (ns) (refer table 31). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, Phi coefficient value 0.296 shows near to moderate association between two tested variables.

v) Based on Size of the firm - The 2*2 crosstab table specifies that 50% (n=5 out of 10) of the medium and small sized companies and 92% (n=37 out of 40) of the large sized had high agreement for compliant behaviour towards CSR, while 50% (n=5 out of 10) medium and small sized companies and 8% (n=3) large sized companies had less agreement for compliant behaviour towards CSR.

Chi-square test shows significant association between size of the firm and compliant behaviour towards CSR $\chi 2$ (1, N= 50) = 10.751, p = 0.005 (refer table 31). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.464 shows moderate association between two tested variables.

vi) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 80% (n=28 out of 35) of companies having average revenue upto 3000 crs and 93% (n=14 out of 15) companies' average revenue with more than 3000 crs had high agreement, while 20% (n=7 out of 35) companies with average revenue upto 3000 crs and 7% (n=1 out of 15) companies with average revenue more than 3000 crs had less agreement for compliant behaviour towards CSR.

Chi-square test shows NO significant association between average revenue of the firm and compliant behaviour towards CSR$\chi 2$ (1, N= 50) = 1.389, p = 0.407 (ns) (refer table 31).Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.167 shows weak association between two tested variables**.**

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 84% (n=22 out of 27) companies with average PAT upto 100 crs and 96% (n=22 out of 23) companies with average PAT more than 100 crs had high agreement, while 26% (n=7 out of 27) companies with average PAT upto 100 crs and 4% (n=1 out of 23) companies with average PAT more than 100 crs had less agreement for compliant behaviour towards CSR.

Chi-square test shows significant association between average PAT of the firm and compliant behaviour towards CSR $\chi 2$ (1, N= 50) = 4.303, p = 0.05 (refer table 31). Here, Fisher's exact test value was applicable as 2 cell (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.293 shows near to near moderate level association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 72% (n=18 out of 25) companies with average Reserves upto 1000 crs and 96% (n=24 out of 25) companies with average Reserves more than 1000 crs gave high agreement while 28% (n=7 out of 25) companies with average reserves upto 1000 crs and 4% (n=1 out of 25) companies with average reserves more than 1000 crs had less agreement for compliant behaviour towards CSR.

Chi-square test shows significant association between average reserves of the firm and compliant behaviour towards CSR $\chi 2$ (1, N= 50) = 5.357, p = 0.049 (refer table 31). Here, Fisher's exact test value was applicable as 2 cell (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.327 shows moderate level association between two tested variables.

Cross tabulations and chi-square test between various demographic variable and Responsible behaviour towards CSR (factor -2 derived from EFA).

Cross tabulations and chi square test was applied between various independent variables of the study and Responsible Business Behaviour towards CSR (factor -2 derived from EFA) as DV. Responses of the Dependent Variable were suppressed into two categories - agreement and low agreement. Below table shows the results

Table 32

Cross Tabulation & Chi-square test table between different demographical variables and Responsible Business behaviour towards CSR (factor-2)

Demographic Variables	Corporate Responsible behaviour towards CSR						Sig.
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petro-chemicals	06 (7.2)	17	30 (29.0)	83	36	100	
Pharma	04 (2.8)	29	10 (11.2)	71	14	100	$\chi 2_{(1)}$ =0.893, p= 0.436 (ns), Phi = 0.134
Total	10	20	40	80	50	100	Fail to Reject H0
Sector Ownership							
Government	00 (1.2)	00	06 (4.8)	100	06	100	$\chi 2_{(1)}$ = 1.705, p =0.327(ns),
Non-government	10(8.8)	23	34 (35.2)	77	44	100	Phi = 0.185
Total	10	20	40	80	50	100	Fail to Reject H0
Legal status of the firm							
Unlisted	07 (5.0)	28	18 (20.0)	72	25	100	$\chi 2_{(1)}$ = 2.000, p=0.157(ns),
Listed	03 (5.0)	12	22 (20.0)	88	25	100	Phi = 0.200
Total	10	20	40	80	50	100	Fail to Reject H0

Age / experience of the firm							
Up to 25 years	02 (1.4)	29	05 (5.6)	71	07	100	$\chi 2_{(1)} = 0.374$, $p = 0.616$(ns), Phi = 0.086 Fail to Reject H0
More than 25 years	08 (8.6)	19	35 (34.4)	81	43	100	
Total	10	20	40	80	50	100	
Size of the firm							
Medium & Small	06(2.0)	60	04 (8.0)	40	10	100	$\chi 2_{(1)} = 12.500$, $p = 0.002$** Phi = 0.500 Reject H0
Large	04(8.0)	10	36 (32.0)	90	40	100	
Total	10	20	40	80	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	08 (7.0)	23	27 (28.0)	77	35	100	$\chi 2_{(1)} = 0.595$, $p = 0.702$ (ns), Phi = 0.109 Fail to Reject H0
More than 3000 cr	02(3.0)	13	13 (12.0)	87	15	100	
Total	10	20	40	80	50	100	
Avg. PAT of the firm							
Up to 100 crs	08(5.4)	30	19(21.6)	70	27	100	$\chi 2_{(1)} = 3.402$, $p = 0.085$ (ns), Phi = 0.261 Fail to Reject H0
More than 100 crs	02(4.6)	09	21 (18.4)	91	23	100	
Total	10	20	40	80	50	100	
Avg. Reserve of the firm							
Up to 1000 crs	08 (5.0)	32	17 (20.0)	68	25	100	$\chi 2_{(1)} = 4.500$, $p = 0.034$*, Phi = 0.300 Reject H0
More than 1000 crs	02 (5.0)	08	23 (20.0)	92	25	100	
Total	10	20	40	80	50	100	

*(E.C)- expected count is written in parenthesis, ns- not significant, *p ≤ 0 .05, **p<0.01*

Hypothesis testing to find out association between demographic variables and Responsible Behaviour of companies towards CSR.

Table 32, reports crosstab & chi-square values on 'Responsible behaviour of companies towards CSR,

i) Based on Types of Industry - Above 2*2 crosstab table, shows that 83% (n=30 out of 36) of chemical and petrochemical companies and 71% (n=10 out of 14) of pharma

companies gave high agreement for responsible behaviour towards CSR while 17% (n=6 out of 36) in case of chemical and petrochemical companies and 29% (n=4 out of 14) in case of pharma companies had less agreement for responsible behaviour towards CSR.

Chi-square test shows NO significant association between types of industry and responsible behaviour towards CSR$\chi 2$ (1, N= 50) = 0.893, p = 0.436 (ns) (refer table 32). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.134 shows weak association between two tested variables.

ii) Based on Sector Ownership - The 2*2 crosstab table demonstrates that 100% (n=6) government companies and 77% (n=34 out of 44) of non-government companies gave high agreement, while 23% (n=10 out of 44) of non-government companies had low agreement for responsible business behaviour towards CSR.

Chi-square test shows NO significant association between sector ownership and responsible behaviour towards CSR$\chi 2$ (1, N= 50) = 1.705, p = 0.327 (ns) (refer table 32). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.185 shows weak association between two tested variables.

iii) Based on Legal status of the firm - From the 2*2 crosstab table, it was noted that 72% (n=18 out of 25) of the unlisted companies and 88% (n=22 out of 25) of the listed companies gave high agreement, while 28% (n=7 out of 25) of the unlisted companies and 12% (n=3 out of 25) of listed companies had less agreement for responsible business behaviour towards CSR.

Chi-square test shows NO significant association between legal status of the firm and Responsible behaviour towards CSR$\chi 2$ (1, N= 50) = 2.000, p = 0.157 (ns) (refer table 32). Here, chi-square significant value was applicable as 0 cell (0%) have expected count less than 5. Moreover, even Phi coefficient value 0.200 shows weak association between two tested variables.

iv) Based on Age of the firm - The 2*2 crosstab table, shows that 71% (n=5 out of 7) of companies having experience up to 25 years and 81% (n=35 out of 43) companies having experience more than 25 years' gave high agreement while 29% (n=2 out of 7) in case of companies with experience up to 25 years and 19% (n=8) companies having more than 25 years' experience had less agreement for responsible business behaviour towards CSR.

Chi-square test shows NO significant association between age of the firm and Responsible behaviour towards CSRχ2 (1, N= 50) = 0.374, p = 0.616 (ns) (refer table 32). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, Phi coefficient value 0.086 shows weak association between two tested variables.

v) Based on Size of the firm -The 2*2 crosstab table specifies that 40% (n=4 out of 10) medium / small sized companies and 90% (n=36 out of 40) of the large firms had high agreement, while 60% (n=4 out of 10) medium / small sized companies and 10% (n=4 out of 40) large companies had less agreement for responsible business behaviour towards CSR.

Chi-square test shows significant association between size of the firm and responsible behaviour towards CSR χ2 (1, N= 50) = 12.500, p = 0.002 (refer table 32). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.500 shows strong association between two tested variables.

vi) Based on Average Revenue of the firm - From the 2*2 crosstab table, it was noted that 77% (n=27 out of 35) of companies having average revenue up to 3000 crs and 87% (n=13 out of 15) companies' average revenue with more than 3000 crs gave high agreement while 23% (n=8 out of 35) companies with average revenue up to 3000 crs and 13% (n=2 out of 15) companies with revenue more than 3000 crs had less agreement for responsible business behaviour towards CSR.

Chi-square test shows NO significant association between average Revenue of the firm and Responsible behaviour towards CSRχ2 (1, N= 50) = 0.595, p = 0.702(ns) (refer table 32).Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.109 shows weak association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 70% (n=19 out of 27) companies with average PAT upto 100 crs and 91% (n=21 out of 23) companies with average PAT more than 100 crs had high agreement, while 30% (n=8 out of 27) companies with average PAT upto 100 crs and 9% (n=2 out of 23) companies with average PAT more than 100 crs had less agreement for responsible business behaviour towards CSR.

Chi-square test shows NO significant association between average PAT of the firm and Responsible behaviour towards CSRχ2 (1, N= 50) = 3.402, p = 0.085(ns) (refer table 32). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.261 shows near to moderate level association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 68% (n=17 out of 25) companies with average Reserves upto 1000 crs and 92% (n=23 out of 25) companies with average Reserves more than 1000 crs gave high agreement on responsible behaviour towards CSR while 32% (n=8 out of 25) companies with average reserves upto 1000 crs and 8% (n=2 out of 25) companies with average reserves more than 1000 crs had less agreement for responsible behaviour towards CSR.

Chi-square test shows significant association between average reserves of the firm and responsible behaviour towards CSR χ2 (1, N= 50) = 4.500, p = 0.034 (refer table 32). Here, Chi square sig. value was applicable as 0 cell (0%) had expected count less than 5. Moreover, even Phi coefficient value 0.300 shows moderate level association between two tested variables.

Mann Whitney U test

Mann-Whitney U Test is appropriate method for comparing the mean & median between two independent groups with the assumption that the data is non- normally distributed. Test calculates the difference of the median instead of the mean as the independent t-test does (Pallant, 2011 p. 227).

Mann Whitney U test on Corporate Compliant Behaviour towards CSR

A Mann-Whitney U test at 5% α level was conducted to compare corporate compliant behaviour towards CSR (DV) on the basis of various demographic of the study. Below table shows results of Mann Whitney U test compared with significant level p<0.05.

Hypothesis testing to find out significant differences in Corporate Compliant Behaviour towards CSR across various demographical variables of the study

Table 33 reports Mann Whitney U test values on 'Companies Compliant behaviour towards CSR.

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of chemical / petrochemicals and pharmaceuticals industry.

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 33 reports values for Chemicals & Petrochemicals (Mean rank = 26.39, *Mdn* = 4.36) and Pharmaceuticals (Mean rank =23.21, *Mdn* = 4.29), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 220.000, Z= -0.695, *P =0.487 > .05.*

Table 33

Mann-Whitney Test of Corporate Compliant behaviour towards CSR: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	220.000	325.0	-0.695	0.098	0.487(ns) Failed to Reject H0
Sector Ownership	104.000	1094.00	-0.840	0.118	0.401 (ns) Failed to Reject H0
Legal status of firm	160.500	485.500	-2.965	0.42	0.003** RejectH0
Age of the firm	153.000	748.000	-2.488	0.35	0.013* RejectH0
Size of the firm	98.000	153.000	-2.487	0.35	0.013* RejectH0
Avg. Revenue of firm	172.500	802.500	-1.916	0.27	0.05* RejectH0
Avg. PAT of firm	166.000	544.000	-2.828	0.40	0.005** RejectH0
Avg. Reserve of firm	156.000	481.000	-3.053	0.43	0.002** RejectH0

*ns- not significant, *p ≤ 0 .05, **p<0.01*

The value of r=0.09 derived determines small effect size. Median value for Chemicals & petrochemicals industry was little higher than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of corporate compliant behaviour towards CSR on the basis of types of industry.

ii). **On the basis of sector ownership** – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 33 reports values for Government owned (Mean rank = 30.17, *Mdn* = 4.64) and Non-government owned (Mean rank = 24.86, *Mdn* = 4.21), U ($N_{\text{Government owned}}$= 07, $N_{\text{Non-government owned}}$=44) = 104.000, Z= -0.840, *P =0.401 > .05*. The value of r=0.12 derived determines small effect size. Median value for Government owned companies was little higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of corporate compliant behaviour towards CSR on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 33, reports values for unlisted companies (Mean rank = 19.42, *Mdn* = 4.00) and listed (Mean rank = 31.58, *Mdn* = 4.57), *U* (N_{Unlisted}=25, N_{Listed}=25) = 160.500, Z= -2.965, *P =0.003 < .05*. The value of r=0.42 derived determines medium effect size. Median value for listed companies was found higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of corporate compliant behaviour towards CSR than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 33, reports values for companies age up to 25 years (Mean rank = 22.00, *Mdn* = 4.14) and companies age more than 25 years (Mean rank = 32.94, *Mdn* = 4.57), *U* ($N_{\text{Companies age up to 25 years}}$=07, $N_{\text{Companies Age more than 25 years}}$=43) = 153.000, Z= -2.488, *P =0.013 < .05*. The value of r=0.35 derived determines medium effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is < .05, hence null hypotheses gets rejected. Thus there exists

significant difference in this context. It infers that companies having age more than 25 years were better in terms of corporate compliant behaviour towards CSR than companies having age up to 25 years.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 33, reports values for medium & small sized companies (Mean rank =15.30, *Mdn* = 3.64) and Large sized companies (Mean rank = 28.05, *Mdn* = 4.43), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 98.000, Z= -2.487, *P =0.013 < .05.* The value of r=0.35 derived, determines medium effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that large sized companies were better in terms of corporate compliant behaviour towards CSR than medium & small sized companies.

vi) On the basis of average Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of average Revenue up to 3000 crs / Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 33 reports values for companies earning average revenue up to 3000crs (Mean rank =22.93, *Mdn* = 4.14) and companies earning average revenue more than 3000 crs (Mean rank = 31.50, *Mdn* = 4.57), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 172.500, Z= -1.916, *P =0.05 = .05.* The value of r=0.27 derived, determines small effect size. Median value of companies earning average revenue more than 3000 crs was found higher than companies earning average revenue up to 3000crs. As p value is = 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning revenue more than 3000 crs were little better in terms of corporate compliant behaviour towards CSR than companies earning average revenue up to 3000crs.

vii) On the basis of average PAT of the firm

A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of average PAT up to 100 crs / PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 33 reports values for companies earning average PAT up to 100 crs (Mean rank =20.15, *Mdn* =4.14) and companies earning average PAT more than 100 crs (mean rank = 31.78, *Mdn* = 4.57), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 166.000, Z= -2.828, *P =0.005< .05.* The value of r = 0.40 derived, determines moderate effect size. Median value of companies earning average PAT more than 100 crs was found higher than companies earning average PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning average PAT more than 100 crs were better in terms of corporate compliant behaviour towards CSR than companies earning average PAT up to 100crs.

viii) On the basis of average Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Compliant behaviour towards CSR on the basis of average Reserves up to 1000 crs / Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 33 reports values for companies having average reserves up to 1000 crs (Mean rank = 19.24, *Mdn* = 4.00) and companies having average reserves more than 1000 crs (Mean rank = 31.76, *Mdn* = 4.71), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 156.000, Z= -3.053, *P =0.002< .05.* The value of r=0.43 derived, determines moderate effect size. Median value of companies having average reserves more than 1000 crs was found higher than companies having reserves up to 1000crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It is inferred that companies having average reserves more than 1000 crs were better in terms of corporate compliant behaviour towards CSR than companies having average reserves up to 1000crs.

Mann Whitney U test on Corporate Responsible Behaviour towards CSR

A Mann-Whitney U test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR (DV) on the basis of various demographic variables of the study. Mann Whitney test was applied using the composite scores on Corporate Responsible Behaviour towards CSR (factor-2) calculated from the factors extracted in the factor analysis. Below table shows results of Mann Whitney U test compared with significant level $p<0.05$.

Table 34

Mann-Whitney Test of Corporate Responsible behaviour towards CSR: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	224.000	349.000	-0.176	0.02	0.860 (ns) Failed to Reject H0
Sector Ownership	84.500	1070.500	-1.569	0.22	0.117 (ns) Failed to Reject H0
Legal status of firm	169.500	494.500	-2.832	0.40	0.005** Reject H0
Age of the firm	173.500	768.500	-2.091	0.04	0.037* Reject H0
Size of the firm	106.500	161.500	-2.314	0.33	0.021* Reject H0
Avg. Revenue of the firm	184.000	814.000	-1.696	0.24	0.09(ns) Failed to Reject H0
Avg. PAT of the firm	173.500	551.500	-2.722	0.38	0.006** Reject H0
Avg. Reserve of the firm	188.000	481.000	-3.053	0.35	0.014* Reject H0

*ns- not significant, *p ≤ 0 .05, **p<0.01*

Hypothesis testing to find out significant differences in corporate Responsible Behaviour towards CSR across various demographical variables of the study.

Table 34 reports crosstab & chi-square values on 'Responsible behaviour of companies towards CSR.

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of chemical / petrochemicals and pharmaceuticals industry

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 34 reports values for Chemicals & Petrochemicals (Mean rank = 25.72, *Mdn* = 4.00) and Pharmaceuticals (Mean rank =24.93, *Mdn* =4.33), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 224.000, Z= -0.176, *P =0.860 > .05*. The value of r=0.02 derived, determines small effect size. Median value for pharmaceuticals industry was little higher than chemical /petrochemical industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there is no significant difference in terms of corporate responsible behaviour towards CSR on the basis of types of industry.

ii) **On the basis of sector ownership** – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 34 reports values for Government owned (Mean rank =34.08, *Mdn* = 4.50) and Non-government owned (Mean rank = 24.33, *Mdn* = 4.00), U ($N_{Government\ owned}$= 07, $N_{Non\text{-}government\ owned}$=44) = 84.500, Z= -1.569, *P =0.117 > .05*. The value of r=0.22 derived determines small effect size. Median value for Government owned companies was little higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of corporate responsible behaviour towards CSR on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 34 reports values for unlisted companies (Mean rank = 19.78, *Mdn* = 4.00) and listed (Mean rank =31.22, *Mdn* = 4.67), *U* ($N_{Unlisted}$=25, N_{Listed}=25) = 169.500, Z= -2.832, *P =0.005 < .05*. The value of r=0.40 derived, determines medium effect size.

Median value for listed companies was found higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of corporate responsible behaviour towards CSR than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of age up to 5 years / age more than 5 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 34 reports values for companies age up to 25 years (Mean rank = 22.60, *Mdn* = 4.00) and companies age more than 25 years (Mean rank = 31.66, *Mdn* = 4.83), *U* ($N_{\text{Companies age up to 25 years}}$=7, $N_{\text{Companies Age more than 25 years}}$=43) = 173.500, Z= -2.091, *P =0.037 < .05.* The value of r=0.04 derived, determines small effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies having age more than 25 years were better in terms of corporate responsible behaviour towards CSR than companies having age up to 25 years.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 34 reports values for medium & small sized companies (Mean rank =16.15, *Mdn* =3.00) and Large sized companies (Mean rank = 27.84, *Mdn* =4.84), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) =106.500, Z= -2.314, *P =0.021< .05.* The value of r= 0.33 derived, determines medium effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that large sized companies were better in terms of corporate responsible behaviour towards CSR than medium & small sized companies.

vi) On the basis of Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of Revenue up to 3000 crs / Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 34 reports values for companies earning revenue up to 3000crs (Mean rank =23.26, *Mdn* = 4.00) and companies earning revenue more than 3000 crs (Mean rank = 30.73, *Mdn* = 4.38), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) =184.000, Z= -1.696, *P =0.09 > .05.* The value of r=0.24 derived, determines small effect size. Median value of companies earning revenue more than 3000 crs was found higher than companies earning revenue up to 3000crs. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of corporate responsible behaviour towards CSR on the basis of Revenue of the firm

vii) On the basis of PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of PAT up to 100 crs / PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 34 reports values for companies earning PAT up to 100 crs (Mean rank =20.43, *Mdn* =4.00) and companies earning PAT more than 100 crs (mean rank = 31.46, *Mdn* = 4.67), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 173.500, Z= -2.722, *P =0.006 < .05.* The value of r =0.38 derived, determines moderate effect size. Median value of companies earning PAT more than 100 crs was found higher than companies earning PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus, there exists significant difference in this context. It infers that companies earning PAT more than 100 crs were better in terms of corporate responsible behaviour towards CSR than companies earning PAT up to 100crs.

viii) On the basis of Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare Corporate Responsible behaviour towards CSR on the basis of Reserves up to 1000 crs / Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 34 reports values for companies having reserves up to 1000 crs (Mean rank =20.52, *Mdn* = 4.00) and companies having reserves more than 1000 crs (Mean rank = 30.48, *Mdn* = 4.33), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 188.000, Z= -3.053, *P =0.014< .05*. The value of r=0.35 derived, determines moderate effect size. Median value of companies having reserves more than 1000 crs was found little higher than companies having reserves up to 1000crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies having reserves more than 1000 crs were better in terms of corporate responsible behaviour towards CSR than companies having reserves up to 1000crs.

3. Type of legal problems faced and the ways these issues were managed by the company

Question no. 3 to 5 from the questionnaire, identifies the types of legal problems faced by the companies during the study period, the authority through which these issues were managed by the company and the way the company responded these legal compliances.

Types of Legal problems faced by the companies

Responses were elicited from sample companies (n=50) on types of legal problems faced by them during study period (2017-2019). This multiple choice based question was analyzed using frequency distribution and cross tabulations between different independent variables and legal problems faced by the companies. Below table shows the outcome on frequency distribution.

Table 35
Frequency table for type of legal problems faced by the companies during study period (n=50)

Types Legal problems faced by respondent companies	Frequency (n)	Percent (%)
Labour Laws	11	18
Consumer Laws	02	03
IP Laws	03	05
Cyber Laws	00	00
Tax Laws	04	07
Environment Laws	18	30
None	23	38
Total	*f = 61*	

Valid N (list wise)

The above table 35 depicts type of legal problems faced by the sample companies during study period 2017 to 2019. It should be noted that No. of responses were more than No. of respondents (n=50) due to multiple choices in the check box. It was observed that 18% (n=11) sample companies faced labour laws issues, 3% (n=2) companies faced consumers' based legal issues, 5% (n=3) companies faced IP based legal issues, 7% (n=4) companies faced tax based legal issues, majority i.e. 30% (n=18) companies faced environment based legal issues, while none of the companies faced cyber laws issues during the study period. It was also observed that out of 50 sample companies, 38% (n=23) companies had not faced any legal issues during the study period.

Cross tabulation

Cross tabulation between various independent variables & legal issues faced by the sample companies

Cross tabulation was conducted between various independent variables and legal issues faced by the sample companies. Below table shows the outcome of the cross tabulations

Table – 36

Cross tabulations between independent variables & legal issues faced by sample companies (n=50)

Independent Variables	Legal issues faced by sample companies												
	Labour Laws		Consumer Laws		IP Laws		Tax Laws		Envt. Laws		None		Total
	f	%	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	N
Types of Industry													
Chemi/ Petrochem	08	22	02	06	02	06	04	11	12	33	18	50	36
Pharma	03	21	00	00	01	07	00	00	06	43	05	36	14
Total	11	43	02	06	03	13	04	11	18	76	23	86	50
Sector Ownership													
Govt.	01	17	00	00	00	00	01	17	00	00	04	67	06
Non-Govt	10	23	02	05	03	07	03	07	18	41	19	43	44
Total	11	40	02	05	03	07	04	24	18	41	23	110	50

Legal status of the firm													
Unlisted	08	32	02	08	01	04	02	08	11	44	09	36	25
Listed	03	12	00	00	02	08	02	08	07	28	14	56	25
Total	11	44	02	08	03	12	04	16	18	72	23	92	50
Age of the Company													
Up to 25 years	00	00	01	14	01	14	00	00	02	29	03	43	07
More than 25 yrs	11	26	01	02	02	05	04	09	16	37	20	47	43
Total	11	26	02	16	03	19	04	09	18	66	23	90	50
Size of the firm													
Medium & Small	04	40	01	10	00	00	01	10	04	40	04	40	10
Large sized	07	18	01	03	03	07	03	08	14	35	19	48	40
Total	11	58	02	13	03	07	04	18	18	75	23	88	50
Average Revenue of the firm													
Up to 3000 crs	10	29	02	06	01	03	02	06	13	37	15	43	35
More than 3000 crs	01	07	00	00	02	13	02	13	05	33	08	53	15
Total	11	36	02	06	03	16	04	19	18	70	23	96	50
Average PAT of the firm													
Up to 100 crs	09	33	02	07	01	04	02	07	12	44	09	33	27
More than 100 crs	02	09	00	00	02	09	02	09	06	26	14	61	23
Total	11	42	02	07	03	13	04	16	18	70	23	94	50
Average Reserves of the firm													
Up to 1000 crs	08	32	01	04	01	04	02	08	12	48	09	36	25
More than 1000crs	03	12	01	04	02	08	02	08	06	24	14	56	25
Total	11	44	02	08	03	12	04	16	18	72	23	92	50

Above table 36 shows the outcome on Cross tabulations between various demographic variables & legal issues faced by sample companies,

i) Based on Types of Industry - It can be inferred from table 36, that 22% (n=8 out of 36) of the chemicals/petrochemicals companies faced labour laws issues, 06% (n=2) faced issues related to consumer laws and Intellectual Property laws, 11% (n=4) faced tax laws, and 33% (n=12) faced issues related to environment laws. In case of pharmaceutical industry, 21% (n=3 out of 14) faced labour laws issues, 07% (n=1) had faced issues related to Intellectual Property laws, 43% (n=06) faced issues related to environment laws, while none of the pharma companies had faced consumer laws and taxation laws issues. Further, it was also known that 50% (n=18 out of 36) chemical/petrochemical companies and 36% (n=5 out of 14) had never faced any aspects of legal issues during the survey period.

ii) Based on sector ownership - It can be observed from table 36, that 17% (n=1 out of 06) government based companies faced labour and taxation laws issues while in case of non-government companies, 23% (n=10 out of 44) had faced issues related to labour laws, 05% (n=2) faced issues related to consumer laws, 07% (n=3) faced issues related to IP and taxation laws, and 41% (n=18) faced environment laws issues. It was observed that none of the government based companies had faced any issues related to consumer laws, IP laws and environment laws. Further, 67% (n=4 out of 6) government companies and 43% (n=19 out of 44) of non-government companies had never faced any aspects of legal issues during the survey period.

iii) Based on legal status of the firm - It can be noted from table 36, that 32% (n=8 out of 25) of the unlisted companies faced issues related to labour laws, 08% (n=2) faced consumer laws issues, 04% (n=1) had IP laws issues, 08% (n=2) had issues related to tax laws, and 44% (n=11) faced issues related to environment laws, whereas in case of listed companies 12% (n=03 out of 25) of the Listed companies had faced issues related to labour laws, 08% (n=02) faced IP laws and taxation laws issues, and 28% (n=7) faced issues related to environment laws. None of the listed companies faced consumer laws issues. Further, 36% (n=9 out of 25) unlisted companies and 56% (n=14 out of 25) of listed companies had never faced any aspects of legal issues during the survey period.

iv) Based on age of the company – Data shows from table 36, that 14% (n=1 out of 7) of companies having experience up to 25 years faced consumer laws and IP laws issues, 29% (n=2) faced issues related to environment laws. None of the companies having experience / age up to 25 years faced issues related to labour and taxation laws. Whereas in case of companies having age / experience more than 25 years, 26% (n=11 out of 43)

faced labour laws issues, 2% (n=1) faced consumer laws issues, 5% (n=2) had IP laws issues, 9% (n=4) faced taxation laws issues and 37% (n=16) faced issues related to environment laws. It was also found that 43% (n=3 out of 7) of companies having experience up to 25 years and 47% (n=20 out of 43) companies having experience more than 25 years had never faced any aspects of legal issues during the survey period.

v) Based on Size of the firm - It can be inferred from table 36, that, 40% (n=4 out of 10) of medium / small sized firms faced issues related to labour and environment laws, 10% (n=1) faced issues consumer and tax laws. None of the medium/small sized firms had issues related to IP laws. Whereas in case of large sized firms, 18% (n=7 out of 40) of large sized firms faced issues related to labour laws, 3% (n=1) faced issues related to consumer laws, 7% (n=3) had faced issues related to IP laws, 8% (n=3) had issues related tax laws, 35% (n=14) had issues related to environment laws. It was observed that 40% (n=4 out of 10) of medium and small sized firms and 48% (n=19 out of 40) of large sized firms had never faced any issues related to legal aspects during the survey period.

vi) Based on average Revenue of the firm - Data shows from table 36, that 29% (n=10 out of 35) companies earning average revenue up to 3000crs had issues related to labour laws, 06% (n=2) had issues on consumer laws and tax laws, 3% (n=1) had IP laws issues, and 37% (n=13) had faced issues related to environment laws. Whereas companies earning avg. revenue more than 3000 crs, 7% (n=1 out of 15) faced issues related to labour laws, 13% (n=2) faced IP laws and tax laws issues, 33% (n=5) had faced issues related to environment laws. None of the companies earning avg. revenue more than 3000 crs faced issues on consumer laws. Further, it was also inferred that 43% (n=15 out of 35) of the companies earning avg. revenue up to 3000crs and 53% (n=8 out of 15) companies earning avg. revenue more than 3000 crs had never faced any issues related to legal aspects during survey period.

vii)Based on average PAT of the firm - It was found from table 36, that 33% (n=9 out of 27) of the companies earning avg. PAT up to 100crs faced issues related to labour laws, 7% (n=2) faced issues related to consumer and tax laws, 04% (n=1) faced issues on IP laws and 44% (n=12) faced issues on environment laws. Whereas in case of companies earning avg. PAT more than 100 crs, 9% (n=2 out of 23) faced issues related to labour laws, IP laws and tax laws, and 26% (n=6) faced issues related to environment laws. None of the companies earning avg. PAT more than 100 crs had issues related to consumer laws. It was also inferred that 33% (n=9 out of 27) of the companies earning

avg. PAT up to 100crs and 61% (n=14 out of 23) of the companies earning avg. PAT more than 100 crs had never faced any legal issues during the survey period.

viii) Based on average Reserves of the firm– Data infers from table 36, that, 32% (n=8 out of 25) of the companies having avg. reserves up to 1000crs faced labour laws issues, 4% (n=1) faced both consumer laws and IP issues, 8% (n=2) faced tax laws issues and 48% (n=12) had issues related to environment laws. Whereas in case of companies having avg. reserves more than 1000 crs, 12% (n=3 out of 25) faced issues related to labour laws, 04% (n=1) faced consumer laws issues, 8% (n=2) faced issues related to IP and taxation laws, 24% (n=6) faced issues related to environment laws. It was also known that 36% (n=9 out of 25) of the companies having avg. reserves up to 1000crs and 56% (n=14 out of 25) companies having avg. reserves more than 1000 crs had never faced any issues related to legal aspects in their business during study period.

Authorities through which legal compliance issues managed by companies

Respondent companies (n=50) were probed on authorities through which all the legal compliance issues were managed by them. This multiple choice based question was analyzed using frequency distribution. Below table shows the outcome of frequency distribution.

Table 37

Frequency Table on authorities through which legal compliance issues were managed (n=50)

Legal compliance issues were managed by	Frequency (n)	Percent %
Company In-house team	35	70
Consultants	15	30
Owner due to small business	00	00
Legal department	15	30
Others – EHS / HR team / external auditors	04	08
Total	69	

Valid N (list wise)

The above table 37 depicts the outcome on the authorities through which legal compliance issues were managed by the sample companies during study period 2017 to 2019. No. of responses elicited were more than No. of respondents (n=50) due to multiple choices in the check box. The above table 37, also reflects that 70% (n=35) companies

manage their legal issues through their own in-house team, 30% (n=15) companies rely on consultants to manage legal issues, 30% (n=15) companies manage their legal issues through their legal departments. It was also observed that in some cases i.e. 8% (n=4) companies' legal issues were also managed by EHS team, HR team and external auditors of the companies.

Companies' Response towards Legal compliance issues

Through Question no. 5, respondent companies were asked about the way they responded their legal compliance issues as and when occurred in organization. Below table shows the outcome on frequency distribution of the same.

Table 38

Frequency table on Companies response towards legal compliance issues (n=50)

Company's Response towards legal compliance	Frequency (n)	Percent (%)
Avoidance	05	10
Compromised	03	06
Found Guilty & paid penalty	04	08
Company was right and not found guilty	14	28
Accepted & brought changes	24	48
Total	50	100

The above table 38, presents the outcome on sample companies' response behaviour towards legal issues faced by them during study period 2017 to 2019. It was found that 10% (n=5) companies had avoidance behaviour, 6% (n=3) companies had compromising behaviour, 8% (n=4) companies agreed that, they paid penalty as found guilty for non-compliance, 28% (n=14) companies opined that company was right and not found guilty towards legal compliance issues and majority i.e. 48% (n=24) companies accepted such legal compliance issues and brought changes as and when required.

Section -2

Corporate Governance

This section tries to analyze data on sample companies' Responsible behaviour towards Corporate Governance collected through first-hand information. Section includes analysis of total 14 questions, starting from question 6 to question 19 from the questionnaire.

1. Economic & Political Reforms

Question no 6 & 7 from the questionnaire explores respondent companies' opinion on economic and political reforms that recently took place in India had any impact on their business performance and the steps taken by the company to overcome these reforms. To elicit their opinion on the topic, Question no. 6 was asked using5-point rating scale 5 – Highly positively impacted to 1 – Highly Negatively impacted scale. Below table 39, shows the value of Mean and SD of each reform individually.

Table 39

Mean & SD table on Economic and political reforms impacting business (n=50)

Economic and political reforms scale	Mean	SD
Demonetization	3.42	1.197
Make In India	3.74	1.065
Skill India	3.78	1.217
Swachch Bharat	3.92	1.140
GST	3.96	1.160
Start Up India	3.44	1.215
Stand up India	3.28	1.144

Above table 39 reflect descriptive data for the Economic and political reforms impacting business, where the mean of each reforms ranged from 3.28 to 3.96, which shows most of the frequency lies between moderately impacted and positively impacted. It can be inferred that amongst all, GST factor was near to positively impacted scale having highest mean with SD ($\bar{x}$=3.96, SD=1.160) followed by Swachch Bharat having next

highest mean with SD ($\bar{x}$=3.92, SD=1.140). The lowest mean with SD ($\bar{x}$=3.28, SD=1.144) was found for Stand up India showing that this factor had moderate impact on business.

Table 40

Descriptive statistics (overall), Reliability & Normality test on Economic and political reforms impacting business (n=50)

Scale	No Items	Mean	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		Cronbach α	Shap-iro sig. val
					Value	Z	Value	Z		
Economic & political reforms impacting business	07	3.70	3.78	0.931	-0.969	-2.875	1.113	1.68	0.906	0.005

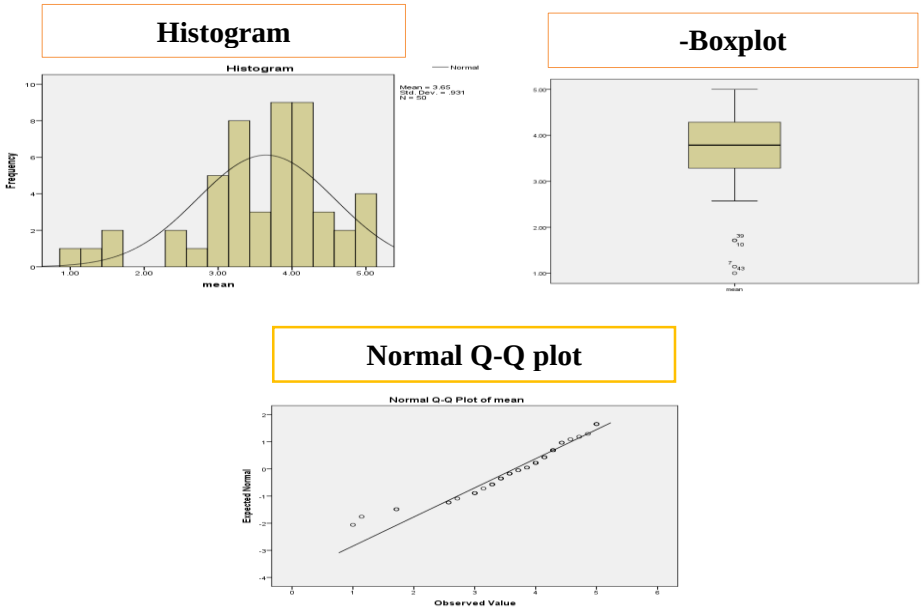
As per table 40 the scale on Economic and political reforms impacting business was found highly reliable as their Cronbach alpha (α) value was found 0.906 which means 90.6% internal consistency exist amongst items. The overall Mean, Median and SD value on Economic and political reforms impacting business were $\bar{x}$=3.70 and *Mdn*= 3.78 with s=0.931. Normality of the data were checked through both numerical and graphical methods. From the numerical methods point of view, it was observed that values of Mean (3.70) & Median (3.78) were approximately near showing that data were normally distributed. The value of skewness (-0.969) individually were found within the range of $\pm$1 but kurtosis (-1.113) individually were not found within $\pm$1 range. Critical ratio (z value) of the skewness (-2.875) and kurtosis (1.68) were also not within ±1.96 range, thus the outcome with respect to dispersion also specifies that data were non-normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value *(p = 0.005)* is less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Economic and political reforms impacting business (refer figure below)

The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non-normally distributed. Figure 14 displays histogram for Economic and political reforms impacting business variable confirming non-normality of data as bell shaped curve was

not derived. Box plot also found asymmetric having many outliers indicating that data are non-normally distributed. Normal Q-Q Plot, also indicates non-normal data as observed data were not found near to expected data having major dots not on or close to diagonal line.

Figure 14

Histogram, Box plots, Normal Q-Q plots for Economic and political reforms impacting business.



Cross tabulations & Chi-square test

Cross tabulations & Chi-square between independent variables & Economic and political reforms impacting business.

Cross tabulations & chi-square tests were conducted between various independent variables and Economic and political reforms impacting business so as to study association between them. Below table shows the outcome of the cross tabulations & chi-square test results.

Hypothesis testing to find out association between demographic variables and Economical & political reforms impacting business

Table 41 reports cross tab and chi-square test values on Economical & political reforms impacting business.

i) Based on types of Industry –Data shows that 36% (n=13 out of 36) of chemical and petrochemical companies and 50% (n=7 out of 14) of pharma companies opined that their business was less positively impacted through recent economic & political reforms,

while 64% (n=23 out of 36) of chemical and petrochemical companies and 50% (n=7 out of 14) of pharma companies opined that their business was positively impacted through recent economic and political reforms.

Table 41

Cross tabulations & Chi-square test results between various Independent variables and Economic and political reforms impacting business. (n=50)

Demographic Variables	Economic and political reforms impacting business						Significance
	Less Positively Impacted		Highly Positively Impacted		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochem	13(14.4)	36	23 (21.6)	64	36	100	$\chi 2_{(1)} = 0.810$, $p = 0.368$ (ns), Phi = 0.127 Fail to Reject H0
Pharmaceuticals	07 (5.6)	50	07 (8.4)	50	14	100	
Total	20	40	30	60	50	100	
Sector Ownership							
Government	00 (2.4)	00	06 (3.6)	100	06	100	$\chi 2_{(1)} = 4.545$, $p = 0.069$ (ns), Phi = 0.302 Fail to Reject H0
Non-Govt.	20 (17.6)	46	24 (26.4)	54	44	100	
Total	20	40	30	60	50	100	
Legal status of the firm							
Unlisted	12 (10.0)	48	13 (15.0)	52	25	100	$\chi 2_{(1)} = 1.333$, $p = 0.248$ (ns), Phi = 0.163 Fail to Reject H0
Listed	08 (10.0)	32	17 (15.0)	68	25	100	
Total	20	40	30	60	50	100	
Age / experience of the firm							
Up to 25 years	03 (2.8)	43	04 (4.2)	57	07	100	$\chi 2_{(1)} = 0.028$, $p = 1.000$ (ns), Phi = 0.024 Fail to Reject H0
More than 25 yrs	17 (17.2)	40	26 (25.8)	60	43	100	
Total	20	40	30	60	50	100	

Size of the firm							
Medium / Small	06 (4.0)	60	04 (6.0)	40	10	100	$\chi 2_{(1)} = 2.083$, $p = 0.171$ (ns), Phi = 0.204 Fail to Reject H0
Large	14(16.0)	35	26 (24.0)	65	40	100	
Total	20	40	30	60	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	13 (14.0)	37	22 (21.0)	63	35	100	$\chi 2_{(1)} = 0.397$, $p = 0.529$ (ns), Phi = 0.089 Fail to Reject H0
More than 3000 crs	07(6.0)	47	08 (9.0)	53	15	100	
Total	20	40	30	60	50	100	
Avg. PAT of the firm							
Up to 100 crs	10(10.8)	37	17 (16.2)	63	27	100	$\chi 2_{(1)} = 0.215$, $p = 0.643$ (ns), Phi = 0.066 Fail to Reject H0
More than 100 crs	10(9.2)	44	13 (13.8)	56	23	100	
Total	20	40	30	60	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	09 (10.0)	36	16 (15.0)	64	25	100	$\chi 2_{(1)} = 0.333$, $p = 0.564$ (ns), Phi = 0.082 Fail to Reject H0
More than 1000 crs	11 (10.0)	44	14 (15.0)	56	25	100	
Total	20	40	30	60	50	100	

ns- not significant

Chi-square test shows NO significant association between types of industry and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 0.810, p = 0.368 (ns) (refer table 41). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.127 shows weak association between two tested variables.

ii) Based on sector ownership - The 2*2 crosstab table demonstrates that 100% (n=6) government companies and 54% (n=24 out of 44) of non-government companies opined that their business was positively impacted, while 46% (n=20 out of 44) non-

government companies opined that their business was less positively impacted through recent economic & political reforms.

Chi-square test shows NO significant association between sector ownership and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 4.545, p = 0.069 (ns) (refer table 41). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.302 shows weak association between two tested variables.

iii) Based on Legal status of the firm -Above 2*2 crosstab table, shows that 48% (n=12 out of 25) of unlisted companies and 32% (n=8 out of 25) of listed companies opined that their business was less positively impacted, while 52% (n=13 out of 25) of unlisted companies and 68% (n=17 out of 25) of listed companies opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between legal status of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 1.333, p = 0.248 (ns) (refer table 41). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.163 shows weak association between two tested variables.

iv) Based on Age of the firm - The 2*2 crosstab table, shows that 43% (n=3 out of 7) of companies having age up to 25 years and 40% (n=17 out of 43) of companies having age more than 25 years opined that their business was less positively impacted, while 57% (n=4 out of 7) of companies having age up to 25 years and 60% (n=26 out of 43) of companies having age more than 25 years opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between age of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 0.028, p = 1.000 (ns) (refer table 41). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.024 shows negligible association between two tested variables.

v) Based on size of the firm - The 2*2 crosstab table specifies that 60% (n=6 out of 10) of medium & small sized companies and 35% (n=14 out of 40) large sized companies opined that their business was less positively impacted, while 40% (n=4 out of 10) of medium & small sized companies and 65% (n=26 out of 40) of large sized

companies opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between size of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 2.083, p = 0.171 (ns) (refer table 41). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.204 shows weak association between two tested variables.

vii) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 37% (n=13 out of 35) of companies earning avg. revenue up to 3000crs and 47% (n=7 out of 15) of companies earning avg. revenue more than 3000crs opined that their business was less positively impacted, while 63% (n=22 out of 35) of companies earning avg. revenue up to 3000crs and 53% (n=8 out of 15) of companies earning avg. revenue more than 3000crs opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between average revenue of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 0.397, p = 0.529 (ns) (refer table 41). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.089 shows negligible association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, shows that 37% (n=10 out of 27) of companies earning avg. PAT up to 100crs and 44% (n=10 out of 23) of companies earning avg. PAT more than 100crs opined that their business was less positively impacted, while 63% (n=17 out of 27) of companies earning avg. PAT up to 100crs and 56% (n=13 out of 23) of companies earning avg. PAT more than 100crs opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between average PAT of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 0.215, p = 0.643 (ns) (refer table). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.066 shows negligible association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 36% (n=9 out of 25) of companies having avg. reserves up to 1000 crs and 44% (n=11 out of 25) of companies having avg. reserves more than 1000crs opined that their business

was less positively impacted, while 64% (n=16 out of 25) of companies having avg. reserves up to 1000crs and 56% (n=14 out of 25) of companies having avg. reserves more than 1000crs opined that their business was positively impacted through recent economic and political reforms.

Chi-square test shows NO significant association between average Reserves of the firm and recent economics & political reforms impacting business as $\chi 2$ (1, N= 50) = 0.333, p = 0.564 (ns) (refer table 41). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.082 shows negligible association between two tested variables.

Mann Whitney U Test

Mann Whitney U test on Economic and political reforms impacting business.

As data was found non-normal, A Mann-Whitney U test at 5% α level was conducted to compare Economic and political reforms impacting business (DV) on the basis of various demographic variables of the study.

Table 42

Mann-Whitney Test of Economic and political reforms impacting business: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	r	Sig. (2-tailed)
Types of Industry	230.000	335.000	-0.477	0.067	0.634(ns) Failed to Reject H0
Sector Ownership	83.000	1073.000	-1.467	0.207	0.142 (ns) Failed to Reject H0
Legal status of firm	197.500	522.500	-2.237	0.316	0.025 * Reject H0
Age of the firm	144.000	172.000	-0.182	0.025	0.855 (ns) Failed to Reject H0
Size of the firm	159.000	208.000	-1.143	0.162	0.253 (ns) Failed to Reject H0
Avg. Revenue of the firm	245.500	365.500	-0.361	0.051	0.718 (ns) Failed to Reject H0
Avg. PAT of the firm	275.500	653.500	-0.683	0.096	0.595 (ns) Failed to Reject H0
Avg. Reserve of the firm	295.000	620.000	-0.340	0.048	0.734 (ns) Failed to Reject H0

*ns- not significant, *p ≤ 0 .05*

Table 42 shows results of Mann Whitney U test compared with significant level p < 0.05.

Hypothesis testing to find out significant differences in Economic and political reforms impacting business various demographical variables of the study.

Table 42, reports the Mann Whitney U test values on Economical & political reforms impacting businesses

I). On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 42, reports values for Chemicals & Petrochemicals (Mean rank = 26.11, *Mdn* = 3.86) and Pharmaceuticals (Mean rank =23.93, *Mdn* = 3.57), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 230.000, Z= -0.477, *P =0.634>0.05*. The value of r=0.067derived, determines small effect size. Median value for Chemicals & petrochemicals industry was found higher than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of types of industry.

ii) **On the basis of sector ownership** – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 42 reports values for Government owned (Mean rank = 33.67, Mdn = 4.14) and Non-government owned (Mean rank = 24.39, Mdn = 3.64), U ($N_{Government\ owned}$= 07, $N_{Non\text{-}government\ owned}$=44) = 83.000, Z= -1.467, P =0.142 > .05. The value of r=0.207 derived determines small effect size. Median value for Government owned companies was found higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of

Economic and political reforms impacting business, on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 42 reports values for unlisted companies (Mean rank = 20.90, *Mdn* = 3.57) and listed (Mean rank = 30.10, *Mdn* = 4.14), *U* ($N_{Unlisted}$=25, N_{Listed}=25) = 197.500, Z= -2.237, *P =0.025 <0.05.* The value of r=0.316 derived determines moderate effect size. Median value for listed companies was found higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of Economic and political reforms impacting business than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 42 reports values for companies age up to 25 years (Mean rank = 24.57, *Mdn* = 3.57) and companies age more than 25 years (Mean rank = 25.65, *Mdn* = 3.86), *U* ($N_{Companies\ age\ up\ to\ 25\ years}$=7, $N_{Companies\ Age\ more\ than\ 25\ years}$=43) = 144.000, Z= -0.182, *P =0.855 > .05.* The value of r=0.025derived determines small effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of age of the company.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 42 reports values for medium & small sized companies (Mean rank =20.80, *Mdn* = 3.36) and Large sized companies (Mean rank = 26.68, *Mdn* = 3.90), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 159.000, Z= -1.143, *P =0.253>0.05.* The value of r=0.162derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of size of the company.

vi) On the basis of average Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 42 reports values for companies earning avg. revenue up to 3000crs (Mean rank =25.99, *Mdn* = 3.86) and companies earning avg. revenue more than 3000 crs (Mean rank = 24.37, *Mdn* = 3.57), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 245.500, Z= -0.361, *P =0.718 > .05.* The value of r=0.051 derived, determines small effect size. Median value of companies earning avg. revenue up to 3000 crs was found higher than companies earning avg. revenue more than 3000crs. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of Revenue of the company.

vii) On the basis of average PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 42 reports values for companies earning avg. PAT up to 100 crs (Mean rank =24.20, *Mdn* = 3.71) and companies earning avg. PAT more than 100 crs (mean rank = 27.02, *Mdn* = 4.00), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 275.500, Z= -0.683, *P =0.595 > .05.* The value of r =0.096 derived, determines small effect size. Median value of companies earning PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is > .05, hence null hypotheses fail to get rejected.

Thus, it infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of avg. PAT of the company.

viii) On the basis of average Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare Economic and political reforms impacting business on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 42 reports values for companies having avg. reserves up to 1000 crs (Mean rank = 24.80, *Mdn* = 3.71) and companies having avg. reserves more than 1000 crs (Mean rank = 26.20, *Mdn* = 3.86), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 295.000, Z= -0.340, *P =0.734 > .05.* The value of r=0.048 derived, determines small effect size. Median value of companies having reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Economic and political reforms impacting business, on the basis of avg. Reserves of the company.

Steps taken by sample companies to overcome reforms

Sample respondents were asked about the steps taken by them to overcome economic & political reforms through question no. 7 from the questionnaire. Below table 43 shows the frequencies on the different steps taken by the companies to overcome reforms.

Table 43

Frequency table for steps taken by companies to overcome economic and political reforms (n=50)

Steps taken to overcome economic and political reforms	Frequency (n)	Percent (%)
Made strategy	44	88
Appointed consultants	17	34
Waited for time	05	10
Collapsed	00	00
Total	66	132

Valid N (list wise)

Above table 43 depicts frequencies for the steps taken by the respondent companies to overcome economic and political reforms. Here, no. of response elicited were more than no. of respondents due to multiple choice question. It was observed that 88% (n=44) of the companies made strategies to overcome economic and political reforms while 34% (n=17) appointed consultants, 10% (n=5) companies waited for time. There were no companies out of sample companies which got collapsed due to such economic and political reforms.

2. Responsible Investment (RI)

Questions 8 to 14 from the questionnaire deals with Business behaviour towards Responsible Investments. These questions tries to explore whether respondent companies were familiar with the concept RI, number of companies that practices RI, reasons for investing and not investing in RI, types of RI projects undertaken by the companies during study period, RI practices of the companies and finally factors that has helped the company to successfully deal with RI.

Awareness on Responsible Investment (RI) & incorporating RI while making business decisions

Question 8 & 9 from the questionnaire tries to find percentage of the companies' having familiarity with the concept RI through the person who had filled the questionnaire (representative of the company) and percentage of companies practicing RI while making decision. Below table 44, shows the frequencies of the same.

Table 44

Frequency table on companies' *familiarity with Responsible Investment (RI) & incorporating RI while making business decisions (n=50)*

Responsible Investment	Frequency (n)		Percentage (%)	
	Yes	No	Yes	No
Awareness on RI	34	16	68	32
Organization practices RI while making decisions	31	19	62	38

The above table 44 depicts frequencies on awareness of the respondent companies on Responsible Investments and explores whether company practices RI while making business decisions. It can be inferred that 68% (n=34) respondent companies were aware of Responsible Investment, out of which 62% (n=31) companies' practices RI while making business decisions.

Cross tabulations & chi-square test

Cross tabulations & Chi-square between independent variables & Responsible Investment practiced by companies

Cross tabulations & chi-square tests were conducted between various independent variables of the study and Responsible Investment to identify which types of companies practices Responsible Investment and also to study association between them. Below table shows the outcome of the cross tabulations & chi-square test results.

Table 45

Cross tabulations & Chi-square test results between various Independent variables and Responsible Investment practiced by companies (n=50)

Demographic Variables	Responsible Investments practiced by companies						Significance
	No		Yes		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petrochem	13 (13.7)	36	23 (22.3)	64	36	100	$\chi 2_{(1)} = 0.195$, $p = 0.649$ (ns), Phi = 0.062
Pharmaceuticals	06 (5.3)	43	08 (8.7)	57	14	100	
Total	19	38	31	62	50	100	Fail to Reject H0
Sector Ownership							
Government	00 (2.3)	00	06 (3.7)	100	06	100	$\chi 2_{(1)} = 4.179$, $p = 0.071$ (ns), Phi =0.289
Non-Government	19 (16.7)	43	25 (27.3)	57	44	100	
Total	19	38	31	62	50	100	Fail to Reject H0
Legal status of the firm							
Unlisted	13 (9.5)	52	12 (15.5)	48	25	100	$\chi 2_{(1)} = 4.160$, $p = 0.041$* Phi = 0.288 Reject H0
Listed	06 (9.5)	24	19 (15.5)	76	25	100	
Total	19	38	31	62	50	100	
Age / experience of the firm							
Up to 25 years	02 (2.7)	29	05 (4.3)	71	07	100	
More than 25 yrs	17 (16.3)	40	26 (26.7)	60	43	100	

Total	19	38	31	62	50	100	$\chi2_{(1)} = 0.307$, $p = 0.695$ (ns), Phi = 0.078 Fail to Reject H0
Size of the firm							
Medium / Small	06 (3.8)	60	04 (6.2)	40	10	100	$\chi2_{(1)} = 2.568$, $p = 0.150$ (ns), Phi = 0.227 Fail to Reject H0
Large	13 (15.2)	33	27 (24.8)	67	40	100	
Total	19	38	31	62	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	17 (13.3)	49	18 (21.7)	51	35	100	$\chi2_{(1)} = 5.534$, $p = 0.019$* Phi = 0.333 Reject H0
More than 3000 crs	02 (5.7)	13	13 (9.3)	86	15	100	
Total	19	38	31	62	50	100	
Avg. PAT of the firm							
Up to 100 crs	13 (10.3)	48	14 (16.7)	52	27	100	$\chi2_{(1)} = 2.566$, $p = 0.109$ (ns), Phi = 0.227 Fail to Reject H0
More than 100 crs	06 (8.7)	26	17 (14.3)	74	23	100	
Total	19	38	31	62	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	12 (9.5)	48	13 (15.5)	52	25	100	$\chi2_{(1)} = 2.122$, $p = 0.145$ (ns), Phi = 0.206 Fail to Reject H0
More than 1000 crs	07 (9.5)	28	18 (15.5)	72	25	100	
Total	19	38	31	62	50	100	

*ns- not significant, * $p \leq 0.05$*

Hypothesis testing to find out association between demographic variables and Responsible Investment practiced by the sample companies.

Above table 45 reports crosstab and chi-square test result values on Responsible Investment practiced by sample companies.

i) Based on types of Industry - Above 2*2 crosstab table, shows that 64% (n=23 out of 36) of chemical and petrochemical companies and 57% (n=8 out of 14) of pharma companies practices responsible Investments while 36% (n=13 out of 36) in case of

chemical and petrochemical companies and 43% (n=6 out of 14) in case of pharma companies denied on practicing responsible investments.

Chi-square test shows NO significant association between types of industry and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 0.195, p = 0.649 (ns) (refer table 45). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.062 shows negligible association between two tested variables.

ii) Based on sector ownership - The 2*2 crosstab table demonstrates that all 100% (n=6) government companies and 57% (n=25 out of 44) of non-government companies practiced RI. It was found that 43% (n=19) of non-government companies doesn't practiced RI.

Chi-square test shows NO significant association between sector ownership and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 4.179, p = 0.071 (ns) (refer table 45). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.289 shows near to moderate association between two tested variables.

iii) Based on Legal status of the firm - From the 2*2 crosstab table, it was noted that 48% (n=12 out of 25) of the unlisted companies and 76% (n=19 out of 25) of the listed companies practiced RI, while 52% (n=13 out of 25) of the unlisted companies and 24% (n=6 out of 25) does not practiced responsible investment.

Chi-square test shows significant association between legal status of the firm and RI practiced by companies as$\chi 2$ (1, N= 50) = 4.160, p = 0.041 (refer table 45).Here, chi-square significant value was applicable as 0 cell (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.288 shows near to moderate association between two tested variables**.**

iv) Based on Age of the firm - The 2*2 crosstab table, shows that 71% (n=5 out of 7) of companies having age / experience up to 25 years and 60% (n=26 out of 43) companies having age/experience more than 25 years' practices RI while 29% (n=2 out of 7) in case of companies with age / experience up to 25 years and 40% (n=17) companies having more than 25 years' of age / experience does not practice RI.

Chi-square test shows NO significant association between age of the firm and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 0.307, p = 0.695(ns) (refer table 45). Here, Fisher's exact test value was applicable as 2 cells (50%) have

expected count less than 5. Moreover, Phi coefficient value 0.078 shows weak association between two tested variables.

v) Based on size of the firm - The 2*2 crosstab table specifies that 40% (n=4 out of 10) of the medium and small sized companies and 67% (n=27 out of 40) of the large sized companies' practices RI, while 60% (n=4 out of 10) of medium and small sized companies and 33% (n=13 out of 40) of large sized companies does not practices RI.

Chi-square test shows NO significant association between age of the firm and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 2.568, p = 0.150(ns) (refer table 45). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.227 shows weak association between two tested variables.

vii) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 51% (n=18 out of 35) of companies having avg. revenue up to 3000 crs and 86% (n=13 out of 15) companies' avg. revenue with more than 3000 crs practiced RI while 49% (n=17 out of 35) companies with avg. revenue up to 3000 crs and 13% (n=2 out of 15) companies with avg. revenue more than 3000 crs does not practiced RI.

Chi-square test shows significant association between average revenue of the firm and RI practiced by companies as$\chi 2$ (1, N= 50) = 5.534, p = 0.019 (refer table 45). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.333 shows moderate association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 52% (n=14 out of 27) companies with avg. PAT up to 100 crs and 74% (n=17 out of 23) companies with avg. PAT more than 100 crs practiced RI while 48% (n=13 out of 27) companies with avg. PAT up to 100 crs and 26% (n=6 out of 23) companies with avg. PAT more than 100 crs does not practiced RI.

Chi-square test shows NO significant association between average PAT of the firm and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 2.566, p = 0.109 (ns) (refer table 45). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.227 shows near to moderate level association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 52% (n=13 out of 25) companies with avg. Reserves up to 1000 crs and 72% (n=18 out of

25) companies with avg. Reserves more than 1000 crs practiced RI, while 48% (n=12 out of 25) companies with avg. reserves up to 1000 crs and 28% (n=7 out of 25) companies with avg. reserves more than 1000 crs does not practiced RI.

Chi-square test shows NO significant association between average reserves of the firm and Responsible Investments practiced by companies $\chi 2$ (1, N= 50) = 2.122, p = 0.145 (ns) (refer table 45). Here, Chi square sig. value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.206 shows weak level association between two tested variables.

Reasons for investing and not investing in RI by the companies

Question 10 & 11 from the questionnaire explores the reasons for not investing or investing in Responsible investment by the sample companies. Respondent companies were allowed to make multiple choice if applicable in their cases. Below table 46, shows the frequencies of those respondent companies (n=19) who had not invested in RI till now.

Table 46

Frequency table on reasons for not investing in Responsible Investment (n=19)

Reasons for not investing in RI / ESG	*Frequency (n)*	*Percent (%)*
Lack of awareness	16	84
Belief that incorporation of ESG and/or RI will compromise returns	00	00
Lack of consensus about the impact of responsible investing on investment returns	05	26
Lack of dedicated resources	04	21
Lack of agreement on key issues (terminology, materiality, etc)	01	05
Increase costs	05	28
Lack of good responsible investing products	01	05
Belief that incorporation of ESG and/or responsible investing will increase risk/volatility	01	05

The above table 46, presents the frequencies on the reasons for not investing in RI / ESG investment by respondent companies (n=19). No. of responses elicited were more than No. of respondents (n=19) due to multiple choices in the check box. It was observed that 84% (n=16) companies didn't invested in RI till now due lack of awareness, 26% (n=5) due to

lack of consensus about the impact of responsible investing on investment returns and also due to increased cost, 21% (n=4) due to lack of dedicated resources, and 5%(n=1) due to lack of agreement on key issues, lack of good responsible investing products and also due to belief that incorporation of ESG and/or responsible investing will increase risk/volatility. Further, it was also observed that none of the respondent had a Belief that incorporation of ESG and/or RI will compromise returns

Below table 47 shows the frequencies of respondent companies (n=31) on reasons for investing Responsible Investment (RI).

Table 47

Frequency table on reasons for investing in Responsible Investment (n=31)

Reasons for investing in RI / ESG	*Frequency (n)*	*Percent (%)*
Compulsion from Government bodies	14	45
Belief that the returns of RI and/or ESG will outpace traditional investing	10	32
Wish to impact certain global issues (climate change, diversity, social justice)	13	42
Type of entity we represent (religious, healthcare, or other mission-based entity)	04	13
Belief that responsible investments or ESG investments will be less volatile over time	02	07
Demand from all stakeholders of business	07	23
Belief that the incorporation of non-financial (ESG) data results in better investments	01	03
Wish to leverage our philanthropic efforts through investing as well as grant making	05	16
Long term sustainability of business	23	74
Good Will of business	16	52
Reduce costs	10	32

The above table 47 presents the frequencies on the reasons for investing in RI / ESG investment by the respondent companies (n=31) which practiced RI while making business decisions. No. of responses elicited were more than No. of respondents (n=31) due to

multiple choices in the check box. It can be inferred that 45% (n=14 out of 31) invested in RI / ESG due to compulsion from Government bodies, 32% (n=10) due to belief that the returns on RI/ESG will outpace traditional investing and also believed that Investment in RI will help them to reduce costs, 42% (n=13) opined that they wish to impact certain global issues (climate change, diversity, social justice), 13% (n=4) invested due to type of entity they represent (religious, healthcare, or other mission-based entity), 7% (n=2) invested due to belief that responsible investments or ESG investments will be less volatile over time, 23% (n=7) invested due to demand from all stakeholders of business, 3% (n=1) due to a belief that the incorporation of non-financial (ESG) data results in better investments, 16% (n=5) invested due to their wish to leverage philanthropic efforts through investing as well as grant making, 74% (n=23) invested in RI due to long term sustainability of business and 52% (n=16) invested for maintaining goodwill of their business.

Types of Responsible Investments projects undertaken by the company & factors leading to successful implementation of the RI projects

Question no. 12 and 14 from the questionnaire investigates types of RI projects undertaken by the company during study periods and identifies the factors that has led to successful implementation of RI projects. Below tables shows the frequencies of the same.

Table 48

Frequency table on types of Investment projects undertaken by company during study periods (n=50)

Type of Investment projects undertaken by the sample companies	*Frequency (n)*	*Percent %*
Socially Responsible Investments	39	78
Thematic Investments	25	50
Green Investments	39	78
Impact Investments	22	44

The above table 48 shows the frequencies on type of Investment projects undertaken by company during study periods. No. of responses elicited were more than No. of respondents (n=50) due to multiple choices in the check box. It was observed that 78% (n=39) companies undertook Socially Responsible Investment projects (SRI) and

Green Investment projects, 50% (n=25) companies undertook thematic investment projects, and 44% (n=22) companies goes for impact investment projects

3. ESG Investment Behaviour of companies

ESG Investment Behaviour of companies were studied in-depth as it has become mandatory clause for the top 1,000 listed companies (as per market capitalization) to annually disclose ESG-related information in BRSR (earlier BRR) from FY 2022-23 as per new SEBI guidelines of 2019. Below table 49 shows the frequency on No. of companies that considers ESG criteria during investments in various projects

Table 49

No of companies that does ESG Investments (n=50)

No of companies that does ESG Investments	Frequency (n)	Percent (%)
ESG Investments projects	32	64

Above table 49 shows that more than half of the sample companies i.e. 64% (n=32) of sample companies considers ESG criteria while making Investment decisions.

Cross tabulations & Chi-square test

Cross tabulations & Chi-square between independent variables & ESG Investment

Cross tabulations & chi-square tests were conducted between various independent variables of the study and ESG Investments done by sample companies so as to identify which types of companies considers ESG Investment while making Investment decisions and also to study association between them. Below table shows the outcome of the cross tabulations & chi-square test results.

Hypothesis testing to find out association between demographic variables and ESG Investment practiced by companies

Table 50 depicts the values of cross tab and chi-square test on ESG Investment practiced by companies

i) Based on types of Industry - Above 2*2 crosstab table, shows that 69% (n=25 out of 36) of chemical and petrochemical companies and 50% (n=7 out of 14) of pharma companies adopted ESG Investments practices while 31% (n=11 out of 36) in case of

chemical and petrochemical companies and 50% (n=7 out of 14) in case of pharma companies were found not practicing ESG investments.

Table 50

Cross tabulations Independent variables and ESG Investment practiced by companies (n=50)

Demographic Variables	ESG Investments practiced by sample companies						Significance
	No		Yes		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical /petrochem	11 (13.5)	31	25 (23.0)	69	36	100	$\chi 2_{(1)} = 1.654$, $p = 0.198$(ns), Phi = 0.182
Pharma	07 (5.0)	50	07 (9.0)	50	14	100	Fail to Reject H0
Total	18	36	32	64	50	100	
Sector Ownership							
Government	00 (2.2)	00	06 (4.0)	100	06	100	$\chi 2_{(1)} = 3.835$, $p = 0.075$ (ns), Phi = 0.277
Non-Govt	18 (16.0)	41	26 (28.2)	59	44	100	Fail to Reject H0
Total	18	36	32	64	50	100	
Legal status of the firm							
Unlisted	15 (9.0)	60	10 (16.0)	40	25	100	$\chi 2_{(1)} = 12.500$, $p = 0.000$***, Phi = 0.500
Listed	03 (9.0)	12	22 (16.0)	88	25	100	Reject H0
Total	18	36	32	64	50	100	
Age / experience of the firm							
Up to 25 years	05 (2.5)	71	02 (4.5)	29	07	100	$\chi 2_{(1)} = 4.434$, $p = 0.083$ (ns), Phi = 0.298
More than 25 yrs	13 (15.5)	30	30 (27.5)	70	43	100	Fail to Reject H0
Total	18	36	32	64	50	100	

Size of the firm							
Medium / Small	08 (3.6)	80	02 (6.4)	20	10	100	$\chi2_{(1)} = 10.503$, $p= 0.002$**
Large	10 (14.4)	25	30 (25.6)	75	40	100	Phi = 0.458
Total	18	36	32	64	50	100	Reject H0
Average Revenue of the firm							
Up to 3000 crs	18 (12.6)	51	17 (22.4)	49	35	100	$\chi2_{(1)} = 12.054$, $p= 0.001$***
More than 3000 crs	00 (5.4)	00	15 (9.6)	100	15	100	Phi = 0.491
Total	18	36	32	64	50	100	Reject H0
Average PAT of the firm							
Up to 100 crs	17 (9.7)	63	10 (17.3)	37	27	100	$\chi2_{(1)} = 18.521$, $p= 0.000$***
More than 100 crs	01 (8.3)	04	22 (14.7)	96	23	100	Phi = 0.609
Total	18	36	32	64	50	100	Reject H0
Average Reserves of the firm							
Up to 1000 crs	14 (9.0)	56	11 (16.0)	44	25	100	$\chi2_{(1)} = 8.681$, $p= 0.003$**
More than 1000 crs	04 (9.0)	16	21 (16.0)	84	25	100	Phi = 0.417
Total	18	36	32	64	50	100	Reject H0

*ns- not significant, *p ≤ 0 .05, **p<0.01, ***p<0.001*

Chi-square test shows NO significant association between types of industry and ESG Investments practiced by companies $\chi2$ (1, N= 50) = 1.654, p = 0.198 (ns) (refer table 50). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.182 shows weak association between two tested variables.

ii) Based on Sector Ownership - The 2*2 crosstab table demonstrates that all 100% (n=6) government companies and 59% (n=26 out of 44) of non-government

companies adopted ESG Investments practices. It was found that 41% (n=18) of non-government companies doesn't practice ESG Investments.

Chi-square test shows NO significant association between sector ownership and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 3.835, p = 0.075 (ns) (refer table 50). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.277 shows weak to moderate association between two tested variables.

iii) Based on legal status of the firm -From the 2*2 crosstab table, it was noted that 40% (n=10 out of 25) of the unlisted companies and 88% (n=22 out of 25) of the listed companies' practices ESG investments, while 60% (n=15) of the unlisted companies and 12% (n=3) listed companies does not invest in ESG.

Chi-square test shows significant association between legal status of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 12.500, p = 0.000 (refer table 50). Here, chi-square significant value was applicable as 0 cell (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.500 shows strong association between two tested variables**.**

iv) Based on age of the firm - The 2*2 crosstab table, shows that 29% (n=2 out of 7) of companies having age/ experience up to 25 years and 70% (n=30 out of 43) companies having age / experience more than 25 years' practices ESG investments while 71% (n=5 out of 7) in case of companies with age /experience up to 25 years and 30% (n=13 out of 43) companies having more than 25 years' age / experience does not practice ESG investments.

Chi-square test shows NO significant association between age of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 4.434, p = 0.083 (ns) (refer table 50). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.298 shows weak to moderate association between two tested variables.

vi) Based on size of the firm – The 2*2 crosstab table specifies that 20% (n=2 out of 10) of the medium and small sized companies and 75% (n=30 out of 40) of the large sized companies' practices ESG investments while 80% (n=8 out of 10) of medium and small sized companies and 25% (n=10 out of 40) of large sized companies does not invests in ESG.

Chi-square test shows significant association between size of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 10.503, p = 0.002 (refer table 50). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.458 shows moderate association between two tested variables.

vi) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 49% (n=17 out of 35) of companies having avg. revenue up to 3000 crs and all 100% (n=15 out of 15) companies' avg. revenue with more than 3000 crs practiced ESG investments while 51% (n=18 out of 35) companies with avg. revenue up to 3000 crs does not invests in ESG.

Chi-square test shows significant association between average revenue of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 12.054, p = 0.001 (refer table 50). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.491 shows moderate association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 37% (n=10 out of 27) companies with avg. PAT up to 100 crs and 96% (n=22 out of 23) companies with avg. PAT more than 100 crs practiced ESG investments while 63% (n=17 out of 27) companies with avg. PAT up to 100 crs and 04% (n=1 out of 23) companies with avg. PAT more than 100 crs does not invests in ESG.

Chi-square test shows significant association between average PAT of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 18.521, p = 0.000 (refer table 50). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.609 shows strong level of association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 44% (n=11 out of 25) companies with avg. Reserves up to 1000 crs and 84% (n=21 out of 25) companies with avg. Reserves more than 1000 crs practiced ESG investments while 56% (n=14 out of 25) companies with avg. reserves up to 1000 crs and 16% (n=4 out of 25) companies with avg. reserves more than 1000 crs does not practice ESG investment.

Chi-square test shows significant association between average Reserves of the firm and ESG Investments practiced by companies $\chi 2$ (1, N= 50) = 8.681, p = 0.003 (refer table 50). Here, Chi square sig. value was applicable as 0 cell (00%) had expected count less

than 5. Moreover, even Phi coefficient value 0.417 shows moderate level of association between two tested variables.

Companies behaviour towards ESG investment

Question 13 from the questionnaire investigates ESG Investment behaviour by the respondent companies (n=32) while making investment decisions using 5 point likert scale (Strongly agree to strongly disagree). Below table, shows the descriptive analysis (Mean & SD) of the same.

Table 51

Mean & SD table on Companies behaviour towards ESG investment (n=32)

ESG behaviour of companies while making investment decisions	Mean	SD
Company incorporates ESG issues into investment analysis and decision-making processes	3.84	1.051
Company assesses the capabilities of internal and external investment managers to incorporate ESG issues.	3.81	0.998
Company asks investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors	3.59	1.043
Company advocates ESG training for investment professionals.	3.34	0.902
Company incorporates ESG issues into their ownership policies and practices.	3.81	0.821
Company participates in the development of policy, regulation, and standard setting (such as promoting and protecting shareholder rights).	3.63	1.157
Company asks investment managers to undertake and report on ESG related engagements.	3.44	1.144
Appropriate disclosure is done by the company on ESG issues by the entities in which they invest.	3.72	0.958

Above table 51 reflects descriptive analysis of ESG Investment Behaviour by companies while making investment decisions. The mean of each items ranged from 3.34 3.84, indicating maximum frequencies lies between moderate to agreement scale. It can be inferred that highest mean value with SD ($\bar{x}$=3.84, SD=1.051) was found for a statement - Company has incorporated ESG issues into investment analysis and decision-making processes followed by other two statements having next highest mean - Company assesses

the capabilities of internal and external investment managers to incorporate ESG issues ($\bar{x}$=3.81, SD=0.998) and also Company has incorporated ESG issues into their ownership policies and practices ($\bar{x}$=3.81, SD=0.821). Lowest mean with SD ($\bar{x}$=3.34, SD=0.902) was found for a statement - Company advocates ESG training for investment professionals.

Factor Analysis

Factor Analysis on Companies behaviour towards ESG investment

Initially, taking into account assumptions of the test, factorability of the 8 items was examined. Principal Component Analysis (PCA) was conducted on the 8 items with orthogonal rotation- Varimax Method.

Correlation Matrix- Initial correlation matrix table revealed how each of the 8 items were associated with other items. Some of the variables with values more than $\pm$ 0.5 or greater were having moderate or high correlations and items with $\pm$ 0.20 or lesser were having low correlations among them. From the output table, it was observed that there were 6 variables out of 8, with values more than $\pm$ 0.5. Values of two variables were found less than $\pm$ 0.5 for statements – i). Company asks investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors and another statement having value as 0.365 and ii). Company participates in the development of policy, regulation, and standard setting (such as promoting and protecting shareholder rights having value as 0.401. One assumption was that the determinant (located under the correlation matrix table) should be more than 0.0001. Here, determinant value was 0.001 so this assumption was met. If the determinant would have been zero, then a factor analytic solution cannot be obtained.

KMO & Bartlett test of Sphericity - KMO measures the sampling adequacy and its value should be greater than 0.5 for a satisfactory factor analysis to proceed. In our case, Initial KMO value (measures of sampling adequacy) found was 0.854, considered as meritorious (Kaiser, 1974), and KMO value higher than 0.5 is acceptable.

Bartlett test should be significant (i.e., a significance value should be less than 0.05) means that the variables are correlated highly enough to provide a reasonable basis for factor analysis. In this case, Bartlett test of Sphericity was found significant having $\chi 2$ (28) = 184.543, p =0.000.

Anti-image & Communalities table - Anti-image matrices values to be observed on the diagonal, serve as a measure for determining the sample size, marked with a superscripted

"a." All elements on the diagonal of this matrix should be greater than 0.5 if the sample is adequate (Field, 2000).

In the present case, the diagonal of the anti-image correlation values was found between 0.774 and 0.898, i.e. all values were greater than 0.5. It therefore follows that all variables can be included in the factor analysis.

Communalities table indicates the proportion of the variable's variance explained by the extracted factors. Communalities values can range between 0 (no variance explained) to 1 (all variance explained). Communalities values should be greater than 0.5. In the present case, all the communality values were above 0.5. Hence, none of the item gets dropped at this stage.

Total Variance explained - This table lists eigenvalues associated with each factor before extraction, after extraction and after rotation. All factors with eigenvalues greater than 1 are extracted, leaving with two factors. The Eigen values associated with these factors and the % of variance explained are displayed under the heading of Extractions Sums of Squared loadings. Eigenvalues of the factors after rotation are displayed in the last part of the table labelled as Rotation Sums of squared loadings.

Table 52

Total Variance Explained on ESG Investment Behaviour having 8 items

Comp-onent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumula-tive %	Total	% of Varian ce	Cumula-tive %	Total	% of Varian ce	Cumula-tive %
1	5.285	66.067	66.067	5.285	66.067	66.067	3.579	44.735	44.735
2	.965	12.064	78.131	.965	12.064	78.131	2.672	33.396	78.131
3	.629	7.866	85.998						
4	.359	4.490	90.488						
5	.298	3.728	94.216						
6	.184	2.303	96.519						
7	.152	1.903	98.422						
8	.126	1.578	100.000						

Extraction Method: Principal Component Analysis.

Before rotation, factor 1 accounted for considerably more variance than the factor 2 (66.067% and 12.064%), but after rotation, first component accounts for only 44.735% of the variance and the second component accounted for 33.396% of the variance, hence cumulative 78.131% of variance explained. Below table depicts the results of total Variance explained with 8 items on companies ESG Investment behaviour

Rotated component matrix table - This table shows a matrix of the factor loadings for each variable on each factor. Factor loadings less than 0.4 were not observed in the table as it was suppressed. Variables were listed in the order of size of their factor loadings.

Following criteria were considered in terms of dealing with factor loadings decision – first, each factor must have at least three items loadings $\geq$ 0.5; second, individual items must have at least one loading $\geq$ 0.5; third in case of cross loadings the item was placed only in the factor on which it has higher factor loadings; and finally if cross loadings found $\leq$ 0.5 on both factors, the item was considered for deletion.

Table 53

Factor Loadings from Principal Component Analysis with Varimax Rotation for a Two Factor Solution on Companies ESG investment Behaviour (N=32)

Items	Components		Comm-unality
	1	2	
Appropriate disclosure is done by the company on ESG issues by the entities in which they invest.	0.919		0.888
Company incorporates ESG issues into investment analysis and decision-making processes	0.874		0.797
Company assesses the capabilities of internal and external investment managers to incorporate ESG issues.	0.798		0.761
Company asks investment managers to undertake and report on ESG related engagements.	0.678	0.556	0.768
Company incorporates ESG issues into their ownership policies and practices.	0.624	0.516	0.656
Company advocates ESG training for investment professionals		0.891	0.809
Company participates in the development of policy, regulation, and standard setting (such as promoting and protecting shareholder rights).		0.805	0.761
Company asks investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors	0.597	0.673	0.810
Eigen Values	3.579	2.672	
% of Variances	44.735	33.396	

Note. Factor loadings < .4 are suppressed

It was noted that all factors had loadings greater than 0.5 and there was no requirement to discard any of the variable item. Thus this table was Final Rotated component matrix displaying the items and component loadings for the rotated components, with no loadings less than 0.4. The above table demonstrates output on factor loadings on both factors and communalities values of each items.

Two components were obtained, and indexed as ‘Corporate ESG Compliant Behaviour' and ‘Corporate ESG Responsible Behaviour'. It was noted that all factors loadings were greater than 0.5 (refer output table). Item –no. 4, 5 and 8 were having a case of cross loadings. Item - 4 i.e. Company asks investment managers to undertake and report on ESG related engagements.1 &2, but loading for factor 1 (0.678) was greater than for factor 2 (0.556), thus as it is making bigger contribution to factor 1 than factor 2, it was considered as a part of factor 1.

In case of cross-loadings on item 5, i.e. Company incorporates ESG issues into their ownership policies and practices again loading for factor 1 (0.624) was greater than for factor 2 (0.516), thus as it is making bigger contribution to factor 1 than factor 2, it was considered as a part of factor 1.

Cross loading was also observed in item no. 8 - Company asks investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors but as loading value on factor 2 (0.673) was greater than loading value on factor 1 (0.597), item no. was considered as part of factor 2

The first component, which was indexed as ‘Corporate ESG Compliant Behaviour' had strong loadings on the first five factors – Appropriate disclosure is done by the company on ESG issues by the entities in which they invest.; Company incorporates ESG issues into investment analysis and decision-making processes; Company assesses the capabilities of internal and external investment managers to incorporate ESG issues; Company asks investment managers to undertake and report on ESG related engagements; and Company incorporates ESG issues into their ownership policies and practices.

The second component, indexed as ‘Corporate ESG Responsible Behaviour', had high loadings on the next three factors includes – Company advocates ESG training for investment professionals; Company participates in the development of policy, regulation, and standard setting (such as promoting and protecting shareholder rights); Company asks investment service providers (such as financial analysts, consultants, brokers, research firms, or rating companies) to integrate ESG factors.

Descriptive statistics, Reliability & Normality test on the factors obtained

Composite mean scores were obtained to measure the level of Corporate ESG investment behaviour towards both factors obtained. Normality test was also conducted through numerical and graphical methods. Below table shows the descriptive characteristics and normality test results on both factors.

Table 54

Descriptive statistics for the two components (n = 32)

Constructs/ Components	No.	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		Cron-bach α	Shapiro sig. value
					Value	Z	Value	Z		
'Corp. ESG Comp-liant Beh	05	3.77	3.70	0.857	-0.737	-1.780	1.911	2.362	0.911	0.057 *
'Corp. ESG Respon-sible Beh.'	03	3.56	3.67	0.904	-0.581	-1.403	0.900	1.112	0.839	0.109 *

***significant**

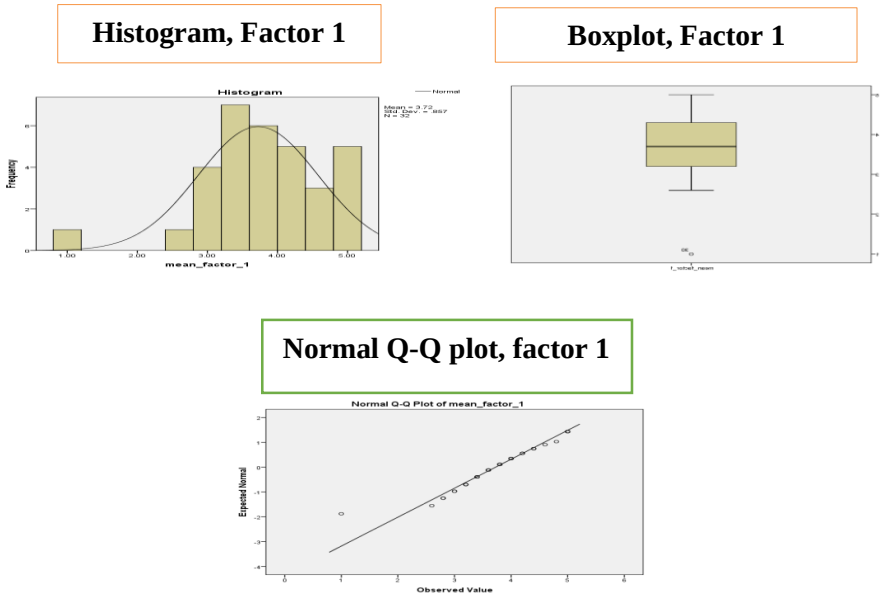
Components 'Corporate ESG Compliant Behaviour' and 'Corporate ESG Responsible Behaviour' have been considered on reflective scale. For internal consistency of components obtained from PCA, Cronbach alpha was applied. Table 54, shows that the components were found reliable as their Cronbach alpha levels for first component 'Corporate ESG Compliant Behaviour' with five items were found α= 0.911 considered as 'Excellent', showing 91% internal consistency amongst the items. Cronbach alpha value for second factor/component 'Corporate ESG Responsible Behaviour' having four items was found α= 0.839 considered as 'good' showing 86% internal consistency amongst items.

As per above table 54, the Mean, Median and SD value on first factor 'Corporate ESG Compliant Behaviour' derived from EFA were $\bar{x}$=3.77 and Mdn=3.70 with s=0.857. Normality of the data were checked through both numerical and graphical methods. From the numerical methods point of view, it was observed that values of Mean (3.77) & Median (3.70) were having minor difference showing that data were near to normal distribution.

The value of kurtosis (1.911) was not found within the ±1.96 range but the value of skewness (-0.737) individually was found within ±1 range. Critical ratio (z value) of the skewness (-1.780) was found within ±1.96 range but z value of kurtosis (2.362) was not found within ±1.96 range, thus the outcome with respect to dispersion specifies that data was somewhat near to normal distribution. Further Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value (p = 0.057) was greater than significant value 0.05, failing to reject null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for first factor 'Corporate ESG Compliant Behaviour' acting as dependent variable (refer figure below).

Figure 15

Histogram, Box plots, Normal Q-Q plots for Factor -1 'Corporate ESG Compliant Behaviour'



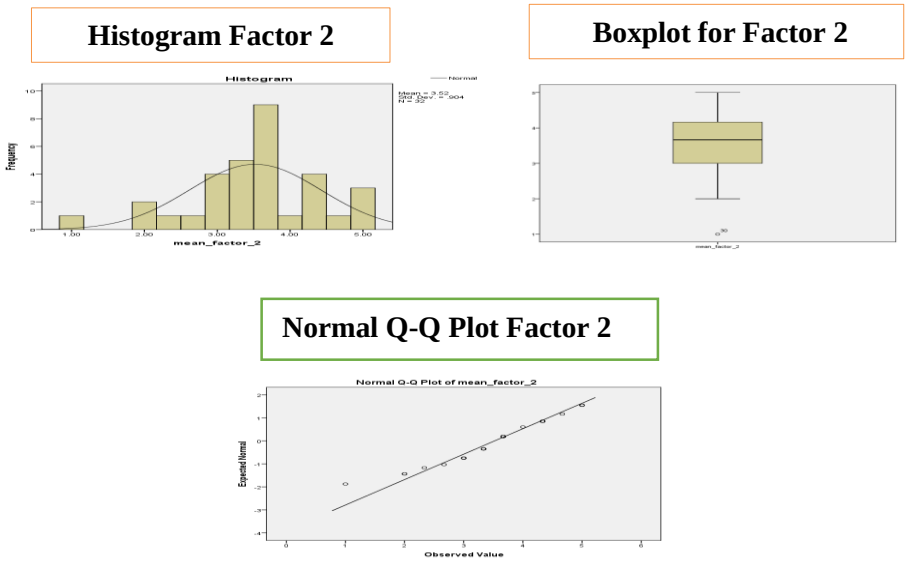
The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were near to normal distribution. Figure, 15, displays Histogram for factor 1 'Corporate ESG Compliant Behaviour' dependent variable confirming normality of data as bell shaped curve was derived. Box plot was found symmetric having only one outliers indicating that data were near to normal distributed. Normal Q-Q Plot was also observed as near to normal as observed data were found near to expected data having major dots on or near to diagonal line.

As per table 54, the Mean, Median and SD value on second factor 'Corporate ESG Responsible Behaviour' derived from EFA were $\bar{x}$= 3.56 and Mdn=3.67 with s=0.904.

Normality checked using numerical methods shows that values of Mean (3.56) & Mdn (3.67) were having minor difference showing that data were near to normal distribution. The value of skewness (-0.581) individually and the value of kurtosis (0.900) individually were found within ±1 range. Critical ratio (z value) of the kurtosis (1.112) and skewness value (-1.403) were found within ±1.96 range, thus the outcome with respect to dispersion specifies that data were normally distributed. Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value (p = 0.109) was greater than significant value 0.05, failing to reject null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for second factor 'Corporate ESG Responsible Behaviour' acting as dependent variable (refer figure below).

Figure - 16

Histogram, Box plots, Normal Q-Q plots for Factor 2 - 'Corporate ESG Responsible Behaviour'



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were normally distributed. Figure 16, displays histogram for factor 2 as dependent variable confirming normality of data as bell shaped curve was derived. Box plot was found symmetric having one outliers indicating that data are normally distributed. Normal Q-Q Plot was also observed as normal, as observed data were found near to expected data having major dots on or close to diagonal line.

Cross tabulations & chi-square test on ESG factor obtained through FA

Cross tabulations & chi-square test applied between various demographic variables and 'Corporate ESG Compliant Behaviour'

Cross tabulations & Chi-square test was conducted between 'Corporate ESG Compliant Behaviour' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square. The Dependent variable which was into scale data was converted first into categorical data and then compressed into agreement and disagreement categories to create 2*2 matrix and apply chi-square test.

Table 55

Cross tabulations & chi-square test results on 'Corporate ESG Compliant Behaviour' and various demographic variables (n=32)

Demographic Variables	Corporate ESG Compliant Behaviour by companies						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petro-chem	09 (10.2)	36	16 (14.8)	64	25	100	$\chi 2_{(1)} = 1.013$, $p = 0.401$ (ns), Phi = 0.178 Fail to Reject H0
Pharmaceutical	04 (2.8)	57	03 (4.2)	43	07	100	
Total	13	41	19	59	32	100	
Sector Ownership							
Government	01 (2.4)	17	05 (3.6)	83	06	100	$\chi 2_{(1)} = 1.757$, $p = 0.361$ (ns), Phi = 0.234 Fail to Reject H0
Non-Government	12 (10.6)	46	14 (15.4)	54	26	100	
Total	13	41	19	59	32	100	
Legal status of the firm							
Unlisted	06 (4.1)	60	04 (5.9)	40	10	100	$\chi 2_{(1)} = 2.264$, $p = 0.244$(ns), Phi = 0.266 Fail to Reject H0
Listed	07 (8.9)	32	15 (13.1)	68	22	100	
Total	13	41	19	59	32	100	

Age / experience of the firm							
Up to 25 years	01 (0.8)	50	01 (1.2)	50	02	100	$\chi2_{(1)} = 0.078$, p= 1.000 (ns), Phi = 0.049 Fail to Reject H0
More than 25 yrs	12 (12.2)	40	18 (17.8)	60	30	100	
Total	13	41	19	59	32	100	
Size of the firm							
Medium / Small	01 (0.8)	50	01 (1.2)	50	02	100	$\chi2_{(1)} = 0.078$, p= 1.000 (ns), Phi = 0.049 Fail to Reject H0
Large	12 (12.2)	40	18 (17.8)	60	30	100	
Total	13	41	19	59	32	100	
Average Revenue of the firm							
Up to 3000 crs	09 (6.9)	53	08 (10.1)	47	17	100	$\chi2_{(1)} = 2.281$, p= 0.131(ns), Phi = 0.267 Fail to Reject H0
More than 3000 crs	04 (6.1)	27	11 (8.9)	73	15	100	
Total	13	41	19	59	32	100	
Average PAT of the firm							
Up to 100 crs	07 (4.1)	70	03 (5.9)	30	10	100	$\chi2_{(1)} = 5.203$, p= 0.049*, Phi = 0.403 Reject H0
More than 100 crs	06 (8.9)	27	16 (13.1)	73	22	100	
Total	13	41	19	59	32	100	
Average Reserves of the firm							
Up to 1000 crs	06 (4.5)	55	05 (6.5)	45	11	100	$\chi2_{(1)} = 1.347$, p= 0.283 (ns), Phi = 0.205 Fail to Reject H0
More than 1000 crs	07 (8.5)	33	14 (12.5)	67	21	100	
Total	13	41	19	59	32	100	

*ns- not significant, *p ≤ 0 .05*

Hypothesis testing to find out association between demographic variables of the study and ESG Compliant Behaviour of companies.

Table 55 shows the cross tab and chi-square test values on ESG Compliant Behaviour of companies

i) Based on types of Industry - Above 2*2 crosstab table, it can be inferred that, 36% (n=9 out of 25) chemical / petrochemical companies and 57% (n=4 out of 7) of

pharma companies had less agreement towards implementing ESG compliant behaviour while 64% (n=16 out of 25) chemical and petrochemical companies and 43% (n=3 out of 7) pharma companies had high agreement towards practicing ESG compliant behaviour.

Chi-square test shows NO significant association between types of industry and ESG compliant behaviour of companies $\chi 2$ (1, N=32) = 1.013, p = 0.401(ns) (refer table 55). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.178 shows weak association between two tested variables.

ii) Based on Sector Ownership - The 2*2 crosstab table demonstrates that, 17% (n=1 out of 6) government companies and 46% (n=12 out of 26) of non-government companies had less agreement, while 83% (n=5 out of 6) of government and 54% (n=14 out of 26) non-government companies had high agreement towards practicing ESG compliant behaviour.

Chi-square test shows NO significant association between sector ownership and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 1.757, p = 0.361 (ns) (refer table 55). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.234 shows weak association between two tested variables.

iii) Based on legal status of the firm -From the 2*2 crosstab table, it was noted that 60% (n=6 out of 10) of unlisted companies and 32% (n=7 out of 22) of listed companies had less agreement, while 40% (n=4 out of 10) of the unlisted companies and 68% (n=15 out of 22) of listed companies had high agreement towards practicing ESG compliant behaviour.

Chi-square test shows NO significant association between legal status of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 2.264 , p = 0.244(ns) (refer table 55). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.266 shows weak association between two tested variables.

iv) Based on age of the firm - The 2*2 crosstab table, shows that 50% (n=1 out of 2) of companies having age / experience up to 25 years and 40% (n=12 out of 30) companies having age / experience more than 25 years' had less agreement, while 50% (n=1 out of 2) in case of companies with age / experience up to 25 years and 60% (n=18

out of 30) of the companies having more than 25 years' experience had high agreement towards ESG compliant behaviour.

Chi-square test shows NO significant association between age of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 0.078 , p = 1.000 (ns) (refer table 55). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.049 shows negligible association between two tested variables.

vi) Based on size of the firm – The 2*2 crosstab table specifies that 50% (n=1 out of 2) of the medium / small sized companies and 40% (n=12 out of 30) of the large sized companies had less agreement, while 50% (n=1 out of 2) of medium / small sized companies and 60% (n=18 out of 30) of large sized companies had high agreement on practicing ESG compliant behaviour.

Chi-square test shows NO significant association between size of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 0.078 , p = 1.000 (ns) (refer table 55). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.049 shows negligible association between two tested variables.

vi) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 53% (n=9 out of 17) of companies having avg. revenue up to 3000 crs and 27% (n=4 out of 15) companies' avg. revenue with more than 3000 crs had less agreement, while 47% (n=8 out of 17) companies with avg. revenue up to 3000 crs and 73% (n=11 out of 15) of the companies' avg. revenue with more than 3000 crs had high agreement on practicing corporate ESG compliant behaviour.

Chi-square test shows NO significant association between avg. revenue of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 2.281, p = 0.131(ns) (refer table 55). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.267 shows near to moderate association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 70% (n=7 out of 10) of the companies with avg. PAT up to 100 crs and 27% (n=6 out of 22) companies with avg. PAT more than 100 crs had less agreement, while 30% (n=3 out of 10) companies with avg. PAT up to 100 crs and 73% (n=16 out of 22) companies with

avg. PAT more than 100 crs had high agreement towards practicing ESG compliant behaviour.

Chi-square test shows significant association between avg. PAT of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 5.203, p = 0.049 (refer table 55). Here, Fisher's exact test value was applicable as 1 cells (25%) have expected count less than 5. Phi coefficient value 0.403 shows moderate level of association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 55% (n=6 out of 11) companies with avg. Reserves up to 1000 crs and 33% (n=7 out of 21) companies with avg. Reserves more than 1000 crs had less agreement, while 45% (n=5 out of 11) companies with avg. reserves up to 1000 crs and 67% (n=14 out of 21) companies with avg. reserves more than 1000 crs had high agreement on practicing ESG compliant behaviour.

Chi-square test shows NO significant association between avg. reserves of the firm and ESG compliant behaviour by companies $\chi 2$ (1, N= 32) = 1.347, p = 0.283 (ns) (refer table 55). Here, Fisher's exact test value was applicable as 1 cells (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.205 shows weak level of association between two tested variables.

Cross tabulations & chi-square test between various demographic variables 'Corporate ESG Responsible Behaviour'

Cross tabulations & Chi-square test was conducted between 'Corporate ESG Responsible Behaviour' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Hypothesis testing to find out association between demographic variables of the study and ESG Responsible Behaviour of companies.

Table 56 depicts the crosstab and chi-square test value on ESG Responsible Behaviour of companies

i) Based on types of Industry - Above 2*2 crosstab table, it can be inferred that, 52% (n=13 out of 25) of chemical and petrochemical companies and 14% (n=1 out of 7) of pharma companies had less agreement towards practicing ESG Responsible behaviour while 48% (n=12 out of 25) in case of chemical and petrochemical companies and 86%

(n=6 out of 7) in case of pharma companies had high agreement towards practicing ESG Responsible behaviour.

Table 56

Cross tabulations & chi-square test results on 'Corporate ESG Responsible Behaviour' and various demographic variables (n=32)

Demographic Variables	Corporate ESG Responsible Behaviour of companies						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petro-chemicals	13 (10.9)	52	12 (14.1)	48	25	100	$\chi 2_{(1)} = 3.161$, $p = 0.104$ (ns), Phi = 0.314
Pharmaceutical	01 (3.1)	14	06 (3.9)	86	07	100	Fail to Reject H0
Total	14	44	18	56	32	100	
Sector Ownership							
Government	03 (2.6)	50	03 (3.4)	50	06	100	$\chi 2_{(1)} = 0.117$, $p = 1.000$ (ns), Phi = 0.061
Non-Government	11 (11.5)	42	15 (14.6)	58	26	100	Fail to Reject H0
Total	14	44	18	56	32	100	
Legal status of the firm							
Unlisted	07 (4.4)	70	03 (5.6)	30	10	100	$\chi 2_{(1)} = 4.073$, $p = 0.062$ (ns), Phi = 0.357
Listed	07 (9.6)	32	15 (12.4)	68	22	100	Fail to Reject H0
Total	14	44	18	56	32	100	
Age / Experience of the firm							
Up to 25 years	01 (0.9)	50	01 (1.1)	50	02	100	$\chi 2_{(1)} = 0.034$, $p = 1.000$ (ns), Phi = 0.033
More than 25 yrs	13 (13.1)	43	17 (16.9)	57	30	100	Fail to Reject H0
Total	14	44	18	56	32	100	
Size of the firm							
Medium / Small	01 (0.9)	50	01 (1.1)	50	02	100	

Large	13 (13.1)	43	17 (16.9)	57	30	100	$\chi2_{(1)} = 0.034$, p= 1.000 (ns), Phi = 0.033 Fail to Reject H0
Total	14	44	18	56	32	100	
Avg. Revenue of the firm							
Up to 3000 crs	08 (7.4)	47	09 (9.6)	53	17	100	$\chi2_{(1)} = 0.161$, p= 0.735 (ns), Phi = 0.071 Fail to Reject H0
More than 3000 crs	06 (6.6)	40	09 (8.4)	60	15	100	
Total	14	44	18	56	32	100	
Avg. PAT of the firm							
Up to 100 crs	07 (4.4)	70	03 (5.6)	30	10	100	$\chi2_{(1)} = 4.073$, p= 0.062 (ns), Phi = 0.375 Fail to Reject H0
More than 100 crs	07 (9.6)	32	15 (12.4)	68	22	100	
Total	14	44	18	56	32	100	
Avg. Reserves of the firm							
Up to 1000 crs	06 (4.8)	55	05 (6.2)	45	11	100	$\chi2_{(1)} = 0.794$, p= 0.465 (ns), Phi = 0.205 Fail to Reject H0
More than 1000 crs	08 (9.2)	38	13 (11.8)	62	21	100	
Total	14	44	18	56	32	100	

ns- not significant

Chi-square test shows NO significant association between types of Industry and ESG responsible behaviour by companies $\chi2$ (1, N= 32) = 3.161, p = 0.104 (ns) (refer table 56). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.314 shows moderate association between two tested variables.

ii) Based on Sector Ownership - The 2*2 crosstab table demonstrates that, 50% (n=3 out of 6) government companies and 42% (n=11 out of 26) of non-government companies had less agreement, while 50% (n=3 out of 6) of government companies and 58% (n=15 out of 26) non-government companies had high agreement towards practicing ESG responsible behaviour.

Chi-square test shows NO significant association between sector ownership and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 0.117, p = 1.000 (ns) (refer table 56). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.061 shows negligible association between two tested variables.

iii) Based on legal status of the firm -From the 2*2 crosstab table, it was noted that 70% (n=7 out of 10) of the unlisted companies and 32% (n=7 out of 22) of the listed companies had less agreement, while 30% (n=3 out of 10) of the unlisted companies and 68% (n=15 out of 22) of listed companies had high agreement towards practicing corporate ESG responsible behaviour.

Chi-square test shows NO significant association between legal status of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 4.073, p = 0.062 (ns) (refer table 56).Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.357 shows moderate association between two tested variables.

iv) Based on age of the firm - The 2*2 crosstab table, shows that 50% (n=1 out of 2) of companies having age / experience up to 25 years and 43% (n=13 out of 30) companies having age / experience more than 25 years' had less agreement, while 50% (n=1 out of 2) in case of companies with age / experience up to 25 years and 57% (n=17 out of 30) of the companies having more than 25 years' age / experience had agreement towards ESG responsible behaviour.

Chi-square test shows NO significant association between age of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 0.034, p = 1.000 (ns) (refer table 56). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.033 shows negligible association between two tested variables.

vi) Based on size of the firm – The 2*2 crosstab table specifies that 50% (n=1 out of 2) of the medium and small sized companies and 43% (n=13 out of 30) of the large sized companies had less agreement, while 50% (n=1 out of 2) of medium / small sized companies and 57% (n=17 out of 30) of large sized companies had high agreement on practicing corporate ESG responsible behaviour.

Chi-square test shows NO significant association between size of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 0.034, p = 1.000 (ns) (refer table 56).

Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.033 shows negligible association between two tested variables.

vi) Based on average Revenue of the firm - From the 2*2 crosstab table, it was noted that 47% (n=8 out of 17) of companies having avg. revenue up to 3000 crs and 40% (n=6 out of 15) of companies' avg. revenue with more than 3000 crs had less agreement, while 53% (n=9 out of 17) companies with avg. revenue up to 3000 crs and 60% (n=9 out of 15) of the companies' age revenue with more than 3000 crs gave high agreement on practicing ESG responsible behaviour.

Chi-square test shows NO significant association between average revenue of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 0.161, p = 0.735 (ns) (refer table 56). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.071 shows negligible association between two tested variables.

vii) Based on average PAT of the firm - The 2*2 crosstab table, denotes that 70% (n=7 out of 10) of the companies with avg. PAT up to 100 crs and 32% (n=7 out of 22) companies with avg. PAT more than 100 crs gave less agreement, while 30% (n=3 out of 10) companies with PAT up to 100 crs and 68% (n=15 out of 22) companies with PAT more than 100 crs gave high agreement towards practicing ESG responsible behaviour.

Chi-square test shows NO significant association between avg. PAT of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 4.073, p = 0.062 (ns) (refer table 56). Here, Fisher's exact test value was applicable as 1 cells (25%) have expected count less than 5. Phi coefficient value 0.375 shows moderate level of association between two tested variables.

viii) Based on average Reserves of the firm - The 2*2 crosstab table, denotes that 55% (n=6 out of 11) companies with avg. Reserves up to 1000 crs and 38% (n=8 out of 21) companies with avg. Reserves more than 1000 crs gave less agreement, while 45% (n=5 out of 11) companies with avg. reserves up to 1000 crs and 62% (n=13 out of 21) companies with avg. reserves more than 1000 crs gave high agreement on practicing ESG responsible behaviour.

Chi-square test shows NO significant association between average reserves of the firm and ESG responsible behaviour by companies $\chi 2$ (1, N= 32) = 0.794, p = 0.465 (ns) (refer table 56). Here, Fisher's exact test value was applicable as 1 cells (25%) have

expected count less than 5. Moreover, even Phi coefficient value 0.205 shows weak level of association between two tested variables.

Independent sample t-test on ESG factors obtained from factor Analysis

Independent t-test on 'Corporate ESG Compliant Behaviour'

As normality assumptions was met on factors obtained from factor analysis, Independent sample t-test was conducted using 'Corporate ESG Compliant Behaviour' as DV (continuous scale) and various demographic variables of the study as IV (categorical scale) to study significances differences in their means.

Table 57

Group statistics table showing Difference in Mean & SD on *'Corporate ESG Compliant Behaviour' (n=32)*

Variables	N	Mean	SD	Std. Error Mean
Types of Industry				
Chemicals/petrochemical	25	3.70	.889	.178
Pharmaceutical	07	3.83	.787	.297
Sector Ownership				
Government owned	06	4.20	.790	.322
Non-government owned	26	3.62	.848	.166
Legal status of firm				
Unlisted	10	3.20	.904	.286
Listed	22	3.96	.737	.157
Age of the firm				
Up to 25 years	02	3.80	.849	.600
More than 25 years	30	3.72	.872	.159
Size of the firm				
Medium & Small	02	2.70	2.404	1.700
Large	30	3.79	.713	.130
Avg. Revenue of the firm				
Up to 3000crs	17	3.55	.961	.233
More than 3000crs	15	3.92	.704	.182
Avg. PAT of the firm				
Up to 100 crs	10	3.28	.962	.304
More than 100crs	22	3.93	.742	.158
Avg. Reserves of the firm				
Up to 1000crs	11	3.38	.923	.278
Reserves more than 1000crs	21	3.90	.784	.171

The table shows group statistics & Independent sample t-test results on 'Corporate ESG Compliant Behaviour' calculated through mean, SD and variance across different variables of the study.

Table 58

Independent Sample t-test on corporate ESG compliant Behaviour across different variables

	Levene's test Equality of Variances		t-test for Equality of Means						
								95% CI of the Difference	
Variables	F	Sig.	t	Df	Sig. (2-tailed	Mean Diff	Std. Error Diff.	LL	UL
Types of Industry									
Equal Var assu	.001	.969 (ns)	-.357	30	.724 (ns)	-.133	.372	-.892	.627
Equal var.not assu			-.383	10.715	.709	-.133	.346	-.898	.633
Sector Ownership									
Equal Var. assu	.004	.947 (ns)	1.539	30	.134 (ns)	.585	.380	-.191	1.361
Equal var.not assu			1.611	7.904	.146	.585	.363	-.254	1.423
Legal status of firm									
Equal Var. assu	.000	.986 (ns)	-2.531	30	.017 *	-.764	.302	-1.380	-.148
Equal var.not assumed			-2.340	14.683	.034	-.764	.326	-1.460	-.067
Age of the firm									
Equal Var. assum	.017	.896 (ns)	.126	30	.901 (ns)	.080	.636	-1.219	1.379
Equal var.not assum			.129	1.146	.916	.080	.621	-5.792	5.952

Size of the firm									
Equal Var. assum	15.12	.001**	-1.809	30	.080	-1.093	.604	-2.327	.141
Equal var.not assum			-.641	1.012	.636 (ns)	-1.093	1.705	-22.170	19.98
Avg. Revenue of the firm									
Equal Var. assum	.276	.603 (ns)	-1.218	30	.233 (ns)	-.367	.301	-.982	.248
Equal var.not assum			-1.242	29.093	.224	-.367	.296	-.971	.237
Avg. PAT of the firm									
Equal Var. assum	.015	.904 (ns)	-2.084	30	.046*	-.647	.311	-1.282	-.013
Equal var.not assum			-1.887	14.081	.080	-.647	.343	-1.383	.088
Avg. Reserves of the firm									
Equal Var. Assum	.169	.684 (ns)	-1.687	30	.102 (ns)	-.523	.310	-1.156	.110
Equal var. not assumed			-1.601	17.722	.127	-.523	.327	-1.210	.164

*ns- not significant, *p ≤ 0 .05*

Hypothesis testing to find out significant differences in Corporate ESG Compliance Behaviour of companies across various demographical variables of the study

Table 57 & 58, shows the values of group statistics and Independent t test on ESG compliant behaviour of companies

(i) **On the basis of types of Industry** - An independent-samples t-test at 5% α level was conducted to compare 'Corporate ESG Compliant Behaviour' on the basis of types of industry.

H0: μ chemical/petrochemicals = μ pharmaceuticals

Ha: μ chemical/petrochemicals≠μ pharmaceuticals

Group statistics table 57 shows descriptive statistics for the two groups (chemicals/petrochemicals and pharmaceuticals) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.969, which is > 0.05, hence there exists an equality of variance.

Table reports values for chemical/petrochemicals (M = 3.70, S.D. =.889) and pharmaceuticals (M= 3.83, S.D. =.787), t (30) = -0.375, p = 0.724 > .05. As p value was>0.05, null hypothesis fails to get rejected. Therefore, there was no significant difference in mean between chemicals/petrochemicals companies and pharmaceutical companies with context to Corporate ESG Compliant Behaviour'.

(ii) On the basis of Sector based on Ownership - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour' on the basis of Sector based on Ownership.

H0: μ Government owned = μ Non-government owned

Ha: μ Government owned ≠μ Non-government owned

Group statistics table 57, shows descriptive statistics for the two groups (government owned companies & non-government companies) separately. Table 58., shows 'Levene's Test for Homogeneity of Variances' 0.947, which is > 0.05, hence there exists an equality of variance.

Tables report values for government owned companies (M = 4.20, S.D. =.790) and non-government companies (M=3.62, S.D. =.848), t (30) = 1.539, p = 0.134 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Therefore, there was no significant difference in mean between government companies and non-government companies with context to Corporate ESG Compliant Behaviour'.

(iii) On the basis of Legal status of the company - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of Legal status of the company

H0: μ Unlisted companies = μ Listed companies

Ha: μ Unlisted companies ≠μ Listed companies

Group statistics table 57, shows descriptive statistics for the two groups (unlisted companies &listed companies) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.986, which is > 0.05, hence there exists an equality of variance.

Tables report values for unlisted companies (M = 3.20, S.D. =.904) and listed companies (M=3.96, SD=.737), t (30) = -2.531, p = 0.017 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that listed companies were found significantly better than unlisted companies in terms of Corporate ESG Compliant Behaviour. Thus, there exists significant difference in Corporate ESG Responsible Behaviour on the basis of legal status of the firm.

(iv) On the basis of Age of the company - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of Age of the company

H0: μ Up to 25 years = μ More than 25 years

Ha: μ Up to 25 years ≠μ More than 25 years

Group statistics table 57, shows descriptive statistics for the two groups (Companies age up to 25 years and companies age more than 25 years) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.896, which is > 0.05, hence there exists an equality of variance.

Table report values for age up to 25 years (M = 3.80, S. D=.849) and age more than 25 years (M= 3.72, S.D. = .872), t (30) = 0.126, p = 0.901 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Therefore, there was no significant difference in mean between companies having age up to 25 years and companies having age more than 25 years with context to Corporate ESG Compliant Behaviour**.**

(v) On the basis of size of the company - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of size of the company

H0: μ medium & small size = μ large size

Ha: μ medium & small size ≠μ large size

Group statistics table 57, shows descriptive statistics for the two groups (medium & small sized companies &large sized companies) separately. Table 58., shows 'Levene's Test for Homogeneity of Variances' 0.001, which is <0.05, hence equality of variance does not exist.

Tables report values for medium & small sized companies (M =2.70, S.D. =2.404) and large sized companies (M= 3.79, S.D = 0.713), t (1.012) = -0.641, p = 0.636 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Therefore, there was no significant

difference in mean between large sized companies and medium & small sized companies with context to Corporate ESG Compliant Behaviour.

(vi) On the basis of average Revenue of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of revenue of the company

H0: μ Revenue Up to 3000crs = μ Revenue More than 3000crs

Ha: μ Revenue Up to 3000crs ≠μ Revenue More than 3000crs

Group statistics table 57, shows descriptive statistics for the two groups (companies earning avg. revenue up to 3000crs & companies earning avg. revenue more than 3000crs) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.603, which is > 0.05, hence there exists an equality of variance. Tables report values for companies earning avg. revenue up to 3000crs (M = 3.55, S.D. = .961) and companies earning avg. revenue more than 3000crs (M=3.92, S.D.=.704), t (30) =-1.218, p = 0.233 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Therefore, there was no significant difference in mean between companies earning avg. revenue more than 3000crs and companies earning avg. revenue up to 3000crs with context to Corporate ESG Compliant Behaviour.

(vii) On the basis of average PAT of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of avg. PAT of the company

H0: μ PAT Up to 100 crs = μ PAT More than 100crs

Ha: μ PAT Up to 100crs ≠μ PAT More than 100crs

Group statistics table 57, shows descriptive statistics for the two groups (companies earning avg. PAT up to 100crs & companies earning avg. PAT more than 100 crs) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.904, which is > 0.05, hence there exists an equality of variance.

Tables report values for companies earning avg. PAT up to 100crs (M =3.28, S.D. = .962) and companies earning avg. PAT more than 100crs (M=3.93, S.D =.742), t (30) = -2.084, p = 0.046 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that companies earning PAT more than 100crs were found significantly better than companies earning PAT up to 100crs in terms of Corporate ESG Compliant Behaviour. Therefore, there exists significant difference in Corporate ESG Compliant Behaviour on the basis of PAT of the firm.

(viii) On the basis of average Reserves of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Compliant Behaviour on the basis of avg. Reserves of the company

H0: μ Reserves Up to 1000 crs = μ Reserves more than 1000 crs

Ha: μ Reserves Up to 1000 crs ≠μ Reserves more than 1000 crs

Group statistics table 57, shows descriptive statistics for the two groups (companies having avg. Reserves up to 1000crs & companies having avg. Reserves more than 1000 crs) separately. Table 58, shows 'Levene's Test for Homogeneity of Variances' 0.684, which is > 0.05, hence there exists an equality of variance. Table reports values for companies having Reserves up to 1000crs (M = 3.38, S.D. = .923) and companies having Reserves more than 1000crs (M=3.90, S.D =0.784), t (30) =-1.687, p = 0.102 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Therefore, there was no significant difference in mean between companies having avg. reserves more than 1000crs and companies having avg. reserves up to 1000crs with context to Corporate ESG Compliant Behaviour**.**

Independent t-test on 'Corporate ESG Responsible Behaviour' (factor-2)

Independent sample t-test was applied using 'Corporate ESG Responsible Behaviour' as Dependent Variable (continuous scale) and various demographic variables of the study as Independent variables (categorical scale) to study the significance differences in their means.

Below table shows group statistics & Independent sample t-test results on 'Corporate ESG Responsible Behaviour 'calculated through mean, SD and variance across different variables of the study.

Hypothesis testing to find out significant differences in corporate ESG Responsible Behaviour of companies across various demographical variables of the study

Table 59 & 60 shows the values of group statistics and Independent t test on ESG responsible behaviour of companies

(i) **On the basis of types of Industry**- An independent-sample t-test at 5% α level was conducted to compare 'Corporate ESG Responsible Behaviour' on the basis of types of industry.

H0: μ chemical/petrochemicals = μ pharmaceuticals

Ha: μ chemical/petrochemicals≠μ pharmaceuticals

Table 59

Group statistics table showing Difference in Mean & SD on *'Corporate ESG Responsible Behaviour' (n=32)*

Variables	N	Mean	SD	Std. Error Mean
Types of Industry				
Chemicals/petrochemical	25	3.41	.959	.192
Pharmaceutical	07	3.90	.568	.215
Sector Ownership				
Government owned	06	3.56	.981	.401
Non-government owned	26	3.51	.905	.178
Legal status of firm				
Unlisted	10	2.83	1.009	.319
Listed	22	3.83	.665	.142
Age of the firm				
Up to 25 years	02	3.00	.943	.667
More than 25 years	30	3.56	.907	.166
Size of the firm				
Medium & Small	02	2.67	2.357	1.667
Large	30	3.58	.792	.145
Revenue of the firm				
Up to 3000crs	17	3.43	1.039	.252
More than 3000crs	15	3.62	.744	.192
PAT of the firm				
Up to 100 crs	10	3.10	1.043	.330
More than 100crs	22	3.71	.785	.167
Reserves of the firm				
Up to 1000crs	11	3.18	1.015	.306
Reserves more than 1000crs	21	3.70	.809	.177

Table 60

Independent Sample t-test on corporate ESG Responsible Behaviour across different variables

	Levene's test Equality of Variances		t-test for Equality of Means						
					Sig.		Std.	95% CI of the Difference	
Variables	f	Sig.	t	Df	(2-tailed	Mean Diff	Error Diff.	LL	UL
Types of Industry									

Equal Var. assu	.866	.360 (ns)	-1.285	30	.209 (ns)	-.491	.382	-1.273	.290
Equal var.not assu			-1.707	16.726	.106	-.491	.288	-1.100	.117
Sector Ownership									
Equal var assu	.254	.618	.103	30	.919 (ns)	.043	.416	-.807	.892
Equal var.not assu			.098	7.103	.925	.043	.438	-.990	1.076
Legal status of firm									
Equal Vari assu	3.450	.073 (ns)	-3.344	30	.002 *	-1.000	.299	-1.611	-.389
Equal var.not assu			-2.864	12.687	.014	-1.000	.349	-1.756	-.244
Age of the firm									
Equal Var assu	.000	.987 (ns)	-.838	30	.409 (ns)	-.556	.663	-1.910	.799
Equal var.not assu			-.809	1.127	.554	-.556	.687	-7.270	6.159
Size of the firm									
Equal var assu	8.390	.007*	-1.402	30	.171	-.911	.650	-2.239	.416
Equal var.not assu			-.545	1.015	.681 (ns)	-.911	1.673	-21.43	19.612
Avg. Revenue of the firm									
Equal Var assu	1.037	.317 (ns)	-.590	30	.560 (ns)	-.191	.324	-.852	.470
Equal var.not assu			-.602	28.857	.552	-.191	.317	-.839	.457

Avg. PAT of the firm									
Equal Vari assu	1.057	.312 (ns)	-1.843	30	.075 (ns)	-.612	.332	-1.290	.066
Equal var.not assu			-1.655	13.844	.120	-.612	.370	-1.406	.182
Avg. Reserves of the firm									
Equal Vari assu	.555	.462 (ns)	-1.572	30	.126 (ns)	-.517	.329	-1.188	.155
Equal var.not assu			-1.462	16.830	.162	-.517	.353	-1.263	.229

*ns- not significant, * p ≤ 0 .01*

Group statistics table 59 shows descriptive statistics for the two groups (chemicals/petrochemicals and pharmaceuticals) separately. Table 60 shows 'Levene's Test for Homogeneity of Variances' 0.360, which is > 0.05, hence there exists an equality of variance.

Tables report values for chemical/petrochemicals (M = 3.41, S.D. =.959) and pharmaceuticals (M= 3.90, S.D. =.568), t (30) = -1.285, p = 0.209>0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was **no significant difference** in mean between chemicals/petrochemicals companies and pharmaceutical companies with context to Corporate ESG Responsible Behaviour.

(ii) On the basis of Sector based on Ownership - An independent-sample t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of Sector based on Ownership.

H0: μ Government owned = μ Non-government owned

Ha: μ Government owned ≠μ Non-government owned

Group statistics table 59 shows descriptive statistics for the two groups (government owned companies & non-government companies) separately. Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.618, which is > 0.05, hence there exists an equality of variance.

Tables report values for government owned companies (M = 3.56, S.D. =.981) and non-government companies (M=3.51, S.D. =.905), t (30) = 0.103, p = 0.919 > 0.05. As p value was>0.05, null hypothesis fails to get rejected. Thus, there was no significant difference

in mean between government companies and non-government companies with context to Corporate ESG Responsible Behaviour'.

(iii) On the basis of Legal status of the company - An independent-sample t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of Legal status of the company

H0: μ Unlisted companies = μ Listed companies

Ha: μ Unlisted companies ≠μ Listed companies

Group statistics table 59 shows descriptive statistics for the two groups (unlisted companies &listed companies) separately. Table 60 shows 'Levene's Test for Homogeneity of Variances' 0.073, which is > 0.05, hence there exists an equality of variance.

Tables report values for unlisted companies (M = 2.83, S.D. =1.009) and listed companies (M=3.83, S. D=.665), t (30) = -3.344, p = 0.002 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that listed companies were found significantly better than unlisted companies in terms of Corporate ESG Responsible Behaviour. Thus, there exists significant difference in Corporate ESG Responsible Behaviour on the basis of legal status of the firm.

(iv) On the basis of Age of the company - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of Age of the company

H0: μ Up to 25 years = μ More than 25 years

Ha: μ Up to 25 years ≠μ More than 25 years

Group statistics table 59, shows descriptive statistics for the two groups (Companies age up to 25 years and companies age more than 25 years) separately. Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.987, which is > 0.05, hence there exists an equality of variance. Tables report values for age up to 25 years (M = 3.00, S.D =.943) and age more than 25 years (M= 3.56, S.D. = .907), t (30) = -0.838, p = 0.409> .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between companies having age up to 25 years and companies having age more than 25 years with context to Corporate ESG Responsible Behaviour**.**

(v) On the basis of size of the company - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of size of the company.

H0: μ medium & small size = μ large size

Ha: μ medium & small size ≠μ large size

Group statistics table 59, shows descriptive statistics for the two groups (large sized firms and medium/small sized firms) separately. Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.007, which is < 0.05, hence equality of variance does not exist.

Tables report values for large sized companies (M=3.58, S.D =.792) and medium / small sized companies (M =2.67, S.D. = 2.357), t (1.015) = -0.545, p = 0.681 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between large sized companies and medium/small sized companies with context to Corporate ESG Responsible Behaviour**.**

(vi) On the basis of average Revenue of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis offing. revenue of the company

H0: μ Revenue Up to 3000crs = μ Revenue More than 3000crs

Ha: μ Revenue Up to 3000crs ≠μ Revenue More than 3000crs

Group statistics table 59, shows descriptive statistics for the two groups (companies earning avg. revenue up to 3000crs & companies earning avg. revenue more than 3000crs) separately. Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.317, which is > 0.05, hence there exists an equality of variance. Tables report values for companies earning avg. revenue up to 3000crs (M = 3.43, S.D. = 1.039) and companies earning avg. revenue more than 3000crs (M=3.62, S.D.=.744), t (30) = -0.590, p = 0.560 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between companies earning avg. revenue more than 3000crs and companies earning avg. revenue up to 3000crs with context to Corporate ESG Responsible Behaviour**.**

(vii) On the basis of average PAT of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of avg. PAT of the company

H0: μ PAT Up to 100 crs = μ PAT More than 100crs

Ha: μ PAT Up to 100crs ≠μ PAT More than 100crs

Group statistics table 59 shows descriptive statistics for the two groups (companies earning avg. PAT up to 100crs & companies earning avg. PAT more than 100 crs) separately.

Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.312, which is > 0.05, hence there exists an equality of variance. Tables report values for companies earning avg. PAT up to 100crs (M =3.10, S.D. = 1.043) and companies earning avg. PAT more than 100crs (M=3.71, S. D =.785), t (30) = -1.8443, p = 0.075 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, that there was no significant difference in mean between companies earning avg. PAT more than 100crs and companies earning avg. PAT up to 1000crs with context to Corporate ESG Responsible Behaviour**.**

(viii) On the basis of average Reserves of the firm - An independent-samples t-test at 5% α level was conducted to compare Corporate ESG Responsible Behaviour on the basis of Reserves of the company

H0: μ Reserves Up to 1000 crs = μ Reserves more than 1000 crs

Ha: μ Reserves Up to 1000 crs ≠μ Reserves more than 1000 crs

Group statistics table 59., shows descriptive statistics for the two groups (companies having avg. Reserves up to 1000crs & companies having avg. Reserves more than 1000 crs) separately. Table 60, shows 'Levene's Test for Homogeneity of Variances' 0.462, which is > 0.05, hence there exists an equality of variance. Tables report values for companies having avg. Reserves up to 1000crs (M = 3.18, S.D. = 1.015) and companies having avg. Reserves more than 1000crs (M=3.70, S.D =0.809), t (30) =-1.572, p = 0.126 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between companies having avg. reserves more than 1000crs and companies having avg. reserves up to 1000crs with context to Corporate ESG Responsible Behaviour**.**

Factor that helped company to successfully deal with ESG Investments

Question 14 from the questionnaire tries to identify factor that had helped company to successfully deal with ESG Investments. Following frequencies show the results of (n=32) respondents who had invested in ESG.

The table 61 demonstrates the frequencies on factors that helped the company to successfully deal with ESG investments. No. of responses elicited were more than No. of respondents (n=32) due to multiple choices in the check box. It was found that 56% (n=18) companies opined that knowledge /expertise of concerned managers, 59% (n=19) companies viewed that strong culture of the company has led to successful implementation of ESG investments, 69% (n=22) believed that presence of planning, strategies & goal setting activities has led to successful implementation of ESG projects.

Table 61

Frequency table on factors that helped the company to successfully deal with ESG investments (n=32)

Factors that helped to successfully deal with ESG invts.	Frequency (n)	Percent (%)
Knowledge /expertise of concerned managers	18	56
Strong culture of the company	19	59
Presence of Planning, Strategies & goal setting	22	69
Legislation / government support	13	41
Individual commitment of all concerned employees	11	34
Strong Leadership	15	47
Sufficient financial contingencies provided by the company	11	34

41% (n=13) companies showed ageement for legislation / government support, 34% (n=11) companies believes that it was due to individual commitment of all concerned employees and also due provision of sufficient financial contingencies and finally 47% (n=15) companies confirms that strong leadership of the firm has led to successful implementation of ESG investments.

4. Stakeholder / Shareholder Activism

Question 15 to 19 from the questionnaire examines Responsible Behaviour of the companies towards Stakeholders / Shareholders Activism. These questions explore companies' familiarity and understanding towards the term Stakeholder / Shareholder Activism, identifies aspects of Sustainability issues that has been confronted by the firm through stakeholders' / shareholders' activism, recognizes companies' responses and practices towards Stakeholder / Shareholder Activism.

Table 62 demonstrates that 88% (n=44) of the respondent companies were familiar with the term Stakeholder / Shareholder Activism up to some extent or extreme extent level, while rest 12% (n=6) companies were not at all familiar. Mean, Median and SD value on Companies familiarity towards Stakeholder / Shareholder Activism as $\bar{x}$=3.44 and MD= 4.00 with s=1.34 for 50 valid samples. From the numerical methods point of view, it was observed that values of Mean (3.44) & Median (4.00) were having clear differences, revealing that data were non-normally distributed.

Table 62

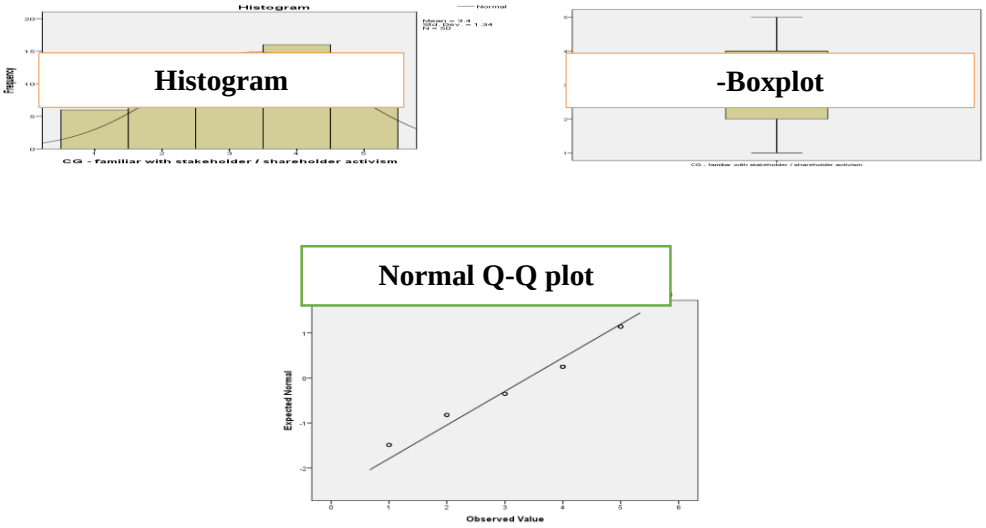
Frequencies, Descriptive statistics & Normality test on Companies familiarity towards Stakeholder / Shareholder Activism (n=50)

Scale		Mean	Mdn	SD	Skewness with (0.337)		Kurtosis with (0.662)		Shap-iro sig.val
Not at all familiar	Not so familiar to extremely familiar				Value	Z	Value	Z	
6 (12%)	44 (88%)	3.44	4.00	1.34	-0.466	-1.38	-0.971	-1.47	0.000

The value of skewness (-0.466) was found within the range of ±1 but the value of kurtosis (-1.47) individually were not found within the range of ±1. Critical ratio (z value) of the skewness (-1.38) and kurtosis (-1.47) were not within ±1.96 range, thus the outcome with respect to skewness individual value and critical ratio value of both skewness and kurtosis specifies non-normal distribution of the data. However, Shapiro Wilk test value (p = 0.000***)*** confirms that data were non-normally distributed, as test value was lesser than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable companies' familiarity towards Stakeholder / Shareholder Activism (refer figure below)

Figure 17

Histogram, Box plots, Normal Q-Q plots for Companies familiarity towards Stakeholder / Shareholder Activism.



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non-normally distributed. Figure 17, displays histogram on Companies familiarity towards Stakeholder / Shareholder Activism showing non-normality of data as bell shaped curve was not derived. Box plot was found asymmetric indicating that data were non-normally distributed. Normal Q-Q Plot confirmed non-normal data as most of the observed data were not found near to expected data as major dots were not on or close to diagonal line.

Companies understanding on the term 'Stakeholders / Shareholders activism'

After checking companies' familiarity for 'Stakeholders / Shareholders activism' through companies' representative, they were asked to put a tick mark on their understanding for the term 'Stakeholder/Shareholder Activism. Below table 63, shows frequencies and percentage on companies understanding on the term 'Stakeholders / Shareholders activism' for respondent companies (n=44) having some familiarity on the construct.

Table 63

Frequency table on companies understanding of term Stakeholders / shareholders Activism (n=44).

Understanding of term Stakeholders / Shareholders Activism	*Frequency (n)*	*Percent (%)*
Informal company engagement (outside of AGM)	19	43
Public campaigns by stakeholders	12	27
Lobbying by minority and small shareholders	03	07
Filing the issues with govt. authorities	12	27
Raising the issues with company authorities	19	43
Respecting voting rights of minority/small shareholders	09	21

Valid N (list wise**)**

The above frequency table 63, displays respondent companies (n=44) understanding on the term Stakeholders / shareholders Activism through companies' representative filling the questionnaire. No. of responses elicited were more than No. of respondents (n=44) due to multiple choices made by the respondents in the check box. It can be inferred 43% (n=19) of the respondent companies understand the term Stakeholders / shareholders Activism as Informal company engagement (outside of AGM) and also raising the issues with company authorities, 27% (n=12) understands as public campaigns by stakeholders

and also filing the issues with govt. authorities, 7% (n=3) understands as lobbying by minority and small shareholders and 21% (n=9) as respecting voting rights of minority/small shareholders.

Aspects of sustainability issues confronted by companies through Stakeholders / shareholders Activism

Question 17 from the questionnaire investigates aspects of the sustainability issues (environment or social) confronted by companies through Stakeholders / shareholders Activism during the study period. Below table 64, shows the frequencies of 50 valid sample companies

Table 64

Frequency table on sustainability aspects confronted by companies through Stakeholders / shareholders Activism (n=50)

Sustainability aspects confronted through stakeholders activism	Frequency (n)			Percentage (%)		
	Yes	No	Can't say	Yes	No	Can't say
Environment related issues	24	13	13	48	26	26
Social related issues	22	20	08	44	42	16

The above table 64 shows the frequencies on sustainability aspects confronted by companies through Stakeholders / shareholders Activism during the study period. The data indicates that 48% (n=24) companies confronted with environment related issues through stakeholders' activism, 44% (n=22) confronted social related issues. There were 26% (n=13) companies which did not respond on environment related issues and 16% (n=8) companies did not responded on social issues.

The table 65 reveals frequencies on types of environmental issues confronted by companies through stakeholder activism for 24 valid responses. Here, No. of responses elicited were more than No. of respondents (n=24) due to multiple choices made by the respondents in the check box.

It can be inferred that 42% (n=10) companies confronted GHG / Carbon emission, 38% (n=9) air quality, 29% (n=7) energy/ fuel issues, 63% (n=15) water & waste water

management issues, 13% (n=3) faced biodiversity, eco – friendly product design and packaging and soil contamination issues.

Table 65

Types of environmental issues confronted by companies through stakeholder activism (n=24)

Types of Environment issues confronted through stakeholders activism	Frequency (n)	Percent (%)
GHG / Carbon emission	10	42
Air quality	09	38
Energy/ fuel	07	29
Water & Waste Water Mgmt.	15	63
Biodiversity	03	13
Industrial waste & hazardous materials mgmt.	13	54
Eco – friendly product design and packaging	03	13
Noise pollution	08	33
Soil contamination	03	13
Product recycling	08	33

Valid N (list wise)

54% (n=13) Industrial waste & hazardous materials management issues and finally 33% (n=8) companies confronted noise pollution and product recycling issues through stakeholder activism.

Cross tabulations

Cross tabulations between various demographical variables & Stakeholders Activism towards environment issues

Cross tabulations were conducted between various independent variables and the Stakeholders Activism towards environment issues. Below table 66, shows the outcome of the cross tabulations.

The table 66 shows the outcome on cross tabulations between different independent variables and stakeholders / shareholders activism towards environment issues. The inferences on each independent variable are stated as under

Table 66

Cross tabulations Independent variables and Stakeholders Activism towards Environment issues (n=24)

Independent Variables	Stakeholders/Shareholders Activism towards different aspects of Environment										
	GHG/ Car-bon	Air Qua-lity	Ener -gy/ fuel mgt	Water & Waste water Mgmt	Impac t on Bio-diver-sity	Ind. wast e haz-ard	Eco-frien-dly Desi-gn	Noi-se Poll-ution	Soil Con-tami-nation	Pro-duct Recy	To tal
	F (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	(n) 24
Type of Industry											
Chemicals /Petro.	06 (33)	09 (50)	06 (33)	12 (67)	01 (06)	11 (61)	03 (17)	07 (39)	03 (17)	07 (39)	18
Pharma	04 (67)	00 (00)	01 (17)	03 (50)	02 (33)	02 (33)	00 (00)	01 (17)	00 (00)	01 (17)	06
Total	10	09	07	15	03	13	03	08	03	08	24
Sector Ownership											
Govt.	00 (00)	01 (25)	00 (00)	03 (75)	00 (00)	03 (75)	00 (00)	00 (00)	00 (00)	02 (50)	04
Non-Govt.	10 (50)	08 (40)	07 (35)	12 (60)	03 (15)	10 (50)	03 (15)	08 (40)	03 (15)	06 (30)	20
Total	10	09	07	15	03	13	03	08	03	08	24
Legal status of the firm											
Unlisted	02 (40)	03 (60)	04 (80)	05 (100)	00 (00)	04 (80)	01 (20)	03 (60)	01 (20)	03 (60)	05
Listed	08 (42)	06 (32)	03 (16)	10 (53)	03 (16)	09 (47)	02 (11)	05 (26)	02 (11)	05 (26)	19
Total	10	09	07	15	03	13	03	08	03	08	24
Age / Experience of the firm											
Up to 25 years	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00
More than 25 years	10 (42)	09 (38)	07 (29)	15 (63)	03 (13)	13 (54)	03 (13)	08 (33)	03 (13)	08 (33)	24
Total	10	09	07	15	03	13	03	08	03	08	24

Size of the firm											
Medium / Small s	01 (100)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	01
Large sized	09 (39)	09 (39)	07 (30)	15 (62)	03 (13)	13 (56)	03 (13)	08 (35)	03 (13)	08 (35)	23
Total	10	09	07	15	03	13	03	08	03	08	24
Avg. Revenue of the firm											
Up to 3000 crs	04 (33)	05 (42)	04 (33)	07 (58)	01 (08)	07 (58)	01 (08)	04 (33)	02 (17)	05 (42)	12
More than 3000 crs	06 (50)	04 (33)	03 (25)	08 (67)	02 (17)	06 (50)	02 (17)	04 (33)	01 (08)	03 (25)	12
Total	10	09	07	15	03	13	03	08	03	08	24
Avg. PAT of the firm											
Up to 100crs	03 (43)	04 (57)	02 (29)	04 (57)	01 (14)	04 (57)	01 (14)	03 (43)	02 (29)	03 (43)	07
More than 100crs	07 (41)	05 (29)	05 (29)	11 (65)	02 (12)	09 (53)	02 (12)	05 (29)	01 (06)	05 (29)	17
Total	10	09	07	15	03	13	03	08	03	08	24
Avg. Reserves of the firm											
Up to 1000 crs	03 (60)	03 (60)	03 (60)	04 (80)	00 (00)	03 (60)	01 (20)	02 (40)	02 (40)	03 (60)	05
More than 1000 crs	07 (37)	06 (32)	04 (21)	11 (58)	03 (16)	10 (53)	02 (11)	06 (32)	01 (05)	05 (26)	19
Total	10	09	07	15	03	13	03	08	03	08	24

i) On the basis of Types of Industry - From the cross tabulations between types of industry & stakeholders' activism towards environment issues, it can be inferred that out of total 24 cases on stakeholders' activism, 18 cases belonged to chemicals / petrochemicals industry and 06 cases for pharmaceutical industries. It was observed that 33% (n=6) chemicals / petrochemicals companies confronted GHG/carbon and energy/fuel management issues, 50% (n=9) air quality issues, 67% (n=12) water & waste water management issues, 6% (n=1) on biodiversity issues, 61% (n=11) confronted industrial hazardous wastage issues, 17% (n=03) on eco-friendly product & process design

issues and soil contamination issues and finally 39% (n=07) of the chemical / petrochemicals companies confronted noise pollution and product recycling issues through stakeholders activism. While in case of pharma companies, 67% (n=4) stakeholders' activism cases were held for GHG/carbon emission, 17% (n=1) faced energy/fuel mgmt., noise pollution and product recycling issues, 50% (n=3) cases were on water and waste water management, and finally 33% (n=2) of the sampled pharma companies faced activism on industrial hazardous wastages and bio-diversity issues through stakeholders' activism. No cases in pharma companies were confronted on air quality, eco-friendly designs, and soil contamination.

ii) On the basis of Sector Ownership - Out of total 24 cases on stakeholders' activism, 04 cases belonged to Government companies and 20 cases were of non-government companies. It was observed that 75% (n=3) of government based companies confronted issues related to water & waste water management and industrial hazardous wastages, 50% (n=2) on product recycling issues and 25% (n=1) on air quality issues. None of the activism cases were observed for GHG/carbon emission, energy/fuel mgmt., biodiversity, eco-friendly products and its design, noise pollution and soil contamination in case of government based companies. As far as non-government companies were concerned, 60% (n=12) cases were on water and waste water mgmt., 50% (n=10) on Industrial hazardous wastage and GHG Emission, 40% (n=8) on air quality and noise pollution issues, 35% (n=7) for energy & fuel mgmt. issues, 30% (n=6) on product recycling issues, and 15% (n=3) activism cases were related to biodiversity, eco-friendly products and process designs and soil contaminations in case of non-government companies.

iii) On the basis of Legal status of the firm - Out of 24 cases on stakeholders' activism, 05 cases belonged to unlisted companies and 19 cases were of listed companies. less no. of response was elicited from unlisted companies as they may not be comfortable in revealing sensitive information. It was observed that in case of unlisted companies, 100% (n=5) stakeholders' activism cases were on water and waste water management, 80% (n=4) on energy/fuel mgmt. and industrial hazardous waste issues, 60% (n=3) on air quality, noise pollution and product recycling, 40% (n=2) on GHG emission, and 20% (n= 1) on soil contamination, eco-friendly products / process designs. None of the activism cases were found for biodiversity in unlisted companies. While, in case of listed companies, 53% (n=10) of stakeholders' activism cases were related to water and waste

water management, 47% (n=9) on industrial hazardous wastages, 42% (n=8) on GHG emission, 32% (n=6) on air quality, 26% (n=5) on product recycling and noise pollution, 16% (n=3) cases on biodiversity & energy/ fuel mgmt. issues and 11% (n=2) activism cases on eco-friendly products / processes and soil contamination issues.

iv) On the basis of Age of the firm–It can be inferred that all 24 stakeholders' activism cases were observed for companies having age / experience more than 25 years in business (old companies). None of the activism cases were found for companies having experience up to 25 years (new companies) in the survey. This may be due to new companies not comfortable in revealing sensitive information. In case of companies having experience more than 25 years, 63% (n=15) were confronted on water & waste water management, 54% (n=13) on industrial hazardous waste, 42% (n=10) on GHG emission, 38% (n=9) on air quality, 33% (n=8) for product recycling and noise pollution, 29% (n=7) for energy and fuel mgmt., and finally 13% (n=3) for biodiversity, eco-friendly product and process design, and soil contamination.

v) On the basis of Size of the firm –Out of 24 cases, 23 stakeholders' activism cases belonged to large sized companies whereas only 1 case was observed for medium sized and small sized firms for GHG / carbon emission. Less response from medium / small sized companies may be due their unwillingness to share sensitive information. In case of large sized firms, 62%(n=15) cases were confronted on water & waste water management issues, 56% (n=13) on Industrial hazardous waste issues, 39% (n=9) on GHG emission & air quality issues, 35% (n=8) on noise pollution & product recycling, 30% (n=7) on energy/fuel mgmt., and 13% (n=3) issues were confronted on biodiversity, eco-friendly products and process designs and soil contamination.

vi) On the basis of average Revenue of the firm - Out of 24 cases, responses were divided equally i.e., 12 stakeholders' activism cases were by companies earning avg. revenue up to 3000crs and other 12 cases by companies earning avg. revenue more than 3000crs. In case of companies earning age revenue up to 3000crs, 58% (n=7) were held on water & waste water mgmt., and Industrial hazardous waste, 42% (n=5) on air quality & product recycling issues, 33% (n=4) on GHG emission, energy/fuel mgmt. issues and noise pollution, 17% (n=2) on soil contamination and 8% (n=1) cases on biodiversity & eco-friendly product/process designs. Whereas in cases of companies earning revenue more than 3000crs, 67% (n=8) were held on water & waste water management, 50% (n=6) on GHG emission and industrial hazardous wastages, 33% (n=4) on air quality and noise

pollution, 25% (n=3) on energy/fuel issues and product recycling, 17%(n=2) cases on biodiversity & eco-friendly product / process designs and 8% (n=1) cases were on soil contamination issues.

vii) On the basis of average PAT of the firm - Out of 24 cases, 07 stakeholders' activism cases belonged to the companies having avg. PAT up to 100 crs and remaining 17 cases belonged to companies earning avg. PAT more than 100 crs. In case of companies, earning avg. PAT up to 100 crs, 57% (n=4) activism cases were held on issues related to air quality, water & waste water mgmt., and Industrial hazardous waste, 43% (n=3) on GHG emission, noise pollution and product recycling, 29% (n=2) on energy/fuel issues and soil contamination, and 14% (n=1) cases were held on biodiversity & eco-friendly products / process issues. In case of companies, earning PAT more than 100 crs, 65% (n=11) activism cases were on water & waste water mgmt., 53% (n=9) on industrial hazardous waste, 41% (n=7) on GHG emission, 29% (n=5) on air quality, energy / fuel mgmt. issues, noise pollution and product recycling, 12% (n=2) on biodiversity & eco-friendly products / process designs and 6% (n=1) activism cases on soil contamination.

viii) On the basis of average Reserves of the firm - Out of 24 cases, 05 stakeholders' activism cases belonged to companies having avg. reserves up to 1000 crs and 19 cases belonged to companies having avg. reserves more than 1000 crs. It was found that in case of companies having reserves up to 1000 crs, 80% (n=4) stakeholder activism cases were held on water & waste water mgmt., 60% (n=3) cases on GHG emission, air quality, energy / fuel mgmt., industrial hazardous waste and product recycling issues, 40% (n=2) on noise pollution and soil contamination issues and 20% (n=1) activism cases were on eco-friendly products / process issues. While in case of companies having avg. reserves more than 1000crs, 58% (n=11) activism cases were held on water & waste water mgmt., 53% (n=10) on industrial hazardous wastages, 37% (n=7) on GHG emission, 32% (n=6) on air quality and noise pollution, 26% (n=5) cases on product recycling, 21% (n=4) on energy / fuel mgmt. issues, 16% (n=3) on biodiversity, 11% (n=2) on eco-friendly products/process design and 5% (n=1) activism cases on soil contamination.

Table 67 reveals frequencies on types of social issues confronted by companies through stakeholder activism for 22 valid responses. It was observed that 27% (n=6) companies confronted issues on Human Rights / community relations and fair labour policies and practices through stakeholders' activism, 9% (n=2) faced Supply Chain issues

like Compliance with Local Laws, with International Protocols, Quality Standards, 41% (n=9) companies faced labour standards & working conditions issues, 23% (n=5) companies faced pay equity issues (gender, foreign labour, contract labour) and Community benefits issues like access, inclusion, development, social enterprise partnering,

Table 67

Types of social issues confronted by companies through stakeholder activism (n=22)

Types of social issues confronted through stakeholders activism	Frequency (n)	Percent (%)
Human Rights and community relations	06	27
Supply Chain – Compliance with Local Laws, with International Protocols, Quality Standards	02	09
Labour standards & working conditions	09	41
Pay Equity Issues (gender, foreign labour, contract labour)	05	23
Child Labour / Forced Labour	01	05
Ingredients – Raw Materials – used was harmful to employees /customers / other industries / communities	03	14
Fair labour policies and practices	06	27
Employees Health, safety & wellbeing	08	36
Diversity & inclusion	01	05
Community benefit (e.g. access, inclusion, development, social enterprise partnering)	05	23

5% (n=1) respondents had Child Labour / Forced Labour issues and Diversity & inclusion issues, 14% (n=3) companies confronted with Ingredients / Raw Materials issues (as used material was harmful to employees /customers / other industries / communities)

and 36% (n=8) companies confronted with employee health, safety & wellbeing issues through stakeholders' activism.

Cross tabulations

Cross tabulations between various demographic variables & Stakeholders Activism towards social issues

Cross tabulation was conducted between various independent variables of the study and the Stakeholders Activism towards social issues. Below table shows the outcome of the cross tabulations.

Table 68

Cross tabulations Independent variables and Stakeholders Activism towards social issues (n=22)

Independent Variables	Stakeholders/Shareholders Activism towards different societal aspects										
	Human Rights	Supply chain compliance	Labour stds & working	Pay equity issues	Child/forc-ed Labor	Raw mat. Harmful to soc.	Fair labor Policies & practices	Emp health / safety	Diversity & inclusion	Community bene-fits	Total
	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	N 22
Types of Industry											
Chemicals / Petro	05 (29)	02 (12)	07 (41)	04 (24)	01 (06)	03 (18)	05 (29)	08 (47)	01 (06)	04 (24)	17
Pharma	01 (20)	00 (00)	02 (40)	01 (20)	00 (00)	00 (00)	01 (20)	00 (00)	00 (00)	01 (20)	05
Total	06	02	09	05	01	03	06	08	01	05	22
Sector Ownership											
Govt	01 (25)	00 (00)	00 (00)	02 (50)	01 (25)	00 (00)	01 (25)	02 (50)	00 (00)	01 (25)	04
Non-Govt.	05 (28)	02 (11)	09 (50)	03 (17)	00 (00)	03 (17)	05 (28)	06 (33)	01 (06)	04 (22)	18
Total	06	02	09	05	01	03	06	08	01	05	22
Legal Status of the firm											
Unlisted	03 (43)	01 (14)	03 (43)	01 (14)	00 (00)	01 (14)	02 (29)	03 (43)	00 (00)	03 (43)	07

Listed	03 (20)	01 (07)	06 (40)	04 (27)	01 (07)	02 (13)	04 (27)	05 (33)	01 (07)	02 (13)	15
Total	06	02	09	05	01	03	06	08	01	05	22
Age / Experience of the firm											
Up to 25 yrs	01 (100)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	01 (100)	01
More than 25 yrs	05 (24)	02 (10)	09 (43)	05 (24)	01 (05)	03 (14)	06 (29)	08 (38)	01 (05)	04 (19)	21
Total	06	02	09	05	01	03	06	08	01	05	22
Size of the firm											
Medium / Small	01 (33)	00 (00)	01 (33)	01 (33)	00 (00)	00 (00)	00 (00)	00 (00)	00 (00)	01 (33)	03
Large sized	05 (26)	02 (10)	08 (42)	04 (21)	01 (05)	03 (16)	06 (32)	08 (42)	01 (05)	04 (21)	19
Total	06	02	09	05	01	03	06	08	01	05	22
Average Revenue of the firm											
Up to 3000 crs	03 (23)	01 (08)	06 (46)	03 (23)	01 (08)	02 (15)	03 (23)	05 (39)	00 (00)	04 (31)	13
More than 3000 Crs	03 (33)	01 (11)	03 (33)	02 (22)	00 (00)	01 (11)	03 (33)	03 (33)	01 (11)	01 (11)	09
Total	06	02	09	05	01	03	06	08	01	05	22
Avg. PAT of the firm											
Up to 100crs	02 (29)	00 (00)	02 (29)	01 (14)	00 (00)	00 (00)	02 (29)	02 (29)	00 (00)	02 (29)	07
More than 100crs	04 (27)	02 (13)	07 (47)	04 (27)	01 (07)	03 (20)	04 (27)	06 (40)	01 (07)	03 (20)	15
Total	06	02	09	05	01	03	06	08	01	05	22
Avg. Reserves of the firm											
Up to 1000 crs	02 (29)	00 (00)	02 (29)	01 (14)	00 (00)	01 (14)	01 (14)	01 (14)	00 (00)	02 (29)	07
More than 1000 crs	04 (27)	02 (13)	07 (47)	04 (27)	01 (07)	02 (13)	05 (33)	07 (47)	01 (07)	03 (20)	15
Total	06	02	09	05	01	03	06	08	01	05	22

The above table 68 shows the outcome on cross tabulations between different independent variables and stakeholders / shareholders activism towards social issues. The inferences on each independent variable are stated as under-

i) On the basis of types of Industry– Out of total 22 cases on stakeholders' activism, 17 cases belonged to chemicals & petrochemicals industry and 05 cases to pharma industries. It was observed that 47% (n=8) of stakeholders activism cases in chemicals and petrochemical companies were related to employees health, safety & wellbeing issues, 41% (n=7) on labour standards & working conditions, 29% (n=5) were related to human rights and fair labour policies & practices issues, 24% (n=4) for pay equity & community benefits issues, 18% (n=3) on harmful raw-material used affecting stakeholders, 12% (n=2) for supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues and finally 6% (n=1) activism cases were related to child/forced labour and diversity & inclusion issues. While in case of pharma companies, 40% (n=2) stakeholders' activism cases were held for labour standards & working conditions, 20% (n=1) for human rights, pay equity, fair labour policies & benefits and community benefits issues. None of the cases related to stakeholders' activism in case of pharma companies were found for supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues, child/forced labour, diversity & inclusion, employee health & safety and harmful raw-material used affecting stakeholders.

ii) On the basis of sector ownership - Out of total 22 cases on stakeholders' activism, 04 cases were found for Government-based companies and 18 cases were for non-government companies. It was observed that in case of government based companies, 50% (n=2) stakeholders' activism cases were related to pay equity issues and employees health & safety issues, 25% (n=1) on human rights, child/forced labour, fair labour policies & practices and community benefits. None of the activism cases were found on supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues, labour standards & working conditions, raw-materials used harmful for the society and diversity & inclusion issues. As far as non-government companies are concerned, 50% (n=9) cases were held on labour standards & working conditions, 33% (n=6) on employee health and safety issues, 28% (n=5) activism cases were held on human rights and fair labour policies & practices, 22% (n=4) on community benefits, 17% (n=3) cases on pay equity issues, raw material used harmful to the society, 11% (n=2) cases on supply chain - compliance with Local Laws, with International Protocols, Quality Standards

issues, 6% (n=1) on diversity & inclusion issues. None of the stakeholders' activism cases were found for child / forced labour in cases of non-government companies.

iii) On the basis of Legal status of the firm -Out of total 22 cases on stakeholders' activism, 07 cases belonged to unlisted companies and 15 cases were for listed companies. It was observed that in case of unlisted companies, 43% (n=3) activism cases were related to human rights, labour standards & working conditions, employee health & safety and community benefits, 29% (n=2) cases on employee health & safety issues, 14% (n=1) were related to pay equity issues, supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues and raw material used harmful to the society. None of the activism cases were held on child / forced labour and diversity & inclusion issues in unlisted companies. Whereas in case of listed companies, 40% (n=6) activism cases were related to labour standards & working conditions, 33% (n=5) cases on employee health & safety issues, 27% (n=4) on pay equity issues and fair labour policies & practices issues, 20% (n=3) cases on human rights issues, 13% (n=2) cases on community benefits issues and raw material used harmful to the society, and 7 % (n=1) cases were held on supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues, child/ forced labour issues and diversity & inclusion issues.

iv) On the basis of age of the firm–It can be inferred that, 21 stakeholders' activism cases were observed for companies having experience more than 25 years in business only one activism case was found for companies having experience up to 25 years which was 100% (n=1) on human rights and community benefits issues. In case of companies having experience more than 25 years, 43% (n=9) activism cases were on labour standards & working conditions, 38% (n=8) on employee health & safety issues, 29% (n=6) on fair labour policies & practices, 24% (n=5) on human rights & pay equity issues, 19% (n=4) on community benefits issues, 14% (n=3) on raw material used were harmful to the society, 10% (n=2) on supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues, and 05% (n=1) activism cases were found on child/ forced labour issues and diversity & inclusion issues.

v) On the basis of size of the firm–Out of 22 cases, 19 stakeholders' activism cases were belonged to large sized companies whereas only 03 cases were observed for medium sized and small sized firms. This may be due to medium /small sized companies were not open to disclose information. In case of large sized firms, 42% (n=8) cases were observed on labour standards & working conditions and employee health & safety issues,

32% (n=6) cases on fair labour policies & practices issues, 26% (n=5) on human rights issues, 21% (n=4) on pay equity and community benefits issues, 16% (n=3) cases on raw materials used harmed to the society, 10% (n=2) cases on supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues and 5% (n=1) cases on child/forced labour and diversity & inclusion issues.

Whereas in case of medium sized companies, 33% (n=1) activism cases were held on human rights, labour standards & working conditions, pay equity issues and community benefits issues.

vi) On the basis of average Revenue of the firm - Out of 22 cases, 13 stakeholders' activism cases were held on companies earning avg. revenue up to 3000crs and other 09 cases by companies earning avg. revenue more than 3000crs. In case of companies earning revenue up to 3000crs, 46% (n=6) cases were held for labour standards & working conditions, 39% (n=5) on employee health & safety, 31% (n=4) cases on community benefits issues, 23% (n=3) on human rights issues, pay equity issues, fair labour policies & practices, 15% (n=2) cases on raw material used were harming society and 08% (n=1) cases were found on both supply chain - compliance with Local Laws, with International Protocols, Quality Standards issues and child/forced labour issues. None of the activism cases were held on diversity & inclusion. Whereas in cases of companies earning avg. revenue more than 3000 crs, 33% (n=3) cases were on human rights, labour standards & working conditions issues, employee health & safety and fair labour policies & practices, 22% (n=2) were related to pay issues, 11% (n=1) activism cases were on supply chain – compliance, raw material used were harmful to the society, community benefits and diversity / inclusion issues.

vii) On the basis of average PAT of the firm - Out of 22 cases, 07 stakeholders' activism cases found belong to the companies having avg. PAT up to 100 crs and remaining 15 cases belong to companies earning age PAT more than 100 crs. In case of companies, earning avg. PAT up to 100 crs, 29% (n=2) activism cases were held on issues related to human rights, labour standards & working conditions, community benefits, employee health & safety and fair labour policies & practices, 14% (n=1) cases were held on pay equity issues. None of the cases were held on supply chain – compliance, raw material used were harmful to the society, child/forced labour and diversity & inclusion issues. Whereas in case of companies earning avg. PAT more than 100 crs, 47% (n=7) stakeholders' cases were held on labour standards & working conditions, 40% (n=6) on

employee health & safety, 27% (n=4) on human rights, pay equity issues, fair labour policies & practices, 20% (n=3) on community benefits issues and raw material used harmful to the society, 13% (n=2) cases on supply chain - compliance issues, and 07% (n=1) activism cases on diversity & inclusion and child/forced labour issues.

viii) On the basis of average Reserves of the firm - Out of 22 cases, 07 stakeholders' activism cases belonged to companies having avg. reserves up to 1000 crs and 15 cases belonged to companies having avg. reserves more than 1000 crs. In case of companies having avg. reserves up to 1000 crs, 29% (n=2) stakeholder activism cases were held on human relations, labour standards & working conditions and community benefits issues, 14% (n=1) on pay equity issues, fair labour policies & practices, employees health & safety issues and raw material used were harmful to the society. None of the activism cases were held on supply chain - compliance issues, child/forced labour issues and diversity & inclusion issues. In case of companies having avg. reserves more than 1000 crs, 47% (n=7) activism cases were held on labour standards & working conditions and employee health & safety, 33% (n=5) on fair labour policies & practices, 27% (n=4) on human rights & pay equity issues, 20% (n=3) on community benefits, 13% (n=2) on supply chain - compliance issues and raw material used harmful to the society and finally 7% (n=1) activism cases were on diversity & inclusion issues and child/force labour issues.

Stakeholders activism influencing Responsible Behaviour

Question 18 from the questionnaire studies companies' responsible behaviour towards stakeholders' activism for 44 valid sample companies. Below table 69, demonstrate results through Mean and SD on individual items and table 70, displays results on Descriptive statistics (overall), Reliability &Normality test of a variable.

Table 69 reflects descriptive analysis of Stakeholders activism influencing Responsible Behaviour. The mean of each items ranged from 3.25 to 3.57, indicating that their frequencies lie between moderate to agreement on a 5 point Likert scale. The highest mean ($\bar{x}$=3.57) with SD (s=0.974) was found for an item - Stakeholders can influence matters related to sustainability of business and society, positively or negatively followed by next highest mean with SD ($\bar{x}$=3.41, s=1.041) for an item - Business information is forced to disclosed transparently to all stakeholders with mean.

Table 69

Mean & SD table on Stakeholders activism influencing Responsible Behaviour (n=44)

Companies opinion on their responsible behaviour towards stakeholders' activism	*Mean*	*SD*
Stakeholders can influence the behaviour of company and thereby decisions by exercising their rights	3.36	1.143
Stakeholders can influence matters related to sustainability of business and society, positively or negatively.	3.57	0.974
Formal structures are created in the organization to address stakeholders concerns	3.25	1.059
Business information are forced to disclosed transparently to all stakeholders	3.41	1.041
Stakeholders can influence corporate affairs through a number of regulatory laws and practices	3.25	0.967

The lowest mean with SD were observed for two items - Stakeholders can influence corporate affairs through a number of regulatory laws and practices ($\bar{x}$=3.25, s=1.059) and Formal structures are created in the organization to address stakeholders' concerns ($\bar{x}$=3.25, s=0.967).

Descriptive statistics (overall), Reliability & Normality test table on Stakeholders activism influencing Responsible Behaviour

Table 70

Descriptive statistics (overall), Reliability & Normality test table on Stakeholders activism influencing Responsible Behaviour (n=44)

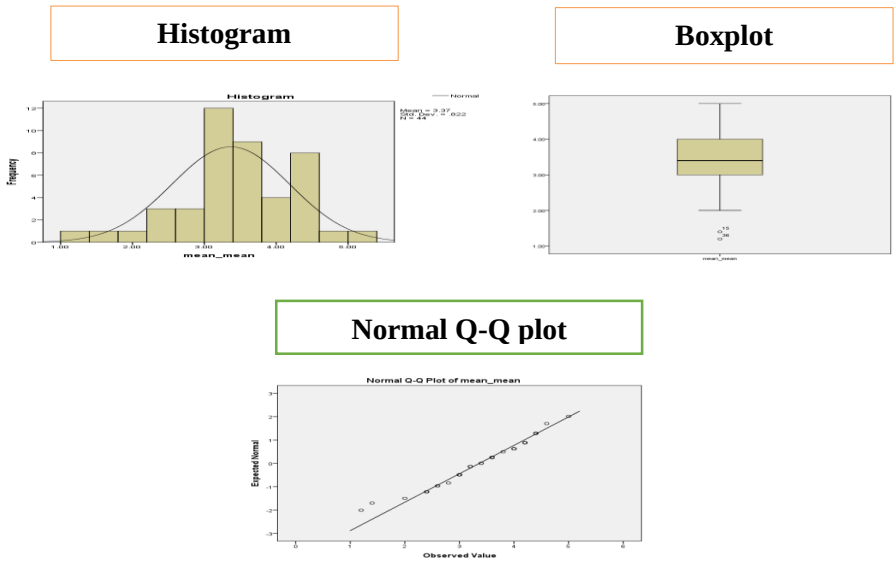
Scale	No	Mean	Mdn	SD	Skewness with SE (0.357)		Kurtosis with SE (0.702)		Cronb-ach (α)	Shap-iro Sig. val.
					Value	Z	Value	Z		
Stakeh-olders' activism	05	3.40	3.40	0.82	-0.475	-1.330	0.332	0.47	0.850	0.229* Normal

**Significant*

As per table 70, the scale on Stakeholders activism influencing Responsible Behaviour (n=44) was found reliable with Cronbach alpha (α) value 0.850 which means 85% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=3.40 and MD= 3.40 with s=0.821. From the numerical methods point of view, it was observed that values of Mean (3.40) & Median (3.40) were same, showing that data were normally distributed. The value of skewness (-0.475) and kurtosis (0.332) individually were found within the range of $\pm$1 range. Critical ratio (z value) of the skewness (-1.330) and kurtosis (0.473) were also within ±1.96 range, thus the outcome with respect to dispersion specifies that data were normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value (p = 0.229) was greater than significant value 0.05, failing to reject null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Stakeholders activism influencing Responsible Behaviour (refer figure below)

Figure 18

Histogram, Box plots, Normal Q-Q plots for Stakeholders activism influencing Responsible Behaviour (n=44)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were normally distributed. Fig. 18, displays histogram on Stakeholders activism influencing Responsible Behaviour' of 44 valid responses confirming normality of data as bell shaped curve was derived. Box plot was symmetric having median line at the center indicating normal

distribution of the data. Normal Q-Q Plot confirms normal data as most of the observed data were found on or near to expected data having major dots on or close to diagonal line.

Cross tabulations & chi-square test

Cross tab & chi-square test between various demographic variables of the study and Stakeholders activism influencing Responsible Behaviour

Cross tabulations & Chi-square test was conducted between 'Stakeholders activism influencing Responsible Behaviour' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 71

Cross tabulations & chi-square test results on 'Stakeholders activism influencing Responsible Behaviour' and various demographic variables (n=44)

Demographic Variables	Stakeholders Activism influencing Business Responsible Behaviour						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochemicals	17 (16.2)	55	14 (14.8)	45	31	100	$\chi 2_{(1)} = 0.277$, $p = 0.599$ (ns), Phi = 0.079
Pharmaceutical	06 (6.8)	42	07 (6.2)	54	13	100	Fail to Reject H0
Total	23	52	21	48	44	100	
Sector Ownership							
Government	02 (3.1)	33	04 (2.9)	67	06	100	$\chi 2_{(1)} = 0.999$,
Non-Government	21 (19.9)	55	17 (18.1)	45	38	100	$p = 0.403$ (ns), Phi = 0.151
Total	23	52	21	48	44	100	Fail to Reject H0
Legal status of the firm							
Unlisted	13 (10.5)	65	07 (9.5)	35	20	100	$\chi 2_{(1)} = 2.381$,
Listed	10 (12.5)	42	14 (11.5)	58	24	100	$p = 0.123$ (ns), Phi = 0.233
Total	23	52	21	48	44	100	Fail to Reject H0

Age / Experience of the firm							
Up to 25 years	04 (3.1)	67	02 (2.9)	33	06	100	$\chi 2_{(1)} = 0.577$, $p = 0.666$ (ns), Phi = 0.115 Fail to Reject H0
More than 25 yrs	19 (19.9)	50	19 (18.1)	50	38	100	
Total	23	52	21	48	44	100	
Size of the firm							
Medium / Small	06 (3.7)	86	01 (3.3)	14	07	100	$\chi 2_{(1)} = 3.731$, $p = 0.097$ (ns), Phi = 0.291 Fail to Reject H0
Large	17 (19.3)	46	20 (17.7)	54	37	100	
Total	23	52	21	48	44	100	
Average Revenue of the firm							
Up to 3000 crs	18 (15.2)	62	11 (13.8)	38	29	100	$\chi 2_{(1)} = 3.272$, $p = 0.070$ (ns), Phi = 0.273 Fail to Reject H0
More than 3000 crs	05 (7.8)	33	10 (7.2)	67	15	100	
Total	23	52	21	48	44	100	
Average PAT of the firm							
Up to 100 crs	13 (12.0)	56	10 (11.0)	44	23	100	$\chi 2_{(1)} = 0.349$, $p = 0.555$ (ns), Phi = 0.089 Fail to Reject H0
More than 100 crs	10 (9.6)	48	11 (12.4)	52	21	100	
Total	23	52	21	48	44	100	
Average Reserves of the firm							
Up to 1000 crs	13 (11.0)	62	08 (10.0)	38	21	100	$\chi 2_{(1)} = 1.494$, $p = 0.222$ (ns), Phi = 0.184 Fail to Reject H0
More than 1000 crs	10 (12.0)	44	13 (11.0)	56	23	100	
Total	23	52	21	48	44	100	

ns- non significant

Hypothesis testing to find out significant association between various demographical variables of the study and 'Stakeholders activism influencing Responsible Behaviour'

Table 71 shows the values of cross tabulation and chi-square test results on 'Stakeholders activism influencing Responsible Behaviour'

i) Based on types of Industry – It can be inferred that, 55% (n=17 out of 31) of chemical and petrochemical companies and 42% (n=6 out of 13) of pharma companies had less agreement towards Stakeholders activism influencing Responsible Behaviour

while 45% (n=14) of chemical and petrochemical companies and 54% (n=7 out of 13) pharma companies had high agreement towards Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between type of industry and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 0.277, p = 0.599(ns) (refer table 71). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.079 shows weak association between two tested variables.

ii) Based on Sector Ownership–Data shows that 33% (n=2 out of 6) government companies and 55% (n=21 out of 38) of non-government companies had less agreement, while 67% (n=4) of government companies and 45% (n=17 out of 38) non-government companies showed high agreement towards Stakeholders activism influencing Responsible Behaviour.

Chi-square test shows NO significant association between sector ownership and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 0.999, p = 0.403 (ns) (refer table 71). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.151 shows weak association between two tested variables.

iii) Based on legal status of the firm –It can be noted that 65% (n=13 out of 20) of the unlisted companies and 42% (n=10 out of 24) of the listed companies had less agreement, while 35% (n=7) of the unlisted companies and 58% (n=14) of listed companies had high agreement towards Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between legal status of the firm and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 2.381, p = 0.123 (ns) (refer table 71). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.233 shows weak association between two tested variables.

iv) Based on age of the firm –Data shows that 67% (n=4 out of 6) of companies having experience up to 25 years and 50% (n=19 out of 38) companies having experience more than 25 years' had less agreement, while 33% (n=2 out of 6) in case of companies with experience up to 25 years and 50% (n=19 out of 38) of the companies having more

than 25 years' experience had agreement towards responsible behaviour towards Stakeholders activism.

Chi-square test shows NO significant association between age / experience of the firm and responsible behaviour companies towards stakeholders' activism $\chi 2$ (1, N= 44) = 0.577, p = 0.666 (ns) (refer table 71). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.115 shows weak association between two tested variables.

vi) Based on size of the firm – Data specifies that 86% (n=6 out of 7) of the medium and small sized companies and 46% (n=17 out of 37) of the large sized companies gave less agreement, while 14% (n=1) of medium and small sized companies and 54% (n=20) of large sized companies gave agreement on Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between size of the firm and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 3.731, p = 0.097 (ns) (refer table 71). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.291 shows near to moderate association between two tested variables.

vi) Based on Average Revenue of the firm - From data, it was noted that 62% (n=18 out of 29) of companies having avg. revenue up to 3000 crs and 33% (n=5 out of 15) companies' avg. revenue more than 3000 crs had less agreement, while 38% (n=11) companies with revenue up to 3000 crs and 67% (n=10) of the companies' revenue with more than 3000 crs gave high agreement on Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between avg. revenue of the firm and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 3.272, p = 0.070 (ns) (refer table 71). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.273 shows near to moderate association between two tested variables.

vii) Based on Average PAT of the firm - The 2*2 crosstab table, denotes that 56% (n=13 out of 23) of the companies with age PAT up to 100 crs and 48% (n=10 out of 21) companies with avg. PAT more than 100 crs had less agreement, while 44% (n=10) companies with avg. PAT up to 100 crs and 52% (n=11) companies with PAT more than 100 crs had high agreement on Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between avg. PAT the firm and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 0.349, p = 0.555 (ns) (refer table 71). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, Phi coefficient value 0.089 shows negligible level of association between two tested variables.

viii) Based on Average Reserves of the firm - The 2*2 crosstab table, denotes that 62% (n=13 out of 21) companies with avg. Reserves up to 1000 crs and 44% (n=10 out of 23) companies with avg. Reserves more than 1000 crs had less agreement, while 38% (n=8) companies with avg. reserves up to 1000 crs and 56% (n=13) companies with avg. reserves more than 1000 crs gave high agreement on Stakeholders activism influencing Responsible Behaviour

Chi-square test shows NO significant association between avg. Reserves of the firm and Stakeholders activism influencing Responsible Behaviour $\chi 2$ (1, N= 44) = 1.494, p = 0.222 (ns) (refer table 71). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.184 shows weak level of association between two tested variables.

Independent sample t-test

Independent t-test on Stakeholders activism influencing Responsible Behaviour

As normality assumptions was met, Independent sample t-test was conducted using *'*Stakeholders activism influencing Responsible Behaviour' as DV (continuous scale) and various demographic variables of the study as IV (categorical scale) to study significances differences in their means. Below table shows group statistics & Independent sample t-test results on 'Stakeholders activism influencing Responsible Behaviour' calculated through mean, SD and variance across different variables of the study.

Hypothesis testing to find out significant differences in Stakeholders activism influencing Responsible Behaviour of companies across various demographical variables of the study

Table 72 & 73 shows the values of group statistics and Independent t test on Stakeholders activism influencing Responsible Behaviour of companies

(i) **On the basis of types of Industry** - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of types of industry.

H0: μ chemical/petrochemicals = μ pharmaceuticals

Ha: μ chemical/petrochemicals ≠ μ pharmaceuticals

Table 72

Group statistics table showing Difference in Mean & SD on Stakeholders activism influencing Responsible Behaviour (n=44)

Variables	N	Mean	SD	Std. Error Mean
Types of Industry				
Chemicals/petrochemical	31	3.4387	.73106	.13130
Pharmaceutical	13	3.2000	1.01980	.28284
Sector Ownership				
Government owned	06	3.9333	.73394	.29963
Non-government owned	38	3.2789	.80745	.13099
Legal status of firm				
Unlisted	20	3.0500	.69547	.15551
Listed	24	3.6333	.83753	.17096
Age of the firm				
Up to 25 years	06	3.1000	.64187	.26204
More than 25 years	38	3.4105	.84591	.13722
Size of the firm				
Medium & Small	07	2.7143	1.02539	.38756
Large	37	3.4919	.72968	.11996
Avg. Revenue of the firm				
Up to 3000crs	29	3.1793	.88049	.16350
More than 3000crs	15	3.7333	.55377	.14298
Avg. PAT of the firm				
Up to 100 crs	23	3.2696	.78996	.16472
More than 100crs	21	3.4762	.86134	.18796
Avg. Reserves of the firm				
Up to 1000crs	21	3.0952	.81393	.17761
Reserves more than 1000crs	23	3.6174	.76256	.15901

Table 73

Independent t-test result on Stakeholders activism influencing Responsible Behaviour of companies across different variables of the study (n=44)

	Levene's test Equality of Variances		t-test for Equality of Means						
								95% CI of the Difference	
Variables	F	Sig.	t	Df	Sig. (2-tail)	Mean Diff	Std. Error Diff.	LL	UL
Types of Industry									
Equal Var. Assum	1.049	.312 (ns)	.877	42	.386 (ns)	.23871	.27225	-.31072	.78814
Equal var. not assum			.766	17.406	.454	.23871	.31183	-.41804	.89545
Sector Ownership									
Equal Var. Assum	.151	.700 (ns)	1.864	42	.069 (ns)	.65439	.35102	-.05401	1.3627
Equal var. not assum			2.001	7.059	.085	.65439	.32701	-.11756	1.4263
Legal status of firm									
Equal Var. Assum	.834	.366 (ns)	-2.481	42	.017*	-.58333	.23509	-1.0577	-.10889
Equal var. not assum			-2.524	42.000	.015	-.58333	.23111	-1.04973	-.11694
Age of the firm									
Equal Var. Assum	.561	.458 (ns)	-.858	42	.396 (ns)	-.31053	.36210	-1.0412	.42022
Equal var. not assum			-1.050	8.037	.324	-.31053	.29580	-.99210	.37105

Size of the firm									
Equal Var Assum	.426	.517 (ns)	-2.422	42	.020*	-.77761	.32101	-1.4254	-.12978
Equal var. not assum			-1.917	7.194	.096	-.77761	.40570	-1.7317	.17651
Avg. Revenue of the firm									
Equal Var. assum	1.736	.195 (ns)	-2.214	42	.032*	-.55402	.25024	-1.0590	-.04902
Equal var. not assum			-2.551	40.191	.015	-.55402	.21720	-.99295	-.11510
Avg. PAT of the firm									
Equal Var. assum	.052	.821 (ns)	-.830	42	.411 (ns)	-.20663	.24892	-.70897	.29571
Equal var. not assum			-.827	40.695	.413	-.20663	.24992	-.71147	.29822
Avg. Reserves of the firm									
Equal Var. Assum	.198	.659 (ns)	-2.197	42	.034*	-.52215	.23767	-1.0017	-.04252
Equal var. not assum			-2.190	40.977	.034	-.52215	.23839	-1.0036	-.04071

*ns- not significant, *p ≤ 0 .05*

Group statistics table 72 shows descriptive statistics for the two groups (chemicals/petrochemicals and pharmaceuticals) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances', 0.312 which is > 0.05, hence there exists an equality of variance.

Tables report values for chemical/petrochemicals (M = 3.43, S.D. =.731) and pharmaceuticals (M= 3.20, S.D. =1.019), t (42) = 0.877, p = 0.386 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between chemicals/petrochemicals companies and pharmaceutical companies with context to Stakeholders activism influencing Responsible Behaviour of companies.

(ii) On the basis of Sector Ownership - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of Sector based on Ownership.

H0: μ Government owned = μ Non-government owned

Ha: μ Government owned ≠μ Non-government owned

Group statistics table 72**,** shows descriptive statistics for the two groups (government owned companies & non-government companies) separately. Table 73**,** shows 'Levene's Test for Homogeneity of Variances' 0.700, which is > 0.05, hence there exists an equality of variance.

Tables report values for government owned companies (M = 3.93, S.D. =.733) and non-government companies (M=3.27, S.D. =.807), t (42) = 1.864, p = 0.069 > 0.05. As p value was>0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between government companies and non-government companies with context to Stakeholders activism influencing Responsible Behaviour of companies

(iii) On the basis of Legal status of the company - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of Legal status of the company

H0: μ Unlisted companies = μ Listed companies

Ha: μ Unlisted companies ≠μ Listed companies

Group statistics table 72, shows descriptive statistics for the two groups (unlisted companies & listed companies) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.366, which is > 0.05, hence there exists an equality of variance.

Tables report values for unlisted companies (M = 3.05, S.D. =.695) and listed companies (M=3.63, S.D =.837), t (42) = -2.481, p = 0.017 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that listed companies were found significantly better than unlisted companies in terms of Stakeholders activism influencing Responsible Behaviour of companies. Thus, there exists significant difference in Stakeholders activism influencing Responsible Behaviour of companies on the basis of legal status of the firm.

(iv) On the basis of Age of the company - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of Age of the company

H0: μ Up to 25 years = μ More than 25 years

Ha: μ Up to 25 years ≠μ More than 25 years

Group statistics table 72, shows descriptive statistics for the two groups (Companies age up to 25 years and companies age more than 25 years) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.458, which is > 0.05, hence there exists an equality of variance.

Tables report values for age up to 25 years (M = 3.10, S.D.=.641) and age more than 25 years (M= 3.41, S.D. = .845), t (42) = -0.858, p = 0.396 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between companies having age up to 25 years and companies having age more than 25 years with context to Stakeholders activism influencing Responsible Behaviour of companies**.**

(v) On the basis of size of the company - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of size of the company

H0: μ medium & small size = μ large size

Ha: μ medium & small size ≠μ large size

Group statistics table 72, shows descriptive statistics for the two groups (medium & small sized companies & large sized companies) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.517, which is > 0.05, hence there exists an equality of variance.

Tables report values for medium & small sized companies (M =2.71, S.D. =1.025) and large sized companies (M= 3.49, S.D = 0.729), t (42) = -2.422, p = 0.020 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that large sized companies were found significantly better than medium & small sized companies in terms of Stakeholders activism influencing Responsible Behaviour of companies Thus, there exists significant difference in Stakeholders activism influencing Responsible Behaviour of companies on the basis of legal status of the firm.

(vi) On the basis of average Revenue of the firm - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of avg. revenue of the company

H0: μ Revenue Up to 3000crs = μ Revenue More than 3000crs

Ha: μ Revenue Up to 3000crs ≠μ Revenue More than 3000crs

Group statistics table 72, shows descriptive statistics for the two groups (companies earning avg. revenue up to 3000crs & companies earning avg. revenue more than 3000crs) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.195, which is > 0.05, hence there exists an equality of variance.

Tables report values for companies earning revenue up to 3000crs (M = 3.17, S.D. = .880) and companies earning revenue more than 3000crs (M=3.73, S.D.=.553), t (42) = -2.214, p = 0.032 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that companies earning avg. revenue more than 3000crs were found significantly better than companies earning revenue up to 3000crs in terms of Stakeholders activism influencing Responsible Behaviour of companies. Thus, there exists significant difference in Stakeholders activism influencing Responsible Behaviour of companies on the basis of Revenue of the firm.

(vii) On the basis of PAT of the firm - An independent-samples t-test at 5% α level was conducted to compare Stakeholders activism influencing Responsible Behaviour of companies on the basis of PAT of the company

H0: μ PAT Up to 100 crs = μ PAT More than 100crs

Ha: μ PAT Up to 100crs ≠μ PAT More than 100crs

Group statistics table 72, shows descriptive statistics for the two groups (companies earning PAT up to 100crs & companies earning PAT more than 100 crs) separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.821, which is > 0.05, hence there exists an equality of variance.

Tables report values for companies earning PAT up to 100crs (M =3.26, S.D. = .789) and companies earning PAT more than 100crs (M=3.47, S.D =.861), t (42) = -0.830, p = 0.411 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in Stakeholders activism influencing Responsible Behaviour of companies on the basis of PAT of the firm.

(viii) On the basis of average Reserves of the firm - An independent-samples t-test at 5% α level was conducted to Stakeholders activism influencing Responsible Behaviour of companies on the basis of Reserves of the company

H0: μ Reserves Up to 1000 crs = μ Reserves more than 1000 crs

Ha: μ Reserves Up to 1000 crs ≠μ Reserves more than 1000 crs

Group statistics table 72, shows descriptive statistics for the two groups (companies having avg. Reserves up to 1000crs & companies having avg. Reserves more than 1000 crs)

separately. Table 73, shows 'Levene's Test for Homogeneity of Variances' 0.659, which is > 0.05, hence there exists an equality of variance.

Tables report values for companies having Reserves up to 1000crs (M = 3.09, S.D. = .813) and companies having Reserves more than 1000crs (M=3.61, S.D =0.762), t (42) = -2.197, p = 0.034 < 0.05. As p value was < 0.05, null hypothesis gets rejected. Taking into account mean values, it was inferred that companies having reserves more than 1000crs were significantly found better than companies having reserves up to 1000crs in terms of Stakeholders activism influencing Responsible Behaviour of companies. Thus, there exists significant difference in Stakeholders activism influencing Responsible Behaviour of companies on the basis of Revenue of the firm.

Companies response behaviour towards stakeholders' / shareholders activism

Question 19 from the questionnaire identifies Companies responses towards stakeholders' / shareholders activism for respondent companies having familiarity and understanding on the concept. Below table 74, shows frequencies for 44 valid responses.

Table 74

Frequency Table on Companies response behaviour towards stakeholders' / shareholders activism (n=44)

Companies responses towards Stakeholders / Shareholders activism	Frequency (n)	Percent (%)
Accepted & taken actions	22	50
Addressed to fulfil compliance	29	66
Denied / refused	01	02
Compromised	01	02
Defended successfully and asked for compensation from the opponents	02	05

The above table 74 shows the frequencies outcome on Companies response towards stakeholders' / shareholders activism for 44 valid responses. It was observed that 50% (n=22) of the companies had accepted and taken actions towards Stakeholders / Shareholders activism, 66% (n=29) companies had tried to fulfil compliance, 2% (n=1) companies denied / refused and compromised towards Stakeholders / Shareholders activism and 5% (n=2) companies defended their case successfully and asked for compensation from the opponents or stakeholders.

Section – 3

Business Ethics

This section covers questions from 20 to 43 from the questionnaire. It deals with understanding of ethical behaviour of companies as part of their business responsibility with respect to people, planet and profit.

1. Business Ethics of the companies are guided by which dimensions

Question no. 20 tries to seek answer from the sample companies that their business were guided by whichethical dimensions. Dimensions were asked using ranking scale in order of preference (Rank 1- Most preferred to Rank 5 – Least preferred). Following table 75 & 76, shows frequency distribution & Descriptive statistics of 50 valid responses for Business Ethics dimensions.

Table 75

Frequency tabulation on companies business ethics were guided by…

Ethical dimensions		Letter of Law		Ind. Association code of conduct		Stakeholders Wellbeing		Moral Values		Utalitarian Approach	
Ranking scale	*Rank*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Most preferred	1	20	40	4	8	8	16	15	30	4	2
Preferred	2	10	20	13	26	11	22	15	30	3	6
Moderately preferred	3	7	14	13	26	10	20	13	26	7	14
Slightly preferred	4	9	18	10	20	16	36	6	12	7	14
Least preferred	5	4	8	10	20	5	10	1	2	29	58

Table 76 presents the descriptive statistics for the dimensions with reference to business ethics. As this question is analyzed using ranking scale, (rank 1 as most preferred & rank 5 as least preferred) dimension with lowest mean was given highest rank and dimension with highest mean was given lowest rank. Result shows that moral value dimension was ranked number one with the lowest mean and standard deviation (Mean= 2.26; SD=1.084).

Table 76
Descriptive statistics showing Business Ethics of companies guided by dimensions (n=50)

Business Ethics dimensions	Mean	Std. Dev.	Ranking
Letter of law	2.34	1.379	2
Industry association code of conduct	3.18	1.257	4
Stakeholders wellbeing	2.98	1.270	3
Moral Values	2.26	1.084	1
Utilitarian approach	4.08	1.307	5

This is followed by Letter of law dimension (Mean=2.34; SD=1.379, Rank II), stakeholder wellbeing (Mean=2.98; SD=1.270, Rank III), industry association code of conduct (Mean=3.18; SD=1.257, Rank IV) and Utilitarian approach (Mean=4.08; SD=1.307, Rank V).

2. Membership of companies with Industry Association

Question 21 deals with identifying membership of the companies with different Industry Association. By joining such associations, companies can bring advantages to its own business growth. Below table 77, shows frequencies on membership of the sample companies with Industry Association.

Table 77
Frequencies showing companies membership with Industry Association (n=50)

Company is a member of which Industry Association	Frequency (n)	Percent (%)
CII	24	48
FICCI	16	32
ASSOCHAM	05	10
GCCI	11	14
MSME	08	10
Others – DIA, AIA, BDMA, JIA, FGI, USFDA etc…	14	18
Total	78	100

The above table 77, shows that 48% (n=24) of the sample companies were associated with CII, 32% (n=16) with FICCI, 10% (n=5) with ASSOCHAM, 14% (n=11) with GCCI, and 10% (n=8) were associated with MSME. Moreover, it was also observed that 18% (n=14) sample companies were associated with local industrial association like

District Industry Association (DIA), Ankleshwar Industry Association (AIA), Bharuch District Management Association (BDMA), Jhagadia Industry Association (JIA), Federation of Gujarat Industries (FGI), USFDA etc…

Compliance of rules / code of conduct stated by Industry Association and provisions of Penalty for non-compliance of such code of conduct.

Question 22 & 23 from the questionnaire explores whether sample organizations regularly comply rules / code of conduct established by Industry Association and also checks whether such associations impose any penalty for non-compliance of code of conduct. Below table 78, shows frequencies on the same.

Table 78

Frequency table showing compliance behaviour of companies towards rules / code of conduct established by Industrial association (n=50)

Particulars	Frequency (n)	Percent (%)
Company is regularly following the rules / code of conduct stated by Industry association	49	98
Industry association impose any penalty for non compliance of their rules/code of conduct	15	30

The above frequency table 78, shows almost all 98% (n=49) of the sample companies regularly follow the rules / code of conduct stated by Industry association and it was also observed that 70% (n=35) of sample companies said that such Association also does not impose any penalty for non-compliance of their rules or code of conduct.

3. Value Addition

Question 24 investigates steps taken by the company to ensure Value addition to its stakeholders using 5 point Likert scale. Below table 79, shows descriptive analysis (mean & standard deviation) results on value addition statements.

Table 79 demonstrates result of descriptive analysis on Value addition practices of companies. The mean of each items ranged from 3.5 to 4.5. The highest mean ($\bar{x}$=4.38, s=0.725) was found for statement - Business has strategically re-aligned its products, services, and operations so as to add value to the firm, society and the environment statement followed by another statement

Table 79

Mean & SD on Value Addition statements (n=50)

Value addition scale	Mean	SD
Business has strategically re-aligned its products, services, and operations so as to add value to the firm, society and the environment	4.38	0.725
Businesses ought to utilize skills, resources, and management capability that lead to social progress	4.24	0.822
Company focuses on the value chain activities that could bring opportunities for competitive advantage.	4.18	0.748
Company addresses issues related to economic and social value addition at the same time	3.98	0.979
Company ensures that its contribution to tackle social issues is integral to the core of their business.	3.76	0.981

- Businesses ought to utilize skills, resources, and management capability that lead to social progress ($\bar{x}$=4.24, s=0.822). The lowest mean ($\bar{x}$=3.76) amongst 5 statements was found for - Company ensures that its contribution to tackle social issues is integral to the core of their business.

Descriptive statistics (overall), Reliability& Normality test on Value addition practices of companies

Table 80

Descriptive statistics (overall), Reliability& Normality test table on Value addition practices of companies (n=50)

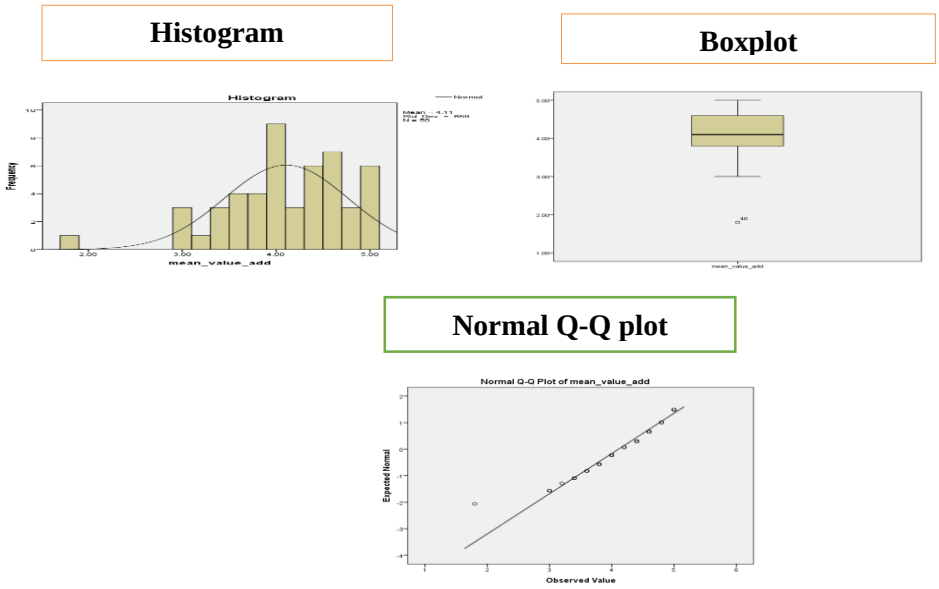
Scale	No	Mean	Mdn	SD	Skewness with SE (0.357)		Kurtosis with SE (0.702)		Cronb-ach (α)	Shapiro test
					Value	Z	Value	Z		
Value addition	05	4.14	4.10	0.659	-0.935	-2.77	1.64	2.477	0.827	0.006

As per table 80, the scale on values addition practices (n=50) was found reliable with Cronbach alpha (α) value 0.827 which means 82.7% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=4.14 and MD= 4.10 with s=0.659. From the numerical methods point of view, it was observed that value of Mean (4.14) & Median (4.10) were same, showing that data were normally distributed. The value of skewness (-0.935) was within the range of $\pm$1 but the value of kurtosis (1.640) individually were not found within the range of $\pm$1 range. Critical ratio (z value) of the skewness (-2.77) and kurtosis (2.477) were also within not ±1.96 range, thus the outcome with respect to dispersion specifies that data were non- normally distributed.

Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p =0.006) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable value addition. (refer figure below)

Figure 19

Histogram, Box plots, Normal Q-Q plots for value addition (n=50)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 19, displays histogram on value addition statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot was asymmetric not having median line at the center indicating non-normal distribution of

the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were not found on or near to expected data.

Cross tabulations & Chi-square test

Cross tab & chi-square test between various demographic variables and 'Companies behaviour towards value addition for its Stakeholders'.

Cross tabulations & Chi-square test was conducted between Companies responsible behaviour towards value addition for its Stakeholders' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 81

Cross tabulations & chi-square test results on 'Companies responsible behaviour towards Value Addition for its stakeholders' and various demographic variables (n=50)

Demographic Variables	Companies Responsible behaviour towards value addition						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petro-chemicals	06 (5.8)	17	30 (30.2)	83	36	100	$\chi 2_{(1)} = 0.043$, $p = 1.000$ (ns), Phi = 0.029
Pharmaceutical	02 (2.2)	14	12 (11.8)	86	14	100	Fail to Reject H0
Total	08	16	42	84	50	100	
Sector Ownership							
Government	00 (1.0)	00	06 (5.0)	100	06	100	$\chi 2_{(1)} = 1.299$, $p = 0.572$ (ns), Phi = 0.161
Non-Govt.	08 (19.9)	55	36 (18.1)	45	44	100	
Total	08	16	42	84	50	100	Fail to Reject H0
Legal status of the firm							
Unlisted	08 (4.0)	32	17 (21.0)	68	25	100	$\chi 2_{(1)} = 9.524$, $p = 0.004$**
Listed	00(4.0)	00	25 (21.0)	100	25	100	

Total	08	16	42	84	50	100	Phi = 0.436 Reject H0
Age / Experience of the firm							
Up to 25 years	02 (1.1)	29	05 (5.9)	71	07	100	$\chi2_{(1)} = 0.957$,
More than 25 yrs	06 (6.9)	14	37(36.1)	86	43	100	p= 0.310 (ns), Phi = 0.138 Fail to Reject H0
Total	08	16	42	84	50	100	
Size of the firm							
Medium / Small	04 (1.6)	40	06 (8.4)	60	10	100	$\chi2_{(1)} = 5.357$,
Large	04 (6.4)	10	36 (33.6)	90	40	100	p= 0.041* Phi = 0.327 Reject H0
Total	08	16	42	84	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	08 (5.6)	23	27 (29.4)	77	35	100	$\chi2_{(1)} = 4.082$,
More than 3000 crs	00 (2.4)	00	15 (12.6)	100	15	100	p= 0.086 (ns), Phi = 0.286 Fail to Reject H0
Total	08	16	42	84	50	100	
Avg. PAT of the firm							
Up to 100 crs	08 (4.3)	30	19 (22.7)	70	27	100	
More than 100 crs	00 (3.7)	00	23 (19.3)	100	23	100	$\chi2_{(1)} = 8.113$, p= 0.005* Phi = 0.403 Reject H0
Total	08	16	42	84	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	08 (4.0)	32	17 (21.0)	68	25	100	
More than 1000 crs	00 (4.0)	00	25 (21.0)	100	25	100	$\chi2_{(1)} = 9.524$, p= 0.004** Phi = 0.436 Reject H0
Total	08	16	42	84	50	100	

*ns- non significant, *p <0.05, **p< 0.01*

Hypothesis testing to find out significant association between various demographical variables of the study and Responsible Behaviour of companies towards value addition

Table 81, shows the crosstab and chi-square test values on Responsible Behaviour of companies towards value addition

i) Based on types of Industry – Data revealed 17% (n=6) of chemical and petrochemical companies and 14% (n=2) of pharma companies were found having low agreement on providing value addition to its Stakeholders while 83% (n=30) in case of chemical and petrochemical companies and 86% (n=12) in case of pharma companies gave high agreement on providing value addition to its stakeholders.

Chi-square test shows NO significant association between type of industry and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 0.043, p = 1.000 (ns) (refer table 81). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.029 shows negligible association between two tested variables.

ii) Based on Sector Ownership–Data shows that 100% (n=6) government companies gave high agreement on providing value addition to its Stakeholders while in case of non-government companies 55% (n=8 out of 44) gave low agreement and 45% (n=36 out of 44) gave high agreement on providing value addition to its Stakeholders.

Chi-square test shows NO significant association between sector ownership and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 1.299, p = 0.572 (ns) (refer table 81). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.161 shows weak association between two tested variables.

iii) Based on legal status of the firm -From the 2*2 crosstab table, it was noted that 100% (n=25) listed companies and 68% (n=17 out of 25) of the unlisted companies gave high agreement, while 32% (n=8 out of 25) of the unlisted companies gave low agreement on providing value addition towards stakeholders.

Chi-square test shows Significant association between legal status of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 9.524, p = 0.004 (refer table 81). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.436 shows moderate association between two tested variables.

iv) Based on age of the firm -Data shows that 29% (n=2 out of 7) companies having age / experience up to 25 years and 14% (n=6 out of 43) companies having age / experience more than 25 years' had low agreement, while 71% (n=5) in case of companies with experience up to 25 years and 86% (n=37) of the companies having more than 25 years' experience gave high agreement on providing value addition to its Stakeholders.

Chi-square test shows NO Significant association between age of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 0.957, p = 0.310 (ns) (refer table 81). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, Phi coefficient value 0.138 shows weak association between two tested variables.

v) Based on size of the firm – Data specifies that 40% (n=4 out of 10) of the medium and small sized companies and 10% (n=4 out of 40) of the large sized companies had low agreement, while 60% (n=6 out of 10) of medium and small sized companies and 90% (n=36 out of 40) of large sized companies gave high agreement on providing value addition to its Stakeholders.

Chi-square test shows Significant association between size of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 5.357, p = 0.041 (refer table 81). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.327 shows moderate association between two tested variables.

vi) Based on average Revenue of the firm - Data noted that 100% (n=15) all sample companies' earning avg. revenue with more than 3000 crs and 77% (n=27 out of 35) companies earning avg. revenue up to 3000crs gave high agreement whereas 23% (n=8) companies earning avg. revenue up to 3000 crs were found having low agreement on providing value addition to its stakeholders.

Chi-square test shows NO Significant association between avg. revenue of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 4.082, p = 0.086 (ns) (refer table 81). Here, fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.286 shows weak association between two tested variables.

vii) Based on average PAT of the firm - Data denotes that 100% (n=23) all sample companies' earning avg. PAT with more than 100 crs and 70% (n=19 out of 27) companies earning avg. PAT up to 100crs gave high agreement whereas 30% (n=8)

companies earning avg. PAT up to 100 crs gave less agreement on providing value addition to its stakeholders.

Chi-square test shows Significant association between average PAT of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 8.113, p = 0.005 (refer table 81). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.403 shows moderate association between two tested variables.

viii) Based on average Reserves of the firm - Data denotes that 100% (n=25) all sample companies' having avg. Reserves with more than 1000 crs and 68% (n=17 out of 25) companies having avg. Reserves up to 1000 crs gave high agreement whereas 32% (n=8 out of 25) companies having reserves up to 1000 crs gave low agreement on providing value addition to its stakeholders.

Chi-square test shows Significant association between avg. reserves of the firm and responsible behaviour of companies towards value addition $\chi 2$ (1, N= 50) = 9.524, p = 0.004 (refer table 81). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.436 shows moderate association between two tested variables.

Mann Whitney U Test

Mann Whitney U test on Corporate Responsible Behaviour for providing value addition to its stakeholders

As data was found non-normal, A Mann-Whitney U test at 5% α level was conducted to compare companies Responsible Behaviour towards providing value addition to its stakeholders (DV) on the basis of various demographic variables of the study. Below table 82**,** shows results of Mann Whitney U test compared with significant level $p<0.05$.

Hypothesis testing to find out significant differences in Corporate Responsible Behaviour towards value addition across various demographical variables of the study

Table 82 reports Mann Whitney U test values on Responsible Behaviour of companies towards value addition.

Table 82

Mann-Whitney Test of Corporate Responsible Behaviour for providing value addition to its stakeholders: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	195.000	300.000	-1.240	0.175	0.215 (ns) Failed to Reject H0
Sector Ownership	89.000	1079.000	-1.293	0.182	0.196 (ns) Failed to Reject H0
Legal status of firm	174.500	499.500	-2.696	0.381	0.007 * RejectH0
Age of the firm	93.500	121.500	-1.605	0.227	0.109(ns) Failed to Reject H0
Size of the firm	114.500	169.500	-2.088	0.295	0.037* RejectH0
Avg. Revenue of firm	187.000	817.000	-1.609	0.227	0.108(ns) Failed to Reject H0
Avg. PAT of the firm	149.000	527.000	-3.165	0.447	0.002* RejectH0
Avg. Reserve of the firm	195.000	520.000	-2.295	0.325	0.022* RejectH0

*ns- not significant, *p ≤ 0 .05, **p<0.01*

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour of companies towards value addition on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 82 reports values for Chemicals & Petrochemicals (Mean rank = 27.08, *Mdn* = 4.40) and Pharmaceuticals (Mean rank =21.43, *Mdn* = 4.00), *U* ($N_{\text{Chemicals \& Petrochemicals}}$= 36, $N_{\text{Pharmaceuticals}}$ =14) = 195.000, Z= -1.240, *P =0.215>0.05*. The value of r=0.175 derived determines small effect size. Median value for Chemicals & petrochemicals industry was little higher than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists NO Significant difference in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders, on the basis of types of industry.

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 82 reports values for Government owned (Mean rank = 34.67, *Mdn* = 4.30) and Non-government owned (Mean rank = 24.52, *Mdn* = 4.10), U ($N_{\text{Government owned}}$= 07, $N_{\text{Non-government owned}}$=44) = 89.000, Z= -1.293, *P =0.196> .05.* The value of r=0.182derived determines small effect size. Median value for Government owned companies was little higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders, on the basis of sector based on ownership.

iii) On the basis of legal status of the firm - A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 82, reports values for unlisted companies (Mean rank = 19.98, *Mdn* = 3.80) and listed (Mean rank = 31.02, *Mdn* = 4.40), *U* (N_{Unlisted}=25, N_{Listed}=25) = 174.500, Z= -2.696, *P =0.007 <0.05.* The value of r=0.381derived determines moderate effect size. Median value for listed companies was found higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 82, reports values for companies age up to 25 years (Mean rank = 17.36, *Mdn* = 4.00) and companies age more than 25 years (Mean rank = 26.83, *Mdn* = 4.20), *U* (N

Companies age up to 25 years=7, N Companies Age more than 25 years=43) = 93.500, Z= -1.605, *P =0.109 > .05.* The value of r=0.227derived determines small effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders, on the basis of age of the company.

v) On the basis of size of the company –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 82, reports values for medium & small sized companies (Mean rank =16.95, *Mdn* = 3.80) and Large sized companies (Mean rank = 27.64, *Mdn* = 4.20), U (N Medium & small sized =10, N Large sized=40) = 114.500, Z= -2.088, *P =0.037 <0.05.* The value of r=0.295derived, determines near to moderate effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that large sized companies were better in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders than medium & small sized companies.

vi) On the basis of average Revenue of the firm –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of avg. Revenue up to 3000 crs / Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 82 reports values for companies earning avg. revenue up to 3000crs (Mean rank =23.34, *Mdn* = 4.00) and companies earning avg. revenue more than 3000 crs (Mean rank = 30.53, *Mdn* = 4.20), U (N Revenue up to 3000crs= 35, N Revenue up to 3000crs=15) = 187.000, Z= -1.609, *P =0.108 > .05.* The value of r=0.227 derived, determines small effect size. Median value of companies earning avg. revenue more than 3000 found higher than companies earning avg. revenue up to 3000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of

Corporate Responsible Behaviour for providing value addition to its stakeholders, on the basis of Revenue of the company.

vii) On the basis of average PAT of the firm –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 82, reports values for companies earning avg. PAT up to 100 crs (Mean rank =19.52, *Mdn* =4.00) and companies earning avg. PAT more than 100 crs (mean rank = 32.52, *Mdn* = 4.60), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 149.000, Z= -3.165, *P =0.002< .05*. The value of r =0.447 derived, determines moderate effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is <0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. PAT more than 100 crs were better in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders than companies earning avg. PAT up to 100crs.

viii) On the basis of average Reserves of the firm–A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards value addition on the basis of avg. Reserves up to 1000 crs / Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 82 reports values for companies having avg. reserves up to 1000 crs (Mean rank = 20.80, *Mdn* = 4.00) and companies having avg. reserves more than 1000 crs (Mean rank = 30.20, *Mdn* = 4.40), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 195.000, Z= -2.295, *P =0.022< .05*. The value of r=0.325 derived, determines moderate effect size. Median value of companies having avg. reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value is <0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It is inferred that companies having avg. reserves more than 1000 crs were better in terms of Corporate Responsible Behaviour for providing value addition to its stakeholders than companies having avg. reserves up to 1000crs.

4. Social and Environmental issues addressed by the companies

Questions 25 to 29 from the questionnaire identifies companies' initiatives taken to address social and environmental issues.

Types of social problems addressed by companies

Question no. 25 respondent companies were asked about the type of social problems addressed by the companies. Below table 83, shows the frequencies of the same.

Table 83

Types of social problems addressed by the companies (n=50)

Social problems addressed by companies	Frequency (n)	Percent (%)
Employment Generation	31	62
Women empowerment	21	42
Upliftment of weaker sections	26	52
Poverty eradication	06	12
Equal employment opportunities	25	50

The above table 83, depicts the frequencies on types of social problems addressed by the companies. It was found that 62% (n=31) of the sample companies generate employment opportunities, 42% (n=21) give weightage to women empowerment, 52% (n=26) works for the upliftment of weaker sections, 12% (n=6) focus on poverty eradication and 50% (n=25) of the companies addresses equal employment opportunities.

Cross tabulations

Cross tabulations between demographical variables of the study and social problems addressed by companies

Cross tabulations between various demographic variables and the social issues addressed by the companies was conducted so as to know which types of social problems were addressed by which types of companies. Below table shows the outcome of the cross tabulations.

Table 84 shows the values of cross tabulation between demographical variables and social problems addressed by companies.

Table 84

Cross tabulations between demographical variables and social problems addressed by companies (n=48)

Demographical Variables	Social problems addressed by companies					
	Employ-ment Generation	Women empow-erment	Uplift-ment of weaker sections	Poverty eradi-cation	Equal Employ-ment opportun-ities	Total (n)
	f (%)	f (%)	f (%)	f (%)	f (%)	
Types of Industry						
Chemicals / Petrochemicals	22 (65)	16 (47)	23 (66)	05 (15)	16 (47)	34
Pharmaceuticals	09 (64)	05 (36)	03 (21)	01 (07)	09 (64)	14
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Sector Ownership						
Government	04 (67)	04 (67)	05 (83)	00 (00)	03 (50)	06
Non-Government	27 (64)	17 (41)	21 (50)	06 (14)	22 (52)	42
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Legal status of the firm						
Unlisted	16 (67)	05 (21)	12 (50)	01 (04)	11 (46)	24
Listed	15 (63)	16 (67)	14 (58)	05 (21)	14 (58)	24
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Age / Experience of the firm						
Up to 25 years	06 (86)	03 (43)	03 (43)	00 (00)	04 (57)	07
More than 25 years	25 (61)	18 (44)	23 (56)	06 (15)	21 (51)	41
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Size of the firm						
Medium / Small	06 (60)	02 (20)	03 (30)	00 (00)	03 (30)	10
Large sized	25 (66)	19 (50)	23 (61)	06 (16)	22 (58)	38
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48

Average Revenue of the firm						
Up to 3000 crs	20 (61)	12 (36)	16 (49)	02 (06)	14 (42)	33
More than 3000crs	11 (73)	09 (60)	10 (67)	04 (27)	11 (73)	15
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Average PAT of the firm						
Up to 100 crs	17 (63)	08 (30)	12 (44)	01 (04)	10 (37)	27
More than 100 crs	14 (67)	13 (62)	14 (67)	05 (24)	15 (71)	21
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48
Average Reserves of the firm						
Up to 1000 crs	16 (64)	06 (24)	11 (44)	01 (04)	11 (44)	25
More than 1000 crs	15 (65)	15 (65)	15 (65)	05 (22)	14 (61)	23
Total	31 (65)	21 (44)	26 (54)	06 (13)	25 (52)	48

% figures are in parenthesis

i) Based on types of Industry - Out of 34 chemicals & petrochemicals based respondent companies, 66% (n=23) companies addresses issues related to upliftment of weaker sections, 65% (n=22) addresses employment generations issues, 47% (n=16) addresses both women empowerment as well as on creating equal employment opportunities issues and 15% (n=5) addresses eradication of poverty issues. Whereas in case of 14 pharma companies, 64% (n=9) addresses issues related to both employment generations & creating equal employment opportunity, 36% addresses issues on women empowerment, 21% (n=3) addresses issues related to upliftment of weaker sections, and 7%(n=1) addresses eradication of poverty issues.

ii) Based on sector ownership - It can be inferred that out of 6 government owned companies, 83% (n=5) of companies addresses issues related to upliftment of weaker sections, 67% (n=4) work on employment generations and women empowerment, 50% (n=3) create equal employment opportunities and none of them addressed poverty eradication issue. Whereas in case of 42 non-government based companies, 64% (n=27) addresses issues related to employment generations, 52% (n=22) create equal employment opportunities, 50% (n=21) uplift weaker sections, 41% (n=17) addresses women

empowerment issues and 14%(n=6) of non-govt. companies addresses poverty eradication issues.

iii) Based on Legal Status of the firm–Data shows that out of 24 unlisted companies, it 67% (n=5) addresses issues related to employment generations, 50% (n=12) uplift weaker sections issues, 46% (n=11) create equal employment opportunities, 21%(n=5) addresses women empowerment issues, and 4% (n=1) unlisted companies addresses poverty eradication issue. Whereas in case of 24 listed companies, 67% (n=16) addresses issues related to women empowerment, 63% (n=15) work on employment generations, 58% (n=14) create equal employment opportunities and upliftment of weaker sections, and 21%(n=5) of listed companies addresses poverty eradication issues.

iv) Based on Age of the firm–Data infers that out of 07 respondent companies having age / experience up to 25 years, 86% (n=6) addresses issues related to employment generations, 57% (n=21) create equal employment opportunities, 43% (n=3) work on upliftment of weaker sections & women empowerment issues, and none of them addresses poverty eradication issue. Whereas in case of 41 respondent companies having age / experience more than 25 years, 61% (n=25) addresses issues related to creating employment generation, 56% (n=23) work on upliftment of weaker sections, 52% (n=21) create equal employment opportunities, 44% (n=21) addressed issues related to women empowerment and 13% (n=6) addresses issues related to poverty eradication.

v) Based on Size of the firm – It can be inferred that out of 10 medium & small sized respondent companies, 60% (n=6) addresses issues related to employment generations, 30% (n=3) work on creating equal employment opportunities and upliftment of weaker sections, 20% (n=2) addresses women empowerment issues, and none of the them addresses poverty eradication issue. Whereas in case of 38 large sized participating companies, 66% (n=25) companies addresses issues related to creating employment generation, 61% (n=23) related to upliftment of weaker sections, 58% (n=22) create equal employment opportunities, 50% (n=19) addresses issues related to women empowerment and 16% (n=6) addresses issues related to poverty eradication.

vi) Based on average Revenue of the firm - Data depicts that out of 33 respondent companies earning avg. revenue up to 3000 crs, 61% (n=20) addresses issues related to employment generations, 49% (n=16) related to upliftment of weaker sections, 42% (n=14) create equal employment opportunities, 36% (n=12) on women empowerment

issues, and 6%(n=2) addresses poverty eradication issue. Whereas in case of 15 companies earning avg. revenue more than 3000crs, 73% (n=11) addresses issues related to employment generation and equal employment opportunities, 67% (n=10) uplift of weaker sections, 60% (n=9) work on women empowerment issues and 27% (n=4) addresses issues related to poverty eradication

vii) Based on average PAT of the firm– It can be inferred that out of 27 respondent companies earning avg. PAT up to 100 crs, 63% (n=17) addresses issues related to employment generations, 44% (n=12) related to upliftment of weaker sections, 10% (n=10) create equal employment opportunities, 30% (n=8) addresses women empowerment issues, and 4% (n=1) addresses poverty eradication issue. Whereas in case of 21 companies earning avg. PAT more than 100crs, 71% (n=15) create equal employment opportunities, 67% (n=14) addresses issues related to both employment generation and upliftment of weaker sections, 62% (n=13) on women empowerment issues and 24% (n=5) addresses issues related to poverty eradication.

viii) Based on average Reserves of the firm - Data shows that out of 25 respondent companies having avg. Reserves up to 1000 crs, 64% (n=16) addresses issues related to employment generations, 44% (n=11) work on upliftment of weaker sections and create equal employment opportunities, 24% (n=6) addresses women empowerment issues, and 4% (n=1) addresses poverty eradication issue. Whereas in case of 23 companies earning avg. reserves more than 1000crs, 65% (n=15) companies' addresses related to employment generation, women empowerment and upliftment of weaker sections 61% (n=14) addresses issues related to creating equal employment opportunities and 22% (n=5) addresses issues related to poverty eradication.

Steps taken to address environment problems

Questions 26 to 29 investigates companies' initiatives taken to address environmental problems, reasons for not investing in green technology till now, and if invested in green technology then benefits reaped out of it. Below table 85 shows the frequencies for steps taken by the companies to address environmental problems.

Table 85 depicts frequencies on steps taken by the respondent companies so as to address environment problems. Here, no. of responses was more than no. of respondents due to multiple option. It was found that 52% (n=26) of the companies recycle their products, 96% (n=48) addresses environmental issues through trees plantation, 78% (n=39) has

adopted green technology and also they treat water before releasing, 56% (n=28) reduce carbon footprints, 74% (n=37) recycle used water, and 66% (n=33) dump solid waste in a scientific manner.

Table 85
Steps taken by companies to address environmental problems (n=50)

Steps by companies to address environment problems	Frequency (n)	Percent (%)
Product Recycling	26	52
Tree plantation	48	96
Adopting green technology	39	78
Reducing carbon footprints	28	56
Recycling used water	37	74
Treating water before releasing	39	78
Dumping of solid waste in a scientific way	33	66

Cross tabulations

Cross tabulations between demographic variables and steps taken by companies to address environment issues

Cross tabulations between various independent variables and steps taken by companies to address environment issues was conducted so as to know which types of companies addresses what types of environment problems. Below table shows the outcome of the cross tabulations.

Table 86 shows the values of cross tabulations between independent variables and steps taken by companies to address environment issues

i) Based on types of Industry –It can be inferred that out of total 36 sample chemicals & petrochemical based companies, 94% (n=34) companies does tree plantations, 86% (n=31) companies treat water before releasing, 81% (n=29) adopted green technology and does recycling of used water, 72% (n=26) engaged in dumping of solid waste in a scientific way and 58% (n=21) does product recycling and are also engaged in reducing carbon footprints. Whereas in case of pharma companies, out of total 14 companies, 93% (n=13) companies does tree plantations, 71% (n=10) adopted green technology, 57% (n=8) treat water before releasing and were engaged in recycling of used water, 50% (n=7) engaged in dumping of solid waste in a scientific way and also engaged

in reducing carbon footprints and finally 36% (n=5) pharma companies are engaged in product recycling.

Table 86

Cross tabulations between independent variables and steps taken by companies to address environment issues (n=50)

Demographic Variables	Steps taken by companies to address environment issues							
	Product Recycling	Tree plantation	Adopting Green technology	Reducing carbon footprints	Recycling used water	Treating the water before releasing	Dumping of solid waste in scientific way	Total
	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	(n)
Types of Industry								
Chemicals / Petrochem	21(58)	34(94)	29(81)	21(58)	29(81)	31(86)	26(72)	36
Pharma	05 (36)	13(93)	10(71)	07(50)	08(57)	08(57)	07(50)	14
Total	26 (52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Sector ownership								
Government	03(50)	06(100)	05(83)	05(83)	06(100)	05(83)	05(83)	06
Non-Govt.	23(52)	41(93)	34(77)	23(52)	31(71)	34(77)	28(64)	44
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Legal status of the firm								
Unlisted	12(48)	23(92)	18(72)	13(52)	18(72)	21(84)	18(72)	25
Listed	14 (56)	24(96)	21(84)	15(60)	19(76)	18(72)	15(60)	25
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Age / experience of the firm								
Up to 25 years	04(57)	07(100)	04(57)	04(57)	05(71)	06(86)	05(71)	07
More than 25 yrs	22(51)	40(93)	35(81)	24(56)	32(74)	33(77)	28(65)	43
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Size of the firm								
Medium / Small	07(70)	07(70)	06(60)	04(40)	05(50)	07(70)	08(80)	10
Large sized	19(48)	40(100)	33(83)	24(60)	32(80)	32(80)	25(63)	40
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50

Average Revenue of the firm								
Up to 3000 crs	17(49)	32(91)	26(74)	16(46)	24(69)	26(74)	23(66)	35
More than 3000	09(60)	15(100)	13(87)	12(80)	13(87)	13(87)	10(67)	15
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Average PAT of the firm								
Up to 100 crs	12(44)	24(89)	17(63)	11(41)	17(63)	20(74)	18(67)	27
More than 100cr	14(61)	23(100)	22(96)	17(74)	20(87)	19(83)	15(65)	23
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50
Average Reserves of the firm								
Up to 1000 crs	11(44)	22(88)	17(68)	12(48)	16(64)	19(76)	19(76)	25
More than 1000 crs	15(60)	25(100)	22(88)	16(54)	21(84)	20(80)	14(56)	25
Total	26(52)	47(94)	39(78)	28(56)	37(74)	39(78)	33(66)	50

% figures are in parenthesis.

ii) Based on Sector Ownership - Out of the total 06 government owned Companies, 100% (n=6) all companies addresses environment issues through trees plantation and does recycling of used water, 83% (n=5) adopted green technology, treat water before releasing, engaged in dumping of solid waste in a scientific way and also are engaged in reducing carbon footprints and 50%(n=3) government owned companies does product recycling for addressing environmental problems. As far as non-government based companies (n=44) are concerned, 93% (n=41) companies does tree plantations, 77% (n=34) has adopted green technology, treat water before releasing, 71% (n=31) engaged in recycling of used water, 64% (n=28) engaged in dumping of solid waste in a scientific way and finally 52% (n=23) non-government companies does product recycling and are engaged in reducing carbon footprints.

iii) Based on Legal status of the firm – It was observed that out of the total Unlisted companies (n=25), 92% (n=23) companies does tree plantations, 84% (n=21) treat water before releasing, 72%(n=18) had adopted green technology, engaged in recycling of used water, 52% (n=13) engaged in reducing carbon footprints and 48% (n=12) unlisted companies does product recycling. Whereas in case of listed companies (n=25), 96% (n=24) companies does tree plantations, 84% (n=21) had adopted green technology, 76% (n=19) are engaged in recycling of used water, 72% (n=18) companies

treat water before releasing, 60% (n=15) engaged in dumping of solid waste in a scientific way and also in reducing carbon footprints and finally only 56% (n=14) listed companies does product recycling.

iv) Based on Age of the firm – From total sample companies having age / experience up to 25 years (n=7), 100% (n=7) sample companies does tree plantations, 86% (n=6) treat water before releasing, 71% (n=5) does recycling of used water as well as engage in dumping of solid waste in a scientific way, 57% (n=4) does product recycling, has adopted green technology and are engaged in reducing carbon footprints. Whereas in case of sample companies having age / experience more than 25 years (n=43), 93% (n=40) companies does tree plantations, 81% (n=35) had adopted green technology, 77% (n=33) treat water before releasing, 74% (n=32) recycle used water, 65% (n=28) engaged in dumping of solid waste in a scientific way, 56% (n=24) engaged in reducing carbon footprints, and finally 51% (n=22) of companies having age / experience more than 25 years does product recycling so as to address environment issues.

v) Based on size of the firm - Out of the total medium & small sized sample companies (n=10), 80% (n=8) are engaged in dumping of solid waste in a scientific way, 70% (n=7) does tree plantations, product recycling, treat the water before releasing to tackle environment problems, 60% (n=6) had adopted green technology, 50% (n=5) recycle used water, and 40% (n=4) are engaged in reducing carbon footprints. Whereas, in case of large sized sample companies (n=40), 100% (n=40) companies does tree plantations, 83% (n=33) had adopted green technology, 80% (n=32) treat water before releasing as well as recycled used water, 63% (n=25) engaged in dumping of solid waste in a scientific way, 60% (n=24) are engaged in reducing carbon footprints, and finally 48% (n=19) large sized companies does product recycling to address environment issues.

vi) Based on average Revenue of the firm - Out of the total sample companies earning avg. revenue up to 3000 crs (n=35), 91% (n=32) companies does tree plantations, 74% (n=26) adopted green technology and treat water before releasing, 69% (n=24) recycled used water, 66% (n=23) dump solid waste in a scientific way, 49% (n=17) does product recycling and 46% (n=16) were engaged in reducing carbon footprints. While in case of companies earning avg. revenue more than 3000crs (n=15), 100% (n=15) all companies addresses environment issues through trees plantation, 87% (n=13) adopted green technology, treat water before releasing, and engaged in recycling of used water,

80% (n=12) engaged in reducing carbon footprints, 67% (n=10) dump their solid waste in a scientific way, and 60% (n=9) does product recycling so as to manage environment issues.

vii) Based on average PAT of the firm -Out of the total sample companies earning avg. PAT up to 100crs (n=27), 89% (n=24) companies does tree plantations, 74% (n=20) treat water before releasing, 67% (n=18) dump their solid waste in a scientific way, 63% (n=17) adopted green technology and recycle used water, 44% (n=12) were engaged in product recycling and 41% (n=11) were engaged in reducing carbon footprints. Whereas in case of companies earning avg. PAT more than 100crs (n=23), 100% (n=23) all companies does tree plantations, 96% (n=22) adopted green technology, 87% (n=20) does recycle used water, 83% (n=19) treat water before releasing, 74% (n=17) engaged in reducing carbon foot prints, 65% (n=15) dump their solid waste in a scientific way, and 61% (n=14) does product recycling so as to manage environment issues.

viii) Based on average Reserves of the firm -Data depicts that out of the total sample companies having avg. Reserves up to 1000 crs (n=25), it was found that 88% (n=22) companies does tree plantations for addressing environment issues, 76% (n=19) treat water before releasing and dump their solid waste in a scientific way, 68% (n=17) adopted green technology, 64% (n=16) recycle used water, 48% (n=12) were engaged in reducing carbon footprints, and 44% (n=11) does product recycling. Whereas in case of companies earning avg. reserves more than 1000crs (n=25), all 100% (n=25) companies does tree plantations for addressing environment issues, 88% (n=22) companies had adopted green technology, 84% (n=21) companies recycled used water, 80% (n=20) companies treat water before releasing, 60% (n=15) companies does product recycling, 56% (n=14) companies dump their solid waste in a scientific way and finally 54% (n=16) companies engage in reducing carbon footprints so as to solve environment issues.

Green Technology

In the survey, respondent companies were asked whether they invest in green technology, type of green technology and the benefits reaped out of green technologies. Also reasons were explored if the companies had still not invested in green technologies.

Type of Green technology adopted

Respondent companies were asked about the type of Green technology adopted by them.

Table 87

Type of Green Technology adopted by the sample companies (n=39)

Type of Green Technology adopted	Frequency (n)	Percent (%)
Indigenous	30	77
Imported	05	13
Both	04	10

The above table 87, reports the frequencies on type of green technology adopted by sample companies where it was found that 77% (n=30) had indigenous green technology, 13% (n=5) of the sample companies had imported green technology and there 10% (n=4) companies having both indigenous as well as imported green technology in their organization

Reason for not investing in Green Technology

In this question, researcher attempted to identify reasons for not investing in Green Technology.

Table 88

Reasons for not investing in Green Technology till now…by the respondent companies (n=11)

Reasons for not investing in Green Technology	Frequency (n)	Percent (%)
Costly affair	04	36
No support from govt.	03	27
Company doesn't have resources	02	18
Doesn't feel need	00	00
Will be shortly doing it	04	36
No financial support from banks/fin. Inst	01	09
Lack of knowledge / training about how to reduce carbon footprints	02	18

From the above frequency table 88, it was observed that 36% (n= 4) of the companies had not invested in green technology due to the cost factor, 27% (n=3) due to lack of support from the government for not investing in green tech till now, 18% (n=2) due to lack of resources with the companies and lack of knowledge and training in managing green technology, 9% (n=1) due to lack of financial support from banks and financial institutions, 36% (n=4) of the respondent companies claimed that they will be soon adopt the green technology. Further, it was also observed that none of the companies specified that they do not feel need for adoption of green technology at their work place.

Table 89
Frequencies on Benefits reaped out of green technology (n=39)

Benefits reaped out of green technology	Frequency (n)	Percent (%)
Helped to manage and recycle waste material	33	85
Helped to reduce carbon emission and purification of air and water	23	59
Helped in conservation of energy	32	82
Helped in Rejuvenating Ecosystems	15	38

The above frequency table 89, shows the opinion of the respondent companies on the benefits reaped out of green technology. It was observed that 85% (n=33) of the sample companies were of the opinion that green technology has helped them to manage and recycle waste material, 59% (n=23) companies stated that green technology has helped them in reducing carbon emission and purification the air and water, 82% (n=32) stated that green tech has helped them in energy conservation whereas 38% (n=15) opined that green tech has helped in rejuvenating ecosystems.

5. Responsible behaviour towards managing Business Functions

Question no. 30 from the questionnaire tries to explore companies responsible behaviour towards managing its business functions like procurement, manufacturing, marketing, HR etc…This question has been asked in the form of 5-point likert rating scale from Strongly Agree to Strongly Disagree. Below table 90, demonstrates descriptive

analysis (mean & standard deviation) results on statements showing responsible behaviour towards managing business functions.

Table 90
Mean & SD on Responsible behaviour towards managing business functions (n=50)

Responsible behaviour towards managing business functions	Mean	SD	Weighted Mean
Responsible Behaviour towards Procurement function			
Company considers suppliers sustainability	4.22	0.887	
Company procures green materials as far as possible	3.82	0.962	
Company monitors non-use of child labour during production by the suppliers	4.30	1.055	
Company prefers those suppliers promoting women empowerment	3.36	1.156	
Company prefers those suppliers using green methods for producing raw materials	3.72	1.011	
Company ensures that suppliers are environmentally certified having ISO series	4.02	0.937	
Total Mean			3.91
Responsible Behaviour towards Manufacturing function			
Company focuses on resource optimization while manufacturing	4.66	0.557	
Company focuses on use of renewable resources as far as possible	4.24	0.894	
Company recycle and make use of treated water	4.44	0.907	
Company takes care of proper disposal of industrial waste	4.64	0.693	
Company treats air before releasing	4.24	0.960	
Safe products are designed having recyclability and biodiversity	4.12	0.918	
Minimum use of water and energy while manufacturing	4.38	0.697	
Ensuring soil fertility of nearby areas by avoiding solid waste disposal through proper method	4.46	0.676	
Containing the noise pollution by scientific methods	4.46	0.762	
Company has Sustainable and eco-friendly product packaging	4.28	0.809	

Promoting R&D for resource efficiency	4.48	0.735	
Company has Environment Friendly Manufacturing system	4.48	0.544	
Total Mean			4.40
Responsible Behaviour towards Marketing function			
Company strives for customer loyalty	4.52	0.762	
Delivers cost effective products to the customers	4.60	0.535	
Company regularly collects product / service feedback from customers to make improvisation	4.46	0.706	
Company is committed to fair, transparent and ethical marketing practices	4.60	0.535	
Total Mean			4.54
Responsible Behaviour towards HR function			
Company has fair and just employment policies & practices at work place as per labour legislation	4.50	0.647	
Company provides fair compensation to its employees	4.36	0.802	
Company provides better working condition at work place	4.42	0.859	
Company provides better career advancement opportunities at work place	4.12	0.982	
Company involves its employees in business decision making	3.76	1.021	
Company regularly provides safety training programmes to its employees related HSSE	4.54	0.613	
Company promotes accident prevention, disaster and emergencies management programmes at work place	4.56	0.644	
Safety audits are regularly conducted in the company	4.56	0.675	
Company allows its Unions/ employees to raises issues related to compensation and better working conditions in the company	3.52	1.216	
Company make use of more contract labour /temporary labour / casual labour than permanent workforce	3.32	1.332	
Company prefers male than female employees while providing employment	3.20	1.245	
Company practices reservation policy for weaker section	2.62	1.244	
Company frequently recruits disabled employees	3.10	1.111	
Total Mean			3.89

Above table 90 demonstrates Mean & SD on each Likert scale items related to companies responsible behaviour towards managing its business functions.

In case of procurement functions, the mean of each items ranged from 3.36 to 4.30. The highest mean with SD ($\bar{x}$=4.30, SD=1.055) was found for item– Company considers suppliers' sustainability followed by statement - Company monitors non-use of child labour during production by the suppliers having next highest mean with SD– ($\bar{x}$=4.22, SD=0.887). The lowest mean with SD amongst 6 statements related to procurement functions was found for an item - Company prefers those suppliers promoting women empowerment ($\bar{x}$=3.36, SD=1.156). The overall mean for responsible behaviour of companies towards its procurement function was 3.91.

In case of manufacturing function, the mean of each items ranged from 4.12 to 4.66. The highest mean with SD ($\bar{x}$=4.66, SD=0.557) was found for statement – Company focuses on resource optimization while manufacturing followed by a statement - Company takes care of proper disposal of industrial waste, having next highest mean with SD ($\bar{x}$=4.64, SD=0.693). The lowest mean with SD amongst 12 statements was found for an item - Safe products are designed having recyclability and biodiversity ($\bar{x}$=4.12, SD=0.918). The overall mean for responsible behaviour of companies towards its manufacturing function was 4.40.

In case of marketing functions, the mean of each items ranged 4.46 to 4.60. The highest mean with SD ($\bar{x}$=4.60, SD=0.535) was found for two statements – one, company delivers cost effective products to the customers; and other Company is committed to fair, transparent and ethical marketing practices. The overall mean for responsible behaviour of companies towards its marketing function was 4.54.

And finally, in case of HR functions, the mean of each items ranged from 2.62 to 4.56 (< 4.60). The highest mean ($\bar{x}$=4.56, SD=0.675) was found for two statements – one, Safety audits are regularly conducted in the company; and another ($\bar{x}$=4.56, SD=0.644) for an item -Company promotes accident prevention, disaster and emergencies management programmes at work place having SD. The lowest mean with SD amongst 13 statements was found for an item - Company practices reservation policy for weaker section ($\bar{x}$=2.62, SD=1.244) followed by next lowest mean with SD for an item - Company frequently

recruits disabled employees ($\bar{x}$=3.10, SD=1.111). The overall mean for responsible behaviour of companies towards its HR function was 3.89.

Descriptive statistics (overall), Reliability & Normality test on Responsible Behaviour towards managing Business functions

Table 91

Descriptive statistics (overall), Reliability & Normality test table on Responsible Behaviour towards managing Business functions (n=50)

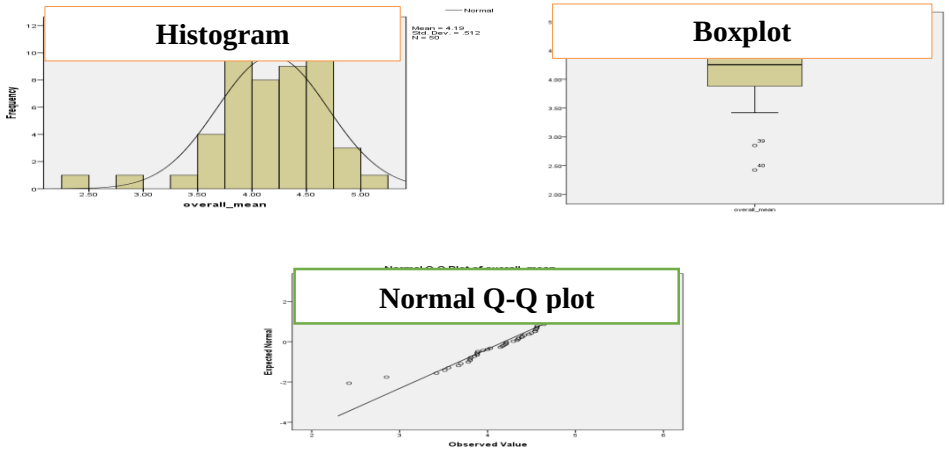
Variables Business functions	No of ite-ms	Mean	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		Cron-bach α	Sha-piro Sig. Val.
					Value	Z	Value	Z		
Procure-ment	06	3.95	4.00	0.76	-1.154	-3.42	2.996	4.51	0.851	0.004
Mfg.	12	4.44	4.58	0.51	-0.825	-2.45	0.395	0.59	0.882	0.002
Marketing	04	4.58	4.75	0.53	-0.807	-2.39	-0.450	-0.68	0.837	0.002
HR	13	3.91	3.96	0.54	-0.663	-1.96	1.593	2.41	0.803	0.06
Overall Bus. Func.	35	4.22	4.25	0.51	-1.087	-3.22	2.005	3.03	0.937	0.006

As per table 91, the overall scale on Responsible Behaviour towards managing Business functions (n=50) was found reliable with Cronbach alpha (α) value 0.937 which means 93.7% internal consistency exist amongst different items. The overall Mean, Median and SD value were found as $\bar{x}$=4.22 and MD= 4.25 with s=0.512. From the numerical methods point of view, it was observed that value of Mean (4.22) & Median (4.25) were very nearby, showing that data were normally distributed. The value of skewness (-1.087) and the value of kurtosis (2.005) individually were not found within the range of $\pm$1 range. Critical ratio (z value) of the skewness (-3.22) and kurtosis (3.03) were

also within not ±1.96 range, thus the outcome with respect to dispersion specifies that data were non- normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p =0.006) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Responsible Behaviour towards managing Business functions (refer figure below)

Figure 20

Histogram, Box plots, Normal Q-Q plots for companies Responsible Behaviour towards managing its Business functions (n=50)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 20 displays histogram on business functions statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot was asymmetric not having median line at the center indicating non-normal distribution of the data. Normal Q-Q Plot confirms non-normal data as some of the observed data were not found on or near to expected data.

Cross tabulations & Chi-square test

Cross tab & Chi-square test between various demographic variables and 'Companies responsible behaviour towards managing business functions'

Cross tabulations & Chi-square test was conducted between Companies responsible behaviour towards its business functions and various demographic variables of the study so as to know whether there exists any significant association between these

variable. Below table 92, shows the results of cross tab and chi-square. The Dependent variable which was into scale data was first converted into categorical data and then compressed into agreement and disagreement categories to create 2*2 matrix and apply chi-square test.

Table 92

Cross tabulations & chi-square test results on Companies responsible behaviour towards managing its business functions and various demographic variables (n=50)

Demographic Variables	Companies responsible behaviour towards Business function						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochem	10 (12.2)	28	26 (23.8)	72	36	100	$\chi 2_{(1)} = 2.218$, $p = 0.187$ (ns), Phi = 0.211 Fail to Reject H0
Pharmaceutical	07 (4.8)	50	07 (9.2)	50	14	100	
Total	17	34	33	66	50	100	
Sector Ownership							
Government	01 (2.0)	17	05 (4.0)	83	06	100	$\chi 2_{(1)} = 0.913$, $p = 0.650$ (ns), Phi = 0.135 Fail to Reject H0
Non-Govt	16 (15.0)	36	28 (29.0)	64	44	100	
Total	17	34	33	66	50	100	
Legal status of the firm							
Unlisted	12 (8.5)	48	13 (16.5)	52	25	100	$\chi 2_{(1)} = 4.367$, $p = 0.037$*, Phi = 0.296 Reject H0
Listed	05 (8.5)	20	20 (16.5)	80	25	100	
Total	17	34	33	66	50	100	
Age / Experience of the firm							
Up to 25 years	02 (2.4)	29	05 (4.6)	71	07	100	$\chi 2_{(1)} = 0.107$, $p = 1.000$ (ns), Phi = 0.046 Fail to Reject H0
More than 25 yrs	15 (14.6)	35	28 (28.4)	65	43	100	
Total	17	34	33	66	50	100	

Size of the firm							
Medium / Small	05 (3.4)	50	05 (6.6)	50	10	100	$\chi 2_{(1)} = 1.426$, $p = 0.277$ (ns) Phi = 0.169 Reject H0
Large	12 (13.6)	30	28 (26.4)	70	40	100	
Total	17	34	33	66	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	14 (11.9)	40	21 (23.1)	60	35	100	$\chi 2_{(1)} = 1.872$, $p = 0.171$ (ns), Phi = 0.193 Fail to Reject H0
More than 3000cr	03 (5.1)	20	12 (9.9)	80	15	100	
Total	17	34	33	66	50	100	
Avg. PAT of the firm							
Up to 100 crs	13 (9.2)	48	14 (17.8)	52	27	100	$\chi 2_{(1)} = 5.236$, $p = 0.022$* Phi = 0.324 Reject H0
More than 100 crs	04 (7.8)	17	19 (15.2)	83	23	100	
Total	17	34	33	66	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	12 (8.5)	48	13 (16.5)	52	25	100	$\chi 2_{(1)} = 4.367$, $p = 0.037$* Phi = 0.296 Reject H0
More than 1000 crs	05 (8.5)	20	20 (16.5)	80	25	100	
Total	17	34	33	66	50	100	

*ns- non significant, * p <0.05*

Hypothesis testing to find out significant association between various demographical variables of the study and Responsible Behaviour of companies towards its business function

Table 92 shows the crosstab & chi-square results on Companies responsible behaviour towards its business functions.

i) Based on types of Industry – It can be inferred that, 28% (n=10 out of 36) of chemical and petrochemical companies and 50% (n=7 out of 14) of pharma companies gave less agreement on practicing responsible behaviour towards managing its business functions while 72% (n=26) of chemical and petrochemical companies and 50% (n=7) pharma companies gave high agreement on practicing responsible behaviour towards managing its business functions.

Chi-square test shows NO Significant association between types of industry and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 2.218, p = 0.187 (ns) (refer table 92). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.211 shows weak association between two tested variables.

ii) Based on Sector Ownership - Data demonstrates that, 83% (n=5) of government companies and 64% (n=28 out of 44) non-government companies gave high agreement while 17% (n=1) government companies and 36% (n=16) non-government companies gave low agreement on practicing responsible behaviour towards managing its business functions.

Chi-square test shows NO Significant association between sector ownership and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 0.913, p = 0.650 (ns) (refer table 92). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.135 shows weak association between two tested variables.

iii) Based on legal status of the firm -It can be noted that 80% (n=20 out of 25) listed companies and 52% (n=13 out of 25) of the unlisted companies gave high agreement, while 48% (n=12) of the unlisted companies and 20% (n=5) of listed companies gave less agreement related to practicing responsible behaviour towards managing its business functions.

Chi-square test shows Significant association between legal status of firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 4.367, p = 0.037 (refer table 92). Here, chi-square test value was applicable as 0 cells (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.296 shows moderate association between two tested variables.

iv) Based on age of the firm -Data shows that 29% (n=2 out of 7) companies having age / experience up to 25 years and 35% (n=15 out of 43) companies having age / experience more than 25 years' gave low agreement, while 71% (n=5 out of 7) in case of companies with age / experience up to 25 years and 65% (n=28 out of 43) of the companies having more than 25 years' age / experience gave high agreement on practicing responsible behaviour towards managing its business functions.

Chi-square test shows NO Significant association between age of the firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 0.107, p

= 1.000 (ns) (refer table 92). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.046 shows negligible association between two tested variables.

v) Based on size of the firm – Data specifies that 50% (n=5 out of 10) of the medium and small sized companies and 30% (n=12 out of 40) of the large sized companies gave less agreement, while 50% (n=5) of medium and small sized companies and 70% (n=28) of large sized companies gave high agreement on practicing responsible behaviour towards its business functions.

Chi-square test shows NO Significant association between size of the firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 1.426, p = 0.277 (ns) (refer table 92). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.169 shows weak association between two tested variables.

vi) Based on average Revenue of the firm - It was noted that 40% (n=14 out of 35) sample companies' earning avg. revenue with up to 3000 crs and 20% (n=3 out of 15) companies earning avg. revenue more than 3000crs gave low agreement whereas 60% (n=21 out of 35) companies earning avg. revenue up to 3000 crs and 80% (n=12 out of 15) companies earning avg. revenue more than 3000crs gave high agreement on practicing responsible behaviour towards its business functions.

Chi-square test shows NO Significant association between avg. revenue of the firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 1.872, p = 0.171 (ns) (refer table 92). Here, chi-square test value was applicable as 0 cells (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.193 shows weak association between two tested variables.

vii) Based on average PAT of the firm - Data denotes that 48% (n=13 out of 27) sample companies' earning avg. PAT up to 100 crs and 17% (n=4 out of 23) companies earning avg. PAT more than 100crs gave less agreement whereas 52% (n=14 out of 27) companies earning avg. PAT up to 100 crs and 83% (n=19 out of 23) companies earning avg. PAT more than 100 crs gave high agreement on practicing responsible behaviour towards business functions.

Chi-square test shows Significant association between avg. PAT of the firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 5.236, p = 0.022 (refer table 92). Here, chi-square test value was applicable as 0 cells (00%) have

expected count less than 5. Moreover, even Phi coefficient value 0.324 shows moderate association between two tested variables.

viii) Based on average Reserves of the firm - Data denotes that that 48% (n=12 out of 25) sample companies' having avg. Reserves up to 1000 crs and 20% (n=5 out of 25) companies having avg. Reserves more than 1000 crs gave low agreement, whereas 52% (n=13 out of 25) companies having avg. reserves up to 1000 crs and 80% (n=20 out of 25) companies having avg. reserves more than 1000crs gave high agreement on practicing responsible behaviour for managing business functions.

Chi-square test shows Significant association between avg. Reserves of the firm and responsible behaviour of companies towards business functions $\chi 2$ (1, N= 50) = 4.367, p = 0.037(refer table 92). Here, chi-square test value was applicable as 0 cells (00%) have expected count less than 5. Moreover, even Phi coefficient value 0.296 shows near to moderate association between two tested variables.

Mann Whitney U Test

Mann Whitney U test on Corporate Responsible Behaviour towards managing its Business functions

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare companies Responsible Behaviour towards managing its business functions (DV) on the basis of various demographic variables of the study. Below table shows results of Mann Whitney U test compared with significant level p<0.05.

Table 93 report values on Corporate Responsible Behaviour towards its business functions.

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour of companies towards business functions on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 93 reports values for Chemicals & Petrochemicals (Mean rank = 26.65, *Mdn* = 4.27) and Pharmaceuticals (Mean rank =22.54, *Mdn* = 4.12), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 210.500, Z= -0.897, *P =0.370>0.05.* The value of r=0.126 derived determines small effect size. Median value for Chemicals & petrochemicals industry was found greater than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. Thus, there exists no significant difference in

terms of Corporate Responsible Behaviour towards managing its business functions, on the basis of types of industry.

Table 93

Mann-Whitney Test of Corporate Responsible Behaviour towards its business functions: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	r	Sig. (2-tailed)
Types of Industry	210.500	1063.500	-0.897	0.126	0.370 (ns) Failed to Reject H0
Sector Ownership	73.500	1079.000	-1.747	0.247	0.081 (ns) Failed to Reject H0
Legal status of firm	194.000	519.000	-2.299	0.325	0.021* Reject H0
Age of the firm	147.000	1093.500	-0.098	0.013	0.922(ns) Failed to Reject H0
Size of the firm	131.000	186.000	-1.674	0.236	0.094(ns) Failed to Reject H0
Avg. Revenue of firm	223.500	853.500	-0.826	0.117	0.409(ns) Failed to Reject H0
Avg. PAT of the firm	168.000	546.000	-2.774	0.392	0.006* Reject H0
Avg. Reserve of firm	190.500	515.500	-2.367	0.335	0.018* Reject H0

*ns- not significant, * p < .05, **p<0.01*

Hypothesis testing to find out significant differences in Corporate Responsible Behaviour towards business functions across various demographical variables of the study

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 93 reports values for Government owned (Mean rank = 35.25, *Mdn* = 4.56) and Non-government owned (Mean rank = 24.52, *Mdn* = 4.21), U ($N_{\text{Government owned}}$= 06,

N $_{\text{Non-government owned}}$=44) = 73.500, Z= -1.747, *P =0.081 > .05.* The value of r=0.247derived determines small effect size. Median value for Government owned companies was found higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Corporate Responsible Behaviour towards managing its business functions, on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 93 reports values for unlisted companies (Mean rank = 20.76, *Mdn* = 4.15) and listed (Mean rank = 30.24, *Mdn* = 4.39), *U* (N $_{\text{Unlisted}}$=25, N $_{\text{Listed}}$=25) = 194.000, Z= -2.299, *P =0.021 <0.05.* The value of r=0.325 derived determines moderate effect size. Median value for listed companies was found higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of Corporate Responsible Behaviour towards managing its business functions than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 93 reports values for companies age up to 25 years (Mean rank = 26.00, *Mdn* = 4.39) and companies age more than 25 years (Mean rank = 25.42, *Mdn* = 4.21), *U* (N $_{\text{Companies age up to 25 years}}$=7, N $_{\text{Companies Age more than 25 years}}$=43) = 147.000, Z= -0.098, *P =0.922> .05.* The value of r=0.013 derived determines small effect size. Median value for companies having age up to 25 years was found higher than companies age more than 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Corporate Responsible Behaviour towards managing its business functions, on the basis of age of the company.

v) On the basis of size of the company –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 93 reports values for medium & small sized companies (Mean rank =18.60, *Mdn* = 4.01) and Large sized companies (Mean rank = 27.23, *Mdn* = 4.31), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 131.000, Z= -1.674, *P =0.094>0.05.* The value of r=0.236 derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Corporate Responsible Behaviour towards managing its business functions, on the basis of size of the company.

vi) On the basis of average Revenue of the firm –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 93 reports values for companies earning avg. revenue up to 3000crs (Mean rank =24.39, *Mdn* = 4.21) and companies earning avg. revenue more than 3000 crs (Mean rank = 28.10, *Mdn* = 4.33), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 223.500, Z= -0.826, *P =0.409 > .05.* The value of r=0.117 derived, determines small effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Corporate Responsible Behaviour towards managing its business functions, on the basis of avg. Revenue of the company.

vii) On the basis of average PAT of the firm –A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards business functions on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 93 reports values for companies earning avg. PAT up to 100 crs (Mean rank =20.22, *Mdn* =4.15) and companies earning avg. PAT more than 100 crs (mean rank = 31.70, *Mdn* = 4.49), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 168.000, Z= -2.774, *P =0.006 < .05*. The value of r =0.392 derived, determines medium effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is <0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. PAT more than 100 crs were better in terms of Corporate Responsible Behaviour towards managing its business functions than companies earning PAT up to 100crs.

viii) On the basis of average Reserves of the firm– A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards functions on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 93, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 20.62, *Mdn* = 4.14) and companies having avg. reserves more than 1000 crs (Mean rank = 30.38, *Mdn* = 4.39), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 190.500, Z= -2.367, *P =0.018 < .05*. The value of r=0.335 derived, determines moderate effect size. Median value of companies having avg. reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It is inferred that companies having reserves more than 1000 crs were better in terms of Corporate Responsible Behaviour towards managing its business functions than companies having reserves up to 1000crs.

6. Economic sustainability of business

Question no. 31 to 33 from the questionnaire explores companies responsible behaviour towards its economic sustainability (i.e. Profitability). These includes questions related Companies customer base fluctuation, ways through which companies ensures long term economic sustainability of business and behaviour of companies towards customer responsiveness.

Customer base fluctuation

Question no. 31 investigates how often customer base of the companies gets fluctuated. This question was asked using 5 – point Likert scale from Always to Never. The frequency table is shown below.

Table 94
Frequencies on Customer base fluctuation scale (n=50)

Customer base fluctuation scale	Frequency (n)	Percentage (%)
Always	05	10
Frequently	01	02
Sometimes	37	74
Seldom	04	08
Never	03	06

From the above frequency table 94 it can be inferred that 10% (n=5) companies always had fluctuations in their customer base, 2% (n=1) companies frequently, 74% (n=37) companies sometimes had fluctuations, 8% (n=4) companies seldom while 6% (n=3) companies never had fluctuations in their customer base.

Steps by companies for Economic sustainability of the business

Question 32 tries to examine the responsible behaviour of the companies for ensuring long term economic sustainability of its business. The following table depicts the frequencies of the same.

The above frequency table 95, shows the behaviour or ways considered by the companies for ensuring economic sustainability of business. It was observed that 78% (n=39) companies ensures its economic sustainability of business by being customer responsive, 68% (n=34) ensures through cost reduction strategy, 26% (n=13) ensures through Inclusive business model, 56% (n=28) through product innovation and by addressing social and environmental concerns, 32% (n=16) ensures through Human capital management, 36% (n=18) ensures by making stakeholders happy, and 54% (n=27) companies ensures its long term economic sustainability by exhibiting ethical and transparent behaviour at all places.

Table 95
Frequencies on steps taken by companies for Economic Sustainability of Business (n=50)

Economic Sustainability of Business	Frequency (n)	Percent (%)
By customer responsiveness	39	78
Cost Reduction strategy	34	68
Inclusive business activity	13	26
Product innovation	28	56
Human Capital Mgmt	16	32
Making Stakeholders happy	18	36
Addressing Social & Environmental Concerns	28	56
Ethical & transparent behaviour at all places	27	54

Customer Responsiveness

Question 33 explores corporate behaviour towards its customers through customer responsiveness. Customer responsiveness is the speed and quality at which companies respond to their customer base which acts as one of the important dimension for sustainability of business.

This question includes five statements on customer responsiveness rated on 5-point Likert rating (strongly agree to strongly disagree) scale. Below table shows descriptive analysis (mean & standard deviation) results on Customer Responsiveness statements.

Table 96
Mean & SD on Customer Responsiveness scale (n=50)

Customer Responsiveness scale	Mean	SD
Company maintains speed and quality in providing customer service and communication	4.70	0.505
By timely addressing issues raised by customers, company brings sustainable advantage and competitive edge to the business	4.50	0.735
Company trains its employees to ensure customers satisfaction.	4.42	0.702
Customer responsiveness has helped company to improve its brand image	4.42	0.642
Company periodically does marketing research to anticipate customer need & satisfaction to develop new products	4.20	0.857

Above table 96, demonstrates result of descriptive analysis on customer responsiveness. The mean of each items were found greater than 4 (>4). The highest mean ($\bar{x}$=4.70, s=0.505) was found for statement - Company maintains speed and quality in providing customer service and communication statement followed by another statement -timely addressing issues raised by customers, company brings sustainable advantage and competitive edge to the business with mean ($\bar{x}$=4.50, s=0.735). The lowest mean ($\bar{x}$=4.2, s=0.857) amongst 5 statements was found for – Company periodically does marketing research to anticipate customer need & satisfaction to develop new products.

Descriptive statistics (overall), Reliability & Normality test on customer responsiveness of companies

Below table 97 shows the values of Descriptive statistics, Reliability and Normality on Customer Responsiveness scale

Table 97

Descriptive statistics (overall), Reliability & Normality test on customer responsiveness of companies (n=50)

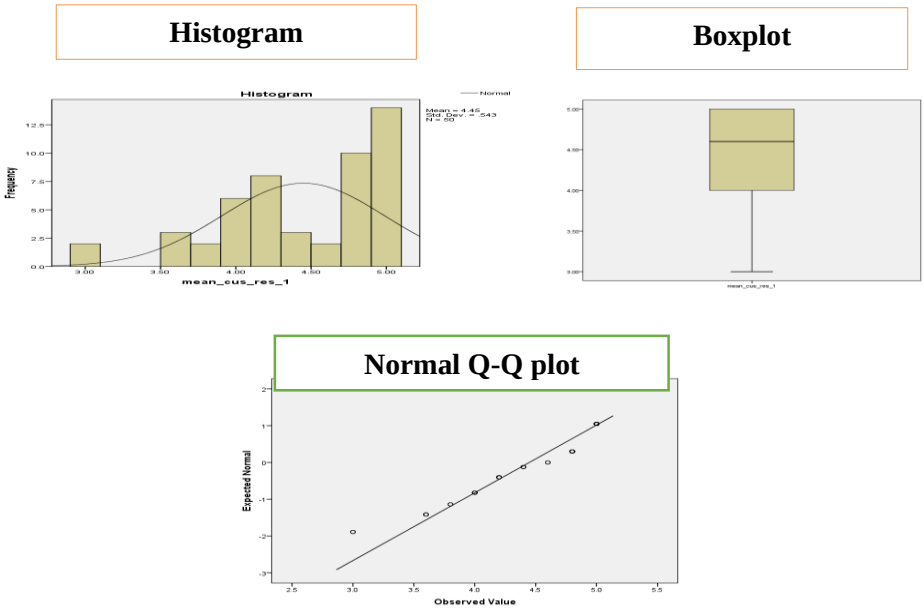
Scale	No	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Norm-lity Shap-iro Test
					Value	Z	Value	Z		
Custo-mer Respons-iveness	05	4.49	4.60	0.543	-0.838	-2.486	0.105	0.158	0.837	0.000

As per table 97, the scale on customer responsiveness (n=50) was found reliable with Cronbach alpha (α) value 0.837 which means 84% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=4.49 and MD= 4.60 with s=0.543. From the numerical methods point of view, it was observed that value of Mean (4.49) & Median (4.60) were not same or near, showing that data were non-normally distributed. The value of skewness (-0.838) and the value of kurtosis (0.105) individually

were found within the range of ±1. Critical ratio (z value) of kurtosis (0.158) was within ±1.96 range but the z-value of skewness (-2.486) was not found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were non- normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p =0.000) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable customer responsiveness (refer figure below).

Figure 21

Histogram, Box plots, Normal Q-Q plots for customer Responsiveness (n=50)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 21, displays histogram on customer responsiveness statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot was asymmetric not having whisker box plot and median line at the center indicating non-normal distribution of the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were not found on or near to expected data.

Cross tabulations & Chi-square test

Cross tab & Chi-square test between various demographic variables and 'Customer Responsiveness

Cross tabulations & Chi-square test was conducted between customer responsiveness and various demographic variables of the study so as to know whether

there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 98

Cross tabulations & chi-square test results on 'customer responsiveness' and various demographic variables (n=50)

Demographic Variables	Companies Responsible behaviour towards Customer Responsiveness						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petro-chemicals	01 (1.4)	03	35(34.6)	97	36	100	$\chi 2_{(1)} = 0.500$, $p = 0.486$(ns), Phi = 0.100 Fail to Reject H0
Pharmaceutical	01 (0.6)	07	13 (13.4)	93	14	100	
Total	02	04	48	96	50	100	
Sector Ownership							
Government	01 (0.2)	17	05 (5.8)	83	06	100	$\chi 2_{(1)} = 2.849$, $p = 0.228$ (ns), Phi = 0.239 Fail to Reject H0
Non-Govt	01 (1.8)	02	43 (42.2)	98	44	100	
Total	02	04	48	96	50	100	
Legal status of the firm							
Unlisted	01 (1.0)	04	24 (24.0)	96	25	100	$\chi 2_{(1)} = 0.000$, $p = 1.000$ (ns), Phi = 0.000 Fail to Reject H0
Listed	01 (1.0)	04	24 (24.0)	96	25	100	
Total	02	04	48	96	50	100	
Age / Experience of the firm							
Up to 25 years	00 (0.3)	00	07 (6.7)	100	07	100	$\chi 2_{(1)} = 0.339$, $p = 1.000$ (ns), Phi = 0.082 Fail to Reject H0
More than 25 yrs	02 (1.7)	05	41 (41.3)	95	43	100	
Total	02	04	48	96	50	100	

Size of the firm							
Medium / Small	01 (0.4)	10	09 (9.6)	90	10	100	$\chi2_{(1)} = 1.172$, $p = 0.363$ (ns), Phi = 0.153 Fail to Reject H0
Large	01 (1.6)	03	39 (38.4)	97	40	100	
Total	02	04	48	96	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	01 (1.4)	03	34 (33.6)	97	35	100	$\chi2_{(1)} = 0.397$, $p = 0.514$ (ns), Phi = 0.089 Fail to Reject H0
More than 3000cr	01 (0.6)	07	14 (14.4)	93	15	100	
Total	02	04	48	96	50	100	
Avg. PAT of the firm							
Up to 100 crs	01 (1.1)	04	26 (25.9)	96	27	100	$\chi2_{(1)} = 0.013$, $p = 1.000$ (ns), Phi = 0.016 Fail to Reject H0
More than 100 crs	01 (0.9)	04	22 (22.1)	96	23	100	
Total	02	04	48	96	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	01 (1.0)	04	24 (24.0)	96	25	100	$\chi2_{(1)} = 0.000$, $p = 1.000$ (ns), Phi = 0.000 Fail to Reject H0
More than 1000 crs	01 (1.0)	04	24 (24.0)	96	25	100	
Total	02	04	48	96	50	100	

ns- non significant,

Hypothesis testing to find out significant association between various demographical variables of the study and Responsible Behaviour of companies towards customer responsiveness.

Table 98 shows the crosstab & chi-square results on 'customer responsiveness' behaviour of respondent companies.

i) Based on types of Industry –It can be inferred that, 03% (n=1 out of 36) of chemical and petrochemical companies and 7% (n=1 out of 14) of pharma companies gave low agreement towards customer responsiveness scale while 97% (n=35 out of 36) chemical and petrochemical companies and 93% (n=13 out of 14) in case of pharma companies gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between types of industry and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.500, p = 0.486 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.100 shows weak association between two tested variables.

ii) Based on Sector Ownership - Data demonstrates that, 17% (n=1 out of 6) of government companies and 2% (n=1 out of 44) of non-government companies gave low agreement while 83% (n=5) in case of government companies and 98% (n=43) in case of non-government companies gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between sector ownership and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 2.849, p = 0.228 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.239 shows weak association between two tested variables.

iii) Based on legal status of the firm -It can be inferred that, 04% (n=1 out of 25) of unlisted companies and 4% (n=1 out of 25) of listed companies gave low agreement towards customer responsiveness scale while 96% (n=24) in case of unlisted companies and 96% (n=24) in case of listed companies gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between legal status of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.000, p = 1.000 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.000 shows no association between two tested variables.

iv) Based on age of the firm - The 2*2 crosstab table demonstrates that, 100% (n=7) of companies having experience up to 25 years and 95% (n=41 out of 43) of companies having experience more than 25 years gave high agreement towards customer responsiveness scale while 5% (n=2) in case of companies having experience more than 25 years had low agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between age of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.339, p = 1.000 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.082 shows negligible association between two tested variables.

vi) Based on size of the firm – Data shows that, 10% (n=1 out of 10) of medium & small sized companies and 3% (n=1 out of 40) of large sized companies gave low agreement, while 90% (n=9) in case of medium & small sized companies and 97% (n= 39) in case of large sized companies gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between size of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 1.172, p = 0.363 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.153 shows weak association between two tested variables.

vi) Based on avg. Revenue of the firm - It can be inferred that, 03% (n=1 out of 35) of companies earning avg. revenue up to 3000crs and 7% (n=1 out of 15) of companies earning avg. revenue more than 3000 crs gave low agreement, while 97% (n=34 out of 35) of companies earning avg. revenue up to 3000 crs and 93% (n=14 out of 15) of companies earning avg. revenue more than 3000 crs gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between avg. revenue of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.397, p = 0.514 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.089 shows negligible association between two tested variables.

vii) Based on avg. PAT of the firm - Data inferred that, 04% (n=1 out of 27) of companies earning avg. PAT up to 100crs and 4% (n=1 out of 23) of companies earning avg. PAT more than 100 crs gave low agreement, while 96% (n=26) of companies earning avg. PAT up to 100crs and 96% (n=22) of companies earning avg. PAT more than 100 crs gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between avg. PAT of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.013, p = 1.000 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.016 shows negligible association between two tested variables.

viii) Based on avg. Reserves of the firm - Data inferred that, 04% (n=1 out of 25) of companies having avg. reserves up to 1000crs and 04% (n=1 out of 25) of companies having avg. reserves more than 1000crs gave low agreement while 96% (n=24) of companies having avg. reserves up to 1000crs and 96% (n=24) of companies having avg. reserves more than 1000crs gave high agreement on customer responsiveness scale.

Chi-square test shows NO Significant association between avg. Reserves of the firm and responsible behaviour of companies towards customer responsiveness $\chi 2$ (1, N= 50) = 0.000, p = 1.000 (ns) (refer table 98). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.000 shows no association between two tested variables.

Mann Whitney U Test

Mann Whitney U test on Customer Responsiveness Behaviour of companies

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare Customer Responsiveness Behaviour of companies (DV) on the basis of various demographic variables of the study. Below table 99, shows results of Mann Whitney U test compared with significant level $p<0.05$.

Hypothesis testing to find out significant differences in Corporate Responsible Behaviour towards customer responsiveness across various demographical variables of the study

Table 99, report values on Corporate Responsible Behaviour towards customer responsiveness,

i). On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour of companies towards customer responsiveness on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 99

Mann-Whitney Test of Customer Responsiveness Behaviour of companies: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	183.000	288.000	-1.518	0.214	0.129 (ns) Failed to Reject H0
Sector Ownership	96.000	1086.000	-1.095	0.152	0.274 (ns) Failed to Reject H0
Legal status of firm	223.000	548.000	-1.769	0.250	0.077 (ns) Failed to Reject H0
Age of the firm	139.500	1085.500	-0.313	0.044	0.754 (ns) Failed to Reject H0
Size of the firm	181.000	236.000	-0.469	0.066	0.639 (ns) Failed to Reject H0
Avg. Revenue of firm	246.000	876.000	-0.356	0.050	0.722 (ns) Failed to Reject H0
Avg. PAT of the firm	233.000	611.000	-1.536	0.217	0.214 (ns) Failed to Reject H0
Avg. Reserve of firm	237.000	562.000	-1.492	0.211	0.136 (ns) Failed to Reject H0

ns- not significant

Table 99 reports values for Chemicals & Petrochemicals (Mean rank = 27.42, *Mdn* = 4.80) and Pharmaceuticals (Mean rank = 20.57, *Mdn* = 4.20), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 183.000, Z= -1.518, *P =0.129>0.05.* The value of r=0.214 derived determines small effect size. Median value for Chemicals & petrochemicals industry was found greater than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of types of industry.

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 99, reports values for Government owned (Mean rank = 31.50, *Mdn* = 4.90) and Non-government owned (Mean rank = 24.68, *Mdn* = 4.40), U ($N_{Government\ owned}$= 06, $N_{Non\text{-}government\ owned}$=44) = 96.000, Z= -1.095, *P =0.274> .05.* The value of r=0.152 derived determines small effect size. Median value for Government owned companies was found much higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 99 reports values for unlisted companies (Mean rank = 21.92, *Mdn* = 4.20) and listed (Mean rank = 29.08, *Mdn* = 4.80), *U* ($N_{Unlisted}$=25, N_{Listed}=25) = 223.000, Z= -1.769, *P =0.077 > 0.05.* The value of r=0.250 derived determines moderate effect size. Median value for listed companies was found much higher than unlisted companies. As p value is > .05, hence null hypotheses gets rejected. As p value is > .05, hence fails to reject

null hypotheses. It infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of legal status of the firm.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 99, reports values for companies age up to 25 years (Mean rank = 27.07, *Mdn* = 4.60) and companies age more than 25 years (Mean rank = 25.24, *Mdn* = 4.60), *U* ($N_{\text{Companies age up to 25 years}}$=7, $N_{\text{Companies Age more than 25 years}}$=43) = 139.500, Z= -0.313, *P =0.754 > .05.* The value of r=0.044 derived determines small effect size. Median value for companies having age up to 25 years was found same as companies age more than 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of age of the company.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 99, reports values for medium & small sized companies (Mean rank =23.60, *Mdn* = 4.30) and Large sized companies (Mean rank = 25.98, *Mdn* = 4.70), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 181.000, Z= -0.469, *P =0.639 >0.05.* The value of r=0.066 derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 99 reports values for companies earning avg. revenue up to 3000crs (Mean rank =25.03, *Mdn* = 4.40) and companies earning avg. revenue more than 3000 crs (Mean rank = 26.60, *Mdn* = 4.80), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 246.000, Z= -0.356, *P =0.722 > .05.* The value of r=0.050 derived, determines small effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies**,** on the basis of avg. Revenue of the company.

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 99, reports values for companies earning avg. PAT up to 100 crs (Mean rank =22.63, *Mdn* =4.40) and companies earning avg. PAT more than 100 crs (mean rank = 28.52, *Mdn* = 4.80), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 233.000, Z= -1.536, *P = 0.214 > .05*. The value of r=0.217 derived, determines small effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of avg. PAT of the company.

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards customer responsiveness on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 99, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 22.48, *Mdn* = 4.40) and companies having avg. reserves more than 1000 crs (Mean rank = 30.38, *Mdn* = 4.80), *U* ($N_{\text{Reserves up to 1000crs}}$ = 25, $N_{\text{Reserves more than 1000crs}}$ = 25) = 237.000, Z= -1.492, *P =0.136 > .05.* The value of r=0.211 derived, determines small

effect size. Median value of companies earning avg. reserves more than 1000 crs was found higher than companies earning avg. reserves up to 1000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Customer Responsiveness Behaviour of companies, on the basis of avg. Reserves of the company.

7. Inclusive Business Model

An inclusive business model seeks to create value for poor or low-income communities by integrating them into company's value chain in a sustainable way (UNDP, 2010). Question 34 to 40 in the questionnaire deals with identifying companies contribution towards (Bottom of the Pyramid) poor or low income communities through inclusive business model.

Products / services designed for poor or low-income communities in the value chain

Question no. 34 asked Respondent companies whether any products/services were designed by them for poor or low-income group in the company's value chain. The following table shows the frequencies of the same.

Table 100

Products/services designed for poor or low income group by the sample companies (n=50)

Products/services designed for poor or low income group	Frequency (n)	Percentage (%)
No	29	58
Yes	21	42

The above frequency table 100, reflects that only 42% (n=21) companies had designed products / services catering to poor or low income segment while 58% (n=29) companies had denied about the same.

Reasons for not working on inclusive business models

Question 35 from the questionnaire explores the reasons for not working on inclusive business models by the company till now. The below table 101, shows the frequencies for the reasons for not investing in inclusive business model by the companies.

Table 101

Frequencies on Reasons for not implementing inclusive business model (n=29)

Reasons for not considering inclusive business model	Frequency (n)	Percent (%)
High cost involved	08	26
Low expected rate of returns	03	10
Anticipated low margins	02	07
My business does not have such possibility	18	62
Lack of effective teams	02	07
Capability gaps as inclusive business models are different from existing business model	02	07

The above question was applicable to only those respondent companies (n=29) who were not working or had not thought of inclusive business models till now. It was found that 26% (n=8) doesn't invest due to high cost involved in the inclusive business model, 10% (n=3) due to low expected rate of returns in this business, 7% (n=2) don't invest as they anticipate low margins, does not have effective teams and also had capability gaps as inclusive business models are different from existing business model, whereas 62% (n=18) doesn't invest as they think that their business does not have such possibility to include poor or low income communities in their business models.

Low-income stakeholders covered in Business model

Question 36 from the questionnaire explores the type of stakeholders belonging to low income group covered by the company in its value chain as a part of inclusive business model. This question was applicable to 21 respondent companies and the following table shows the frequencies of the same.

It can be inferred from the above table 102, that 62% (n=13) of the respondent companies covered customers as their low income group stakeholders, 19% (n=4) covered suppliers, 52% (n=11) employees, 29% (n=6) distributors, while 33% (n=7) of the respondent companies covered small entrepreneurs as their low income group stakeholders under inclusive business model.

Table 102

Frequencies on Type of low-income stakeholders covered in Business model (n=21)

Types of low-income stakeholders covered in Business model	Frequency (n)	Percent (%)
Customers	13	62
Suppliers	04	19
Employees	11	52
Distributors	06	29
Small Entrepruneurs	07	33

Objective/s with which the company addresses lower – income groups as part of its business model

Question 37 was asked to understand the purpose or the objectives with which respondent companies had addressed lower income stakeholders' groups like customers, suppliers, employees, distributors and small entrepreneurs as part of its business model. The following table shows the frequencies of 21 respondent companies to whom this question was applicable.

Table 103

Frequencies on Objectives behind addressing lower income stakeholder groups (n=21)

Objectives behind addressing lower income stakeholder groups	Frequency (n)	Percent (%)
Strategic business Growth plan	17	81
Value Creation in product / services	18	86
Mutually beneficial to both i.e. business & community	18	86
Reducing the chances of risk – economically, environmentally and socially	16	76

From the above table 103, it can be inferred that 81% (n=17) of the respondent companies address lower-income groups with the objectives of strategic business growth plan, 86% (n=18) with the objectives of Value Creation in product / services and also for

mutual benefits to both i.e. business & community whereas 76% (n=16) addresses with objective of reducing the chances of risk – economically, environmentally and socially

Constraints faced by company with respect to implementation of Inclusive Business Model

Question 38 was asked to the respondent company to know the type of constraints faced by the companies during implementation of inclusive business model. The following table depicts the frequencies of (n=21) respondent companies who have successfully implemented inclusive business model concept.

Table 104

Frequencies on Constraints faced by company with respect to implementation of Inclusive Business Model (n=21)

Constraints faced in implementation of Inclusive Business Model	Frequency (n)	Percent (%)
Limited market information	05	24
Ineffective regulatory environments	05	24
Inadequate infrastructure	06	29
Difficulty faced in creating market (encourage demand)	06	29
Restricted access to financial services among potential suppliers and customers	02	10
Lack of knowledge and skills among the poor, to act either as clients or as suppliers and employees	04	19

The above frequency table 104, shows that 24% (n=5) of the respondent companies had faced constraints related to limited market information, ineffective regulatory environments, 29% (n=6) of the respondent companies had faced constraints related to inadequate infrastructure and difficulty in creating market (encourage demand), 10% (n=2) had faced constraints like restricted access to financial services among potential suppliers and customers while 19% (n=4) of the respondent companies had faced constraint related to lack of knowledge and skills among the poor, to act either as clients or as suppliers and employees.

Steps / solutions taken by the company to overcome constraints related to inclusive business model

Respondent companies were asked about the steps or solutions taken by them to overcome constrains faced during implementation of inclusive business model. The following table depicts the frequencies of (n=21) respondent companies to whom this question was applicable.

Table 105

Frequencies on Steps / solutions taken by the company to overcome constraints related to inclusive business model (n=21)

Steps / solutions by the company to overcome constraints related to inclusive business model	Frequency (n)	Percent (%)
Limited market information constraints managed through technological adaptation or business process redesign	11	52
Engaged in policy dialogue with governments in order to overcome legal frameworks	09	43
Physical infrastructure sorted out by engaging poor people as intermediaries and building on their social networks, with which company increases access, trust and accountability	07	33
For improving knowledge and skills in value chain company has invested in entrepreneurial skill training of local producers and suppliers	13	62
For increasing access to finance and resources, company has collaborated with other organizations and pool resources.	11	52

The above table 105, shows the frequencies on steps/solution taken by the companies to overcome constraints related to inclusive business model. It was observed that 52% (n=11) of the respondent companies solved limited market information constraints through technological adaptation or business process redesign, 43% (n=9) engaged in policy dialogue with governments in order to overcome legal frameworks, 33% (n=7) sorted out Physical infrastructure constraints by engaging poor people as intermediaries and building on their social networks, with which companies were able to increase

access, trust and accountability, 62% (n=13) invested in entrepreneurial skill training of local producers and suppliers for improving knowledge and skills in value chain and 52% (n=11) opined that for increasing access to finance and resources, they collaborated with other organizations and pool resources.

Benefits reaped by Business and Society through inclusive business model

Respondent companies who have implemented Inclusive business model (n=21) through different types of low – income group stakeholders namely consumers, suppliers, distributors small entrepreneurs and employees were asked about the benefits reaped by them and the society at large. Following table shows the frequencies and percentage on the benefits reaped by Business and Society by implementing inclusive business model.

Table 106 shows the frequencies on the benefits reaped by business and the society when consumers were included as Low-income stakeholders under inclusive business model. It was observed that 19% (n=4 out of 21) of the companies has not included consumers as low-income stakeholder group under inclusive business model. It was noted that 71% (n=12) of the respondent companies perceived that after including consumers (low income stakeholders) under inclusive business model their business got benefited in terms of new markets exploration, 35% (n= 06) perceived that their profitability has increased, 59% (n=10) perceived that this strategy has helped them in deepening market penetration and increasing sales. Further, according to company's response, poor consumers have also benefited out of this model. It was observed that 82% (n=14) of the respondent companies perceived that consumers as low income stakeholders got benefited in terms of increase in their quality of life, 53% (n=9) of the respondent companies perceived benefits in terms of increased product choice.

Table 106 also shows the frequencies on benefits reaped by business and society when suppliers, distributors, and small entrepreneurs were included as Low-income stakeholders under inclusive business model. It was observed that 19% (n=4 out of 21) of the companies has not included suppliers, distributors, and small entrepreneurs as low-income stakeholder groups under inclusive business model. It can be noted that 47% (n=8) of the respondent companies perceived that after including suppliers, distributors, and small entrepreneurs (low income stakeholders) under inclusive business model their business got benefited in terms of strengthened supply chains, 29% (n=5) perceived that there was an improvisation in their products, 53% (n=9) perceived that this has helped

them in fulfilling social responsibilities. Further, according to company's response, suppliers, distributors, and small entrepreneurs have also benefited out of this model.

Table 106
Benefits reaped by Business and Society through inclusive business model (n=21)

Low-income group	Benefits reaped by Business	f	%	Benefits reaped by Society	f	%
Consumers (n=17) NA to 4 respondents	Explored new Markets	12	71	Increased Quality of life	14	82
	Increased Profitability	06	35	Increased choices of products for use	09	53
	Deepening Market Penetration &increasing Sales	10	59			
Total		28	165		23	135
Suppliers Distributors Entrepre-neurs (n=17) NA to 4 respondents	Strengthening Supply Chains	08	47	Increased income Opportunities	05	29
	Improvisation in Products	05	29	Skills building	06	35
	Fulfilling the Social Responsibility	09	53	Empowering communities	10	59
				Better integration with the Company for sustainability	06	35
Total		22	129		27	158
Employees (n=16) NA to 5 respondents	Motivating Workforce	12	75	Accessing more job opportunities	10	62
	Gaining workforce Loyalty	06	38	Improving incomes and livelihood	08	50
	Better Employer Branding	09	56	Building job skills	05	31
Total		27	169		23	124

It was observed that 29% (n=5) of the respondent companies perceived that suppliers, distributors, and small entrepreneurs as low income stakeholders got benefited in terms of increased income opportunities, 35% (n=6) of the respondent companies perceived benefits in terms of skill building, 59% (n=10) perceived benefits in terms of

empowered communities and finally35% (n=6) respondent companies perceived that suppliers, distributors, and small entrepreneurs as low income stakeholders got benefited in terms of better integration with the company for sustainability.

Table 106 also revealed the frequencies on benefits reaped by business and the society when employees were included as Low-income stakeholders under inclusive business model. It was observed that 24% (n=5 out of 21) of the companies has not included employees as low-income stakeholder group under inclusive business model. It can be noted that 75% (n=12) of the respondent companies perceived that after including employees (low income stakeholders) under inclusive business model their business got benefited in terms of motivated workforce, 38% (n= 06) perceived that they were able to gain workforce loyalty, 56% (n=9) perceived that this inclusion has helped them in better employer branding. Further, employees have also benefited out of this model. It was observed that 62% (n=10) of the respondent companies perceived that employees as low income stakeholders got benefited in terms of assessing more job opportunities, 50% (n=8) of the respondent companies perceived benefits in terms of improvement in employees' income and livelihood, finally 31% (n=5) respondent companies perceived that employees as low income stakeholders got benefited in terms of building job skills.

8. Product Stewardship

Questions 41 to 43 from the questionnaire investigated about business responsible behaviour through product stewardship in which respondent companies were asked whether they implement product stewardship behaviour, explored the reasons that has made their product to achieve product stewardship and statements related to product stewardship practices.

No. of companies implemented Product Stewardship

Through question no. 41 respondent companies were asked whether companies follow Product Stewardship so as to minimize the product's environmental impact throughout all the stages of the product life cycle. The following table shows the frequencies related to no. of companies successfully implemented Product Stewardship.
The above frequency table 107, shows the outcome in terms of number of companies that has successfully implemented Product Stewardship. It was observed that 74% (n=37 out of 50) respondent companies successfully implemented Product Stewardship whereas still 26% (n=13) respondent companies had not implemented.

Table 107

No. of companies implemented Product Stewardship (n=50)

Particulars	Frequency (n)	Percentage (%)
No	13	26
Yes	37	74

Driving factors that has helped companies achieving product stewardship

Question no. 42 explores respondent company's views on the driving factors that has helped them to successfully implement product stewardship concept in their business. This question was applicable to 37 respondent companies who had implement product stewardship and following table shows the frequencies on the same.

Table 108

Frequencies on Driving factors that has helped companies to achieve product stewardship (n=37)

Driving factors that has helped companies to achieve product stewardship	Frequency (n)	Percent (%)
Our products are manuctured for niche markets	12	32
Technology is unique	20	54
Company have strong R&D	27	73
Low production cost	13	35
Our product can fufill the market demand so nobody has scope to produce more	14	38
Zeal to show exemplary behaviour in business	07	19
Cost – benefit Ratio is very less	03	08

The above frequency table 108, shows the respondent companies (n=37) responses on the factors that has contributed towards product stewardship. It was found that 32% (n=12 out of 37) respondent companies viewed that their product manufactured for niche market

was the factor that has helped them to achieve product stewardship, 54% (n=20) viewed that their unique technology has helped, 73% (n=27) believed that their strong R&D has helped them to achieve product stewardship, 35% (n=13) opined that low production cost has helped them, 38% (n=14) viewed that as their product can fulill the market demand so nobody has scope to produce more, 19% (n=7) companies accepted that their zeal to show exemplary behaviour in business has helped them to achieve product stewardship and finally 8% (n=3) respondent companies stated low cost-benefit ratio has helped the companies to achieve Product stewardship in their business.

Company's responsible behaviour towards Product stewardship practices

Question 43 verifies corporate behaviour towards product stewardship practices. This question was asked in the form of 5-point Likert rating (strongly agree to strongly disagree) scale trying to gauge companies engaging in product stewardship which can help the business and society to achieve sustainability. Below table shows descriptive analysis (mean & standard deviation) results on Product stewardship statements.

Table 109

Mean & SD on Product Stewardship statements (n=37)

Product Stewardship scale	Mean	SD
Company takes responsibility to ensure safety of products throughout their lifecycle	4.62	0.545
Company takes responsibility to ensure safety of stakeholders from products throughout its life cycle	4.51	0.559
Company ensures prevention of risk to stakeholders throughout the product lifecycle.	4.49	0.507
Company is aware of potential HSSE risks of its products and services	4.49	0.651
Company discloses the information to its stakeholders about potential exposure to HSSE hazards.	4.41	0.686
Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized and controlled	4.27	0.732
Company has strong response team to respond any accidents or hazardsituation arising during product life cycle	4.27	0.732
Company regularly does R&D for improvisation of its products or processes.	4.35	0.676

Above table 109, demonstrates result of descriptive analysis on Product stewardship. The mean of each items were found greater than 4 (>4). The highest mean with SD ($\bar{x}$=4.62, SD=0.545) was found for statement Company takes responsibility to ensure safety of products throughout their lifecycle - statement followed by another statement -Company takes responsibility to ensure safety of stakeholders from products throughout its life cycle having mean with SD ($\bar{x}$=4.51, SD=0.559). The lowest mean with SD ($\bar{x}$=4.27, SD=0.732) amongst 8 statements was found for two statements –one statement as Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized & controlled and another statement as Company has strong response team to respond any accidents or hazard situation arising during product life cycle.

Factor Analysis

Factor Analysis on companies Responsible Behaviour towards Product Stewardship

Initially, taking into account assumptions of the test, factorability of the 8 items was examined. Principal Component Analysis (PCA) was conducted on the 8 items with orthogonal rotation- Varimax Method.

Correlation Matrix- Initial correlation matrix table, revealed how each of the 8 items were associated with other items. From the output table, it was noted that there were 6 variables out of 8, with values more than $\pm$ 0.5. Two items having value less than 0.5 were – first, Company discloses information to its stakeholders about potential exposure to HSSE hazards with value 0.347 and second item – company is aware of potential HSSE risks of its product and services with value 0.455. Here, determinant value was found 0.002 so this assumption was met. If the determinant would have been zero, then a factor analytic solution cannot be obtained.

KMO & Bartlett test of Sphericity - KMO measures the sampling adequacy and its value should be greater than 0.5 for a satisfactory factor analysis to proceed. In our case, Initial KMO value (measures of sampling adequacy) found was 0.815, considered as meritorious (Kaiser, 1974), and KMO value higher than 0.5 is acceptable. Bartlett's test of Sphericity checks whether a correlation matrix is significantly different from an identity matrix (Bartlett, 1951). In this case, Bartlett test of Sphericity was found significant having $\chi 2$ (28) = 204.434, p =0.000.

Anti-image &Communalities table - Anti-image matrices values to be observed on the diagonal, serve as a measure for determining the sample size, marked with a superscripted "a." All elements on the diagonal of this matrix should be greater than 0.5 if the sample is adequate (Field, 2000).

In the present case, the diagonal of the anti-image correlation values was found between 0.748 and 0.865, i.e. all values were greater than 0.5. It therefore follows that all variables can be included in the factor analysis. Communalities values should be greater than 0.5. In the present case, all the communality values were above 0.5. Thus none of the items were required to be discarded at this stage.

Total Variance explained - All factors with eigenvalues greater than 1 are extracted, leaving with two factors. Before rotation, factor 1 accounted for considerably more variance than the factor 2 (63.156% and 12.353%), but after rotation, first component accounts for only 38.008% of the variance and the second component accounted for 37.501% of the variance, hence cumulative 75.509% of variance explained. Below table depicts the results of total Variance explained with 8 items on product stewardship

Table 110

Total Variance Explained for 8 items on product stewardship scale

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.052	63.156	63.156	5.052	63.156	63.156	3.041	38.008	38.008
2	.988	12.353	75.509	.988	12.353	75.509	3.000	37.501	75.509
3	.692	8.650	84.159						
4	.424	5.302	89.461						
5	.352	4.405	93.866						
6	.251	3.135	97.001						
7	.128	1.606	98.608						
8	.111	1.392	100.000						

Extraction Method: Principal Component Analysis.

Rotated component matrix table - This table shows a matrix of the factor loadings for each variable on each factor. Factor loadings less than 0.4 were not observed in the table as it was suppressed. Variables were listed in the order of size of their factor loadings. Following criteria were considered in terms of dealing with factor loadings decision – first, each factor must have at least two or three items loadings ≥ 0.5; second, individual items must have at least one loading ≥0.5; third in case of cross loadings the item was placed only in the factor on which it has higher factor loadings; and finally if cross loadings found ≥ 0.5 on both factors, the item was considered for deletion.

Table 111

Factor Loadings from Principal Component Analysis with Varimax Rotation for Two Factor Solution for Factors related to Product Stewardship in business (N = 37)

Product Stewardship scale	Components		Comm-unality
	1	2	
Company takes responsibility to ensure safety of products throughout their lifecycle	.892		0.841
Company takes responsibility to ensure safety of stakeholders from products throughout its life cycle	.885		0.856
Company has strong response team to respond any accidents or hazard situation arising during product life cycle	.739		0.662
Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized and controlled	.630	.600	0.756
Company discloses information to its stakeholders about potential exposure to HSSE hazards		.885	0.845
Company is aware of potential HSSE risks of its products and services		.854	0.770
Company ensures prevention of risk to stakeholders throughout the product lifecycle		.752	0.707
Company regularly does R&D for improvisation of its products or processes.	.523	.575	0.603
Eigen Value	3.041	3.000	
% of Variance	38.008	37.501	

Note. Factor loadings < .4 are suppressed.

It was noted that all factors had loadings greater than 0.5 and there was no requirement to discard any of the variable item. Thus this table was Final Rotated component matrix displaying the items and component loadings for the rotated components, with no loadings less than 0.4. Below table demonstrates output on factor loadings on both factors and communalities values of each items.

Principal Component Analysis with Varimax Rotation was conducted to assess the underlying structure for the eight items. Two components were obtained, and indexed as 'Compliant behaviour towards Product Stewardship', and 'Responsible behaviour towards product stewardship

The first component, which is indexed 'Compliant behaviour towards Product Stewardship', had strong loadings on the first four factors, including 'Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized and controlled' with a cross loading of 0.600 for component 2. The second component, indexed as 'Responsible behaviour towards product stewardship, had high loadings on the next four items along with 'Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized and controlled' having a cross loading of 0.630 for component 1 (refer table 111). Thus item with 'Company has strong expert team who works for each aspect of a product's lifecycle so that risks can be characterized and controlled' was included in component 1 'Compliant behaviour towards Product Stewardship', due to high factor loading compared to component 2.

Thus, components 'Compliant behaviour towards Product Stewardship', and 'Responsible behaviour towards Product Stewardship' have been considered on reflective scale.

Descriptive statistics, Reliability & Normality test conducted on the factors obtained

Composite mean scores were obtained to measure the level of corporate attitudes towards both factors obtained. Normality test was also conducted through numerical and graphical methods. Below table shows the descriptive characteristics and normality test results on both factors.

Table 112 shows that the components were found reliable as their Cronbach alpha levels for first component – 'Compliant behaviour towards Product Stewardship', with four items were found $\alpha = 0.880$ considered as 'good', showing 88% internal consistency amongst the items. Cronbach alpha value for second factor/component 'Responsible

behaviour towards product stewardship having four items was found α= 0.861 considered as 'good' showing 86% internal consistency amongst items.

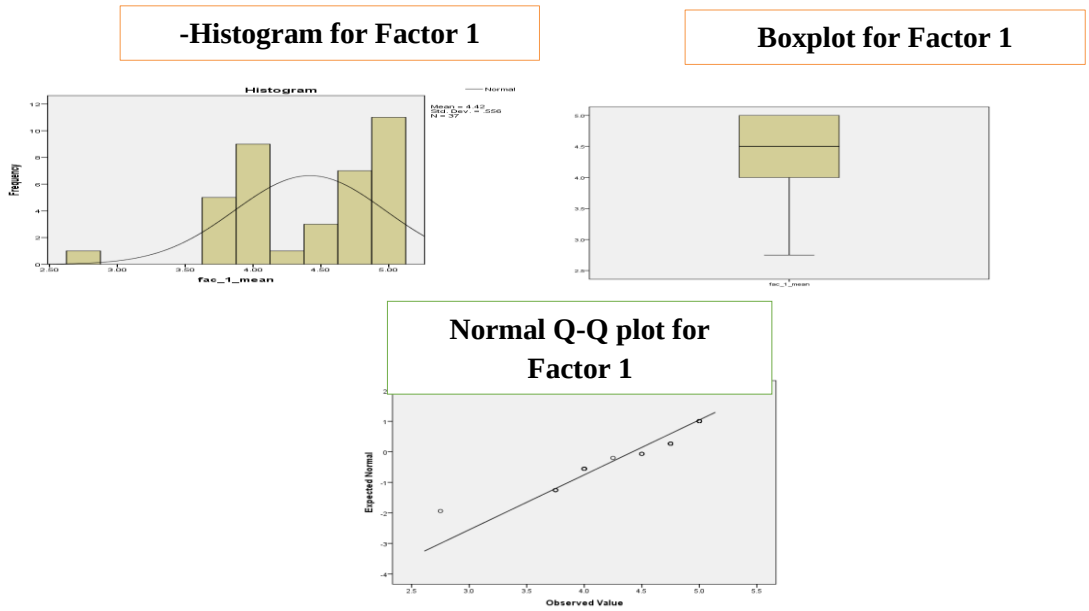
Table 112
Descriptive statistics for the two components (n = 37)

Construct/ Components	No	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Normality Shapiro Test
					Value	Z	Value	Z		
'Compliant behaviour towards Product Stewardship'	04	4.48	4.75	0.553	-0.833	-2.15	0.504	0.664	0.880	0.000
'Responsible behaviour towards Product Stewardship'	04	4.45	4.50	0.532	-0.301	-0.775	-1.39	-1.833	0.861	0.000

As per above table 112 the Mean, Median and SD value on first factor 'Compliant behaviour towards Product Stewardship', derived from EFA were $\bar{x}$=4.48 and MD= 4.75 with s=0.553. From the numerical methods point of view, it was observed that values of Mean (4.48) & Median (4.75) were having difference showing that data were having non-normal distribution. The value of kurtosis (0.504) and the value of skewness (-0.833) individually were found within $\pm$1 range and but critical ratio (z value) of the skewness (-2.15) was not found within the range of ±1.96 range, thus the outcome with respect to dispersion specifies that data was non-normally distributed. But Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p = 0.000) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for first factor 'Compliant behaviour towards Product Stewardship', acting as dependent variable (refer figure below).

Figure 22

Histogram, Box plots, Normal Q-Q plots for Factor 1, 'Compliant behaviour towards Product Stewardship'



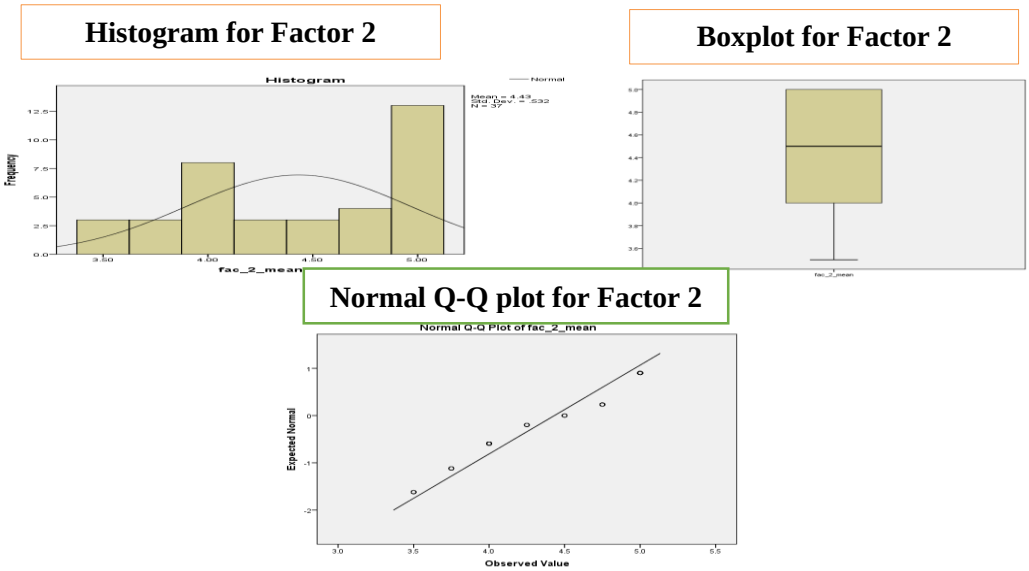
The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non- normally distributed. Figure 22, displays Histogram for factor 1 'Compliant behaviour towards Product Stewardship', as DV confirming non-normality of data as bell shaped curve was not derived. Box plot was asymmetric having many outliers indicating that data are non-normally distributed. Normal Q-Q Plot was also observed as non-normal as observed data were not found near to expected data having major dots not on or near to diagonal line.

As per table 112 the Mean, Median and SD value on second factor 'Responsible behaviour towards Product Stewardship' derived from EFA were $\bar{x}$=4.45 and MD= 4.50 with s=0.532. Normality checked using numerical methods shows that values of Mean (4.45) & Median (4.50) were having minor difference showing that data were near to normal distribution. The value of skewness (-0.301) individually was found within the $\pm$1 range but the value of kurtosis (-1.392) individually were not found within $\pm$1 range. Critical ratio (z value) of the kurtosis (-1.833) and skewness value (-0.775) was found within ±1.96 range, thus the outcome with respect to dispersion specifies that data were normally distributed. But Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p = 0.000) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical

techniques like histogram, box plots and Normal Q-Q plots for second factor ‘Responsible behaviour towards Product Stewardship’ acting as dependent variable (refer figure below).

Figure 23

Histogram, Box plots, Normal Q-Q plots for Factor 2 - ‘Responsible behaviour towards Product Stewardship’



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non- normally distributed. Figure 23 displays histogram for factor 2 as dependent variable confirming non-normality of data as bell shaped curve was not derived. Box plot found asymmetric having many outliers indicating that data are non-normally distributed. Normal Q-Q Plot was also observed as non-normal as observed data were not found near to expected data having major dots not on or close to diagonal line.

Cross tabulations & Chi-square test

Cross tab & chi-square test between various demographic variables and Compliant behaviour towards Product Stewardship’.

Cross tabulations & Chi-square test was conducted between ‘Compliant behaviour towards Product Stewardship’ and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Hypothesis testing to find out significant association between various demographical variables of the study and Compliant Behaviour of companies towards product stewardship.

Table 113 shows the crosstab & chi-square results on compliant behaviour of companies towards product stewardship.

Table 113

Cross tabulations & chi-square test results on 'Compliant behaviour towards Product Stewardship' and various demographic variables (n=37)

Demographic Variables	Compliant behaviour towards Product Stewardship						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochem	03 (3.8)	11	25(24.2)	89	28	100	$\chi 2_{(1)} = 0.772$, $p = 0.577$(ns), Phi = 0.144 Fail to Reject H0
Pharmaceutical	02 (1.2)	22	07 (7.8)	78	09	100	
Total	05	14	32	87	37	100	
Sector Ownership							
Government	00 (0.7)	00	05 (4.3)	100	05	100	$\chi 2_{(1)} = 0.903$, $p = 1.000$ (ns), Phi = 0.156 Fail to Reject H0
Non-Government	05 (4.3)	16	27 (27.7)	84	32	100	
Total	05	14	32	87	37	100	
Legal status of the firm							
Unlisted	04 (2.4)	22	14 (15.6)	78	18	100	$\chi 2_{(1)} = 2.275$, $p = 0.180$ (ns), Phi = 0.248 Fail to Reject H0
Listed	01 (2.6)	05	18 (16.4)	95	19	100	
Total	05	14	32	87	37	100	
Age / Experience of the firm							
Up to 25 years	01 (0.8)	17	05 (5.2)	83	06	100	$\chi 2_{(1)} = 0.061$, $p = 1.000$ (ns), Phi = 0.041 Fail to Reject H0
More than 25 yrs	04 (4.2)	13	27 (26.8)	87	31	100	
Total	05	14	32	87	37	100	

Size of the firm							
Medium / Small	01 (1.1)	13	07 (6.9)	87	08	100	$\chi2_{(1)} = 0.009$, p= 1.000 (ns), Phi = 0.016 Fail to Reject H0
Large	04 (3.9)	14	25 (25.1)	86	29	100	
Total	05	14	32	87	37	100	
Avg. Revenue of the firm							
Up to 3000 crs	04 (3.6)	15	23 (23.4)	85	27	100	$\chi2_{(1)} = 0.145$, p= 1.000 (ns), Phi = 0.063 Fail to Reject H0
More than 3000cr	01 (1.4)	10	09 (8.6)	90	10	100	
Total	05	14	32	87	37	100	
Avg. PAT of the firm							
Up to 100 crs	02 (2.6)	11	17 (16.4)	89	19	100	$\chi2_{(1)} = 0.298$, p=0.660 (ns), Phi = 0.090 Fail to Reject H0
More than 100 crs	03 (2.4)	17	15 (15.6)	83	18	100	
Total	05	14	32	87	37	100	
Avg. Reserves of the firm							
Up to 1000 crs	02 (2.4)	11	16 (15.6)	89	18	100	$\chi2_{(1)} = 0.173$, p= 1.000 (ns), Phi = 0.068 Fail to Reject H0
More than 1000 crs	03 (2.6)	16	16 (16.4)	84	19	100	
Total	05	14	32	87	37	100	

*ns- non significant, *p < 0.05*

i) Based on types of Industry–It can be inferred that, 11% (n=3 out of 28) of chemical and petrochemical companies and 22% (n=2 out of 9) of pharma companies gave low agreement towards 'Compliant behaviour towards Product Stewardship' while 89% (n=25 out of 28) in case of chemical and petrochemical companies and 78% (n=7 out of 9) in case of pharma companies gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. PAT of the firm and compliant behaviour of companies towards product stewardship $\chi2$ (1, N= 37) = 0.772, p = 0.577 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells

(50%) have expected count less than 5. Moreover, even Phi coefficient value 0.144 shows weak association between two tested variables.

ii) Based on Sector Ownership–Data demonstrates that, 100% all government samples companies and 84% (n=27 out of 32) non-government companies gave high agreement, while 16% (n=5 out of 32) of non-government companies gave low agreement towards 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between sector ownership and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.903, p = 1.000 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 3 cells (75%) have expected count less than 5. Moreover, even Phi coefficient value 0.156 shows weak association between two tested variables.

iii) Based on legal status of the firm -Data inferred that, 22% (n=4 out of 18) of unlisted companies and 5% (n=1 out of 19) of listed companies gave low agreement while 78% (n=14 out of 18) in case of unlisted companies and 95% (n=18 out of 19) in case of listed companies gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between legal status of companies and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 2.275, p = 0.180 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.248 shows no association between two tested variables.

iv) Based on age of the firm –Data shows that, 17% (n=1 out of 6) of companies having age / experience up to 25 years and 13% (n=4 out of 31) of companies having age /experience more than 25 years gave low agreement, while 83% (n=5 out of 6) in case of companies having experience up to than 25 years and 87% (n=27 out of 31) gave high agreement on 'Compliant behaviour towards Product Stewardship'.

Chi-square test shows NO Significant association between age of the firm and responsible compliant of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.061, p = 1.000 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells

(50%) have expected count less than 5. Moreover, even Phi coefficient value 0.041 shows negligible association between two tested variables.

v) Based on size of the firm – It can be inferred that, 13% (n=1 out of 8) of medium & small sized companies and 14% (n=4 out of 29) of large sized companies gave low agreement while 87% (n=7) in case of medium & small sized companies and 86% (n= 25) in case of large sized companies gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between size of the firm and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.009, p = 1.000 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.016 shows negligible association between two tested variables.

vi) Based on avg. Revenue of the firm - From above 2*2 crosstab table, it can be inferred that, 15% (n=4 out of 27) of companies earning avg. revenue up to 3000crs and 10% (n=1 out of 10) of companies earning avg. revenue more than 3000 crs gave low agreement while 85% (n=23 out of 27) of companies earning avg. revenue up to 3000crs and 90% (n=9 out of 10) of companies earning avg. revenue more than 3000 crs gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. revenue of the firm and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.145, p = 1.000 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.063 shows negligible association between two tested variables.

vii) Based on avg. PAT of the firm–Data shows that, 11% (n=2 out of 19) of companies earning avg. PAT upto 100crs and 17% (n=3 out of 18) of companies earning avg. PAT more than 100 crs gave low agreement while 89% (n=17 out of 19) of companies earning avg. PAT up to 100crs and 83% (n=15 out of 18) of companies earning avg. PAT more than 100 crs gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. PAT of the firm and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.298,

p = 0.660 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.090 shows negligible association between two tested variables.

viii) Based on avg. Reserves of the firm - Data inferred that, 11% (n=2 out of 18) of companies having avg. reserves up to 3000crs and 16% (n=3 out of 19) of companies having avg. reserves more than 1000crs gave low agreement while 89% (n=16) of companies having avg. reserves u to 1000crs and 84% (n=16 out of 19) of companies having avg. reserves more than 1000crs gave high agreement on 'Compliant behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. reserves of the firm and compliant behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.173, p = 1.000 (ns) (refer table 113). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.068 shows no association between two tested variables.

Cross tabulations & Chi-square test

Cross tab & chi-square test between 'Responsible behaviour towards Product Stewardship' and various demographic variables.

Cross tabulations & Chi-square test was conducted between 'Responsible behaviour towards Product Stewardship' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Hypothesis testing to find out significant association between various demographical variables of the study and Responsible Behaviour of companies towards product stewardship

Table 114 shows the crosstab & chi-square results on Responsible behaviour of companies towards product stewardship

i) Based on types of Industry–It can be inferred that, 7% (n=2 out of 28) of chemical and petrochemical companies and 44% (n=4 out of 9) of pharma companies gave low agreement towards practicing 'Responsible behaviour towards Product Stewardship' while 93% (n=26 out of 28) in case of chemical and petrochemical companies and 56%

(n=5 out of 9) in case of pharma companies gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Table 114

Cross tabulations & chi-square test results on 'Responsible behaviour towards Product Stewardship' and various demographic variables

Demographic Variables	Responsible behaviour towards Product Stewardship						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochemicals	02 (4.5)	07	26(23.5)	93	28	100	$\chi 2_{(1)} = 6.975$, $p = 0.022$*, Phi = 0.434 Reject H0
Pharmaceutical	04 (1.5)	44	05 (7.5)	56	09	100	
Total	06	16	31	84	37	100	
Sector Ownership							
Government	00 (0.8)	00	05 (4.2)	100	05	100	$\chi 2_{(1)} = 1.119$, $p = 0.567$ (ns), Phi = 0.174 Fail to Reject H0
Non-Govt	06 (5.2)	19	26 (26.8)	81	32	100	
Total	06	16	31	84	37	100	
Legal status of the firm							
Unlisted	04 (2.4)	22	14 (15.6)	78	18	100	$\chi 2_{(1)} = 0.931$, $p = 0.405$ (ns), Phi = 0.159 Fail to Reject H0
Listed	02 (3.1)	11	17 (15.9)	89	19	100	
Total	06	16	31	84	37	100	
Age / Experience of the firm							
Up to 25 years	02 (1.0)	33	04 (5.0)	67	06	100	$\chi 2_{(1)} = 1.544$, $p = 0.245$ (ns), Phi = 0.204 Fail to Reject H0
More than 25 yrs	04 (5.0)	13	27 (26.0)	87	31	100	
Total	06	16	31	84	37	100	

Size of the firm							
Medium / Small	03 (1.3)	38	05 (6.7)	62	08	100	$\chi2_{(1)} = 3.403$, p=0.101 (ns), Phi = 0.303 Fail to Reject H0
Large	03 (4.7)	10	26 (24.3)	90	29	100	
Total	06	16	31	84	37	100	
Avg. Revenue of the firm							
Up to 3000 crs	05 (4.4)	19	22 (22.6)	81	27	100	$\chi2_{(1)} = 0.390$ p= 1.000 (ns), Phi = 0.103 Fail to Reject H0
More than 3000crs	01 (1.6)	10	09 (8.4)	90	10	100	
Total	06	16	31	84	37	100	
Avg. PAT of the firm							
Up to 100 crs	05 (3.1)	26	14 (15.9)	74	19	100	$\chi2_{(1)} = 2.932$, p=0.180 (ns), Phi = 0.282 Fail to Reject H0
More than 100 crs	01 (2.9)	06	17 (15.1)	94	18	100	
Total	06	16	31	84	37	100	
Avg. Reserves of the firm							
Up to 1000 crs	05 (2.9)	28	13 (15.1)	72	18	100	$\chi2_{(1)} = 3.449$, p= 0.090 (ns), Phi = 0.305 Fail to Reject H0
More than 1000 crs	01 (3.1)	05	18 (15.9)	95	19	100	
Total	06	16	31	84	37	100	

*ns- non significant, *p < 0.05.*

Chi-square test shows Significant association between types of Industry and responsible behaviour of companies towards product stewardship $\chi2$ (1, N= 37) = 6.975, p = 0.022 (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.434 shows moderate association between two tested variables.

ii) Based on Sector Ownership - Table demonstrates that, 100% government companies and 81% (n=26 out of 32) non-government companies gave high agreement on 'Responsible behaviour towards Product Stewardship' scale, while 19% (n=6 out of 32) of non-government companies gave low agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between sector ownership and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 1.119, p = 0.567 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.174 shows weak association between two tested variables.

iii) Based on legal status of the firm -From above 2*2 crosstab table, it can be inferred that, 22% (n=4 out of 18) of unlisted companies and 11% (n=2 out of 19) of listed companies gave low agreement while 78% (n=14) in case of unlisted companies and 89% (n=17) in case of listed companies gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between legal status of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.931, p = 0.405 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.159 shows weak association between two tested variables.

iv) Based on age of the firm - The 2*2 crosstab table demonstrates that, 33% (n=2 out of 6) of companies having age / experience up to 25 years and 13% (n=4 out of 31) of companies having age / experience more than 25 years gave low agreement while 67% (n=4) in case of companies having experience up to than 25 years and 87% (n=27) gave high agreement on 'Responsible behaviour towards Product Stewardship'.

Chi-square test shows NO Significant association between age of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 1.544, p = 0.204 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.204 shows weak association between two tested variables.

v) Based on size of the firm –Data inferred that, 38% (n=3 out of 8) of medium & small sized companies and 10% (n=3 out of 29) of large sized companies gave low agreement while 62% (n=5) in case of medium & small sized companies and 90% (n=26) in case of large sized companies gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between size of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 3.403, p = 0.101(ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.303 shows moderate association between two tested variables.

vi) Based on avg. Revenue of the firm - From above 2*2 crosstab table, it can be inferred that, 19% (n=5 out of 27) of companies earning avg. revenue up to 3000crs and 10% (n=1 out of 10) of companies earning avg. revenue more than 3000 crs gave low agreement while 81% (n=22) of companies earning avg. revenue up to 3000crs and 90% (n=9) of companies earning avg. revenue more than 3000 crs gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. revenue of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 0.390, p = 1.000 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.103 shows negligible association between two tested variables.

vii) Based on avg. PAT of the firm - From above 2*2 crosstab table, it can be inferred that, 26% (n=5 out of 19) of companies earning avg. PAT up to 100crs and 6% (n=1 out of 18) of companies earning avg. PAT more than 100 crs gave low agreement while 74% (n=14) of companies earning avg. PAT up to 100crs and 94% (n=17 out of 18) of companies earning avg. PAT more than 100 crs gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. PAT of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 2.932, p = 0.180 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.282 shows weak association between two tested variables.

viii) Based on avg. Reserves of the firm - From above 2*2 crosstab table, it can be inferred that, 28% (n=5 out of 18) of companies having avg. reserves up to 1000crs and 5% (n=1 out of 19) of companies having reserves more than 1000crs gave low agreement while 72% (n=13 out of 18) of companies having avg. reserves up to 1000crs and 95%

(n=18 out of 19) of companies having avg. reserves more than 1000crs gave high agreement on 'Responsible behaviour towards Product Stewardship' scale.

Chi-square test shows NO Significant association between avg. reserves of the firm and responsible behaviour of companies towards product stewardship $\chi 2$ (1, N= 37) = 3.449, p = 0.090 (ns) (refer table 114). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.305 shows moderate association between two tested variables.

Mann Whitney U Test

Mann Whitney U test on 'compliant behaviour towards Product Stewardship'

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare companies 'compliant behaviour towards Product Stewardship' (DV) on the basis of various demographic variables of the study. Below table shows results of Mann Whitney U test compared with significant level $p<0.05$.

Hypothesis testing to find out significant differences in corporate compliant behaviour towards product stewardship across various demographical variables of the study

Table 115 report values on Corporate compliant Behaviour towards product stewardship,

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour of companies towards product stewardship on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 115 reports values for Chemicals & Petrochemicals (Mean rank = 19.93, *Mdn* = 4.75) and Pharmaceuticals (Mean rank =16.11, *Mdn* = 4.25), *U* ($N_{\text{Chemicals \& Petrochemicals}}$= 28, $N_{\text{Pharmaceuticals}}$ =9) = 100.0, Z= -0.947, *P =0.343 > 0.05*. The value of r=0.156 derived determines small effect size.

Median value for Chemicals & petrochemicals industry was found little greater than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists NO significant difference in terms of 'compliant behaviour towards Product Stewardship', on the basis of types of industry.

Table 115

Mann-Whitney Test on Factor 1 – 'Compliant behaviour towards Product Stewardship': Grouping Variables (n=37)

Variables	Mann-Whitney U	Wilcoxon W	Z	r	Sig. (2-tailed)
Types of Industry	100.000	145.000	-0.947	0.156	0.343 (ns) Failed to Reject H0
Sector Ownership	36.500	564.500	-1.989	0.327	0.047 * Reject H0
Legal status of firm	84.500	255.500	-2.706	0.445	0.007** RejectH0
Age of the firm	78.000	99.000	-0.636	0.102	0.525(ns) Failed to Reject H0
Size of the firm	81.500	117.500	-1.310	0.215	0.190 (ns) Failed to Reject H0
Avg. Revenue of firm	121.500	499.500	-0.475	0.078	0.635 (ns) Failed to Reject H0
Avg. PAT of the firm	143.500	333.500	-0.860	0.141	0.390 (ns) Failed to Reject H0
Avg. Reserve of firm	120.000	291.000	-1.595	0.262	0.111 (ns) Failed to Reject H0

*ns- not significant, *p < .05, **p <0.01*

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 115 reports values for Government owned (Mean rank = 27.70, *Mdn* = 5.00) and Non-government owned (Mean rank = 17.64, *Mdn* = 4.37), U ($N_{\text{Government owned}}$= 05,

N $_{\text{Non-government owned}}$=32) = 36.500, Z= -1.989, *P =0.047 < .05.* The value of r=0.327 derived determines moderate effect size. Median value for Government owned companies was found much higher than non-government owned companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that government owned companies were better in terms of 'compliant behaviour towards Product Stewardship' than non-government companies.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 115, reports values for unlisted companies (Mean rank = 14.19, *Mdn* =4.00) and listed (Mean rank = 23.55, *Mdn* = 5.00), *U* (N $_{\text{Unlisted}}$ =18, N $_{\text{Listed}}$=19) = 84.500, Z= -2.706, *P =0.007 < 0.05.* The value of r=0.445 derived determines moderate effect size. Median value for listed companies was found much higher than unlisted companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists Significant difference in this context. It infers that listed companies were better in terms of 'compliant behaviour towards Product Stewardship' than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 115, reports values for companies age up to 25 years (Mean rank = 16.50, *Mdn* = 4.37) and companies age more than 25 years (Mean rank = 19.48, *Mdn* = 4.75), *U* (N $_{\text{Companies age up to 25 years}}$ =6, N $_{\text{Companies Age more than 25 years}}$=31) = 78.000, Z= -0.636, *P =0.525 > .05.* The value of r=0.102 derived determines small effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO Significant difference in terms of 'compliant behaviour towards Product Stewardship', on the basis of age of the company**.**

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 115, reports values for medium & small sized companies (Mean rank =14.69, *Mdn* = 4.12) and Large sized companies (Mean rank = 20.19, *Mdn* = 4.75), U ($N_{\text{Medium \& small sized}}$ =8, $N_{\text{Large sized}}$=29) = 81.500, Z= -1.310, *P =0.190 > 0.05.* The value of r=0.215 derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of 'compliant behaviour towards Product Stewardship', on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 115, reports values for companies earning avg. revenue up to 3000crs (Mean rank =18.50, *Mdn* = 4.50) and companies earning avg. revenue more than 3000 crs (Mean rank = 20.35, *Mdn* = 4.75), U ($N_{\text{Revenue up to 3000crs}}$= 27, $N_{\text{Revenue up to 3000crs}}$=10) = 121.500, Z= -0.475, *P =0.635 > .05.* The value of r=0.078 derived, determines very small effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO Significant difference in terms of 'compliant behaviour towards Product Stewardship'**,** on the basis of avg. Revenue of the company.

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 115, reports values for companies earning avg. PAT up to 100 crs (Mean rank =17.55, *Mdn* =4.50) and companies earning avg. PAT more than 100 crs (mean rank = 20.53, *Mdn* = 4.75), *U* ($N_{\text{PAT up to 100crs}}$= 19, $N_{\text{PAT more than 100 crs}}$=18) = 143.500, Z= -0.860, *P =0.390 > .05*. The value of r =0.141 derived, determines small effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO significant difference in terms of 'compliant behaviour towards Product Stewardship'**,** on the basis of avg. PAT of the company

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare compliant behaviour towards product stewardship on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 115, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 16.17, *Mdn* = 4.25) and companies having avg. reserves more than 1000 crs (Mean rank = 21.68, *Mdn* = 4.75), *U* ($N_{\text{Reserves up to 1000crs}}$= 18, $N_{\text{Reserves more than 1000crs}}$= 19) = 120.000, Z= -1.595, *P =0.111 > .05*. The value of r=0.262 derived, determines small effect size. Median value of companies having avg. reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of 'compliant behaviour towards Product Stewardship'**,** on the basis of avg. Revenue of the company

Mann Whitney U test on 'Responsible behaviour towards Product Stewardship'

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare companies **'**Responsible behaviour towards Product Stewardship' (DV) on the basis of various demographic variables of the study. Below table 116, shows results of Mann Whitney U test compared with significant level p<0.05.

Hypothesis testing to find out significant differences in corporate Responsible behaviour towards product stewardship across various demographical variables of the study

Table 116 report values on Corporate compliant Behaviour towards product stewardship.

Table 116

Mann-Whitney Test on Factor 2 - 'Responsible behaviour towards Product Stewardship': Grouping Variables (n=37)

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	83.000	128.000	-1.567	0.258	0.117 (ns) Failed to Reject H0
Sector Ownership	28.500	556.500	-2.355	0.387	0.019 * Reject H0
Legal status of firm	115.000	286.000	-1.752	0.288	0.080 (ns) Failed to Reject H0
Age of the firm	86.000	107.000	-0.297	0.049	0.767(ns) Failed to Reject H0
Size of the firm	83.500	119.500	-1.234	0.203	0.217 (ns) Failed to Reject H0
Avg. Revenue of firm	108.500	486.500	-0.933	0.153	0.351 (ns) Failed to Reject H0
Avg. PAT of the firm	116.500	306.500	-1.705	0.280	0.088 (ns) Failed to Reject H0
Avg. Reserve of firm	106.500	277.500	-2.017	0.332	0.044 * Reject H0

*ns- not significant, *p < .05, **p <0.01*

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour of companies towards product stewardship on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 116 reports values for Chemicals & Petrochemicals (Mean rank = 20.54, *Mdn* = 4.62) and Pharmaceuticals (Mean rank =14.22, *Mdn* = 4.00), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 28, $N_{Pharmaceuticals}$ =9) = 83.000, Z= -1.567, *P =0.117>0.05.* The value of r=0.258 derived, determines small effect size. Median value for Chemicals & petrochemicals industry was found greater than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of 'Responsible behaviour towards Product Stewardship', on the basis of types of industry.

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 116 reports values for Government owned (Mean rank = 29.30, *Mdn* = 5.00) and Non-government owned (Mean rank = 17.39, *Mdn* = 4.25), U ($N_{Government\ owned}$= 05, $N_{Non\text{-}government\ owned}$=32) = 28.500, Z= -2.355, *P =0.019 < .05.* The value of r=0.387derived, determines moderate effect size. Median value for Government owned companies was found much higher than non-government owned companies. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that government owned companies were better in terms of Responsible behaviour towards Product Stewardship' than non-government companies.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 116, reports values for unlisted companies (Mean rank = 15.89, *Mdn* =4.12) and listed (Mean rank = 21.95, *Mdn* = 4.75), *U* ($N_{Unlisted}$ =18, N_{Listed}=19) = 115.000, Z= -1,752, *P =0.080 > 0.05.* The value of r=0.288 derived determines small effect size. Median value for listed companies was found much higher than unlisted companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant

difference in terms of 'Responsible behaviour towards Product Stewardship', on the basis of legal status of the firm.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 116 reports values for companies age up to 25 years (Mean rank = 17.83, *Mdn* = 4.37) and companies age more than 25 years (Mean rank = 19.23, *Mdn* = 4.50), *U* ($N_{\text{Companies age up to 25 years}}$=6, $N_{\text{Companies Age more than 25 years}}$=31) = 86.000, Z= -0.297, *P =0.767 > .05.* The value of r=0.049 derived determines small effect size. Median value for companies having age more than 25 years was found higher than companies age up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of **'**Responsible behaviour towards Product Stewardship' on the basis of age of the company

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 116, reports values for medium & small sized companies (Mean rank =14.94, *Mdn* = 4.12) and Large sized companies (Mean rank = 20.12, *Mdn* = 4.75), U ($N_{\text{Medium \& small sized}}$ =8, $N_{\text{Large sized}}$=29) = 83.500, Z= -1.234, *P =0.217 > 0.05.* The value of r=0.203 derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of **'**Responsible behaviour towards Product Stewardship', on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 116, reports values for companies earning avg. revenue up to 3000crs (Mean rank =18.02, *Mdn* = 4.50) and companies earning avg. revenue more than 3000 crs (Mean rank = 21.65, *Mdn* = 4.87), U ($N_{\text{Revenue up to 3000crs}}$= 27, $N_{\text{Revenue up to 3000crs}}$=10) = 108.500, Z= -0.933, *P =0.351 > .05*. The value of r=0.153 derived, determines very small effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of **'**Responsible behaviour towards Product Stewardship'**,** on the basis of avg. Revenue of the company.

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 116 reports values for companies earning avg. PAT up to 100 crs (Mean rank =16.13, *Mdn* =4.00) and companies earning avg. PAT more than 100 crs (mean rank = 22.03, *Mdn* = 4.75), *U* ($N_{\text{PAT up to 100crs}}$= 19, $N_{\text{PAT more than 100 crs}}$=18) = 116.500, Z= -1.705, *P =0.088 > .05*. The value of r =0.280 derived, determines small effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of **'**Responsible behaviour towards Product Stewardship'**,** on the basis of avg. PAT of the company.

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare responsible behaviour towards product stewardship on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 116, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 15.42, *Mdn* = 4.25) and companies having avg. reserves more than 1000 crs (Mean rank = 22.39, *Mdn* = 4.75), *U* ($N_{\text{Reserves up to 1000crs}}$= 18, $N_{\text{Reserves more than 1000crs}}$ = 19) =

106.500, Z= -2.017, *P =0.044 < .05.* The value of r=0.332derived, determines moderate effect size. Median value of companies having avg. reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value is < .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies having avg. reserves more than 1000 crs were better in terms of Responsible behaviour towards Product Stewardship' than companies having avg. reserves up to 1000crs.

Section – 4

Sustainable Initiatives

This section explores various sustainable initiatives taken by the respondent companies so as to embrace business and societal sustainability. Question no. 44 to 56 from the questionnaire identifies companies Responsible Behaviour towards various sustainable initiatives like supply chain integration, function wise green management, crisis & risk management etc…as these initiatives are essential for pay-off in the long run – both financially and environmentally.

1. Supply chain Integration (SCI)

SCI deals with cooperation and coordination with supply chain partners throughout the value chain so as to achieve sustainable flow of goods and services, information, capital and processes, to impart maximum value to all corporate stakeholders. Question no. 44 to 47 from the questionnaire includes questions related to SCI like challenges faced by companies through supply chain partners, driving factors for adoption of SCI, benefits reaped from implementing SCI, and SCI policies and practices followed by companies.

Challenges faced in past by companies with their supply chain partners

Respondent companies were asked about the challenges faced by them in past related to supply chain partners and following frequency table shows the results of the same.

Table 117
Challenges faced by companies with supply chain partners (n=50)

Challenges faced by companies with supply chain partners	Frequency (n)	Percent (%)
Order Cancellations	08	16
Workers issues at suppliers	11	22
Late Delivery of Materials	19	38
Conflict with suppliers	06	12
Non-delivery of products by suppliers	06	12
Communication issues with supply chain partners	12	24
Others – quality issues from suppliers	02	04

The above frequency table 117 depicts the outcome of challenges faced by respondent companies through their supply chain partners. It can be inferred that 16% (n=8) respondent companies faced order cancellations issues, 22% (n=11) faced workers issues at suppliers,

38% (n=19) faced late delivery issues of material, 12% (n=6) faced conflicts with their suppliers and problem related to non-delivery of products by suppliers, 24% (n=12) faced Communication issues with supply chain partners. Additionally, 4% (n=2) respondent companies viewed that they also faced quality issues from suppliers.

Factors that drove companies to adopt SCI

Respondent companies were asked about the factors or reasons that drove them towards SCI. Below frequency table shows the outcome on the same.

Table 118

Factors that drove the respondent companies to adopt SCI (n=50)

Reasons for adopting SCI	Frequency (n)	Percent (%)
Increase cost competitiveness	31	62
Compress product cycles	10	20
Comply govt. policies	11	22
Improvise quality of products	24	48
Customize product offerings	12	24
Electronic globalization	04	08
Focus on core competencies	19	38

The above frequency table 118 specifies the respondent companies' views on factors/reasons that drove them towards SCI. It can be inferred that 62% (n=31) of the respondent companies adopted SCI to increase cost competitiveness, 20% (n=10) adopted to compress their product cycles, 22% (n=11) adopted to comply government policies, 48% (n=24) adopted to improvise their product quality, 24% (n=12) adopted SCI for customizing their products offerings, 8% (n=4) adopted for electronic globalization and finally 38% (n=19) respondent companies had adopted SCI to focus on core competencies.

Benefits reaped by the company from implementing SCI

Respondent companies were asked about the benefits reaped by them after implementing Supply Chain Integration and following table shows the frequencies of the same.

Table 119

Benefits reaped by the company from SCI (n=50)

Benefits reaped from SCI	Frequency (n)	Percent (%)
Increased customer responsiveness	30	60
More consistent on-time delivery	32	64
Shorter order fulfilment lead time	19	38
Reduced inventory costs	29	58
Better asset utilization	18	36
Lower costs of purchased items	14	28
Higher product quality	20	40
Ability to handle unexpected events	14	28
Faster product innovation	09	18

Table 119, shows the results on the benefits reaped by companies from SCI. It can be inferred that 60% (n=30) of the respondent companies viewed that SCI has helped them in increasing customer responsiveness, 64% (n=32) benefitted in being more consistent on on-time delivery, 38% (n=19) benefitted in terms of shorter order fulfilment lead time, 58% (n=29) benefitted in terms of reduced inventory costs, 36% (n=18) benefitted through better assets utilization, 28% (n=14) benefitted in terms of both lower costs of purchased items and ability to handle unexpected events, 40% (n=20) benefitted in terms of higher product quality and finally 18% (n=9) of the respondent companies benefitted in bringing faster product innovations.

Companies Behaviour towards SCI

Question 47 from the questionnaire verifies corporate behaviour towards SCI policies & practices. This question was asked in the form of 5-point Likert rating (strongly agree to strongly disagree) scale trying to gauge companies behaviour towards supply chain integration which promotes and ensures sustainability of not only its own business but also sustainability of all its stakeholders who are part of its supply chain. Below table shows descriptive analysis (mean & standard deviation) results on Responsible Behaviour of companies towards SCI.

Table 120

Mean & SD on Supply Chain Integration (n=50)

Supply Chain Integration scale	Mean	SD
Company policy supports and promote Supply chain Integration vision	4.24	0.847
Company SCI policy adhere to compliance with local and international laws	4.24	0.797
Company SCI Policy outlines set of expected social and environmental standards from suppliers	4.16	0.866
Company's SCI policy focuses on customer-centric metrics throughout the chain by improving quality of products	4.10	0.789
Company is not depended on single supply chain and always have alternate plans	4.28	0.757
Company SCI promotes maintenance of reliable database	4.16	0.766
Company's SCI includes fairly sharing of risks & rewards among supply chain partners	3.92	0.853
Company's SCI integrates ERP and technology	4.38	0.602
Company's SCI links mind-sets and goals of supply chain partners	4.02	0.714
Code of conduct related to SSCI is well designed and successfully executed	4.02	0.742
Sustainability certifications (environment related) and reporting disclosure of sustainability acts a prequalification for finalizing and continuing with suppliers	3.76	1.001
Company has designed Supplier self-assessment questionnaire which identifies suppliers business and sustainability objectives, standards, tools used, key performance indicators (KPIs), training needs assessment and a clear auditing structure	3.80	0.969
Roles, responsibilities and accountability for executing SSCI at the intra- and inter-organizational levels are properly identified and executed	4.00	0.808
Company monitors the activities of suppliers according to the terms and conditions set out in the sustainable supply contract	4.10	0.614
Company engages itself for capacity building of suppliers through resource provision, training and support activities, and remediation of problems	3.64	0.964
Company asks its suppliers to use recyclable packaging materials when they deliver supplies.	3.54	1.034

Above table 120, demonstrates result of descriptive analysis on corporate responsible behaviour towards Supply Chain Integration policies & Practices. The mean

of each Likert scale items were found greater than 3.54 but less than 4.38. The highest mean with SD ($\bar{x}$=4.38, SD=0.602) was found for statement - Company's SCI integrates ERP and technology followed by next highest mean with SD statement - Company is not depended on single supply chain and always have alternate plans ($\bar{x}$=4.28, SD=0.757). The lowest mean with SD ($\bar{x}$=3.54, SD=1.034) was found for a statement –Company asks its suppliers to use recyclable packaging materials when they deliver supplies followed by next lowest mean with SD ($\bar{x}$=3.64, SD=0.964) Company engages itself for capacity building of suppliers through resource provision, training and support activities, and remediation of problems.

Factor Analysis

Factor Analysis on companies responsible behaviour towards SCI

Initially, taking into account assumptions of the test, factorability of the 16 items was examined. Principal Component Analysis (PCA) was conducted on the 16 items with orthogonal rotation- Varimax Method.

Correlation Matrix- Initial correlation matrix table revealed how each of the 16 items were associated with other items. From the output table, it was observed that there were 11 variables out of 16, with values more than $\pm$ 0.5. Further, there were no variables found with values less than $\pm$0.20. Further, determinant value assumption was also met. If the determinant would have been zero, then a factor analytic solution cannot be obtained.

KMO & Bartlett test of Sphericity - KMO measures the sampling adequacy and its value should be greater than 0.5 for a satisfactory factor analysis to proceed. In our case, KMO value (measures of sampling adequacy) found was 0.853, considered as meritorious (Kaiser, 1974), as KMO value higher than 0.5 is acceptable. This indicates that there are sufficient items for each factors. In this case, Bartlett test of Sphericity was found significant having $\chi 2$ (120) = 515.417, p = 0.000 as significance value was found less than 0.05.

Anti-image & Communalities table - Third factor analysis table shows Anti-image matrices, where all elements on the diagonal of this matrix should be greater than 0.5 if the sample is adequate (Field, 2000). In the present case, the diagonal of the anti-image correlation values was found between 0.751 and 0.943, i.e. all values were found greater than 0.5. It therefore follows that all variables can be included in the factor analysis.

The next EFA outcome table was Communalities table indicating the proportion of the variable's variance explained by the extracted factors. Communalities values should be

greater than 0.5. However, Child (2006) suggests to remove any item with communality less than 0.2. In the present case, all the communality values were above 0.5 except two item having communality value as 0.486 & 0.493 i.e. Company engages itself for capacity building of suppliers through resource provision, training and support activities, and remediation of problems and Company monitors the activities of suppliers according to the terms and conditions set out in the sustainable supply contract., which was not discarded as of now as their anti-image values were found greater than 0.5.

Total Variance explained - This table lists eigenvalues associated with each factor before extraction, after extraction and after rotation.

Table 121

Total Variance explained with 16 items on SCI

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Comp-onent	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumula-tive %	Total	% of Variance	Cumula-tive %
1	8.413	52.582	52.582	8.413	52.582	52.582	5.162	32.261	32.261
2	1.223	7.645	60.227	1.223	7.645	60.227	4.475	27.966	60.227
3	1.051	6.568	66.795						
4	.871	5.445	72.240						
5	.754	4.714	76.954						
6	.673	4.207	81.162						
7	.607	3.793	84.954						
8	.494	3.088	88.042						
9	.402	2.515	90.557						
10	.352	2.203	92.759						
11	.326	2.039	94.798						
12	.256	1.599	96.398						
13	.219	1.371	97.769						
14	.146	.911	98.680						
15	.120	.750	99.430						
16	.091	.570	100.000						

Extraction Method: Principal Component Analysis.

All factors with eigenvalues greater than 1 are extracted, leaving with two factors. Before rotation, factor 1 accounted for considerably more variance than the factor 2 (52.582% and 7.645%), but after rotation, first component accounts for only 32.261% of the variance and second component accounted for 27.966% of the variance, hence cumulative 60.227% of variance explained which was found more than 50%.

Rotated component matrix table - This table shows a matrix of the factor loadings for each variable on each factor. Factor loadings less than 0.4 were not observed in the table as it was suppressed. Variables were listed in the order of size of their factor loadings. Following criteria were considered while dealing with factor loadings decision – first, each factor must have at least three items loadings $\geq$ 0.5; second, individual items must have at least loading $\geq$ 0.5; third in case of cross loadings the item will be placed only in the factor on which it has higher factor loadings; and finally if cross loadings were found $\leq$ 0.5 on both factors, the item was considered for deletion.

At the first instance, it was noted that there were total 02 items having loadings less than 0.6 on both factors/components; total 03 items were found having loadings less than 0.5 but as these were the cases of cross loadings having loadings higher than 0.5 on another factors. Therefore, there was no need to re-run the software as all required dimensions were met. Below outcome table shows the Rotated Component Matrix with final 16 items.

Principal Component Analysis with Varimax Rotation was conducted to assess the underlying structure for the 16 items. Two components were obtained, and indexed as 'Extrinsic SCI Responsible Behaviour of companies', and 'Intrinsic SCI Responsible behaviour of companies'. The first component, which is indexed 'Extrinsic SCI Responsible Behaviour of companies' had strong loadings on the first eight items, including two items 'Company designs Supplier self-assessment questionnaire, which identifies suppliers business and sustainability objectives, standards, tools used, key performance indicators (KPIs), training needs assessment and a clear auditing structure' having a cross loading as 0.522 for component 2; another item – 'Company engages itself for capacity building of suppliers through resource provision, training and support activities, and remediation of problems' with a cross loading as 0.407 for component 2. Thus items no. 8 and 9 was considered as part of component 1 as these statements were having high loadings on component 1 compared to component 2.

Table 122

Factor Loadings from Principal Component Analysis with Varimax Rotation for Two Factor Solution for Factors related companies behaviour towards SCI policies & practices (n = 50)

	Companies behaviour towards SCI	Components		Commu-nality
		1	2	
1	Company asks suppliers to use recyclable packaging materials when they deliver supplies	.858		0.744
2	Company's SCI outlines set of expected social and environmental standards from suppliers	.764		0.648
3	Company supports and promote Supply chain Integration vision	.755		0.689
4	Code of conduct related to SSCI is well designed & successfully executed	.728		0.676
5	Sustainability certifications (environment related) and reporting disclosure of sustainability acts a prequalification for finalizing and continuing with suppliers	.687		0.587
6	Company monitors the activities of suppliers according to the terms and conditions set out in the sustainable supply contract	.640		0.493
7	Company designs Supplier self-assessment questionnaire, which identifies suppliers business and sustainability objectives, standards, tools used, key performance indicators (KPIs), training needs assessment and a clear auditing structure	.582	.522	0.612
8	Company engages itself for capacity building of suppliers through resource provision, training and support activities, and remediation of problems	.566	.407	0.486
9	Company's SCI links mind-sets and goals of supply chain partners		.806	0.661
10	Company's SCI integrates ERP and technology		.710	0.536
11	Company is not depended on single supply chain and always have alternate plans		.662	0.501

12	Company's SCI focus on customer centric metrics throughout the chain	.452	.647	0.623
13	Company's SCI includes fairly sharing of risks and rewards among supply chain partners	.463	.642	0.627
14	Roles, responsibilities and accountability for executing SSCI at the intra- and inter-organizational levels are properly identified and executed	.541	.620	0.678
15	Company's SCI adhere to compliance with local and international laws	.441	.609	0.565
16	Company's SCI promotes maintenance of reliable database	.434	.568	0.512
Eigen Value		5.162	4.475	
% of Variance		32.261	27.966	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations

Note. Factor loadings < .4 are suppressed.

The second component, indexed as 'Intrinsic SCI Responsible behaviour of companies', had high loadings on the next eight items having cross loadings for statements 12, 13, 14, 15 and 16 for component 1 (refer table 122). Thus these items were included in component 2 'Intrinsic SCI Responsible behaviour of companies', due to high factor loading as compared to component 1. Here, components 'Extrinsic SCI Responsible Behaviour of companies' and 'Intrinsic SCI Responsible behaviour of companies' have been considered on reflective scale.

Descriptive statistics, Reliability & Normality test conducted on the factors obtained

Composite mean scores were obtained to measure the level of corporate attitudes towards both factors obtained from factor analysis. Normality test was also conducted through numerical and graphical methods. Below table shows the descriptive characteristics and normality test results on both factors.

To find out internal consistency of components obtained from PCA, Cronbach alpha was applied. Table 123, shows that the components were found reliable as their Cronbach alpha levels for first component – 'Extrinsic SCI Responsible Behaviour of companies' with eight items were found $\alpha = 0.901$ considered as 'excellent', showing 90% internal consistency amongst the items. Cronbach alpha value for second factor/component 'Intrinsic SCI Responsible behaviour of companies' having eight items

was found α= 0.891 considered as 'good' showing 89% internal consistency amongst items.

Table 123

Descriptive statistics for the two components (n = 50)

Construct/ Compon-ent	No	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Shap-iro Val.
					Value	Z	Value	Z		
'Extrinsic SCI Respon-sible Beh. of Co.'	08	3.93	4.00	0.684	-0.214	-0.645	0.428	0.646	0.90	0.266
'Intrinsic SCI Respon-sible beh. of Co.'	08	4.17	4.13	0.576	-0.407	-0.775	1.137	1.717	0.89	0.005

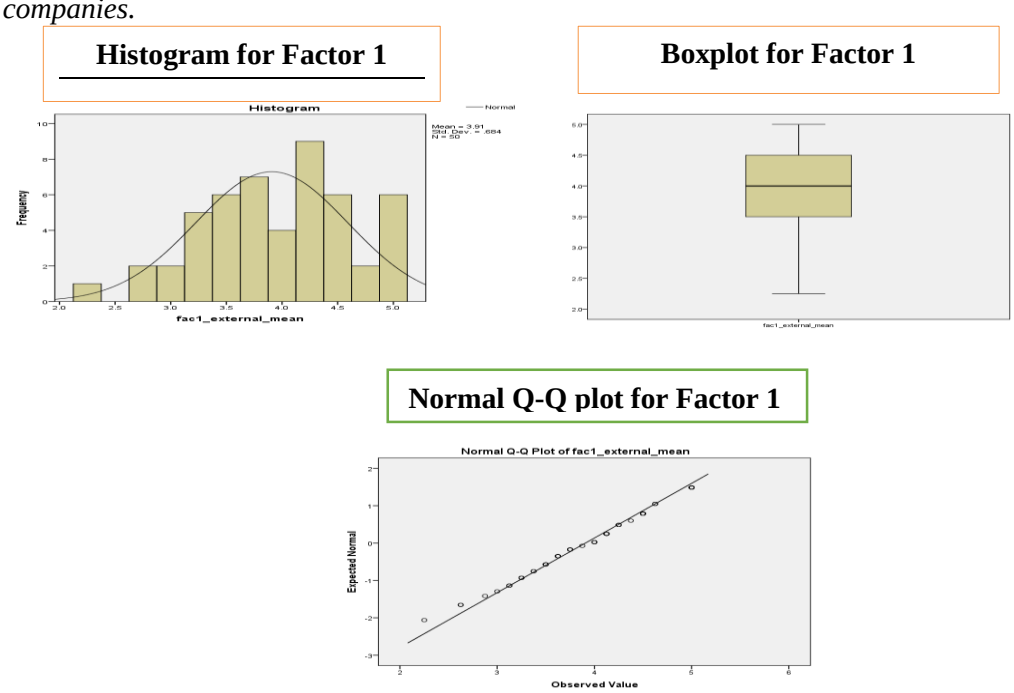
As per above table 123 the Mean, Median and SD value on first factor 'Extrinsic SCI Responsible Behaviour of companies' derived from EFA were $\bar{x}$= 3.93 and Mdn= 4.00 with s=0.684. From the numerical methods point of view, it was observed that values of Mean (3.93) & Median (4.00) were having hair line difference showing that data were normally distributed. The value of kurtosis (0.428) and the value of skewness (-0.214) individually were found within $\pm$1 range and critical ratio (z value) of the skewness (-0.645) and kurtosis (0.646) were also found within the range of ±1.96 range, thus the outcome with respect to dispersion specifies that data were normally distributed. Even Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value (p = 0.266) was greater than significant value 0.05. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for first factor 'Extrinsic SCI Responsible Behaviour of companies' acting as dependent variable (refer figure below).

The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were normally distributed. Figure 24, displays Histogram for factor 1 'Extrinsic SCI Responsible

Behaviour of companies' as DV confirming normality of data as bell shaped curve was derived. Box plot was symmetric having no outliers indicating that data are normally distributed. Normal Q-Q Plot was also observed as normal as observed data were found near to expected data having major dots on or near to diagonal line.

Figure 24

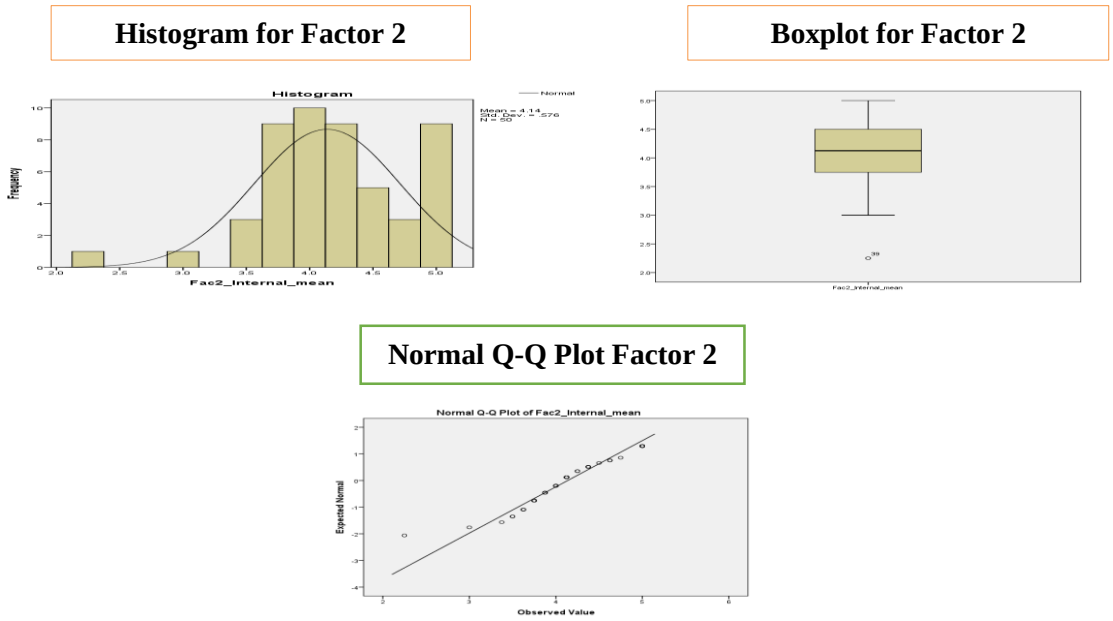
Histogram, Box plots, Normal Q-Q plots for Factor 1. 'Extrinsic SCI Responsible Behaviour of companies.



As per table 123 the Mean, Median and SD value on second factor 'Intrinsic SCI Responsible behaviour of companies' derived from EFA were $\bar{x}$=4.17 and Mdn= 4.13 with s=0.576. Normality checked using numerical methods shows that values of Mean (4.17) & Median (4.13) were having minor difference showing that data were near to normal distribution. The value of skewness (-0.407) individually was found within the $\pm$1 range but the value of kurtosis (1.137) individually were not found within $\pm$1 range. Critical ratio (z value) of the kurtosis (1.717) and skewness value (-0.775) was found within $\pm$1.96 range, thus the outcome with respect to dispersion specifies that data were normally distributed. But Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p = 0.005) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for second factor 'Intrinsic SCI Responsible behaviour of companies' acting as dependent variable (refer figure below).

Figure 25

Histogram, Box plots, Normal Q-Q plots for Factor 2 - 'Intrinsic SCI Responsible behaviour of companies'



The output of a Histogram, Boxplot and Normal Q-Q Plot shows that data were non- normally distributed. Figure 25 displays histogram for factor 2 'Intrinsic SCI Responsible behaviour of companies' as dependent variable confirming non-normality of data as bell shaped curve was not derived. Box plot found asymmetric having outliers indicating that data are non-normally distributed. Normal Q-Q Plot was also observed as non-normal as observed data were not found near to expected data having major dots not on or close to diagonal line.

Cross tabulations & chi-square test on SCI factors obtained through FA

Cross tabulations & chi-square test between various demographic variables 'Extrinsic SCI Responsible Behaviour of companies'

Cross tabulations & Chi-square test was conducted between 'Extrinsic SCI Responsible Behaviour of companies' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 124

Cross tabulations & chi-square test results on 'Extrinsic SCI Responsible Behaviour of companies' and various demographic variables (n=50)

Demographic Variables	Extrinsic SCI Responsible behaviour of companies						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochemicals	08 (8.6)	22	28 (27.4)	78	36	100	$\chi\ 2_{(1)} = 0.223$, $p = 0.718$ (ns), Phi = 0.067 Fail to Reject H0
Pharmaceutical	04 (3.4)	29	10 (10.6)	71	14	100	
Total	12	24	38	76	50	100	
Sector Ownership							
Government	01 (1.4)	17	05 (4.6)	83	06	100	$\chi 2_{(1)} = 0.201$, $p = 1.000$ (ns), Phi = 0.064 Fail to Reject H0
Non-Government	11 (10.6)	25	33 (33.4)	75	44	100	
Total	12	24	38	76	50	100	
Legal status of the firm							
Unlisted	07 (6.0)	28	18 (19.0)	72	25	100	$\chi 2_{(1)} = 0.439$, $p = 0.508$ (ns), Phi = 0.094 Fail to Reject H0
Listed	05 (6.0)	20	20 (19.0)	80	25	100	
Total	12	24	38	76	50	100	
Age / Experience of the firm							
Up to 25 years	00 (1.7)	00	07 (5.3)	100	07	100	$\chi 2_{(1)} = 2.570$, $p = 0.174$ (ns), Phi = 0.227 Fail to Reject H0
More than 25 yrs	12 (10.3)	28	31 (32.7)	72	43	100	
Total	12	24	38	76	50	100	

Size of the firm							
Medium / Small	02 (2.4)	20	08 (7.6)	80	10	100	$\chi2_{(1)} = 0.110$, p= 1.000 (ns), Phi = 0.047 Fail to Reject H0
Large	10 (9.6)	25	30 (30.4)	75	40	100	
Total	12	24	38	76	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	08 (8.4)	23	27 (26.6)	77	35	100	$\chi2_{(1)} = 0.084$, p= 1.000 (ns), Phi = 0.041 Fail to Reject H0
More than 3000cr	04 (3.6)	27	11 (11.4)	73	15	100	
Total	12	24	38	76	50	100	
Avg. PAT of the firm							
Up to 100 crs	07 (6.5)	26	20 (20.5)	74	27	100	$\chi2_{(1)} = 0.119$, p= 0.730 (ns), Phi = 0.049 Fail to Reject H0
More than 100 crs	05 (5.5)	22	18 (17.5)	78	23	100	
Total	12	24	38	76	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	06 (6.0)	24	19 (19.0)	76	25	100	$\chi2_{(1)} = 0.000$, p= 1.000 (ns), Phi = 0.000 Fail to Reject H0
More than 1000 crs	06 (6.0)	24	19 (19.0)	76	25	100	
Total	12	24	38	76	50	100	

ns – Non-Significant

Hypothesis testing to find out significant association between various demographical variables of the study and Extrinsic SCI Responsible Behaviour of companies

Table 124, shows the crosstab & chi-square results on Extrinsic SCI Responsible Behaviour of companies,

i) Based on types of Industry - It can be inferred that, 22% (n=8 out of 36) of chemical and petrochemical companies and 29% (n=4 out of 14) of pharma companies showed low agreement for 'Extrinsic SCI Responsible Behaviour of companies' while 78% (n=28) in case of chemical and petrochemical companies and 71% (n=10) in case of pharma companies had high agreement on 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between types of industry and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.223, p = 0.718 (ns) (refer table 124). Here, Fisher's exact test value was applicable as 1 cells (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.067 shows negligible association between two tested variables.

ii) Based on Sector Ownership - Data demonstrates that, 17% (n=1 out of 6) government companies and 25% (n=11 out of 44) of non-government companies gave low agreement, while 83% (n=5) of government companies and 75% (n=33) non-government companies gave high agreement towards practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between sector ownership and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.201, p = 1.000 (ns) (refer table 124). Here, Fisher's exact test value was applicable as 2 cell (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.064 shows negligible association between two tested variables.

iii) Based on legal status of the firm -It was noted that 28% (n=7 out of 25) of the unlisted companies and 20% (n=5 out of 25) of the listed companies gave low agreement, while 72% (n=18) of the unlisted companies and 80% (n=20) of listed companies gave high agreement towards practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between legal status of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.439, p = 0.508 (ns) (refer table 124). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.094 shows negligible association between two tested variables.

iv) Based on age of the firm -Data shows that 100% (n=7) of companies having age / experience up to 25 years and 72% (n=31 out of 43) of companies having age / experience more than 25 years' gave high agreement, while 28% (n=12) of the companies having more than 25 years' age / experience had shown low agreement on practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between age of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 2.570, p = 0.174 (ns) (refer table 124). Here, Fisher's exact test value was applicable as 1 cells (25%) have

expected count less than 5. Moreover, Phi coefficient value 0.227 shows weak association between two tested variables.

vi) Based on size of the firm – Data specifies that 20% (n=2 out of 10) of the medium and small sized companies and 25% (n=10 out of 40) of the large sized companies gave low agreement, while 80% (n=8) of medium and small sized companies and 75% (n=30) of large sized companies gave high agreement on practicing 'Extrinsic SCI Responsible Behaviour of companies'

Chi-square test shows NO Significant association between size of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.110, p = 1.000 (ns) (refer table 124). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.047 shows negligible association between two tested variables.

vi) Based on average Revenue of the firm - It was noted that 23% (n=8 out of 35) of companies having avg. revenue up to 3000 crs and 27% (n=4 out of 15) companies' avg. revenue with more than 3000 crs had low agreement, while 77% (n=27) companies with avg. revenue up to 3000 crs and 73% (n=11) of the companies' avg. revenue with more than 3000 crs agreed on practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between avg. Revenue of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.084, p = 1.000 (ns) (refer table 124). Here, Fisher's exact test value was applicable as 1 cell (25%) have expected count less than 5. Moreover, even Phi coefficient value 0.041 shows negligible association between two tested variables.

vii) Based on avg. PAT of the firm - Data denotes that 26% (n=7 out of 27) of the companies with avg. PAT up to 100 crs and 22% (n=5 out of 23) companies with avg. PAT more than 100 crs had low agreement, while 74% (n=20) companies with avg. PAT up to 100 crs and 78% (n=18) companies with avg. PAT more than 100 crs had high agreement towards practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between avg. PAT of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.119, p = 0.730 (ns) (refer table 124). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.049 shows negligible association between two tested variables.

viii) Based on avg. Reserves of the firm - Data denotes that 24% (n=6 out of 25) companies with avg. Reserves up to 1000 crs and 24% (n=6 out of 25) companies with avg. Reserves more than 1000 crs had low agreement, while 76% (n=19) companies with avg. reserves up to 1000 crs and 76% (n=19) companies with avg. reserves more than 1000 crs gave high agreement on practicing 'Extrinsic SCI Responsible Behaviour of companies'.

Chi-square test shows NO Significant association between avg. reserves of the firm and Extrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.000, p = 1.000 (ns) (refer table 124). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.000 shows no association at all between two tested variables.

Cross tabulations & chi-square test applied between various demographic variables and 'Intrinsic SCI Responsible behaviour of companies'.

Cross tabulations & Chi-square test was conducted 'Intrinsic SCI Responsible behaviour of companies' and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 125

Cross tabulations & chi-square test results on 'Intrinsic SCI Responsible behaviour of companies' and various s demographic variables (n=50)

Demographic Variables	Intrinsic SCI Responsible behaviour of companies						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/Petro -chemicals	02 (2.5)	06	34 (33.8)	94	36	100	$\chi 2_{(1)} = 0.045$, $p = 1.000$ (ns), Phi = 0.030
Pharmaceutical	01 (0.8)	07	13 (13.2)	93	14	100	
Total	03	06	47	94	50	100	Fail to Reject H0
Sector Ownership							
Government	00 (0.4)	00	06 (5.6)	100	06	100	

Non-Govt.	03 (2.6)	07	41 (41.4)	93	44	100	$\chi2_{(1)} = 0.435$, p= 1.000(ns), Phi = 0.093
Total	03	06	47	94	50	100	Fail to Reject H0
Legal status of the firm							
Unlisted	02 (1.5)	08	23 (23.5)	92	25	100	$\chi2_{(1)} = 0.355$, p= 1.000 (ns), Phi = 0.084
Listed	01 (1.5)	04	24 (23.4)	96	25	100	
Total	03	06	47	94	50	100	Fail to Reject H0
Age / Experience of the firm							
Up to 25 years	00 (0.4)	00	07 (6.6)	100	07	100	$\chi2_{(1)} = 0.520$, p= 1.000 (ns), Phi = 0.102
More than 25 yrs	03 (2.6)	07	40 (40.4)	93	43	100	Fail to Reject H0
Total	03	06	47	94	50	100	
Size of the firm							
Medium / Small	02 (0.6)	20	08 (9.4)	80	10	100	$\chi2_{(1)} = 4.344$, p= 0.098 (ns), Phi = 0.295
Large	01 (2.4)	03	39 (37.6)	98	40	100	Fail to Reject H0
Total	03	06	47	94	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	03 (2.1)	09	32 (32.9)	91	35	100	$\chi2_{(1)} = 1.368$, p=0.545 (ns), Phi = 0.165
More than 3000cr	00 (0.9)	00	15 (14.1)	100	15	100	Fail to Reject H0
Total	03	06	47	94	50	100	
Avg. PAT of the firm							
Up to 100 crs	03 (1.6)	11	24 (25.4)	89	27	100	$\chi2_{(1)} = 2.719$, p= 0.240 (ns), Phi = 0.233
More than 100 crs	00 (1.4)	00	23 (21.6)	100	23	100	Fail to Reject H0
Total	03	06	47	94	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	02 (1.5)	08	23 (23.5)	92	25	100	

More than 1000 crs	01 (1.5)	04	24 (23.5)	96	25	100	$\chi 2_{(1)} = 0.355$, p= 1.000 (ns), Phi = 0.084 Fail to Reject H0
Total	03	06	47	94	50	100	

ns – Non-Significant

Hypothesis testing to find out significant association between various demographical variables of the study and Intrinsic SCI Responsible Behaviour of companies.

Table 125 shows the crosstab & chi-square results on Intrinsic SCI Responsible Behaviour of companies,

i) Based on types of Industry - It can be inferred that, 6% (n=2 out of 36) of chemical and petrochemical companies and 7% (n=1 out of 14) of pharma companies had low agreement for practicing 'Intrinsic SCI Responsible Behaviour of companies' while 94% (n=34 out of 36) of chemical and petrochemical companies and 93% (n=13 out of 14) in case of pharma companies gave high agreement on practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between types of industry and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.045, p = 1.000 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.030 shows negligible association between two tested variables.

ii) Based on Sector Ownership - Data demonstrates that, 100% (n=6) government companies and 93% (n=41 out of 44) of non-government companies gave high agreement, while 7% (n=3) non-government companies gave low agreement towards practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between sector ownership and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.435, p = 1.000 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.093 shows negligible association between two tested variables.

iii) Based on legal status of the firm -It was noted that 8% (n=2 out of 25) of the unlisted companies and 4% (n=1 out of 25) of the listed companies gave low agreement, while 92% (n=23) of the unlisted companies and 96% (n=24) of listed companies gave high agreement towards practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between sector ownership and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.355, p = 1.000 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.084 shows negligible association between two tested variables.

iv) Based on age of the firm -Data shows that 100% (n=7) all companies having age / experience up to 25 years and 93% (n=40 out of 43) companies having age / experience more than 25 years' gave high agreement, while 7% (n=3) of the companies having age / exp. more than 25 years' had shown low agreement on practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between age of the firm and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 0.520, p = 1.000 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, Phi coefficient value 0.102 shows weak association between two tested variables.

v) Based on size of the firm – Data specifies that 20% (n=2 out of 10) of the medium and small sized companies and 3% (n=1 out of 40) of the large sized companies gave low agreement, while 80% (n=8) of medium and small sized companies and 98% (n=39) of large sized companies gave high agreement on practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between size of the firm and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 4.344, p = 0.098 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.295 shows weak association between two tested variables.

vi) Based on avg. Revenue of the firm - It was noted that 100% (n=15) of the companies' avg. revenue with more than 3000 crs and 91% (n=32 out of 35) of companies having avg. revenue up to 3000 crs gave high agreement, while 9% (n=3 out of 35) of

companies' earning avg. revenue up to 3000 crs had low agreement on practicing ''Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between avg. Revenue of the firm and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) = 1.368, p = 0.545 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.165 shows weak association between two tested variables.

vii) Based on avg. PAT of the firm - The 2*2 crosstab table, denotes that 100% (n=23) all sampled companies with avg. PAT more than 100 crs and 89% (n=24 out of 27) gave high agreement, while 11% (n=3) of the companies with avg. PAT up to 100 crs gave low agreement on practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between avg. PAT of the firm and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) =2.719, p = 0.240 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.233 shows weak association between two tested variables.

viii) Based on avg. Reserves of the firm - Data denotes that 8% (n=2 out of 25) companies with avg. Reserves up to 1000 crs and 4% (n=1 out of 25) companies with avg. Reserves more than 1000 crs had low agreement, while 92% (n=23 out of 25) companies with avg. reserves up to 1000 crs and 96% (n=24 out of 25) companies with avg. reserves more than 1000 crs agreed on practicing 'Intrinsic SCI Responsible behaviour of companies'.

Chi-square test shows NO Significant association between avg. Reserves of the firm and Intrinsic SCI Responsible Behaviour of companies, $\chi 2$ (1, N= 50) =0.355, p = 1.000 (ns) (refer table 125). Here, Fisher's exact test value was applicable as 2 cells (50%) have expected count less than 5. Moreover, even Phi coefficient value 0.084 shows weak association between two tested variables.

Independent sample t-test

Independent sample t-test on 'Extrinsic SCI Responsible Behaviour of companies' obtained from factor Analysis

As normality assumptions were met, Independent sample t-test was conducted using 'Extrinsic SCI Responsible Behaviour of companies' as DV (continuous scale) and various demographic variables as IV (categorical scale) to study significances differences

in their means. Below table shows group statistics & Independent sample t-test results on 'Extrinsic SCI Responsible Behaviour of companies' calculated through mean, SD and variance across different variables of the study.

Table 126

Group statistics table showing Difference in Mean & SD on 'Extrinsic SCI Responsible Behaviour of companies' (n=50)

Variables	N	Mean	Std. Deviation	Std. Error Mean
Types of Industry				
Chemicals/petrochemical	36	3.99	.697	.116
Pharmaceutical	14	3.71	.627	.168
Sector Ownership				
Government owned	06	4.10	.855	.361
Non-government owned	44	3.88	.660	.099
Legal status of firm				
Unlisted	25	3.81	.697	.139
Listed	25	4.01	.668	.134
Age / experience of the firm				
Age up to 25 years	07	4.23	.453	.171
Age more than 25 years	43	3.85	.704	.107
Size of the firm				
Medium & Small	10	3.75	.780	.247
Large	40	3.95	.663	.105
Avg. Revenue of the firm				
Revenue up to 3000crs	35	3.91	.724	.122
Revenue More than 3000crs	15	3.90	.604	.156
Avg. PAT of the firm				
PAT up to 100 crs	27	3.77	.651	.125
PAT more than 100crs	23	4.07	.701	.146
Avg. Reserves of the firm				
Reserves up to 1000crs	25	3.78	.620	.124
Reserves more than 1000crs	25	4.04	.730	.146

Table 127

Independent Sample t-test table on 'Extrinsic SCI Responsible Behaviour of companies' across different variables of the study(n=50)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% CI of the Difference	
Variables	f	Sig.	t	*df*	Sig. (2-tailed	Mean Diff.	Std. Err Diff.	LL	UL
Types of Industry									
Equal variance assumed	.542	.465 (ns)	1.313	48	.195 (ns)	.281	.214	-.149	.711
Equal variance not assumed			1.377	26.233	.180	.281	.204	-.138	.700
Sector Ownership									
Equal variance assumed	.150	.701 (ns)	.748	48	.485 (ns)	.223	.299	-.377	.824
Equal variance not assumed			.596	5.782	.574	.223	.375	.702	1.149
Legal status of the firm									
Equal variance assumed	.006	.939 (ns)	-1.062	48	.294 (ns)	-.205	.193	-.593	.183
Equal variance not assumed			-1.062	47.915	.294	-.205	.193	-.593	.183
Age / experience of the firm									
Equal variance assumed	3.148	.082 (ns)	1.367	48	.178 (ns)	.377	.276	-.178	.933
Equal variance not assumed			1.867	11.388	.088	.377	.202	-.066	.821
Size of the firm									
	.113	.738 (ns)	-.812	48	.421 (ns)	-.197	.243	-.685	.291

Equal variance assumed									
Equal variance not assumed			-.735	12.451	.476	-.197	.268	-.778	.384
Avg. Revenue of the firm									
Equal variance assumed	1.140	.291 (ns)	0.050	48	.960 (ns)	.011	.213	-.418	.439
Equal variance not assumed			0.054	31.617	.957	.011	.198	-.393	.414
Avg. PAT of the firm									
Equal variance assumed	.073	.788 (ns)	-1.526	48	.134 (ns)	-.292	.191	-.677	.093
Equal variance not assumed			-1.517	45.459	.136	-.292	.193	-.680	.096
Avg. Reserves of the firm									
Equal variance assumed	.723	.399 (ns)	-1.383	48	.173 (ns)	-.265	.192	-.650	.120
Equal variance not assumed			-1.383	46.761	.173	-.265	.192	-.650	.120

ns- not significant

Hypothesis testing to find out significant differences in 'Extrinsic SCI Responsible Behaviour of companies' across different variables of the study

Table 126 & 127, shows the values of group statistics and Independent t test on 'Extrinsic SCI Responsible Behaviour of companies'.

(i) **On the basis of types of Industry** - An independent-samples t-test at 5% α level was conducted to compare 'Extrinsic SCI Responsible Behaviour of companies' on the basis of types of industry.

H0: μ chemical/petrochemicals = μ pharmaceuticals

Ha: μ chemical/petrochemicals ≠ μ pharmaceuticals

Group statistics table 126 shows descriptive statistics for the two groups (chemicals/petrochemicals and pharmaceuticals) separately. Table 127 shows 'Levene's

Test for Homogeneity of Variances' 0.465, which is > 0.05, hence there exists an equality of variance.

Tables report values for chemical/petrochemicals (M = 3.99, S.D. =.697) and pharmaceuticals (M= 3.71, S.D. =.627), t (48) = 1.313, p = 0.195 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between chemicals/petrochemicals companies and pharmaceutical companies with context to **'**Extrinsic SCI Responsible Behaviour of companies'

(ii) On the basis of Sector based on Ownership - An independent-samples t-test at 5% α level was conducted to compare **'**Extrinsic SCI Responsible Behaviour of companies' on the basis of Sector based on Ownership.

H0: μ Government owned = μ Non-government owned

Ha: μ Government owned ≠ μ Non-government owned

Group statistics table 126, shows descriptive statistics for the two groups (government owned companies & non-government companies) separately. Table 127, shows 'Levene's Test for Homogeneity of Variances' 0.701, which is > 0.05, hence there exists an equality of variance.

Tables report values for government owned companies (M = 4.10, S.D. =.885) and non-government companies (M=3.88, S.D. =.660), t (48) = .748, p = 0.458 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean between government companies and non-government companies with context to **'**Extrinsic SCI Responsible Behaviour of companies'.

(iii) On the basis of Legal status of the company - An independent-samples t-test at 5% α level was conducted to compare **'**Extrinsic SCI Responsible Behaviour of companies' on the basis of Legal status of the company

H0: μ Unlisted companies = μ Listed companies

Ha: μ Unlisted companies ≠ μ Listed companies

Group statistics table 126 shows descriptive statistics for the two groups (unlisted companies & listed companies) separately. Table 127 shows 'Levene's Test for Homogeneity of Variances' 0.939, which is > 0.05, hence there exists an equality of variance.

Tables report values for unlisted companies (M = 3.81, S.D. =.697) and listed companies (M=4.01, S.D =.668), t (48) = -1.062, p = 0.294 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, there was no significant difference in mean

between unlisted companies and listed companies with context to ‘Extrinsic SCI Responsible Behaviour of companies’.

(iv) On the basis of Age of the company - An independent-samples t-test at 5% α level was conducted to compare ‘Extrinsic SCI Responsible Behaviour of companies’ on the basis of Age of the company

H0: μ Up to 25 years = μ More than 25 years

Ha: μ Up to 25 years ≠ μ More than 25 years

Group statistics table 126, shows descriptive statistics for the two groups (Companies age up to 25 years and companies age more than 25 years) separately. Table 127 shows 'Levene's Test for Homogeneity of Variances' 0.082, which is > 0.05, hence there exists an equality of variance.

Tables report values for age up to 25 years (M = 4.23, S.D =.453) and age more than 25 years (M= 3.85, S.D. = .704), t (48) = 1.367, p = 0.178 > .05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, statistically there was no significant difference in mean between companies having age up to 25 years and companies having age more than 25 years with context to ‘Extrinsic SCI Responsible Behaviour of companies’.

(v) On the basis of size of the company - An independent-samples t-test at 5% α level was conducted to compare ‘Extrinsic SCI Responsible Behaviour of companies’ on the basis of size of the company

H0: μ medium & small size = μ large size

Ha: μ medium & small size ≠ μ large size

Group statistics table 126, shows descriptive statistics for the two groups (medium & small sized companies & large sized companies) separately. Table 127, shows 'Levene's Test for Homogeneity of Variances' 0.738, which is > 0.05, hence there exist equality of variance. Tables report values for medium & small sized companies (M = 3.75, S.D. =.780) and large sized companies (M= 3.95, S.D = 0.663), t (48) = -0.812, p = 0.421 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, statistically there was no significant difference in mean between large sized companies and medium & small sized companies with context to ‘Extrinsic SCI Responsible Behaviour of companies’**.**

(vi) On the basis of avg. Revenue of the firm - An independent-samples t-test at 5% α level was conducted to compare ‘Extrinsic SCI Responsible Behaviour of companies’ on the basis of avg. revenue of the company

H0: μ Revenue Up to 3000crs = μ Revenue More than 3000crs

Ha: μ Revenue Up to 3000crs ≠ μ Revenue More than 3000crs

Group statistics table 126, shows descriptive statistics for the two groups (companies earning avg. revenue up to 3000crs & companies earning avg. revenue more than 3000crs) separately. Table 127, shows 'Levene's Test for Homogeneity of Variances' 0.291, which is > 0.05, hence there exists an equality of variance. Tables report values for companies earning revenue up to 3000crs (M = 3.91, S.D. = .724) and companies earning revenue more than 3000crs (M=3.90, S.D =.604), t (48) = 0.050, p = 0.960 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, statistically there was no significant difference in mean between companies earning revenue more than 3000crs and companies earning revenue up to 3000crs with context to **'**Extrinsic SCI Responsible Behaviour of companies'.

(vii) On the basis of avg. PAT of the firm - An independent-samples t-test at 5% α level was conducted to compare **'**Extrinsic SCI Responsible Behaviour of companies' on the basis of avg. PAT of the company

H0: μ PAT Up to 100 crs = μ PAT More than 100crs

Ha: μ PAT Up to 100crs ≠ μ PAT More than 100crs

Group statistics table 126, shows descriptive statistics for the two groups (companies earning avg. PAT up to 100crs & companies earning PAT more than 100 crs) separately. Table 127, shows 'Levene's Test for Homogeneity of Variances' 0.788, which is > 0.05, hence there exists an equality of variance.

Tables report values for companies earning avg. PAT Up to 100crs (M =3.77, S.D. = .651) and companies earning avg. PAT more than 100crs (M=4.07, S.D =.701), t (48) = -1.526, p = 0.134 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, statistically there was no significant difference in mean between companies earning PAT more than 100crs and companies earning PAT up to 100crs with context to **'**Extrinsic SCI Responsible Behaviour of companies'

(viii) On the basis of Reserves of the firm - An independent-samples t-test at 5% α level was conducted to compare **'**Extrinsic SCI Responsible Behaviour of companies' on the basis of Reserves of the company

H0: μ Reserves Up to 1000 crs = μ Reserves more than 1000 crs

Ha: μ Reserves Up to 1000 crs ≠ μ Reserves more than 1000 crs

Group statistics table 126 shows descriptive statistics for the two groups (companies having Reserves up to 1000crs & companies having Reserves more than 1000 crs)

separately. Table 127, shows 'Levene's Test for Homogeneity of Variances' 0.399, which is > 0.05, hence there exists an equality of variance. Tables report values for companies having Reserves up to 1000crs (M = 3.78, S.D. = .620) and companies having Reserves more than 1000crs (M=4.04, S.D =0.730), t (48) =-1.383, p = 0.173 > 0.05. As p value was > 0.05, null hypothesis fails to get rejected. Thus, statistically there was no significant difference in mean between companies having reserves more than 1000crs and companies having reserves up to 1000crs with context to Extrinsic SCI Responsible Behaviour of companies'.

Mann Whitney U Test

Mann Whitney U test 'Intrinsic SCI Responsible behaviour of companies'

Table 128

Mann-Whitney Test on 'Intrinsic SCI Responsible behaviour of companies': Grouping Variables (n=50)

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	245.000	350.000	-0.152	0.021	0.879 (ns) Failed to Reject H0
Sector Ownership	96.500	1086.500	-1.067	0.151	0.286 (ns) Failed to Reject H0
Legal status of firm	232.000	557.000	-1.572	0.222	0.116 (ns) Failed to Reject H0
Age of the firm	130.000	1076.000	-0.577	0.082	0.564 (ns) Failed to Reject H0
Size of the firm	145.500	200.000	-1.331	0.188	0.183 (ns) Failed to Reject H0
Avg. Revenue of firm	227.500	857.500	-0.746	0.106	0.456(ns) Failed to Reject H0
Avg. PAT of the firm	181.000	559.000	-2.537	0.359	0.011* RejectH0
Avg. Reserve of firm	227.000	552.000	-1.670	0.236	0.095 (ns) Failed to Reject H0

*ns- not significant, *p < .05*

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' (DV) on the basis of various demographic variables of the study. Below table 128, shows results of Mann Whitney U test compared with significant level $p < 0.05$.

Hypothesis testing to find out significant differences in 'Intrinsic SCI Responsible behaviour of companies' across various demographical variables of the study

Table 128 report values on 'Intrinsic SCI Responsible behaviour of companies'

i). On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 128, reports values for Chemicals & Petrochemicals (Mean rank = 25.69, *Mdn* = 4.13) and Pharmaceuticals (Mean rank =25.00, *Mdn* = 4.06), *U* ($N_{\text{Chemicals \& Petrochemicals}}$= 36, $N_{\text{Pharmaceuticals}}$ =14) = 245.000, Z= -0.152, *P =0.879 > 0.05.* The value of r=0.021 derived, determines small effect size. Median value for Chemicals & petrochemicals industry was found higher than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies', on the basis of types of industry.

ii) **On the basis of sector based on ownership** – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 128, reports values for Government owned (Mean rank = 31.42, *Mdn* = 4.25) and Non-government owned (Mean rank = 24.69, *Mdn* = 4.06), U ($N_{\text{Government owned}}$= 07, $N_{\text{Non-government owned}}$=44) = 96.500, Z= -1.067, *P =0.286 > .05.* The value of r=0.151 derived, determines small effect size. Median value for Government owned companies was found higher than non-government owned companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of

'Intrinsic SCI Responsible behaviour of companies', on the basis of sector based on ownership.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 128, reports values for unlisted companies (Mean rank = 22.28, *Mdn* = 4.00) and listed (Mean rank = 28.72, *Mdn* = 4.13), *U* ($N_{Unlisted}$ =25, N_{Listed}=25) = 232.000, Z= -1.572, *P =0.116 > .05.* The value of r=0.222 derived, determines small effect size. Median value for listed companies was found higher than unlisted companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies', on the basis of legal status of the firm.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 128, reports values for companies age up to 25 years (Mean rank = 28.43, *Mdn* = 4.13) and companies age more than 25 years (Mean rank = 25.02, *Mdn* = 4.13), *U* ($N_{Companies\ age\ up\ to\ 25\ years}$ =7, $N_{Companies\ Age\ more\ than\ 25\ years}$=43) = 130.000, Z= -0.577, *P =0.564 > .05.* The value of r=0.082 derived determines small effect size. Median value for companies having age more than 25 years was found same as companies having age up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies', on the basis of age of the company.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 128, reports values for medium & small sized companies (Mean rank =20.05, *Mdn* = 3.88) and Large sized companies (Mean rank = 26.86, *Mdn* = 4.13), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 145.500, Z= -1.331, *P =0.183 > 0.05.* The value of r=0.188 derived, determines small effect size. Median value of large sized firms was found higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies', on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 128, reports values for companies earning avg. revenue up to 3000crs (Mean rank = 24.50, *Mdn* = 4.00) and companies earning avg. revenue more than 3000 crs (Mean rank = 27.83, *Mdn* = 4.13), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 227.500, Z= -0.746, *P =0.456 > .05.* The value of r=0.106 derived, determines small effect size. Median value of companies earning revenue more than 3000 crs was found higher than companies earning revenue up to 3000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies'**,** on the basis of Revenue of the company**.**

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 128, reports values for companies earning avg. PAT up to 100 crs (Mean rank =20.70, *Mdn* =4.00) and companies earning avg. PAT more than 100 crs (mean rank = 31.13, *Mdn* = 4.25), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 181.000, Z= -2.537, *P =0.011< .05.* The value of r =0.359 derived, determines moderate effect size. Median value of companies earning PAT more than 100 crs was found higher than companies earning PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets

rejected. Thus there exists significant difference in this context. It infers that companies earning PAT more than 100 crs were better in terms of 'Intrinsic SCI Responsible behaviour of companies' than companies earning PAT up to 100crs.

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare 'Intrinsic SCI Responsible behaviour of companies' on the basis of avg. Reserves up to 1000 crs / Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 128, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 22.08, *Mdn* = 4.00) and companies having avg. reserves more than 1000 crs (Mean rank = 28.92, *Mdn* = 4.13), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 227.000, Z= -1.670, *P =0.095 > .05.* The value of r=0.236 derived, determines small effect size. Median value of companies earning avg. revenue more than 1000 crs was found higher than companies earning avg. revenue up to 1000crs. As p value > 0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO significant difference in terms of 'Intrinsic SCI Responsible behaviour of companies'**,** on the basis of avg. Reserves of the company.

2. Green Initiatives taken by Respondent companies for sustainable business & society

Respondent companies were surveyed on their practices on function -wise green initiatives using 5-point Likert scale statements.

Green HRM

Question 48 (a) from the questionnaire verifies corporate responsible behaviour towards Green HRM practices. This question to gauge companies responsible behaviour towards Green HRM initiatives which promotes and ensures steps towards business & societal sustainability. Below table shows descriptive analysis (mean & standard deviation) results on Green HRM practices.

Descriptive statistics (Mean & SD) of individual items on Green HRM practices was conducted for 50 valid responses. The mean of each items were found between 2.58 and 4.36 which depicts maximum frequencies lies between moderate to agreement scale. The highest Mean with SD value ($\bar{x}$=4.36, s=0.693) was observed for a variable item – Company promotes shutting down computers and power when of no use. The next highest Mean with SD value was witnessed for two variable items –

Table 129

Mean & SD on Responsible Behaviour towards Green HRM (n=50)

Green HRM scale	Mean	SD
Green Recruitment, Selection and Induction		
Company has developed job descriptions covering Green/ environmental aspects used during recruitment phase	3.40	1.069
Company has good green image which helps them to attract best talent from Job market	3.80	.904
Company makes sure that recruited new entrants gets familiar with an organization's green environment initiatives and are capable of maintaining its environmental values.	4.04	.968
Paper free recruitment & selection process that includes online application form, online interviews or telephonic interviews are conducted so as to decrease the wastage of paper, fuel consumption related to interview travel.	3.82	.800
Total Mean	3.76	0.935
Green Training and development (T&D)		
Company educates its employees about value of going green and environmental mgmt.	4.08	.853
Training based on conservation of energy, waste reductions, water management, proper utilization of resources, reduction of GHG, health and safety are always provided to its employees	4.24	.797
Company provides opportunity to engage employees in environmental problem solving	4.08	.900
Total Mean	4.13	0.850
Green Performance Management System (PMS)		
Setting of environment based KPI, goals and responsibilities by company	3.92	.922
Setting of environment friendly KRA to judge employee adhering to green environment by recycle, reuse and restoration	3.70	.953
Including greening performance during performance feedback interview.	3.44	1.033

Company put Penalties for non-compliance on Environment friendly code of conduct	2.76	.870
Total Mean	3.45	0.945
Green Reward system (CM)		
Company rewards and recognize those employees who has exhibit Environment friendly habits	3.82	.962
Company recognizes employees who dedicate their time for tree plantations and promotion of green environment	4.04	1.049
Company rewards innovation in products which are environment friendly	3.70	1.074
Company encourage its employees to acquire skills for promotion of green environment	3.82	1.082
Total Mean	3.85	1.042
Green Employee Relations (ER)		
Company promote employee participation to suggest environment friendly suggestion schemes	4.10	1.015
Company dismisses employees for breaching environment related code of conduct	2.58	1.032
Company promote clean and green environment to prevent H&S hazards	4.16	.792
Total Mean	3.61	0.946
Other Green HR aspects		
Company promotes car-pooling and sharing of executives	4.04	.880
Company encourages use of both sides of the papers in office when writing, printing or photocopying	4.08	.900
Company encourages use of natural lights while working	4.00	.881
Company has changed its lighting to LED and Solar power	4.24	.960
Company promotes shutting down computers and power when of no use	4.36	.693
Total Mean	4.14	0.863

First, Training based on conservation of energy, waste reductions, water management, proper utilization of resources, reduction of GHG, health and safety are always provided to its employees having mean with SD value as ($\bar{x}$=4.24, s=0.797) and

another item as Company has changed its lighting to LED and Solar power with Mean & SD value as ($\bar{x}$=4.24, s=0.960).

Lowest Mean with SD ($\bar{x}$=2.58, s=1.032) was observed for a variable item - Company has included dismissal of employees for breaching environment related code of conduct, followed by next lowest Mean with SD ($\bar{x}$=2.76, s=0.870) for a variable item - Company put Penalties for non-compliance on Environment friendly code of conduct.

Overall highest Weighted mean with SD was found for 'Other Green HR aspects' ($\bar{x}$=4.14, s=0.863) and 'Green T&D' functions ($\bar{x}$=4.13, s=0.850). Comparatively overall lowest weighted mean with SD was found for 'Green PMS' function ($\bar{x}$=3.45, s=0.945) followed by 'Green ER function ($\bar{x}$=3.61, s=0.946)

Descriptive statistics (composite) Reliability & Normality test on Responsible Behaviour of companies towards Green HRM

Table 130

Descriptive statistics (composite) Reliability & Normality test table on Responsible Behaviour of companies towards Green HRM (n=50)

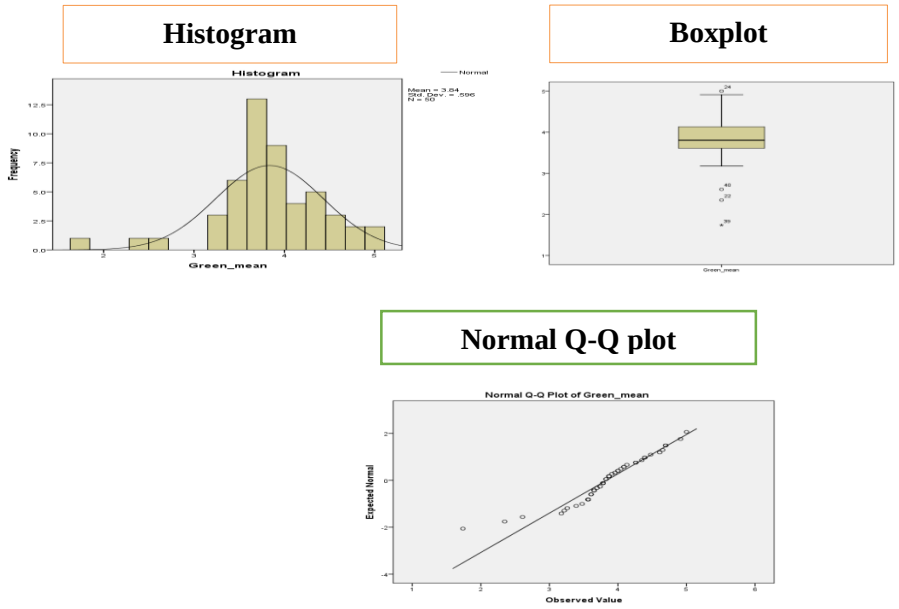
Construct/ Compo-nent	No.	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Norm-lity Shap-iro Test
					Value	Z	Value	Z		
Green HRM	23	3.87	3.80	0.596	-0.928	-2.747	2.753	4.159	0.934	0.004

As per table 130 the scale on Green HRM practices (n=50) was found reliable with Cronbach alpha (α) value 0.934 which means 93.4% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=3.87and MD= 3.80 with s=0.596. From the numerical methods point of view, it was observed that value of Mean (3.87) & Median (3.80) were not same or near, showing that data were non-normally distributed. The value of skewness (-0.928) individually was found within the range but

the value of kurtosis (2.753) individually was not found within the range of ±1. Critical ratio (z value) of both kurtosis (4.159) and skewness (-2.747) was not found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were non-normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value *(p =0.004)* was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Green HRM practices (refer figure below).

Figure 26

Histogram, Box plots, Normal Q-Q plots for Green HRM



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 26, displays histogram on Green HRM statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot found asymmetric not having whisker box plot and median line at the centre, also many outliers were observed, indicating non-normal distribution of the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were not found on or near to expected data.

Green Operations

Question 48 (b) from the questionnaire verifies corporate responsible behaviour towards Green Operations practices. This question was asked to gauge companies responsible behaviour towards Green operations initiatives which promotes and ensures

steps towards business & societal sustainability. Below table 131, shows descriptive analysis (mean & standard deviation) results on Green operations practices.

Table 131

Mean & SD on Responsible Behaviour of companies towards Green Operations (n=50)

Green Operations scale	Mean	SD
Green Design		
Products and processes are designed in a way that ensures reduction or elimination of environmentally hazardous materials (like lead, mercury, chromium, cadmium etc).	4.26	.694
Products are designed in a way that facilitates re-use and recycling	4.08	.778
Products are designed that promotes use of renewable energy and resources	3.94	.913
Company uses Cradle to Grave approach while designing its product. (decrease wastages, from material – mfg – product – landfill)	4.02	.820
Company uses Cradle to Cradle approach i.e. designing the products and systems in a way which results in taking-back products at the end of its useful life and turning it into new products of equal, if not greater value. (eliminates wastages)	3.44	1.215
Total Mean	3.95	0.884
Green Procurement		
Company uses raw materials that are environmentally friendly and recycled where possible to save the environment.	4.06	.818
Company uses e-procurement to offer green products at cheaper prices.	3.98	.937
Company cooperate and coordinate with suppliers in order to attain environmental objectives.	4.08	.853
Second-tier suppliers are evaluated for environmentally friendly practices.	3.64	.985

Company purchases products with bio-degradable or recyclable packaging.	3.50	.863
Total Mean	3.85	0.891
Green Manufacturing		
Profit is generated by using environmentally friendly operating processes from design to disposal stage	4.10	.839
Company has 4 R principle of Green manufacturing (Reduce, Reuse, Recycle and Remanufacturing)	4.06	.935
Company Deploys renewable energy sources like CNG, wind, solar and biomass to achieve energy efficiency in operations.	3.58	1.144
JIT and other similar approaches are followed which helps to reduce inventory, improves inventory management thereby reduce costs	3.46	.994
Company uses lean manufacturing to incorporate green goals into productive outcomes	3.64	.985
Methods, processes, tools and equipment used by the company satisfies the environmental requirements.	4.02	.869
Company Invest in R&D for making business operations green	4.06	.843
Total Mean	3.85	0.944

Descriptive statistics (Mean & SD) of individual items on Green Operations practices as Responsible Behaviour of companies was conducted for 50 valid responses. The mean of each items were found between 3.46 and 4.26. Table also depicts that maximum frequencies lies between moderate to agreement scale. The highest Mean with SD value ($\bar{x}$=4.26, s=0.694) was observed for a variable item under Green Design – Products and processes are designed in a way that ensures reduction or elimination of environmentally hazardous materials (like lead, mercury, chromium, cadmium etc.).The next highest Mean with SD value was witnessed for variable item under Green Manufacturing

– Profit is generated by using environmentally friendly operating processes from design to disposal stage having mean with SD value as ($\bar{x}$=4.10, s=0.839).

Lowest Mean with SD ($\bar{x}$=3.44, s=1.215)was observed for a variable item under Green Design - Company uses Cradle to Cradle approach i.e. designing the products and systems in a way which results in taking-back products at the end of its useful life and turning it into new products of equal, if not greater, value (eliminates wastages) followed by next lowest Mean with SD ($\bar{x}$=3.46, s=0.994)for a variable item under Green Manufacturing – JIT and other similar approaches are followed which helps to reduce inventory, improves inventory management thereby reduce costs

Overall highest Weighted mean with SD was found for 'Green Design' ($\bar{x}$=3.95, s=0.884) and comparatively lowest weighted mean with SD was found for both 'Green Procurement' ($\bar{x}$=3.85, s=0.891) and 'Green Manufacturing ($\bar{x}$=3.85, s=0.944).

Descriptive statistics, Reliability & Normality test table on Responsible Behaviour of companies towards Green Operations

Table 132

Descriptive statistics (composite) Reliability & Normality test table on Responsible Behaviour of companies towards Green Operations (n=50)

	No	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Normality Shapiro Test
Construct/ Component					Value	Z	Value	Z		
Green Operations	17	3.89	3.79	0.636	-0.390	-1.157	1.298	1.96	0.932	0.080*

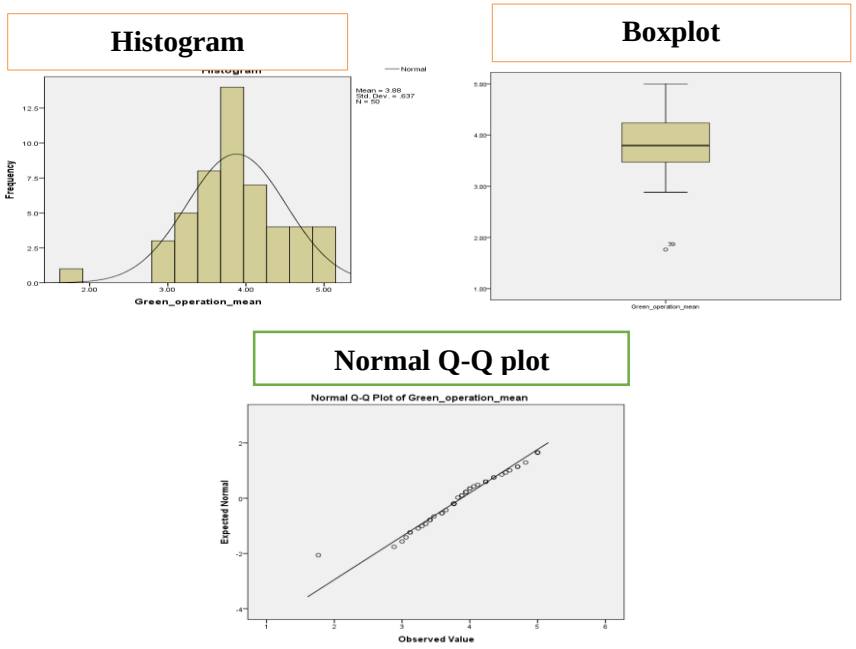
*significant

As per table 132, the scale on Green operations (n=50) was found reliable with Cronbach alpha (α) value 0.932 which means 93.2% internal consistency exist amongst items. The

overall Mean, Median and SD value were found as $\bar{x}$=3.89 and Mdn = 3.79 with s=0.636. Normality of the data were checked through both numerical and graphical methods. From the numerical methods point of view, it was observed that value of Mean (3.89) & Median (3.79) were found somewhat near, showing that data were normally distributed. The value of skewness (-0.390) individually was found within the range but the value of kurtosis (1.298) individually was not found within the range of $\pm$1. But Critical ratio (z value) of both kurtosis (1.96) and skewness (-1.157) were found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value *(p =0.080)* was greater than significant value 0.05, failing to reject null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Green Operations practices (refer figure below).

Figure 27

Histogram, Box plots, Normal Q-Q plots for Green Oerations



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as normally distributed. Figure 27 displays histogram on Green Operations statements of 50 valid responses confirming normality of data as bell shaped curve was not derived. Box plot was symmetric having whisker box plot and median line somewhat at the centre, having one outlier, indicating near to normal distribution of the data. Normal Q-Q Plot confirms normal data as some of the observed data were found on or near to expected data.

Green Marketing & Logistics

Question 48 (c) from the questionnaire verifies corporate responsible behaviour towards Green Marketing & Logistics practices of respondent companies. This question was asked to gauge companies behaviour towards Green Marketing & Logistics initiatives which promotes and ensures steps towards business & societal sustainability. Below table shows descriptive analysis (mean & standard deviation) results on Green Marketing & Logistics practices

Table 133

Mean & SD on Responsible Behaviour of companies towards Green Marketing & Logistics (n=50)

Green Marketing & Logistics scale	Mean	SD
Green Marketing		
Company identifies customers' environmental needs and develop products to address these needs	3.68	.844
Company engages in enhancing consumer environmental awareness of green products	3.70	.863
Company chooses packaging material with minimal impact on the environment.	3.88	.689
Company promotes products through eco-friendly modes of communication	3.88	.824
Company uses green practices for positive positioning in the market	3.86	.833
Total Mean	3.80	0.812
Green Logistics		
Company takes initiative to limit carbon emissions (according to legislation) linked to the movement of goods, transit packaging used for distribution, the operation of distribution facilities, and damage or wastage.	3.74	1.065
Company encourages use of biofuels as fuel alternative.	2.86	1.069
Company uses Centralize distribution system (e.g. in-transit packaging).	3.08	1.104
Total Mean	3.23	1.079

Descriptive statistics (Mean & SD) of individual items on Green Marketing & logistics scale was conducted for 50 valid responses. The mean of each items were found between 2.86 and 3.88. The highest Mean with SD value was observed for a two variable items under Green Marketing – first, Company chooses packaging material with minimal impact on the environment ($\bar{x}$=3.88, s=0.689); and second, Company promotes products through eco-friendly modes of communication ($\bar{x}$=3.88, s=0.824). Lowest Mean with SD ($\bar{x}$=2.86, s=1.069) was observed for a variable item under Green Logistics - Company encourages use of biofuels as fuel alternative; followed by next lowest Mean with SD ($\bar{x}$=3.68, s=0.844) for a variable item under Green Marketing – Company identifies customers' environmental needs and develop products to address these needs. Overall highest Weighted mean with SD was found for 'Green Marketing' ($\bar{x}$=3.80, s=0.812) and comparatively lowest weighted mean with SD was found for 'Green Logistics' ($\bar{x}$=3.23, s=1.079).

Descriptive statistics, Reliability & Normality test on Responsible Behaviour of companies towards Green Marketing & Logistics

Table 134

Descriptive statistics (composite), Reliability& Normality test table on Responsible Behaviour of companies towards Green Marketing & Logistics (n=50)

Construct/ Compo-nent	No. of ite-ms	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Norm-lity Shap-iro Test
					Value	Z	Value	Z		
Green Mktg. /logistics	09	3.59	3.50	0.659	-0.239	-0.71	1.185	1.79	0.864	0.149*

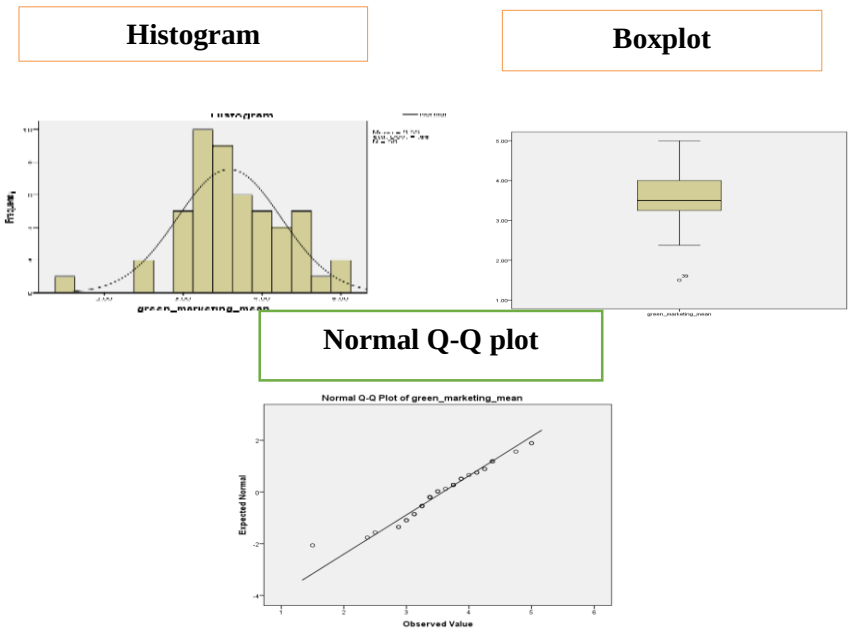
*significant

As per table 134, the scale on Green Marketing & logistics (n=50) was found reliable with Cronbach alpha (α) value 0.864 which means 86.4% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=3.59 and MD= 3.50 with s=0.659. From the numerical methods point of view, it was observed that

value of Mean (3.59) & Median (3.50) were found somewhat near, showing that data were normally distributed. The value of skewness (-0.239) individually was found within the range but the value of kurtosis (1.185) individually was not found within the range of ±1. But Critical ratio (z value) of both kurtosis (1.79) and skewness (-0.71) were found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were normally distributed, as test value *(p =0.149)* was greater than significant value 0.05, failing to reject null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Green Marketing & logistics (refer figure below).

Figure 28

Histogram, Box plots, Normal Q-Q plots for Green Marketing & logistics



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as normally distributed. Figure 28 displays histogram on Green Marketing & Logistics statements of 50 valid responses confirming normality of data as bell shaped curve was derived. Box plot was asymmetric having whisker box plot and median line near to the centre, having one outlier, indicating near to normal distribution of the data. Normal Q-Q Plot confirming normal data as most of the observed data were found on or near to expected data.

Overall Green Initiatives

Descriptive statistics, Reliability & Normality test table on Responsible Behaviour of companies towards Green Initiatives taken at functional level

Table 135

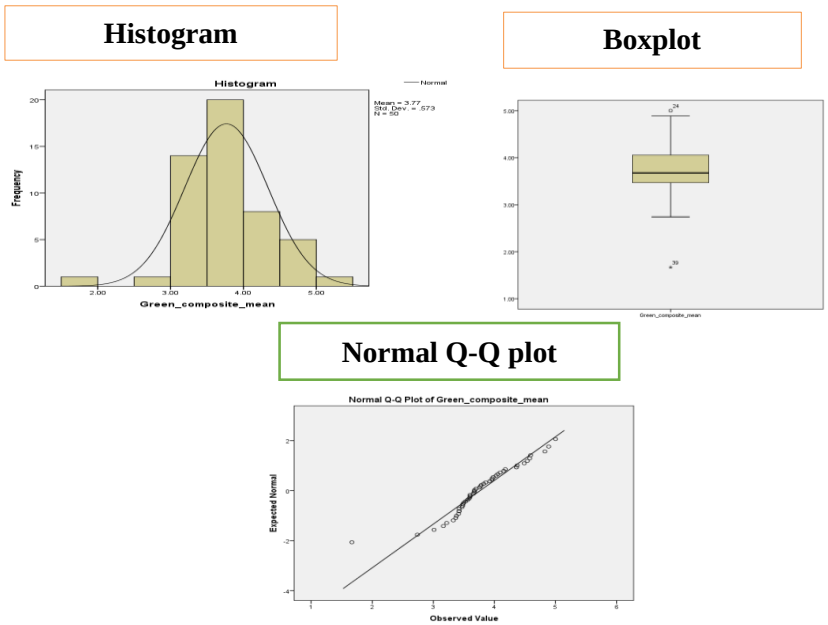
Descriptive statistics (composite), Reliability & Normality test table on Responsible Behaviour of companies towards Green Initiatives taken at functional level (n=50)

	No	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Norm-lity Shap-iro Test
Construct/ Compo-nent					Value	Z	Value	Z		
Overall Green	48	3.67	0.57	-0.515	-1.53	2.866	4.33	3.67	0.964	0.008

As per table 135, the scale on Responsible Behaviour of companies towards Green Initiatives taken at functional level (n=50) was found reliable with Cronbach alpha (α) value 0.964 which means 96.4% internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=3.67 and Mdn = 0.57 with s= 0.515. From the numerical methods point of view, it was observed that value of Mean (3.77) & Median (3.67) were found somewhat near, showing that data were normally distributed. The value of skewness (-1.53) and the value of kurtosis (4.33) individually was not found within the range of $\pm$1. Even Critical ratio (z value) of both kurtosis (3.67) and skewness (2.866) were also not found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value (p =0.008) was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Responsible Behaviour of companies towards Green Initiatives taken at functional level (refer figure below).

Figure 29

Histogram, Box plots, Normal Q-Q plots for Responsible Behaviour of companies towards Green Initiatives taken at functional level (n=50)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 29 displays histogram on Responsible Behaviour of companies towards Green Initiatives taken at functional level of 50 valid responses confirming non-normality of data as pure bell shaped curve was not derived. Box plot was asymmetric having whisker box plot and median line not near to the centre, having few outliers, indicating non-normal distribution of the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were found not on or near to expected /diagonal line.

Cross tabulations & chi-square test

Cross tabulations & chi-square test between various demographic variables and Responsible Behaviour of companies towards Green Initiatives.

Cross tabulations & Chi-square test was conducted between Responsible Behaviour of companies towards Green Initiatives and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 136

Cross tabulations & chi-square test results on Responsible Behaviour of companies towards Green Initiatives and various demographic variables.

Demographic Variables	Responsible behaviour through Green Initiatives						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical / Petrochem	10 (11.5)	28	26 (24.6)	72	36	100	$\chi 2_{(1)} = 1.053$, p=0.330 (ns), Phi = 0.145 Fail to Reject H0
Pharma	06 (4.5)	43	08 (9.5)	57	14	100	
Total	16	32	34	68	50	100	
Sector Ownership							
Government	01 (1.9)	17	05 (4.1)	83	06	100	$\chi 2_{(1)} = 0.737$, p= 0.650 (ns) Phi = 0.121 Fail to Reject H0
Non-Government	15 (14.1)	34	29 (29.9)	66	44	100	
Total	16	32	34	68	50	100	
Legal status of the firm							
Unlisted	09 (8.0)	36	16 (17.0)	64	25	100	$\chi 2_{(1)} = 0.368$, p= 0.544 (ns) Phi = 0.086 Fail to Reject H0
Listed	07 (8.0)	28	18 (17.0)	72	25	100	
Total	16	32	34	68	50	100	
Age / Experience of the firm							
Up to 25 years	02 (2.2)	29	05 (4.8)	71	07	100	$\chi 2_{(1)} = 0.044$, p= 1.000 (ns) Phi = 0.030 Fail to Reject H0
More than 25 yrs	14 (13.8)	33	29 (29.2)	67	43	100	
Total	16	32	34	68	50	100	

Size of the firm							
Medium / Small	06 (3.2)	60	04 (6.8)	40	10	100	$\chi2_{(1)}$ = 4.504, *p*= 0.05***** Phi = 0.300 Fail to Reject H0
Large	10 (12.8)	25	39 (27.2)	75	40	100	
Total	16	32	34	68	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	12 (11.2)	34	23 (23.8)	66	35	100	$\chi2_{(1)}$ = 0.280, *p*=0.746 (ns), Phi = 0.075 Fail to Reject H0
More than 3000 crs	04 (4.8)	27	11 (10.2)	73	15	100	
Total	16	32	34	68	50	100	
Avg. PAT of firm							
Up to 100 crs	11 (8.6)	41	16 (18.4)	59	27	100	$\chi2_{(1)}$ = 2.061, *p*= 0.151(ns) Phi = 0.203 Fail to Reject H0
More than 100 crs	05 (7.4)	22	18 (15.6)	78	23	100	
Total	16	32	34	68	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	10 (8.0)	40	15 (17.0)	60	25	100	$\chi2_{(1)}$ = 1.471, *p*= 0.225 (ns) Phi = 0.171 Fail to Reject H0
More than 1000 crs	06 (8.0)	24	19 (17.0)	76	25	100	
Total	16	32	34	68	50	100	

ns – Non-Significant, p < 0.05*

Hypothesis testing to find out significant association between various demographical variables and Responsible Behaviour of companies towards green initiatives.

Table 136 report chi-square values on Responsible Behaviour of companies towards Green Initiatives**,**

i) Based on types of Industry - It can be inferred that, 28% (n=10 out of 36) of chemical and petrochemical companies and 43% (n=6 out of 14) of pharma companies gave less agreement on practicing Responsible Behaviour of companies towards Green Initiatives while 72% (n=26) chemical and petrochemical companies and 57% (n=8) pharma companies gave high agreement for practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between types of industry and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 1.053, p = 0.330 (ns) (refer table 136). Here, Fisher's exact test value was applicable as 1 cells (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.145 shows weak association between two tested variables.

ii) Based on Sector Ownership - Data demonstrates that, 17% (n=1 out of 06) of government companies and 34% (n=15 out of 44) of non-government companies gave low agreement while 83% (n=5) government companies and 66% (n=29) non-government companies gave high agreement on practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between sector ownership and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 0.737, p = 0.650 (ns) (refer table 136). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.121 shows weak association between two tested variables.

iii) Based on legal status of the firm -It was noted that, 36% (n=9 out of 25) of unlisted companies and 28% (n=7 out of 25) of listed companies gave less agreement while 64% (n=16) unlisted companies and 72% (n=18) listed companies gave high agreement on practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between legal status of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 0.368, p = 0.544 (ns) (refer table 136). Here, chi-square test value was applicable as 0 cells (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.086 shows weak association between two tested variables.

iv) Based on age of the firm -Data shows 29% (n=2 out of 07) of companies having age / experience up to 25 years and 33% (n=14 out of 43) of companies having age / experience more than 25 less agreement while 71% (n=5) companies with age / experience up to 25 years and 67% (n=29) in case of companies with experience more than 25 years gave high agreement for practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between age of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 0.044, p = 1.000 (ns) (refer table 136). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.030 shows negligible association between two tested variables.

v) Based on size of the firm – The 2*2 crosstab table specifies that 60% (n=6 out of 10) of medium & small sized companies and 25% (n=10 out of 40) of large sized companies gave less agreement, while 40% (n=4) of medium & small sized companies and 75% (n=39) large sized companies gave high agreement for practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows Significant association between size of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 4.504, p = 0.05 (refer table 136). Here, Fisher's exact test value was applicable as 1 cells (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.300 shows moderate association between two tested variables.

vi) Based on average Revenue of the firm–It was noted that, 34% (n=12 out of 35) of companies earning avg. revenue up to 3000crs and 27% (n=4 out of 15) of companies earning avg. revenue more than 3000crs gave less agreement while 66% (n=23) companies earning avg. revenue up to 3000crs and 73% (n=11) companies earning avg. revenue more than 3000crs gave high agreement on practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between avg. revenue of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 0.280, p = 0.746 (ns) (refer table 136). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5 Moreover, even Phi coefficient value 0.075 shows negligible association between two tested variables.

vii) Based on avg. PAT of the firm - Data denotes that 41% (n=11 out of 27) of companies earning avg. PAT up to 100crs and 22% (n=5 out of 23) of companies earning avg. PAT more than 100crs gave less agreement while 59% (n=16) in case of companies earning avg. PAT up to 100crs and 78% (n=18) companies earning avg. PAT more than

100crs gave high agreement for practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between avg. PAT of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 2.061, p = 0.151 (ns) (refer table 136). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.203 shows weak association between two tested variables.

viii) Based on avg. Reserves of the firm - Data denotes that 40% (n=10 out of 25) of companies having avg. reserves up to 1000 crs and 24% (n=6 out of 25) of companies having avg. reserves more than 1000crs gave less agreement while 60% (n=15) in case of companies having avg. reserves up to 1000 cars and 76% (n=19) in case of companies having avg. reserves more than 1000 crs gave high agreement on practicing Responsible Behaviour of companies towards Green Initiatives.

Chi-square test shows NO Significant association between avg. reserves of the firm and Responsible Behaviour of companies towards green initiatives, $\chi 2$ (1, N= 50) = 1.471, p = 0.225 (ns) (refer table 136). Here, chi-square test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.171 shows weak association between two tested variables.

Mann Whitney U Test

Mann Whitney U Test on Responsible Behaviour of companies towards Green Initiatives

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare Responsible Behaviour of companies towards Green Initiatives (DV) on the basis of various demographic variables of the study. Below table shows results of Mann Whitney U test compared with significant level $p<0.05$.

Hypothesis testing to find out significant differences in Responsible behaviour of companies towards Green Initiatives across various demographical variables of the study

Table 137 report values on Responsible Behaviour of companies towards Green Initiatives.

Table 137

Mann-Whitney Test on Responsible Behaviour of companies towards Green Initiatives: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	r	Sig. (2-tailed)
Types of Industry	180.500	285.500	-1.545	0.218	0.122 (ns) Failed to Reject H0
Sector Ownership	68.000	1058.000	-1.911	0.270	0.05* Reject H0
Legal status of firm	228.500	553.500	-1.630	0.231	0.103 (ns) Failed to Reject H0
Age of the firm	145.000	1091.000	-0.154	0.022	0.878 (ns) Failed to Reject H0
Size of the firm	125.000	180.000	-1.819	0.257	0.069 (ns) Failed to Reject H0
Avg. Revenue of firm	227.000	857.000	-0.752	0.106	0.452 (ns) Failed to Reject H0
Avg. PAT of the firm	176.000	554.000	-2.618	0.370	0.009** Reject H0
Avg. Reserve of firm	222.000	547.000	-1.756	0.248	0.079 (ns) Failed to Reject H0

ns- not significant, p < .05, 0.01***

i) On the basis of types of industry –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 137 reports values for Chemicals & Petrochemicals (Mean rank = 27.49, *Mdn* = 3.69) and Pharmaceuticals (Mean rank =20.39, *Mdn* = 3.63), *U* ($N_{Chemicals\ \&}$

$_{Petrochemicals}$= 36, N $_{Pharmaceuticals}$ =14) = 180.500, Z= -1.545, *P =0.122>0.05*. The value of r=0.218derived, determines small effect size. Median value for Chemicals & petrochemicals industry was found higher than Pharmaceuticals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists NO Significant difference in terms of Responsible Behaviour of companies towards Green Initiatives, on the basis of types of industry.

ii) **On the basis of sector based on ownership**–A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 137 reports values for Government owned (Mean rank = 36.17, *Mdn* = 4.26) and Non-government owned (Mean rank = 24.05, *Mdn* = 3.66), U (N $_{Government\ owned}$= 07, N $_{Non\text{-}government\ owned}$=44) = 68.000, Z= -1.911, *P =0.05=0.05*. The value of r=0.270 derived, determines small effect size. Median value for Government owned companies was found higher than non-government owned companies. As p value is found equal to .05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that government companies were better in terms of Responsible Behaviour of companies towards Green Initiatives than non-government companies.

iii) On the basis of legal status of the firm –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 137 reports values for unlisted companies (Mean rank = 22.14, *Men* = 3.67) and listed (Mean rank = 28.86, *Men* = 3.70), *U* (N $_{Unlisted}$=25, N $_{Listed}$=25) = 228.500, Z= -1.630, *P =0.103 > .05*. The value of r=0.231derived, determines small effect size. Median value for listed companies was found little higher than unlisted companies. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Green Initiatives, on the basis of legal status of the firm.

iv) On the basis of Age of the company –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 137 reports values for companies age up to 25 years (Mean rank = 26.29, *Mdn* = 3.82) and companies age more than 25 years (Mean rank = 25.37, *Mdn* = 3.67), *U* ($N_{\text{Companies age up to 25 years}}$=7, $N_{\text{Companies Age more than 25 years}}$=43) = 145.000, Z= -0.154, *P =0.878 > .05.* The value of r=0.22 derived determines small effect size. Median value for companies having age up to 25 years was found greater than companies having age more than 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO Significant difference in terms of Responsible Behaviour of companies towards Green Initiatives, on the basis of age of the company.

v) On the basis of size of the company –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards Green Initiatives on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 137 reports values for medium & small sized companies (Mean rank =18.00, *Mdn* = 3.45) and Large sized companies (Mean rank = 27.38, *Mdn* = 4.3.69), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 125.000, Z= -1.819, *P =0.069 >0.05.* The value of r=0.257derived, determines small effect size. Median value of large sized firms was found much higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Green Initiatives**,** on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 137 reports values for companies earning avg. revenue up to 3000crs (Mean rank = 24.49, *Mdn* = 3.67) and companies earning avg. revenue more than 3000 crs (Mean rank = 27.87, *Mdn* = 3.70), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 227.000, Z= -0.752, *P =0.452 > .05.* The value of r=0.106derived, determines small effect size. Median value of companies earning revenue more than 3000 crs was found higher than companies earning revenue up to 3000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Green Initiatives, on the basis of avg. Revenue of the company.

vii) On the basis of avg. PAT of the firm –A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 137 reports values for companies earning avg. PAT up to 100 crs (Mean rank =20.52, *Mdn* =3.60) and companies earning avg. PAT more than 100 crs (mean rank = 31.35, *Mdn* = 3.96), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 176.000, Z= -2.618, *P =0.009 < .05.* The value of r =0.370 derived, determines moderate effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. PAT more than 100 crs were better in terms of Responsible Behaviour of companies towards Green Initiatives than companies earning avg. PAT up to 100crs.

viii) On the basis of avg. Reserves of the firm–A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards green initiatives on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 137 reports values for companies having avg. reserves up to 1000 crs (Mean rank = 21.88, *Mdn* = 3.60) and companies having avg. reserves more than 1000 crs (Mean rank = 29.12, *Mdn* = 3.76), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) =

222.000, Z= -1.756, *P =0.079 > .05*. The value of r=0.248derived, determines small effect size. Median value of companies earning avg. revenue more than 1000 crs was found higher than companies earning avg. revenue up to 1000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists NO significant difference in terms of Responsible Behaviour of companies towards Green Initiatives, on the basis of avg. Reserves of the company.

3. Crisis Management

Through this survey, researcher investigated companies behaviour towards managing crisis through Questions 49 to 54 from the questionnaire. Survey detects whether participating companies had faced any crisis in the past or in present (before FY 2019), types of crisis faced by the companies, types of stakeholders directly or indirectly affected by crisis, immediate or long term consequences observed due to crisis, response behaviour of the companies to manage crisis and finally crisis management system applied by the companies.

No. of respondent companies that had faced Crisis events

Respondent companies were asked whether any crisis events were faced by them in the past or are presently facing. Following frequency table 138, shows the outcome of the same.

Table 138

No. of companies that had faced Crisis events in past or are facing presently (n=50)

No. of companies that had faced Crisis events	Frequency (n)	Percent (%)
No	29	58
Yes	21	42

The above frequency table 138, shows the outcome in terms of number of companies that had faced Crisis events in past or are facing presently (survey study period 2017 to 2019) for 50 valid cases. It was observed that 28% (n=29 out of 50) of the respondent companies had not faced any crisis events in the past or were facing presently but 42% (n=20) respondent companies had faced such crisis situations or were presently facing.

Types of crisis situations faced

After confirming no. of companies that had faced crisis events, respondent companies were asked about the types of crisis faced them. This question was asked only to those companies who had underwent or were presently facing crisis events. The following table shows the frequencies of the 21 respondent companies.

Table 139

Types of crisis events faced by the respondent companies (n=21)

Types of crisis faced by the companies	Frequency (n)	Percent (%)
Financial crisis	13	62
Technological crisis	07	33
Malevolence crisis	01	05
Natural crisis through calamities	07	33
Crisis due to Deception	04	19
Crisis due to workplace violence	04	19

The above table 139 shows frequencies on the types of crisis faced by the respondent companies. This question was applicable to 21 companies who had or were undergoing any form of crisis situation. It was observed that 62% (n=13) respondent companies faced fianancial crisis due to non-availability of funds, losses in business, reduction in sales volumes, increase in costs etc…, 33% (n=7) faced both technological crisis and crisis due to natural calamities. Technological crisis arosed due to system breakdown, human error, technical flaw etc…5% companies (n=1) companies faced Malevolence crisis due to malicious rumours and 19% (n=4) respondent companies had faced crisis due to Deception which includes financial frauds or misrepresentation of information also crisis due to workplace violence.

Types of stakeholders affected due to Crisis events

Respondent companies were asked about the types of business stakeholders got affected due crisis events and the below table shows the frequencies of the same.

Table 140

Types of stakeholders got affected due to crisis events (n=21)

Types of stakeholders got affected	Frequency (n)	Percent (%)
Primary stakeholders only	16	76
Both Primary and Secondary stakeholders	05	24

The above frequency table 140 depicts the outcome on types of stakeholders that got affected due to crisis events and it can be clearly inferred from the table that 76% (n=16) of the respondent companies agreed that only their primary stakeholders of business like customers, employees, suppliers, investors got affected due to crisis situation and 24% (n=5) companies agreed that both primary as well as secondary stakeholders got affected due to crisis events.

Immediate or long term consequences observed due to crisis

Respondent companies were enquired about immediate or long term consequencies observed by them due to crisis events. Below frequency table shows the outcome on consequences faced by respondent companies due to crisis events who had underwent crisis events (n=21) in the past or were presently facing.

Table 141

Immediate or long term consequences observed after crisis events by the respondent companies (n=21)

Immediate or long term consequences	Frequency (n)	Percent (%)
Financial loss	14	66
Loss of reputation	06	29
Loss of Market share	05	24
Downfall in share price	02	10
Employee trauma	03	14
Closing of Units	01	05
Unemployment	02	10

The above table 141 shows frequencies on Immediate or long term consequences faced after crisis events by the respondent companies. This multiple choice question was responded by 21 companies who had or were undergoing any form of crisis situation. It was noted that 66% (n=14 out of 21) of respondent companies faced fianancial losses after crisis events held in their companies, 29% (n=6) faced loss of reputation, 24% (n=5) faced loss of market, 10% (n=2) observed downfall in their share prices, 14% (n=3) said that their employees faced traumatic situation and morale got down, 5% (n=1) closed their units due to crisis, and 10% (n=2) companies responded that crisis has led to unemployment situation.

Companies Responsible Behaviour towards Crisis Management practices

Question 54 deals with Companies response towards their Crisis Management practices, elicited in the form of Likert rating scale (5 – Strongly Agree to 1 - Strongly Disagree) having 9 items. Below table shows descriptive analysis (mean & standard deviation) results on the same.

Table 142

Mean & SD on Companies Responsible Behaviour towards Crisis Management practices (n=50)

Crisis Management scale	Mean	SD
Company has designed organization structure to prevent the occurrence and reduce the impact of crisis	4.12	0.872
Company is capable and has crisis response system to solve and grow from crisis	4.12	0.849
Company periodically checks through a mock drill to manage crisis situation	4.02	0.937
Pressures to meet stakeholders expectations encourages members to involve in unethical practices leading to crisis events (Reverse coding)	2.78	1.200
Roles and responsibilities of team and community liasoners are well defined and communicated	3.96	0.755
Company's crisis response strategies involves activation of functional communication and actions	3.94	0.740
Pre-designated signals and alerts are used to communicate the presence of a crisis	3.74	0.965
Company uses well defined process for assessing the severity of the incident and its impact on the community	4.00	0.990
Company follows well defined process for testing the effectiveness of response taken.	4.06	0.890

Descriptive statistics (Mean & SD) of individual items on Responsible Behaviour of companies towards Crisis Management practices was conducted for 50 valid responses. Reverse coding has been done for item no.4 as it depicts negative statement - Pressures to meet stakeholders' expectations encourages members to involve in unethical practices leading to crisis events, as it is negative statement. The mean of reverse coded item ($\bar{x}$=2.78, s=1.200) was found between agreement to moderate scale. Further, mean of each items other than reverse coded item was found between 3.74 to 4.12.

The highest Mean with SD value was observed for a two variable items – first, Company has designed organization structure to prevent the occurrence and reduce the impact of crisis ($\bar{x}$=4.12, s=0.872); and second, Company is capable and has crisis response system to solve and grow from crisis ($\bar{x}$=4.12, s=0.849).

Lowest Mean with SD ($\bar{x}$=3.74, s=0.965) was observed for a variable item - Pre-designated signals and alerts are used to communicate the presence of a crisis; followed by next lowest Mean with SD ($\bar{x}$=3.94, s=0.740) for a variable item – Company's crisis response strategies involves activation of functional communication and actions.

Descriptive statistics, Reliability and Normality test on Responsible Behaviour of companies towards Crisis Response Management practices

Table 143

Descriptive statistics (composite) & Normality test table on Responsible Behaviour of companies towards Crisis Response Management practices (n=50)

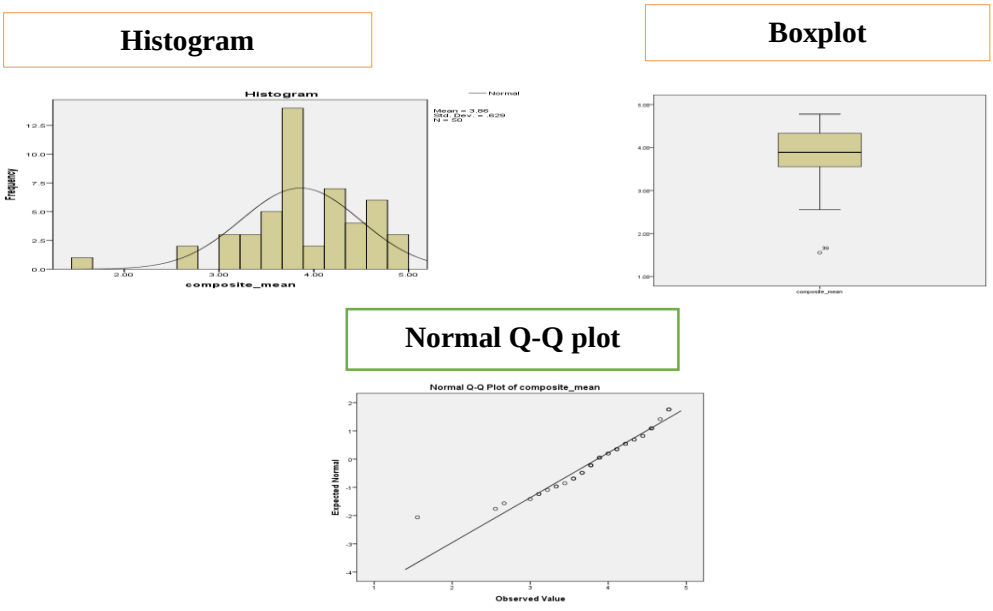
Construct /Component	No	Mean	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Normality Shapiro Test
					Value	Z	Value	Z		
Crisis Mgmt.	09	3.90	3.89	0.629	-1.115	-3.31	2.532	3.82	0.857	0.005

As per table 143, after reverse coding has been done on fourth item, the scale on Responsible Behaviour of companies towards Crisis Response Management practices (n=50) was found reliable with Cronbach alpha (α) value 0.857 which means 85.7%

internal consistency exist amongst items. The overall Mean, Median and SD value were found as $\bar{x}$=3.90 and Mdn = 3.89 with s=0. 629.From the numerical methods point of view, it was observed that value of Mean (3.89) & Median (3.90) were found somewhat close to each other, showing that data were normally distributed. The value of skewness (-1.115) and the value of kurtosis (2.532) individually were not found within the range of $\pm$1. Critical ratio (z value) of both kurtosis (3.82) and skewness (-3.31) were also not found within the range of ±1.96, thus the outcome with respect to dispersion specifies that data were non-normally distributed. Similarly, Normality test conducted using Shapiro Wilk test confirms that data were non-normally distributed, as test value *(p =0.005)* was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Responsible Behaviour of companies towards Crisis Response Management practices (refer figure below).

Figure 30

Histogram, Box plots, Normal Q-Q plots for Responsible Behaviour of companies towards Crisis Response Management practices (n=50)



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 30, displays histogram on Responsible Behaviour of companies towards Crisis Response Management practices statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot found asymmetric having whisker box plot and median line near to the centre, having one

outlier, indicating non-normal distribution of the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were not found on or near to expected data or diagonal line.

Cross tabulations & chi-square test

Cross tabulations & chi-square test between various demographic variables and Responsible Behaviour of companies towards Crisis Response Management practices

Cross tabulations & Chi-square test was conducted between Responsible Behaviour of companies towards Crisis Response Management practices and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table 144, shows the results of cross tab and chi-square.

Table 144

Cross tabulations & chi-square test results on Responsible Behaviour of companies towards Crisis Response Management practices and various demographic variables (n=50)

Demographic Variables	Responsible behaviour towards Crisis Mgmt.						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochemicals	08 (7.2)	22	28 (28.8)	78	36	100	$\chi 2_{(1)} = 0.397$, p=0.704 (ns), Phi = 0.089 Fail to Reject H0
Pharmaceutical	02 (2.8)	14	12 (11.2)	86	14	100	
Total	10	20	40	80	50	100	
Sector Ownership							
Government	00 (1.2)	00	06 (4.8)	100	06	100	$\chi 2_{(1)} = 1.705$, p= 0.327 (ns), Phi = 0.185 Fail to Reject H0
Non-Government	10(8.8)	23	34 (35.2)	77	44	100	
Total	10	20	40	80	50	100	

Legal status of the firm							
Unlisted	07 (5.0)	28	18(20.0)	72	25	100	$\chi 2_{(1)} = 2.000$, $p = 0.157$ (ns), Phi = 0.200 Fail to Reject H0
Listed	03 (5.0)	12	22 (20.0)	88	25	100	
Total	10	20	40	80	50	100	
Age / Experience of the firm							
Up to 25 years	00 (1.4)	00	07 (5.6)	100	07	100	$\chi 2_{(1)} = 2.035$, $p = 0.319$ (ns), Phi = 0.202 Fail to Reject H0
More than 25 yrs.	10 (8.6)	23	13 (34.4)	77	43	100	
Total	10	20	40	80	50	100	
Size of the firm							
Medium / Small	03 (2.0)	30	07 (8.0)	70	10	100	$\chi 2_{(1)} = 0.781$, $p = 0.397$ (ns) Phi = 0.125 Fail to Reject H0
Large	07 (8.0)	18	33 (32.0)	82	40	100	
Total	10	20	40	80	50	100	
Avg. Revenue of the firm							
Up to 3000 cars	09 (7.0)	26	26 (28.0)	74	35	100	$\chi 2_{(1)} = 2.381$, $p = 0.246$ (ns), Phi = 0.218 Fail to Reject H0
More than 3000cr	01 (3.0)	07	14 (12.0)	93	15	100	
Total	10	20	40	80	50	100	
Avg. PAT of the firm							
Up to 100 crs	08 (5.4)	30	19 (21.6)	70	27	100	$\chi 2_{(1)} = 3.402$, $p = 0.085$(ns), Phi = 0.261 Fail to Reject H0
More than 100 crs	02 (4.6)	09	21 (18.4)	91	23	100	
Total	10	20	40	80	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	07 (5.0)	28	18 (20.0)	72	25	100	$\chi 2_{(1)} = 2.000$, $p = 0.157$ (ns), Phi = 0.200 Fail to Reject H0
More than 1000 crs	03 (5.0)	12	22 (20.0)	88	25	100	
Total	10	20	40	80	50	100	

ns – non-Significant

Hypothesis testing to find out significant association between various demographical variables and Responsible Behaviour of companies towards Crisis Mgmt.

Table 144 report chi square values on Responsible Behaviour of companies towards Crisis Response Management practices**,**

i) Based on types of Industry - It can be inferred that, 22% (n=8 out of 36) of chemical and petrochemical companies and 14% (n=2 out of 14) of pharma companies showed low agreement for practicing Responsible Behaviour towards Crisis Response Management while 78% (n=28) chemical and petrochemical companies and 86% (n=12) pharma companies gave high agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between types of industry and Responsible Behaviour of companies towards crisis mgmt.$\chi 2$ (1, N= 50) = 0.397, p = 0.704 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.089 shows weak association between two tested variables.

ii) Based on Sector Ownership–It was observed that, 100% (n=6) government owned companies and 77% (n=34 out of 44) non-government companies gave high agreement, whereas 23% (n=10) of non-government companies gave low agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between sector ownership and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 1.705, p = 0.327 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.185 shows weak association between two tested variables.

iii) Based on legal status of firm – It was noted that, 28% (n=7 out of 25) of unlisted companies and 12% (n=3 out of 25) of listed companies showed low agreement while 72% (n=18) unlisted companies and 88% (n=22) of listed companies gave high agreement for practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between legal status of the firm and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 2.000, p = 0.157 (ns) (refer table 144). Here, chi-square sig. value was applicable as 0 cells (00%)

had expected count less than 5. Moreover, even Phi coefficient value 0.200 shows weak association between two tested variables.

iv) Based on Age of the firm - It was observed that, 100% (n=7) all companies having age / experience up to 25 years and 77% (n=13 out of 43) of companies having age / experience more than 25 years gave high agreement whereas 23% (n=10) of companies having age / experience more than 25 years showed low agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between age of the firm and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 2.035, p = 0.319 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 1 cells (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.202 shows weak association between two tested variables.

v) Based on size of the firm - It can be inferred that, 30% (n=3 out of 10) of medium & small sized companies and 18% (n=7 out of 40) of large sized companies showed low agreement while 70% (n=7) of medium and small sized companies and 82% (n=33) of large sized companies gave high agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between sector ownership and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 0.781, p = 0.397 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.125 shows weak association between two tested variables.

vi). Based on avg. Revenue of the firm - It was noted that, 26% (n=9 out of 35) of companies having avg. Revenue up to 3000 crs and 7% (n=1 out of 15) of companies having avg. Revenue more than 3000 crs showed low agreement while 74% (n=26) in case of companies having avg. Revenue up to 3000 crs and 93% (n=14) of companies having avg. Revenue more 3000 crs gave high agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between avg. revenue of the firm and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 2.381, p

= 0.246 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.218 shows weak association between two tested variables.

vi). Based on avg. PAT of the firm - It was found that, 30% (n=8 out of 27) of companies having avg. PAT up to 100 crs and 9% (n=2 out of 23) of companies having avg. PAT more than 100 crs gave low agreement while 70% (n=19 out of 27) in case of companies having avg. PAT up to 100 crs and 91% (n=21 out of 23) of companies having avg. PAT more 100 crs gave high agreement on practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between avg. PAT of the firm and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 3.402, p = 0.085 (ns) (refer table 144). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.261 shows weak association between two tested variables.

vi). Based on avg. Reserves of the firm - It was found that, 28% (n=7 out of 25) of companies having avg. Reserves up to 1000 crs and 12% (n=3 out of 25) of companies having avg. Reserves more than 1000 crs showed low agreement while 72% (n=18) in case of companies having avg. Reserves up to 1000 crs and 88% (n=22) of companies having avg. Reserves more than 1000 crs gave high agreement for practicing Responsible Behaviour towards Crisis Response Management.

Chi-square test shows NO Significant association between avg. reserves of the firm and Responsible Behaviour of companies towards crisis mgmt., $\chi 2$ (1, N= 50) = 2.000, p = 0.157 (ns) (refer table 144). Here, chi-squares. value was applicable as 0 cells (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.200 shows weak association between two tested variables.

Mann Whitney U Test

Mann Whitney U Test on Responsible Behaviour of companies towards Crisis Response Management

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare Responsible Behaviour of companies towards Crisis Response Management

(DV) on the basis of various demographic variables of the study. Below table 145, shows results of Mann Whitney U test compared with significant level p<0.05.

Table 145

Mann-Whitney Test on Responsible Behaviour of companies towards Crisis Response Management: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	r	Sig. (2-tailed)
Types of Industry	244.000	910.000	-0.173	0.024	0.862 (ns) Failed to Reject H0
Sector Ownership	61.500	1051.500	-2.111	0.299	0.035* Reject H0
Legal status of firm	172.500	497.500	-2.724	0.385	0.006** Reject H0
Age of the firm	148.500	176.500	-0.056	0.007	0.955 (ns) Failed to Reject H0
Size of the firm	146.000	201.000	-1.314	0.185	0.189 (ns) Failed to Reject H0
Avg. Revenue of the firm	190.000	820.000	-1.539	0.217	0.452 (ns) Failed to Reject H0
Avg. PAT of the firm	161.000	539.000	-2.919	0.412	0.004** Reject H0
Avg. Reserve of the firm	172.500	497.500	-2.724	0.385	0.006** Reject H0

*ns- not significant, *p < .05, *p<0.01***

Hypothesis testing to find out significant differences in Responsible behaviour of companies towards crisis mgmt., across various demographical variables of the study

Table 145 report values on Responsible Behaviour of companies towards Crisis Response Management,

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt., on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 145, reports values for Chemicals & Petrochemicals (Mean rank = 25.28, *Mdn* = 3.83) and Pharmaceuticals (Mean rank =26.07, *Mdn* = 4.00), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 244.000, Z= -0.173, *P =0.862>0.05*. The value of r=0.024derived, determines small effect size. Median value for pharmaceutical industry was found higher than chemical / petrochemicals industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Crisis Response Management, on the basis of types of Industry.

ii) On the basis of sector ownership- A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 145, reports values for Government owned (Mean rank = 37.25, *Mdn* = 4.39) and Non-government owned (Mean rank = 23.90, *Mdn* = 3.78), U ($N_{Government\ owned}$= 07, $N_{Non\text{-}government\ owned}$=44) = 61.500, Z= -2.111, *P =0.035 < 0.05*. The value of r=0.299 derived, determines near to moderate effect size. Median value for Government owned companies was found much higher than non-government owned companies. As p value was found less than 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that government companies were better in terms of Responsible Behaviour of companies towards Crisis Response Management than non-government companies.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 145 reports values for unlisted companies (Mean rank = 19.90, *Men* = 3.78) and listed (Mean rank = 31.10, *Men* = 4.22), *U* ($N_{Unlisted}$ =25, N_{Listed}=25) = 172.500, Z= -2.724, *P =0.006 < 0.05.* The value of r=0.385 derived, determines moderate effect size. Median value for listed companies was found much higher than unlisted companies. As p value was found less than 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of Responsible Behaviour of companies towards Crisis Response Management than unlisted companies**.**

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 145, reports values for companies age / exp. up to 25 years (Mean rank = 25.21, *Mdn* = 3.78) and companies age / exp. more than 25 years (Mean rank = 25.55, *Mdn* = 3.89), *U* ($N_{Companies\ age\ up\ to\ 25\ years}$=7, $N_{Companies\ Age\ more\ than\ 25\ years}$=43) = 148.500, Z= -0.056, *P =0.955 > .05.* The value of r=0.007 derived determines small effect size. Median value for companies having age more than 25 years was found greater than companies having age / exp. up to 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Crisis Response Management, on the basis of age of the company.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt., on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 145, reports values for medium & small sized companies (Mean rank =20.10, *Mdn* = 3.78) and Large sized companies (Mean rank = 26.85, *Mdn* = 3.89), U ($N_{Medium\ \&\ small\ sized}$ =10, $N_{Large\ sized}$=40) = 146.000, Z= -1.314, *P =0.189 >0.05.* The value of r=0.185derived, determines small effect size. Median value of large sized firms was found much higher than medium & small sized firms. As p value is > .05, hence null

hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Crisis Response Management, on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 145, reports values for companies earning avg. revenue up to 3000crs (Mean rank = 23.43, *Mdn* = 3.78) and companies earning avg. revenue more than 3000 crs (Mean rank = 30.33, *Mdn* = 4.11), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 190.000, Z= -1.539, *P =0.452 > .05.* The value of r=0.217 derived, determines small effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value >0.05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Crisis Response Management, on the basis of avg. Revenue of the company.

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 145, reports values for companies earning avg. PAT up to 100 crs (Mean rank = 19.96, *Mdn* =3.78) and companies earning avg. PAT more than 100 crs (mean rank = 32.00, *Mdn* = 4.22), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 161.000, Z= -2.919, *P =0.004 < .05.* The value of r =0.412 derived, determines moderate effect size. Median value of companies earning avg. PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. PAT more than 100 crs were better in terms of Responsible Behaviour of companies towards Crisis Response Management than companies earning avg. PAT up to 100crs.

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 145, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 19.90, *Mdn* = 3.67) and companies having avg. reserves more than 1000 crs (Mean rank = 31.10, *Mdn* = 4.22), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 172.500, Z= -2.724, *P =0.006 < .05.* The value of r =0.385derived, determines moderate effect size. Median value of companies having reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000 crs. As p value was < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies having avg. reserves more than 1000 crs were better in terms of Responsible Behaviour of companies towards Crisis Response Management than companies having avg. reserves up to 1000crs.

4. Risk Management

Responsible behaviour of respondent companies was also investigated on risk management practices taken by them. Respondent companies were surveyed on types of risk that has affected their business till now and responsible behaviour towards risk management practices through question no. 55 and 56 from the questionnaire.

Types of risks that has or may affect respondent companies

Respondent companies were investigated on types of risks that has affected their business performance till now or likely to affect in future. Following frequency table shows the outcome based on the views given by sample companies.

Table 146 shows the response given by the companies in terms of types of risks that has affected business or likely to get affected or no chance of getting affected. It was observed that 36% (n=18) of respondent companies' businesses were already affected due to strategic risks, 20% (n=10) due to regulatory risks, 10% (n=5) due to compliance risks, 18% (n=9) due to operational risks and 26% (n=13) businesses were affected due to financial risks.

Table 146

Types of Risk that has affected business (n=50)

Types of risks	Strategic Risks		Regulatory Risks		Compliance Risks		Operational Risks		Financial Risks	
Affected / Not Affected	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*	*f*	*%*
Has already Affected	18	36	10	20	05	10	09	18	13	26
May get affected	22	44	34	68	24	48	27	54	27	54
No / less chance of getting affected	10	20	06	12	21	42	14	28	10	20
Total	50	100	50	100	50	100	50	100	50	100

It was also noted, 44% (n=22) of respondents companies expect that their businesses may get affected due to strategic risks in long term, 68% (n=34) expect due to regulatory risks, 48% (n=24) expect due to compliance risks, and 54%(n=27) expect that their business may get affected due to both operational and financial risks.

Further, it was observed that, 20% (n=10) respondent companies think that there are less / no chances of getting their businesses affected due to strategic risks, 12% (n=6) due to regulatory risks, 42% (n=21) opined less / no chances of getting affected due to compliance risk, 28% (n=14) replied less / no chances due to operational risks and finally 20% (n=10) confirmed that there are less / no chances of getting their businesses affected due to financial risks.

Companies Responsible behaviour towards Risk Management practices

Question 55 identified companies responsible behaviour towards Risk Management surveyed through of 5-point Likert rating (strongly agree to strongly disagree) scale. This question gauged companies behaviour towards managing its risks which helps in ascertaining steps towards business & societal sustainability. Below table shows analysis on descriptive statistics of the same.

Table 147

Mean & SD on Companies Responsible Behaviour towards Risk Management practices (n=50)

Risk Management scale	Mean	SD
Company is capable to scan its environments to understand existing and emerging risks. (Risk identification)	4.50	0.544
Company can evaluate, quantify and prioritize enterprise risks. (Risk assessment)	4.36	0.663
Company is capable of appropriately responding to its risks (Risk response)	4.34	0.626
Company discloses all types of risks to its investors from time to time (Communication and disclosure)	4.00	0.904
Company is capable in evaluating strategic alternatives as a risk management mechanism	3.88	0.849

Descriptive statistics (Mean & SD) of individual items on Responsible Behaviour of companies towards Risk Management practices was conducted for 50 valid responses. Mean of each items was found between 3.88 to 4.50 having major responses between moderate to strongly agreement. The highest Mean with SD value was observed for a variable –Company is capable to scan its environments to understand existing and emerging risks ($\bar{x}$=4.50, s=0.544); followed by next variable with highest Mean and SD – Company can evaluate, quantify and prioritize enterprise risks ($\bar{x}$=4.36, s=0.663).Lowest Mean with SD ($\bar{x}$=3.88, s=0.849) was observed for a variable item -Company is capable in evaluating strategic alternatives as a risk management mechanism; followed by next variable with lowest Mean & SD ($\bar{x}$=4.00, s=0.904)– Company discloses all types of risks to its investors from time to time.

Descriptive statistics Reliability & Normality test table on Responsible Behaviour of companies towards Risk Management practices

Table 148, shows that the scale on Responsible Behaviour of companies towards Risk Management practices (n=50) was found reliable with Cronbach alpha (α) value

0.723 which means 72.3% internal consistency exist amongst variable items. The overall Mean, Median and SD value were found as $\bar{x}$=4.21 and MD= 4.00 with s=0.503.

Table 148

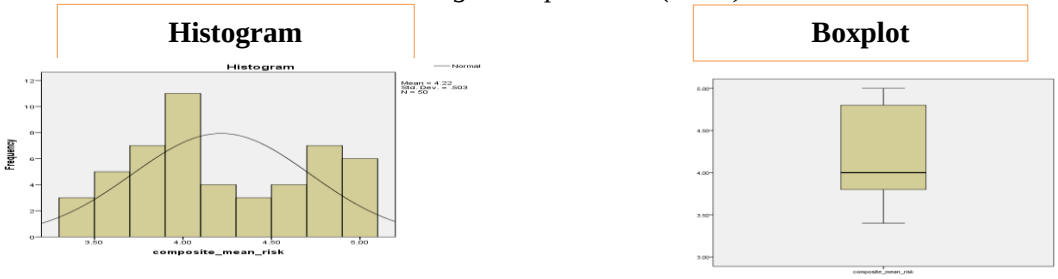
Descriptive statistics (composite) Reliability& Normality test table on Responsible Behaviour of companies towards Risk Management practices (n=50)

	No of ite-ms	M	Mdn	SD	Skewness with SE (0.337)		Kurtosis with SE (0.662)		(α)	Shap-iro Val.
Construct/ Component					Value	Z	Value	Z		
Risk Mgmt. Scale	05	4.21	4.00	0.503	-0.187	-0.554	-1.224	-1.848	0.723	0.002 *

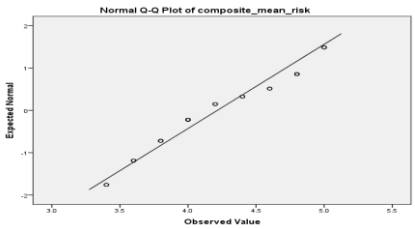
From the numerical methods point of view, it was observed that value of Mean (4.21) & Median (4.00) were not found close to each other, showing that data were non-normally distributed. The value of skewness (-0.187) individually lies within the range $\pm$ 1 but the value of kurtosis (-1.224) individually was not found within the range of $\pm$1. Critical ratio (z value) of both kurtosis (-1.848) and skewness (-0.554) were found within the range of ±1.96, thus the outcome with respect to dispersion does not give clarification with respect to normality of data. Clarification regarding normality was confirmed through Shapiro Wilk test which shows that data were non-normally distributed, as test value *(p =0.002)* was less than significant value 0.05, rejecting null hypothesis. Normality of the data were also confirmed through graphical techniques like histogram, box plots and Normal Q-Q plots for the variable Responsible Behaviour of companies towards Risk Management practices (refer figure below).

Figure 31

Histogram, Box plots, Normal Q-Q plots forResponsible Behaviour of companies towards Risk Management practices (n=50)



Normal Q-Q plot



The output of a Histogram, Boxplot and Normal Q-Q Plot shows data as non-normally distributed. Figure 31 displays histogram on Responsible Behaviour of companies towards Risk Management practices statements of 50 valid responses confirming non-normality of data as bell shaped curve was not derived. Box plot found asymmetric having whisker box plot and median line not near to the centre, indicating non-normal distribution of the data. Normal Q-Q Plot confirming non-normal data as some of the observed data were not found on or near to expected data or diagonal line.

Cross tabulations & chi-square test

Cross tabulations & chi-square test between various demographic variables and Responsible Behaviour of companies towards Risk Management practices

Cross tabulations & Chi-square test was conducted between Responsible Behaviour of companies towards Risk Management practices and various demographic variables of the study so as to know whether there exists any significant association between these variable. Below table shows the results of cross tab and chi-square.

Table 149

Cross tabulations & chi-square test results on Responsible Behaviour of companies towards Risk Management practices and various demographic variables

Demographic Variables	Responsible behaviour of companies towards Risk Mgmt.						Significance
	Low Agreement		High Agreement		Sample		
	Count (E.C)	%	Count (E.C)	%	Count	%	
Types of Industry							
Chemical/ Petrochem	09 (10.8)	25	27 (25.2)	75	36	100	$\chi 2_{(1)} = 1.531$, p=0.304 (ns), Phi = 0.175
Pharma	06 (4.2)	43	08 (9.8)	57	14	100	

Total	15	30	35	70	50	100	Fail to Reject H0
Sector Ownership							
Government	00 (1.8)	00	06 (4.2)	100	06	100	$\chi 2_{(1)} = 2.922$, $p = 0.160$ (ns), Phi = 0.242 Fail to Reject H0
Non-Govt.	15 (13.2)	34	29 (30.8)	66	44	100	
Total	15	30	35	70	50	100	
Legal status of the firm							
Unlisted	11 (7.5)	44	14 (17.5)	56	25	100	$\chi 2_{(1)} = 4.667$, $p = 0.031$*, Phi = 0.306 Reject H0
Listed	04 (7.5)	16	21 (17.5)	84	25	100	
Total	15	30	35	70	50	100	
Age / Experience of the firm							
Up to 25 years	03 (2.1)	43	04 (4.9)	57	07	100	$\chi 2_{(1)} = 0.641$, $p = 0.415$ (ns), Phi = 0.113 Fail to Reject H0
More than 25 yrs	12 (12.9)	28	31 (30.1)	72	43	100	
Total	15	30	35	70	50	100	
Size of the firm							
Medium / Small	06 (3.0)	60	04 (7.0)	40	10	100	$\chi 2_{(1)} = 5.357$, $p = 0.048$* Phi = 0.327 Reject H0
Large	09 (12.0)	23	31 (28.0)	78	40	100	
Total	15	30	35	70	50	100	
Avg. Revenue of the firm							
Up to 3000 crs	13 (10.5)	37	22 (24.5)	63	35	100	$\chi 2_{(1)} = 2.834$, $p = 0.176$ (ns), Phi = 0.238 Fail to Reject H0
More than 3000 crs	02 (4.5)	13	13 (10.5)	87	15	100	
Total	15	30	35	70	50	100	
Avg. PAT of the firm							
Up to 100 crs	12 (8.1)	44	15 (18.9)	56	27	100	

More than 100 crs	03 (6.9)	13	20 (16.1)	87	23	100	$\chi2_{(1)} = 5.832$, $p = 0.016$*, Phi = 0.342 Reject H0
Total	15	30	35	70	50	100	
Avg. Reserves of the firm							
Up to 1000 crs	11 (7.5)	44	14 (15.5)	56	25	100	$\chi2_{(1)} = 4.667$, $p = 0.031$* Phi = 0.306 Reject H0
More than 1000 crs	04 (7.5)	16	21 (17.5)	84	25	100	
Total	15	30	35	70	50	100	

*ns – Non-significant, *p < 0.05*

Hypothesis testing to find out significant association between various demographical variables and Responsible Behaviour of companies towards Risk Mgmt.

Table 149, report chi square values on Responsible Behaviour of companies towards Risk Management practices**,**

i) Based on types of Industry– It can be inferred that, 25% (n=9 out of 36) of chemical and petrochemical companies and 43% (n=6 out of 14) of pharma companies gave low agreement for practicing Responsible Behaviour towards Risk Management while 75% (n=27) of chemical and petrochemical companies and 57% (n=8) pharma companies gave high agreement on practicing Responsible Behaviour towards Risk Management.

Chi-square test shows NO Significant association between types of industry and Responsible Behaviour of companies towards Risk mgmt., $\chi2$ (1, N= 50) = 1.531, p = 0.304 (ns) (refer table 149). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.175 shows weak association between two tested variables.

ii) Based on Sector Ownership–It was observed that, 100% (n=6) government owned companies and 66% (n=29 out of 44) non-government companies gave high agreement, whereas 34% (n=15) of non-government companies gave low agreement on practicing Responsible Behaviour towards Risk Management.

Chi-square test shows NO Significant association between sector ownership and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 2.922, p = 0.160 (ns) (refer table 149). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.242 shows weak association between two tested variables.

iii) Based on legal status of firm - It can be noted that, 44% (n=11 out of 25) of unlisted companies and 16% (n=4 out of 25) of listed companies gave low agreement while 56% (n=14) unlisted companies and 84% (n=21) listed companies gave high agreement on practicing Responsible Behaviour towards Risk Management.

Chi-square test shows Significant association between legal status of firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 4.667, p = 0.031 (refer table 149). Here, chi-square sig. value was applicable as 0 cells (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.306 shows Moderate association between two tested variables.

iv) Based on Age of the firm - It was observed that, 43% (n=3 out of 7) of companies having experience up to 25 years and 28% (n=12 out of 43) of companies having experience more than 25 years gave low agreement, whereas 57% (n=4) of companies having experience up to 25 years and 72% (n=31) of companies having experience more than 25 years gave high agreement on practicing Responsible Behaviour towards Risk Management.

Chi-square test shows NO Significant association between age of the firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 0.641, p = 0.415 (ns) (refer table 149). Here, Fisher's exact test value was applicable as 2 cells (50%) had expected count less than 5. Moreover, even Phi coefficient value 0.113 shows weak association between two tested variables.

v). Based on size of the firm - It can be inferred that, 60% (n=6 out of 10) of medium & small sized companies and 23% (n=9 out of 40) of large sized companies showed low agreement while 40% (n=4) medium and small sized companies and 78% (n=31) large sized companies gave high agreement on practicing Responsible Behaviour towards Risk Management.

Chi-square test shows Significant association between size of the firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 5.357, p = 0.048 (refer table 149). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.327 shows moderate association between two tested variables.

vi). Based on avg. Revenue of the firm - It was noted that, 37% (n=13 out of 35) of companies having avg. Revenue up to 3000 crs and 13% (n=2 out of 15) of companies having avg. Revenue more than 3000 crs showed low agreement, while 63% (n=22) of companies having avg. Revenue up to 3000 crs and 87% (n=13) of companies having avg. Revenue more 3000 crs gave high agreement for practicing Responsible Behaviour towards Risk Management.

Chi-square test shows NO Significant association between avg. revenue of the firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 2.834, p = 0.176 (ns) (refer table 149). Here, Fisher's exact test value was applicable as 1 cell (25%) had expected count less than 5. Moreover, even Phi coefficient value 0.238 shows weak association between two tested variables.

vi). Based on avg. PAT of the firm - It was found that, 44% (n=12 out of 27) of companies having avg. PAT up to 100 crs and 13% (n=3 out of 23) of companies having avg. PAT more than 100 crs showed low agreement while 57% (n=15) of companies having avg. PAT up to 100 crs and 87% (n=20) of companies having avg. PAT more 100 crs gave high agreement for practicing Responsible Behaviour towards Risk Management.

Chi-square test shows Significant association between avg. PAT of firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 5.832, p = 0.016 (refer table 149). Here, Fisher's exact test value was applicable as 0 cell (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.342 shows moderate association between two tested variables.

vi). Based on avg. Reserves of the firm - It was found that, 44% (n=11 out of 25) of companies having avg. Reserves up to 1000 crs and 16% (n=4 out of 25) of companies having avg. Reserves more than 1000 crs showed low agreement while 56% (n=14) in case of companies having avg. Reserves up to 1000 crs and 84% (n=21 out of 25) of companies

having avg. Reserves more than 1000 crs gave high agreement for practicing Responsible Behaviour towards Risk Management.

Chi-square test shows Significant association between avg. Reserves of the firm and Responsible Behaviour of companies towards Risk mgmt., $\chi 2$ (1, N= 50) = 4.667, p = 0.031 (refer table 149). Here, chi-square sig. value was applicable as 0 cells (00%) had expected count less than 5. Moreover, even Phi coefficient value 0.306 shows weak association between two tested variables.

Mann Whitney U Test

Mann Whitney U Test on Responsible Behaviour of companies towards Risk Management

As data was found non-normal, Mann-Whitney U test at 5% α level was conducted to compare Responsible Behaviour of companies towards Risk Management (DV) on the basis of various demographic variables of the study. Below table 150, shows results of Mann Whitney U test compared with significant level p<0.05.

Hypothesis testing to find out significant differences in Responsible behaviour of companies towards Risk mgmt., across various demographical variables of the study.

Table 150, report values on Responsible Behaviour of companies towards Risk Management,

i) On the basis of types of industry – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards Risk mgmt., on the basis of chemical & petrochemicals /pharmaceuticals

H0: η Chemical /Petrochemicals =η Pharmaceuticals

H0: η Chemical /Petrochemicals ≠η Pharmaceuticals

Table 150 reports values for Chemicals & Petrochemicals (Mean rank = 26.39, *Mdn* = 4.10) and Pharmaceuticals (Mean rank =23.21, *Mdn* = 4.00), *U* ($N_{Chemicals\ \&\ Petrochemicals}$= 36, $N_{Pharmaceuticals}$ =14) = 220.000, Z= -0.698, *P =0.485>0.05*. The value of r=0.098 derived, determines small effect size. Median value for chemical / petrochemicals industry was found near to pharmaceutical industry. As p value is > .05, hence fails to reject null hypotheses. It infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Risk Management, on the basis of types of Industry.

Table 150

Mann-Whitney Test on Responsible Behaviour of companies towards Risk Management: Grouping Variables

Variables	Mann-Whitney U	Wilcoxon W	Z	R	Sig. (2-tailed)
Types of Industry	220.000	325.000	-0.698	0.098	0.485(ns) Failed to Reject H0
Sector Ownership	38.500	1028.500	-2.820	0.398	0.005** Reject H0
Legal status of firm	172.500	497.500	-2.744	0.388	0.006** Reject H0
Age of the firm	146.500	1092.500	-0.113	0.015	0.910 (ns) Failed to Reject H0
Size of the firm	124.500	179.500	-1.850	0.261	0.064 (ns) Failed to Reject H0
Avg. Revenue of the firm	160.500	790.000	-2.181	0.308	0.029* Reject H0
Avg. PAT of the firm	155.000	533.000	-3.057	0.432	0.002** Reject H0
Avg. Reserve of the firm	179.500	504.500	-2.607	0.368	0.009** Reject H0

*ns- not significant, *p < .05, **p<0.01*

ii) On the basis of sector ownership- A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards Risk mgmt. on the basis of government owned / non-government owned

H0: η Government owned =η Non-Government owned

Ha: η Government owned ≠ η Non-Government owned

Table 150, reports values for Government owned (Mean rank = 41.08, *Mdn* = 4.80) and Non-government owned (Mean rank = 23.38, *Mdn* = 4.00), U ($N_{\text{Government owned}}$= 07, $N_{\text{Non-government owned}}$=44) = 38.500, Z= -2.820, *P =0.005 < 0.05*. The value of r=0.398

derived, determines moderate effect size. Median value for Government owned companies was found much higher than non-government owned companies. As p value was found less than 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that government companies were better in terms of Responsible Behaviour towards Risk Management than non-government companies.

iii) On the basis of legal status of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards Risk mgmt. on the basis of unlisted / listed companies

H0: η Unlisted =η listed

Ha: η Unlisted ≠ η listed

Table 150 reports values for unlisted companies (Mean rank = 19.90, *Mdn* = 4.00) and listed (Mean rank = 31.10, *Mdn* = 4.40), *U* ($N_{Unlisted}$=25, N_{Listed}=25) = 172.500, Z= -2.744, *P =0.006 < 0.05.* The value of r=0.388 derived, determines moderate effect size. Median value for listed companies was found higher than unlisted companies. As p value was found less than 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that listed companies were better in terms of Responsible Behaviour towards Risk Management than unlisted companies.

iv) On the basis of Age of the company – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards Risk mgmt. on the basis of age up to 25 years / age more than 25 years.

H0: η Age Up to 25 years = η Age More than 25 years

Ha: η Age Up to 25 years ≠ η Age More than 25 years

Table 150 reports values for companies age up to 25 years (Mean rank = 26.07, *Mdn* = 4.20) and companies age more than 25 years (Mean rank = 25.41, *Mdn* = 4.00), *U* ($N_{Companies\ age\ up\ to\ 25\ years}$=7, $N_{Companies\ Age\ more\ than\ 25\ years}$=43) = 146.500, Z= -0.113, *P =0.910 > .05.* The value of r=0.015derived determines small effect size. Median value for companies having age up to 25 years was found greater than companies having age more than 25 years. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Risk Management, on the basis of age of the company.

v) On the basis of size of the company – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards risk mgmt., on the basis of medium & small sized / large sized companies.

H0: η Medium & Small companies =η Large companies

Ha: η Medium & Small companies ≠ η Large companies

Table 150 reports values for medium & small sized companies (Mean rank =17.95, *Mdn* = 3.80) and Large sized companies (Mean rank = 27.39, *Mdn* = 4.20), U ($N_{\text{Medium \& small sized}}$ =10, $N_{\text{Large sized}}$=40) = 124.500, Z= -1.850, *P =0.064 >0.05.* The value of r=0.261derived, determines small effect size. Median value of large sized firms was found much higher than medium & small sized firms. As p value is > .05, hence null hypotheses fail to get rejected. Thus, it infers that there exists no significant difference in terms of Responsible Behaviour of companies towards Risk Management, on the basis of size of the company.

vi) On the basis of avg. Revenue of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards risk mgmt. on the basis of avg. Revenue up to 3000 crs / avg. Revenue more than 3000 crs.

H0: η Revenue Up to 3000crs =η Revenue More than 3000 crs

Ha: η Revenue Up to 3000crs ≠ η Revenue More than 3000 crs

Table 150, reports values for companies earning avg. revenue up to 3000crs (Mean rank = 22.59, *Mdn* = 4.00) and companies earning avg. revenue more than 3000 crs (Mean rank = 32.30, *Mdn* = 4.40), U ($N_{\text{Revenue up to 3000crs}}$= 35, $N_{\text{Revenue up to 3000crs}}$=15) = 160.500, Z= -2.181, *P =0.029 < .05.* The value of r=0.308 derived, determines moderate effect size. Median value of companies earning avg. revenue more than 3000 crs was found higher than companies earning avg. revenue up to 3000crs. As p value < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. revenue more than 3000 crs were better in terms of Responsible Behaviour towards Risk Management than companies earning avg. revenue up to 3000crs.

vii) On the basis of avg. PAT of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards crisis mgmt. on the basis of avg. PAT up to 100 crs / avg. PAT more than 100 crs.

H0: η PAT Up to 100crs = η PAT More than 100 crs

Ha: η PAT Up to 100crs ≠ η PAT More than 100 crs

Table 150 reports values for companies earning avg. PAT up to 100 crs (Mean rank = 19.74, *Mdn* =4.00) and companies earning avg. PAT more than 100 crs (mean rank = 32.26, *Mdn* = 4.40), *U* ($N_{\text{PAT up to 100crs}}$= 27, $N_{\text{PAT more than 100 crs}}$=23) = 155.000, Z= -3.057, *P =0.002< .05.* The value of r =0.432 derived, determines moderate effect size. Median value of companies earning PAT more than 100 crs was found higher than companies earning avg. PAT up to 100crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies earning avg. PAT more than 100 crs were better in terms of Responsible Behaviour of companies towards Risk Management than companies earning avg. PAT up to 100crs.

viii) On the basis of avg. Reserves of the firm – A Mann-Whitney test at 5% α level was conducted to compare Responsible behaviour of companies towards risk mgmt. on the basis of avg. Reserves up to 1000 crs / avg. Reserves more than 1000 crs.

H0: η Reserves Up to 1000crs =η Reserves More than 1000 crs

Ha: η Reserves Up to 1000crs ≠ η Reserves More than 1000 crs

Table 150, reports values for companies having avg. reserves up to 1000 crs (Mean rank = 20.18, *Mdn* = 4.00) and companies having avg. reserves more than 1000 crs (Mean rank = 30.82, *Mdn* = 4.40), *U* ($N_{\text{Reserves up to 1000crs}}$= 25, $N_{\text{Reserves more than 1000crs}}$= 25) = 179.500, Z= -2.607, *P =0.009 < .05.* The value of r =0.368 derived, determines moderate effect size. Median value of companies earning avg. Reserves more than 1000 crs was found higher than companies having avg. reserves up to 1000crs. As p value is < 0.05, hence null hypotheses gets rejected. Thus there exists significant difference in this context. It infers that companies having avg. reserves more than 1000 crs were better in terms of Responsible Behaviour towards Risk Management than companies having avg. reserves up to 1000 crs.