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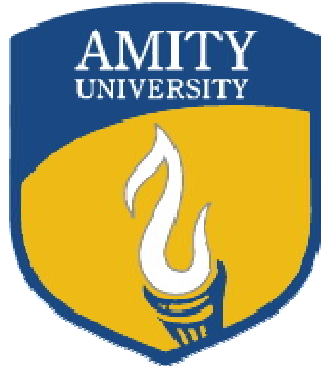
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CONTENTS

Research Papers

AN ANALYSIS OF BONUS ANNOUNCEMENT IMPACT ON NSE CNX 100 STOCK

Dr. Manjula Shastri
Associate Professor, Amity Business School, Amity University, Noida

ABSTRACT

Organizations give away extra shares to shareholders when organizations are shy of money and shareholders expect a normal wage. Shareholders may offer the extra shares and meet their liquidity needs. Extra shares may likewise be issued to rebuild organization holds. Issuing extra shares does not include income. It expands the organization's share capital yet not its net resources.This paper means to examine the response of securities exchange comes back to bonus issue declarations for NSE CNX 100 for the review time frame 2006-2016. The occasion considers strategy has been sent to concentrate the conduct of Average Abnormal Returns (AAR) and Cumulative Average Abnormal Returns (CAAR) amid a 41-day occasion window. The review uncovers altogether positive AAR of 1.74% on the declaration date. The occasion day created a positive CAAR of 3.51% which is likewise profoundly huge. This focuses to market wastefulness, as speculators can make unusual returns post the declaration. Likewise, there is a huge contrast between the unpredictability of strange returns in the pre-and post-occasion windows nearer to the occasion day as demonstrated by F-tests.

Keywords: Bonus announcement, NSE CNX 100, Stock prices, Effect of bonus issue declaration, F- test

INTRODUCTION

At the point when a guarantor makes an issue of securities to its current shareholders as on a record date, with no thought from them, it is known as a bonus issue. Extra shares are conveyance of extra stocks to the current shareholders, out of the organization's free saves or share premium record, in extent to their present property. Bonus issue builds the quantity of value shares exceptional however have no impact on shareholders' corresponding responsibility for. In the event that an organization disperses gathered saves through a bonus issue, it viably moves held profit into paid-up capital. Subsequently, it is known as a corrective occasion in light of the fact that there is no impact on the shareholders' relative responsibility for, capital structure and money related position of the organization.

Extra issues are just conveyance of extra stocks made to existing shareholders in extent to their present speculations. An organization can convey extra stocks out of held profit or collected capital stores. In both the cases the organization doesn't get any money. A bonus issue can be viewed as a contrasting option to profits. Not at all like a correct issue, a bonus issue does not chance weakening your ventures. Modigliani and Miller (1961) showed hypothetically that reward issue alongside different sorts of profits doesn't change shareholders riches. Reward issue builds the quantity of value stocks exceptional yet has no impact on stockholder's corresponding responsibility for. There is no impact on stockholder's relative responsibility for, capital structure and budgetary position of organization. Since extra issues don't improve gaining power, change the organizations' capital structure, or result in cost diminishments, the aggregate market estimation of the firm without data asymmetries ought to continue as before. Just alteration activated by the reward issue is that the quantity of extraordinary stocks is balanced by the reward issue proportion, along these lines, the cost of the stocks decreases as per a similar reward issue proportion. The reward issue date is known well ahead of time and along these lines ought to contain no new data. All things considered, one wouldn't expect any critical value response on reward issue declarations. As opposed to this hypothetical forecast, however experimental investigations of reward issue and stock profits have reported a factually critical market value response. It is along these lines a matter of worry that organizations reporting reward issue encounter ascend in their stock costs on a normal supporting semi-solid shape Efficient Market Hypothesis (EMH). At the point when a guarantor makes an issue of securities to its current shareholders as on a record date, with no thought from them, it is known as a reward issue. Extra shares are appropriation of extra stocks to the current shareholders, out of the organization's free saves or share premium record, in extent to their present possessions. Reward issue expands the quantity of value shares remarkable however have no impact on shareholders' corresponding responsibility for. On the off chance that an organization conveys collected holds through a reward issue, it viably moves held profit into paid-up capital. Accordingly, it is known as a corrective occasion on the grounds that there is no impact on the shareholders' relative responsibility for, capital structure and money related position of the organization. The present study is an attempt to test the enlightening proficiency of the Indian Stock Market in the semi-solid type of proficient market speculation regarding the data substance of reward issue declarations made by organizations recorded in NSE CNX 100 amid the review time frame. The AARs and CAARs have been broke down to find out whether a chance to make anomalous returns amid the period was accessible

LITERATURE REVIEW

Dr. K. Ramya and D. Bhuvaneshwa, endeavors to look at the impact of reward issue declaration of CNX 500 supplies of NSE on stock costs amid January 2006 to December 2013. An occasion ponder approach is embraced in this review to look at the impact encompassing the sixty days of the declaration. AR, AAR and CAAR are ascertained and t tests are led to test the essentialness. From the review, it can be surmised that reward issue declaration had come about with critical positive effect on stock costs around declaration. **Mr. Fakru Khan.Y and Mr. Thoufiqulla,** studied what happened to the stock price one day before the bonus issue allotment date and what happened to the stock price after one day the bonus issue allotment date .**Denis Oliech Ayoma**, tried to look at the effect of reward issue on share costs with a specific end goal to test the semi solid type of market proficiency. Occasion contemplate procedure was utilized in this review. The topic of whether the declaration of issuance of extra shares by cited organizations are brand new information to securities exchange members or the market expects it has been the subject of research. In the event that the declaration is foreseen, then stock costs ought not change definitely amid the days encompassing the declaration date. **Debasish Maitra and Kushankur Dey** Concentrates revealed in this domain experimentally demonstrate that the monetary model or the capital resource estimating model (CAPM) yields generally better outcomes as for the anomalous return of stocks went before by profit declaration by the profit payers when contrasted with the measurable model, in particular, consistent return or market show approaches. Both models are fused in the review to triangulate the results all the more precisely. A couple of theories placed in this paper are to be specific, there will be huge contrasts in share costs of inspected organizations interceded (directed) by profit declaration, and there will be critical contrasts amongst positive and negative normal strange returns alongside the positions of firms.**Sharmila R, Nanjundaraj Prem Anand, Thiyagarajan. R** This paper looks at the market response to reward share declarations in the Indian Stock Market of CNX 500 stocks for the period 2013 and 2014 utilizing occasion think about technique. The AAR on - 15 day is observed to be sure and critical which demonstrates the spillage of data before the occasion. The CAAR is observed to be sure from - 15 day to +7 days supporting the flagging theory of reward share declarations. The negative CAAR from +8 to +30 days bolsters the exchanging range theory. **M. Muthukamu and Dr.S Rajamohan,** An endeavor has been made in this review, to investigate the conduct of the share costs in the Indian value showcase towards the declarations of reward issue, considering the value developments of the Nifty Index stocks that has reported its reward issue, and to discover the effect of the value conduct by contrasting the stock execution and the execution of the market list. The motivation behind the review is likewise to grasp the conduct of the Indian value advertise, regardless of whether it adjusts or contrasts to other major worldwide value markets. To survey the stock value responses to reward issue in the Indian value showcase, Wilcoxon Matched Pairs Test has been connected in this review. The examination has uncovered that there is a huge effect on the value development of shares as per the span of the reward issue in the Indian value showcase as saw in other major worldwide value markets. **M. Bharath and Dr. H. Shankar,** The present paper is an effort to test the enlightening efficiency of the Indian Stock Market in the semi-solid type of advertises speculation concerning the data substance of the occasion reward issue declared by organizations recorded in BSE 500 amid the review time frame. The AARs and CAARs were examined to find out whether an open door was accessible to make above strange returns amid the value conformity period. The review uncovers that the financial specialists have not possessed the capacity to gain unusual returns in the review organizations. **Rajesh Khurana and Dr. D. P. Warne,** The attention was on what happened to the stock cost earlier and after the reward issue declarations. For investigating the response amid reward issue declaration 34 organizations from 11 parts have been considered in the example time frame from 2006 to 2012. The present review test the semi solid type of market effectiveness by researching the response of stock costs to reward issue declarations of stocks identified with NSE 100. The outcomes show that there are huge positive irregular returns for an eight-day time span preceding reward issue declaration in accordance with confirmation from created securities exchange. On the declaration day there is negative AAR of - 0.01%, which is low and noteworthy at 1% level (z value = 3.84). The outcomes give more grounded proof of semi-solid effectiveness of the Indian securities exchange.

RESEARCH METHODOLOGY

Objective Of The Study- The objectives of this study are as follows-

- To investigate the presence of any abnormal returns on or around bonus issue announcement

- To investigate efficiency of the market in the semi-strong form i.e. whether the market absorbs the material information inherent in a bonus issue when it comes into the public domain

- To investigate whether there is a significant difference in the volatility of abnormal returns in the pre- and post-event windows

Sample and Sample Period

NSE CNX 100 has been chosen as the sample for the study. The study period under consideration is from April 2006 to August 2016. Corporate Announcement data has been extracted for these stocks pertaining to bonus issues. A total number of 56 bonus announcements have been made by 37 companies listed on this index during the study period. One company has been eliminated due to non-availability of share price data for the required period. 6 other announcements have been excluded owing to non-availability of index values in the estimation period. As a consequence, this study pertains to 49 bonus announcements made by 36 unique companies (few companies have announced bonus issues more than once during the study period).

Data and Data Source

The following data has been extracted using the corporate database:

- List of companies that have made bonus announcements during the study period

- Daily closing values of NSE CNX 100

- Daily unadjusted closing prices of companies which have made bonus announcements during this period

I. Definition of Event

The event is defined as the bonus announcement date i.e. the date on which the companies listed on NSE CNX 100 announced bonus issues and communicated this information to the stock markets. The event window, which is the period over which the returns of the NSE CNX 100 stocks will be examined, is taken to be 41 days long i.e. it includes 20 days prior to the event, the event day and 20 days post the event. Bonus announcement day is considered to be day 0 i.e. the day when the event has occurred.

II. Normal and Abnormal Return

Normal returns are defined as the returns that would have been expected if the event did not take place. The abnormal return is the difference between the actual returns after the event takes place and the forecasted normal returns for the 41-day event window.

Two commonly used models of estimating the normal returns are:

i) Constant Mean Return Model

$$R_{it} = \mu_i + \epsilon_{it}$$

$$E[\epsilon_{it}] = 0$$

$$Var[\epsilon_{it}] = \sigma_{\epsilon i}^2$$

The mean return of the given index is taken to be constant through time.

ii) Market Model

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}$$

$$E[\epsilon_{it}] = 0$$

$$Var[\epsilon_{it}] = \sigma_{\epsilon i}^2$$

Where,

R_{it} = the actual daily return of security i on day t

R_{mt} = the daily market return at NSE on day t

α_i = ordinary least squares intercept

β_i = stock sensitivity to market return

The return on the stock is linearly related to the return on the market portfolio.

In this paper , the market model has been utilized for displaying the expected returns with NSE CNX 100 going about as the intermediary for figuring market return. Market model is a superior indicator of event impacts as it unravels the part of variety created by the market, in this manner diminishing the fluctuation of abnormal returns

III. Estimation Procedure

The market model parameters are estimated over the estimation window, which is set before the event window. Usually, the event window is not included in the estimation period as it leads to biased estimates of the parameters.

An Ordinary Least Squares (OLS) regression is run over an estimation window of 120 days prior to the event window as follows:

$$E[R_{it}] = \alpha_i + \beta_i R_{mt}$$

Where

$E[R_{it}]$ = The expected return on stock i on any given day t,

α_i = The intercept term for stock i,

β_i = The sensitivity of stock return to market return, R_{mt}

R_{mt} = the daily return on NSE index at day t

IV. Testing Procedure

The parameter estimates so obtained are then used to forecast the expected returns and calculate the abnormal and cumulative abnormal returns over the 41-day event window.

Abnormal returns (ϵ_{it}) calculated over the 41-day event window are given by:

$$\epsilon_{it} = R_{it} - E[R_{it}]$$

ϵ_{it} = Abnormal returns on stock i on any given day t

R_{it} = Actual log returns ($\ln P_t/P_{t-1}$) on stock i on any given day t

$E(R_{it})$ = The expected return on stock i on any given day t, estimated using the market model

Next, to analyze the information content of bonus issue announcements, the average abnormal returns have been computed by averaging the abnormal returns of the sample companies for each day of event period.

$$AAR_t = \frac{1}{n} \sum \epsilon_{it}$$

Where n denotes the number of stocks.

Further, the adjustment of prices to new information is gauged by computing the cumulative average abnormal return (CAARs), i.e., sum of daily Average Abnormal Returns (AARs) during the event window (-20 to +20 days)

$$CAAR_t = \sum_{t=-20}^{T} AARt$$

Where T = -20, -19,19, 20

Student's t-tests have been conducted using these estimates to test for the statistical significance of AARs and CAARs.

The hypotheses to be tested are as follows:

Hypothesis I
H_0: There is no significant Average Abnormal Return (AAR) around the event dates

H_1: There is significant Average Abnormal Return (AAR) around the event dates

Hypothesis II
H_0: There is no significant difference in the variances of abnormal returns in the pre- and post-event window

H_1: There is a significant difference in the variances of abnormal returns in the pre- and post-event window

LIMITATIONS OF THE STUDY

This review has been led for a restricted example of 49 reward issue declarations made by 36 NSE CNX 100 organizations traversing over a predefined 10-year time span from 2006-2016. As the review has considered just NSE CNX 100 as an intermediary for the Indian securities exchange, the outcomes acquired can't be summed up for different markets. Typical profits are based exclusively for factual models in view of the conduct of benefit returns as opposed to financial models, which concentrate more on speculator conduct.

DATA ANALYSIS

Table 1 shows the processed AARs and CAARs for the example organizations for each of the 41 days in the occasion window alongside their t-statistics and significant values (got through SPSS).

As can be seen from the t-statistics of both AAR and CAAR, there is noteworthy positive abnormal profit of 1.74% for the declaration date. AARs prior and then afterward the declaration date is by and large not significant.

The event day created a CAAR of 3.51% which is profoundly critical. This pattern proceeded for five days post the occasion day. This demonstrates it is workable for financial specialists to benefit from bonus issue declaration. Henceforth, it can be presumed that business sectors are not effective in the semi-solid shape. CAARs preceding the occasion day were not critical.

Table-1: AARs and CAARs of Bonus Issue Announcements

Event Window	AAR	t-value	Sig (2-tailed)	CAAR	t-value	Sig (2-tailed)
-20	-0.2091%	-0.9290	0.3570	-0.2091%	-0.9290	0.3570
-19	-0.2548%	1.1500	0.2560	0.0457%	0.1400	0.8890
-18	-0.3548%	1.1900	0.2400	0.4005%	1.0420	0.3020
-17	-0.1690%	0.6360	0.5280	0.5695%	1.2990	0.2000
-16	-0.3745%	-1.2930	0.2020	0.1950%	0.3830	0.7030
-15	-0.2825%	-1.3580	0.1810	-0.0875	-0.1670	0.8680
-14	0.3405%	1.2850	0.2050	0.2530%	0.4850	0.6300
-13	0.5826%	2.1700	0.0350	0.8356%	1.5270	0.1330
-12	-0.0417%	-0.1680	0.8670	0.7939%	1.4380	0.1570
-11	-0.3952%	-1.7710	0.0830	0.3986%	0.6530	0.5170
-10	0.0423%	0.2280	0.8210	0.4409%	0.7100	0.4810
-9	-0.0726%	-0.3590	0.7210	0.3683%	0.5690	0.5720
-8	0.3897%	1.8300	0.0730	0.7581%	1.1600	0.2520
-7	0.1332%	0.4990	0.6200	0.8913%	1.1860	0.2410
-6	0.1772%	1.0050	0.3200	1.0685%	1.4410	0.1560
-5	-0.0858%	-0.3730	0.7100	0.9827%	1.3420	0.1860
-4	0.2225%	0.5300	0.5980	1.2052%	1.4110	0.1640
-3	0.1463%	0.7100	0.4810	1.3515%	1.4800	0.1450
-2	-0.1411%	-0.5120	0.6110	1.2103%	1.3260	0.1910
-1	0.5635%	1.9750	0.0540	1.7739%	1.9770	0.0540
0	1.7431%	3.6560	0.0010	3.5170%	3.7780	0.0000
1	0.2580%	0.7400	0.4630	3.7750%	3.9390	0.0000
2	0.2034%	0.7480	0.4580	3.9784%	3.9850	0.0000
3	-0.3026%	-1.4370	0.1570	3.6758%	3.5970	0.0010
4	-0.2197%	-1.0720	0.2890	3.4561%	3.3860	0.0010 0.0010
5	-0.0320%	-0.1250	0.9010	3.4242%	3.4290	0.0010 0.00100.1190 0.0890
6	-1.0462%	-0.7490	0.4570	2.3779%	1.5880	0.1190 0.0890
7	0.2211%	0.5990	0.5520	2.5990%	1.7320	0.0890 0.00.0600 0.0550
8	-0.0089%	-0.0310	0.9750	2.5901%	1.7360	0.0890 0.1020
9	0.3334%	1.2800	0.2070	2.9235%	1.9220	0.0600
10	0.0995%	0.4360	0.6650	3.0229%	1.9680	0.0550 0.1590
11	0.2038%	0.8500	0.3990	3.2267%	2.1470	0.0370
12	-0.0340%	-0.1570	0.8760	3.1927%	1.9990	0.0510
13	-0.2384%	-0.9760	0.3340	2.9543%	1.8090	0.0770 0.

14	-0.2140%	-1.0710	0.2890	2.7403%	1.6680	0.1020 0.1560
15	-0.1409%	-0.5830	0.5620	2.5994%	1.5680	0.1230
16	-0.1374%	-0.6180	0.5400	2.4620%	1.4390	0.1560
17	0.0024%	0.0120	0.9910	2.4644%	1.4290	0.1590
18	0.0498%	0.1640	0.8710	2.5142%	1.4740	0.1470
19	0.0418%	0.2030	0.8400	2.5560%	1.5500	0.1270
20	-0.1252%	-0.5010	0.6190	2.4308%	1.4300	0.1590

Figure-1: Behavior of AAR over the Event Window
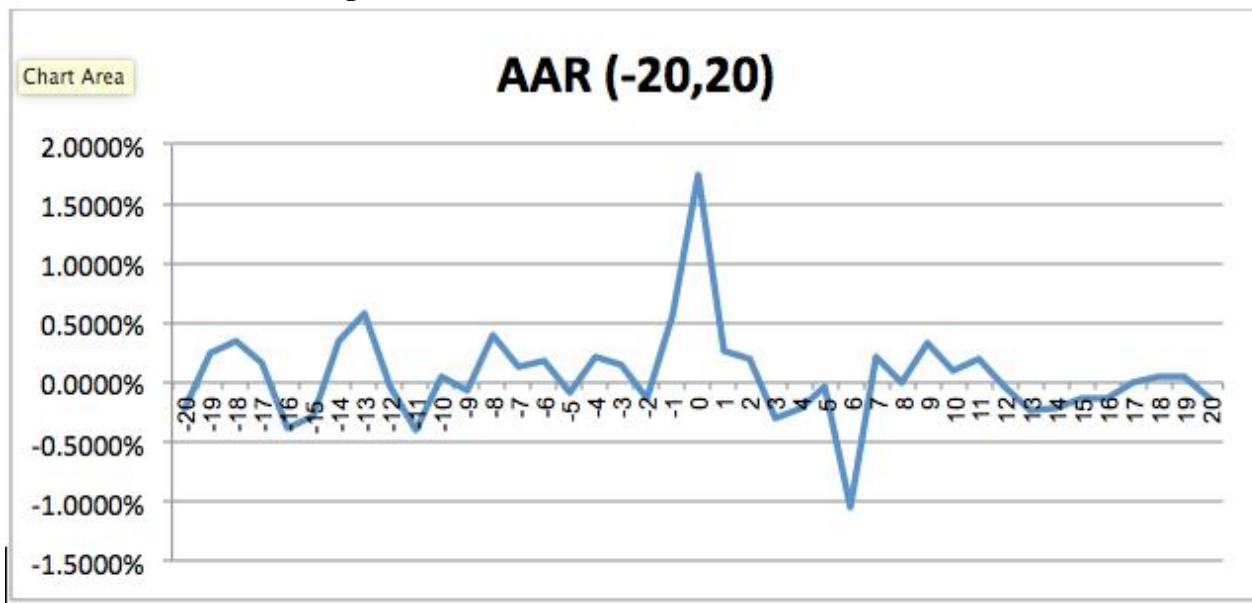
As can be seen, there is significant abnormal performance on the event day. Returns, which had occurred on the day of announcement, have come down to normal levels the next day, showing the process of market adjustment to the event. Similarly, we now check the volatility of abnormal returns using F-test across different event windows. The results are as follows:

Table-2: F-test for AAR Variance over the window (-20,20)

F-Test Two-Sample for Variances		
AAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.000886939	-0.000543121
Variance	0.000008226	0.000008728
Observations	20	20
Df	19	19
F	0.942527608	
P(F<=f) one tail	0.449348673	
F Critical one-tail	0.461201089	

Table-3: F-test for AAR Variance over the window (-10,10)

F-Test Two-Sample for Variances		
AAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.001375253	-0.000494072
Variance	0.000004830	0.000016544
Observations	10	10
Df	9	9
F	0.291975388	
P(F<=f) one tail	0.040464775	
F Critical one-tail	0.314574906	

Table-4: F-test for AAR Variance over the window (-5,5)

F-Test Two-Sample for Variances		
AAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.001410789	-0.000185738
Variance	0.000007906	0.000006176
Observations	5	5
Df	4	4
F	1.280096853	
P(F<=f) one tail	0.408330243	
F Critical one-tail	6.388232909	

Table-5: F-test for AAR Variance over the window (-2,2)

F-Test Two-Sample for Variances		
AAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.002112039	0.002306889
Variance	0.000024828	0.000000149
Observations	2	2
Df	1	1
F	166.3554797	
P(F<=f) one tail	0.04925991	
F Critical one-tail	161.4476387	

As can be seen from the p-values, there is a huge distinction in the pre-and post-occasion abnormal return unpredictability more than two windows: (- 10,10) and (- 2,2) at the 5% level of criticalness. Subsequently, the invalid speculation is rejected. Then again, there is no adequate proof to dismiss the invalid theory of no noteworthy contrast in the pre-and post-occasion abnormal return unpredictability over the other two windows: (- 20,20) and (- 5,5) at the 5% level of centrality.

Figure-2: Behavior of CAAR over the Event Window
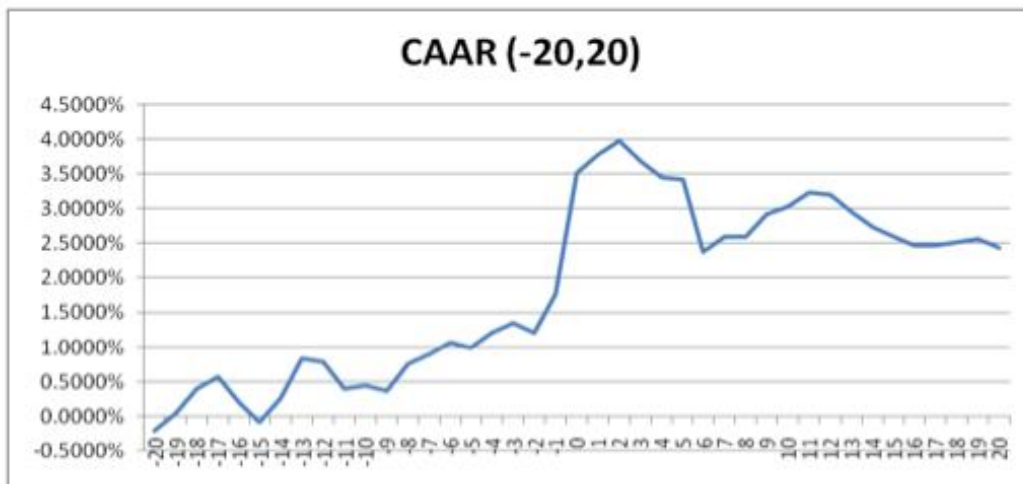
The CAARs figures show that it has increased from day -4 itself and decreased from day +6. It indicates that positive overall changes have occurred up to five days after the announcement. It can be inferred that a period of five days was needed for the price adjustment. Therefore, it can be said that the market is inefficient as market reacts positively to the event and investors are able to make abnormal profits. Similarly, we now check the volatility of cumulative abnormal returns using F-test across different event windows. The results are as follows:

Table-6: F-test for CAAR Variance over the window (-20,20)

F-Test Two-Sample for Variances		
CAAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.006622922	0.029481881
Variance	0.000026589	0.000024858

Observations	20	20
Df	19	19
F	1.069608876	
P(F<=f) one tail	0.442461207	
F Critical one-tail	2.168251601	

Table-7: F-test for CAAR Variance over the window (-10,10)

F-Test Two-Sample for Variances		
CAAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.01005057	0.031822893
Variance	0.000017727	0.000031028
Observations	10	10
Df	9	9
F	0.57133557	
P(F<=f) one tail	0.208503818	
F Critical one-tail	0.314574906	

Table-8: F-test for CAAR Variance over the window (-5,5)

F-Test Two-Sample for Variances		
CAAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.013047007	0.036618979
Variance	0.000008621	0.000005301
Observations	5	5
Df	4	4
F	1.626302804	
P(F<=f) one tail	0.324535569	
F Critical one-tail	6.388232909	

Table-9: F-test for CAAR Variance over the window (-2,2)

F-Test Two-Sample for Variances		
CAAR		
	Pre-Event Window	*Post-Event Window*
Mean	0.014921092	0.002306889
Variance	0.000015879	0.000000149
Observations	2	2
Df	1	1
F	106.3929523	
P(F<=f) one tail	0.061527397	
F Critical one-tail	161.4476387	

As can be seen from the p-values, there is no adequate proof to dismiss the invalid speculation of no noteworthy contrast in the pre-and post-occasion total strange return unpredictability over all the occasion windows at the 5% level of noteworthiness. Henceforth, it can be presumed that unpredictability of CAARs don't display critical distinction in the pre-and post-occasion windows.

Table-10: Impact of Bonus Issues Announcement on Share Price Performance of Sample Companies

Particulars	No. of Companies	Percentage
Companies having positive mean return during event window	26	53%
Companies having negative mean return during event window	23	47%
Companies having positive return on announcement date	31	63%
Companies having negative return on announcement date	18	37%
Total	49	100%

Over the 41-day occasion window, 53% of the example organizations have positive mean return while 47% have negative mean return. To the extent the occasion day is concerned, 63% of the example organizations responded emphatically to the declaration and 37% under-responded to this news. Therefore, the response of market members ended up being more positive on the declaration day.

CONCLUSION

Over the 41-day occasion window, 53% of the example organizations i.e. 26 companies have positive mean return while 47% i.e. 23 companies have negative mean return. To the extent the occasion day is concerned, 63% of the specimen organizations that is 31 companies responded emphatically to the declaration and 37% i.e. 18 companies have negative return on the announcement day. In this way, the response of market members ended up being more positive on the declaration day. As it could be seen from the AAR curve, the market made adjustments the next day from the announcements, which showed that the market adjusts to the changes quickly. The CAAR curve shows a graph from increase to decrease in the period of 5 days. This means that the market takes 5 days to make the price adjustments. It can be said that the market is inefficient as market reacts positively to the event and investors are able to make abnormal profits.

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A STUDY OF THE "BANCASSURANCE AND CUSTOMER SATISFACTION LEVEL" AT HDFC BANK, Sector-16, FARIDABAD

Dr. Swati Watts[1], Dr. Arvind Dalal[2] and Shivali Chawla[3]

Associate Professor[1], Echelon Institute of Technology, Faridabad

Assistant Professor[2] and Student[3], Manav Rachna International Institute of Research and Studies, Faridabad

ABSTRACT

HDFC Bank was incorporated in the year of 1994 by Housing Development Finance Corporation Limited (HDFC), India's premier housing finance company. Customer satisfaction refers to how satisfied customers are with the products or services they receive from a particular agency There are several reasons why customer satisfaction is important in the Banking Sector. Bancassurance is a long-standing dream of offering a service of banking, life & non-life products. India, being one of the most populous countries in the world with a huge potential for insurance companies, has an envious chain of bank branches as the lifeline of its financial system. Primary data was used for the study. The sample size taken was of 50 respondents. The study brings about the areas which require urgent attention of the employees, the management, and the policymakers of the industry.

Keywords: Customer satisfaction, Bancassurance, Primary data, Policymakers

INTRODUCTION

HDFC Bank was incorporated in the year of 1994 by Housing Development Finance Corporation Limited (HDFC), India's premier housing finance company. It was among the first companies to receive an 'in principle' approval from the Reserve Bank of India (RBI) to set up a bank in the private sector. The Bank commenced its operations as a Scheduled Commercial Bank in January 1995 with the help of RBI's liberation policies.

In a milestone transaction in the Indian banking industry, Times Bank Limited (promoted by Bennett, Coleman and Co. /Times Group) was merged with HDFC Bank Ltd., in 2000. This was the first merger of two private banks in India. As per the scheme of amalgamation approved by the shareholders of both banks and the Reserve Bank of India, shareholders of Times Bank received 1 share of HDFC Bank for every 5.75 shares of Times Bank.

In 2008, HDFC Bank acquired Centurion Bank of Punjab by taking its total branches to more than 1,000. The amalgamated bank emerged with a strong deposit base of around Rs. 1, 22,000 crore and net advances of around Rs. 89,000 crores. The balance sheet size of the combined entity is over Rs. 1, 63,000 crores. The amalgamation added significant value to HDFC Bank in terms of increased branch network, geographic reach, and customer base, and a bigger pool of skilled manpower.

FUNCTIONS OF HDFC BANK

HDFC Bank deals with three key business segments- Wholesale Banking Services, Retail Banking Services, Treasury. It has entered the banking consortia of over 50 corporate for providing working capital finance, trade services, corporate finance, and merchant banking. It is also providing sophisticated product structures in areas of foreign exchange and derivatives, money markets and debt trading and equity research.

1. Wholesale Banking Services

The Bank's target market ranges from large, blue-chip manufacturing companies in the Indian corp. too small & mid-sized corporate and agri-based businesses. For these customers, the Bank provides a wide range of commercial and transactional banking services, including working capital finance, trade services, transactional services, cash management, etc. **Retail Banking Services**

The objective of the retail bank is to provide its target market customers a full range of financial products and banking services, giving the customer a one-stop window for all his banking requirements. The products are backed by world-class service and delivered to customers through the growing branch network, as well as through alternative delivery channels like ATMs, Phone Banking.

2. Treasury

Within this business, the bank has three main product areas- Foreign Exchange and Derivatives, Local Currency Money Market & Debt Securities and Equities. These services are provided through the bank's treasury team. To comply with statutory reserve requirements, the bank is required to hold 25% of its deposits in government securities. The Treasury business is responsible for managing the returns and market risk on this investment portfolio.

What is customer satisfaction?

Customer satisfaction refers to how satisfied customers are with the products or services they receive from a particular agency. The level of satisfaction is determined not only by the quality and type of customer experience but also by the customer's expectations.

Why is it important?

There are several reasons why customer satisfaction is important in the Banking Sector:

- Meeting the needs of the customer is the underlying rationale for the existence of the community service organization. Customers have a right to quality services that deliver the outcome.

- Organizations that strive beyond minimum standards and exceed the expectations of their customers are likely to be leaders in their sectors.

- Customers are recognized as key partners in shaping service development and accessing the quality of service delivery.

The process of measuring Customer satisfaction and obtaining feedback on organizational performance are valuable tools for quality and continuous service improvement.

PURPOSE OF CUSTOMER SATISFACTION
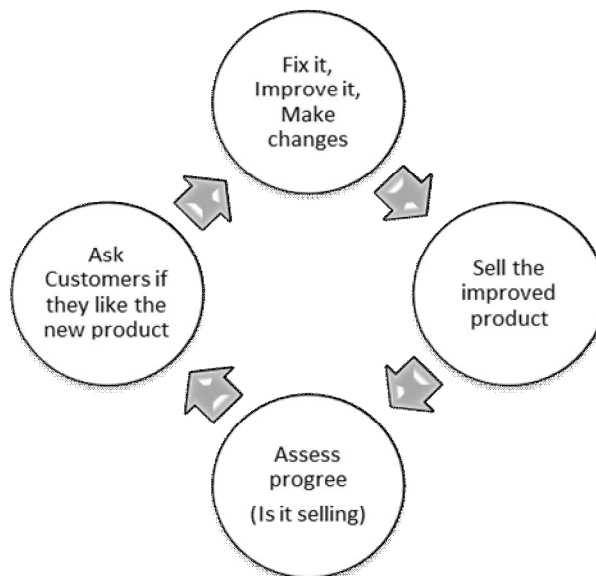
A business ideally is continually seeking feedback to improve customer satisfaction.

FACTORS AFFECTING CUSTOMER SATISFACTION

- Technological and engineering aspects of products and services.

- Customer services provided by the supplier.

- Compatible and hassle-free functions and operations.

- Supplier's behavior and subordinates' behavior.

- Department wise capability of the supplier.

- Type and quality of response provided by the supplier.

Bancassurance – a term coined by combining the two words bank and insurance (in French) - connotes the distribution of insurance products through banking channels. Bancassurance encompasses terms such as 'Allfinanz' (in German), 'Integrated Financial Services' and 'Assurebanking'. This concept gained currency in the growing global insurance industry and its search for new channels of distribution. Banks, with their geographical spread and penetration in terms of customer reach of all segments, have emerged as viable sources for the distribution of insurance products. Presently, there is more activity here than anywhere else. And everyone wants to jump onto the bandwagon for a piece of action cake.

INTRODUCTION TO BANKING
Banking means accepting the deposits from the customers for lending to the needy and extending other services as to the issue of DDs etc. Nowadays after the introduction of private sector banks, the banks have become a profit center and the functions become changed and these days banks are doing the insurance and mutual funds sales and management also. But the nationalized banks are still service oriented in extending loans for education and rural development activities.

BANKING STRUCTURE IN INDIA
Scheduled Banks in India

(A) Scheduled Commercial Banks

Public Sector Banks	Private Sector Banks	Foreign Banks in India	Regional Rural Banks
(28)	(27)	(29)	(102)
• Nationalized Banks • Other Public Sector Banks(IDBI) • SBI and its associates			

(B) Scheduled Cooperative Banks

Scheduled Urban Cooperative Banks (55)	Scheduled State Cooperative Banks (31)

Here we are more concerned about private sector banks and competition among them. Today, there are 27 private sector banks in the banking sector, 19 old private sector banks, and 8 new private sector banks.

These new banks have brought in state-of-the-art technology and aggressively marketed their products. The public sector banks are facing stiff competition from the new private sector banks, the banks which have been set up in the 1990sunder the guidelines of the Narasimha Committee are referred to as NEW Private Sector Banks.

INDIAN BANKING INDUSTRY
The Indian Banking market is growing at an astonishing rate, with assets expected to reach 1.5 Trillion USD by 2020. An expanding economy, middle class, and technological innovations are all contributing to this growth. The country's middle class accounts for over 350 million people. In correlation with the growth of the economy, rising income levels, increased standard of living, and affordability of banking products are promising factors for continued expansion.

Growth in India Banking Assets (USD $ Billions)
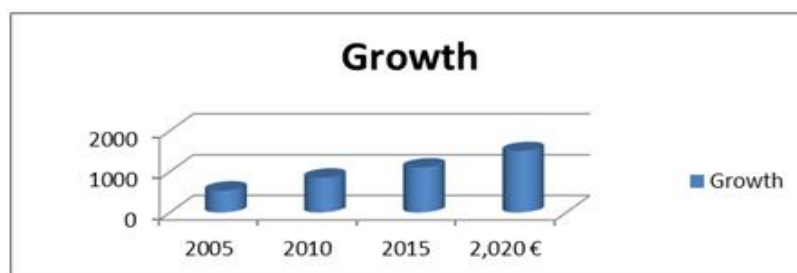
The Indian Banking Industry is in the middle of an IT revolution, focusing on the expansion of Retail and rural banking. Players are becoming increasingly customer-centric in their approach, which has resulted in innovative methods of offering new banking products and services. Banks are now realizing the importance of being a big player and are beginning to focus their attention on mergers and acquisitions to take advantage of economies of scale and or comply with Basel II S 1.5 trillion by 2020 and are poised to receive a greater infusion of foreign capital" says Prathima Rajan, analyst in Celent's Banking group and author of the report. "The banking industry should focus on having a small number of large players that can compete globally rather than having a large number of fragmented players."

Upcoming Foreign Banks in India
By 2019 to 2020 few more names are going to be added in the list of foreign banks in India. This is the aftermath of the sudden interest shown by The Reserve Bank of India paving roadmap for foreign banks in India. Among them is the world's best private bank by Euro Money magazine, Switzerland's UBS.

The following are the list of foreign banks going to set up business in India

- Royal Bank of Scotland

- Switzerland's UBS

- US-based GE Capital

- Credit Suisse Group

- Industrial and Commercial bank of China

LITERATURE REVIEW

In India, ever since espousing of financial reforms following the recommendations of the First Narsimha Committee, the contemporary financial landscape has been reshaped. Banks, in particular, stride into several new areas and offer innovative products, viz.., merchant banking, lease and term finance, capital market/ equity on. Thus, present-day banks have become far more diversified than ever before. Therefore, their entering into the insurance business is only a natural corollary and is fully justified too as 'insurance' is another financial product required by the bank customers.

The Reserve Bank of India is the regulatory authority of their activities at the right time permitted them to enter into the insurance sector as well. Furtherance to this line, it issued a set of detailed guidelines setting out various ways for a bank in India to enter into the insurance sector.

In the insurance sector, the Insurance Regulatory and Development Authority (IRDA), despite its recent origin in 2000, avowed to regulate and develop the insurance sector in India through calibrated policy initiatives. Given India's size as a continent, it has, however, very low insurance penetration and low insurance density. As opposed to this, India has a well-entrenched wide branch network of a banking system which only a few countries in the world could match with.

OBJECTIVES OF THE STUDY

It is divided into two parts:

PRIMARY OBJECTIVE

It is to make a financial performance of HDFC Bank in Bancassurance with specific reference to life assurance and to suggest the ways and means to improve the existing performance by way of collecting from the customers.

SECONDARY OBJECTIVES

- To analyze the financial performance of HDFC Bank in Bancassurance and its contribution to the overall progress of the bank.

- To analyze the initiative taken by the HDFC Bank in endorsing the HDFC Standard Life Insurance products.

- To know the customer satisfaction at HDFC Bank, Sector-16, Faridabad.

- To know the preference in selecting HDFC Bank as distribution channels in case their willingness to obtain HDFC Standard Life Insurance policy in the future.

SCOPE OF THE STUDY

- This study focuses on the financial performance of the HDFC Bank in Bancassurance and its contribution to the overall progress of the bank concerning the life insurance alone.

- The study analyses the awareness of the customer and the viewpoints of the customer about the insurance as well as Bancassurance.

- The study also analyses initiatives taken by the HDFC Bank in endorsing HDFC Standard Life Assurance Products.

- The study also throws light on the relationship building by HDFC Bank with its customer, as it is the deciding factor for considering the bank as a one-stop shop for all their financial solutions.

- It also indicates the persons who are willing to take life insurance policies in the immediate future and the reason for taking the same.

- It also pinpoints the willingness of the customers in accepting HDFC Bank, as their distribution channel, in case of their choice is HDFC Standard Life Insurance for obtaining a policy.

SIGNIFICANCE OF THE STUDY

- Through the study, the bank can be known for its financial performance in Bancassurance and whether it is contributing to the overall progress of the bank or not.

- The study would enable the HDFC Bank to know the general opinion of the customer about insurance and Bancassurance to know whether any awareness is needed to be created about the same.

- The study would enable HDFC Bank to know how far their initiative in promoting HDFC Standard Life Insurance products has reached its customers.

- It would enable the bank to know whether they had established a strong relationship with its customers, as it is important for Bancassurance.

- It would also enable to let the bank to know the no. of persons planning to take life insurance policy in their near future so that it can take advantage of the same.

- The bank could also know the willingness of the customers to accepting HDFC Bank as their distribution channel in case of obtaining HDFC Standard Life Insurance Policy in the future.

- Finally, it provides the opportunity for the bank to know the areas where they need to give much emphasis and uplift themselves to occupy a key role in the area of Bancassurance

RESEARCH METHODOLOGY

The study is restricted to Faridabad city only.

The sample size is 50.

Sources of Data: Source of my research is both primary and secondary data. Primary data is obtained from respondents with the help of the widely used and well-known method of a survey through a well-structured questionnaire and the secondary data is collected from the internet, information brochures from the bank.

Research instrument

The research instrument is that with the help of which we collect the data from respondents. The questionnaire of my research consists of close-ended questions.

Tools of Analysis

The results of the analysis have been presented with the help of percentages, graphs, and charts.

DATA ANALYSIS AND INTERPRETATION

1. Age Limit of the Customer:

20-25	**7**	14%
26-30	17	34%
31-35	11	22%
36-40	7	14%
40 and above	8	16%

TABLE

Age Group- Fig 4.A
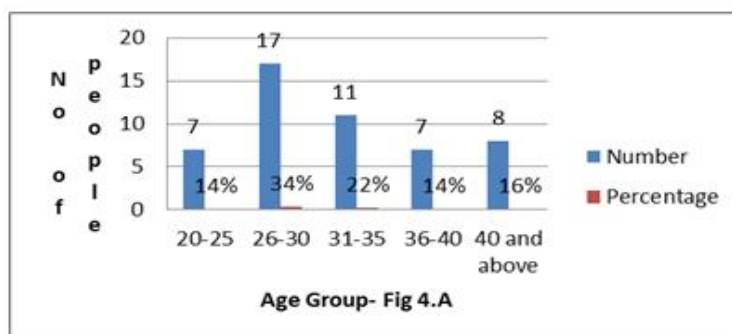
Interpretation

From the above table, it can be inferred that 14% of the respondents belong to the 20-25 age limit, 34% belong to the 26-30 age limit, and 22% of the respondents belong to the 31-35 age limit. 14% to 36-40 age limit and the remaining 16% to above 40 age limit. Hence the majority of the respondents fall in the category of 26-30 age limits.

2. Gender

Male	34	68%
Female	16	32%

TABLE
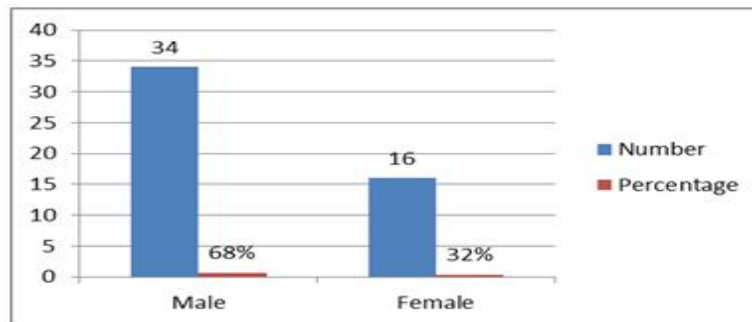
Interpretation

From the above table, it can be inferred that 68% of the respondents belong to the Male category while only 32% of the sample were females.

3. Occupation of the respondent

Salaried	30	50%
Businessmen	15	25%
Retired	10	17%
Others	5	8%

TABLE

FIG
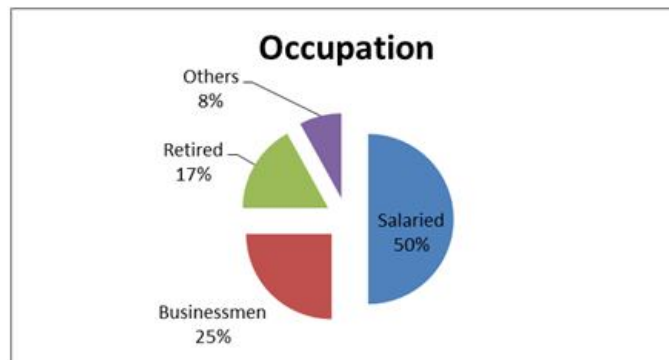
Interpretation

From the above table, it can be inferred that 50% of the respondents belong to a salaried class, 25% belong to Business Class, 17% of the respondents are retired and 8% belong to other occupations.

4. Marital Status

Single	20	40%
Married	25	50%
Divorced	5	10%

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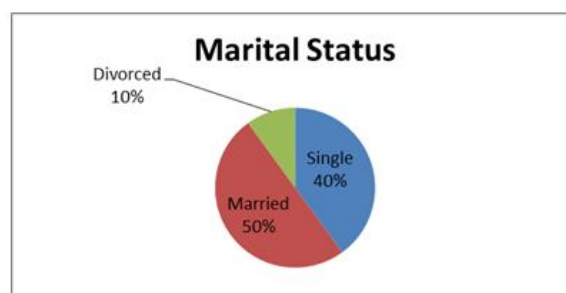
FIG

Interpretation

From the above table, it can be inferred that 40% of the respondents belong to single, 50% are married and 10% belong to the divorced category.

5. Annual Income

Less than 2 lakhs	20	40%
2-4 lakhs	15	30%
4-6 lakhs	10	20%
Above 6 lakhs	5	10%

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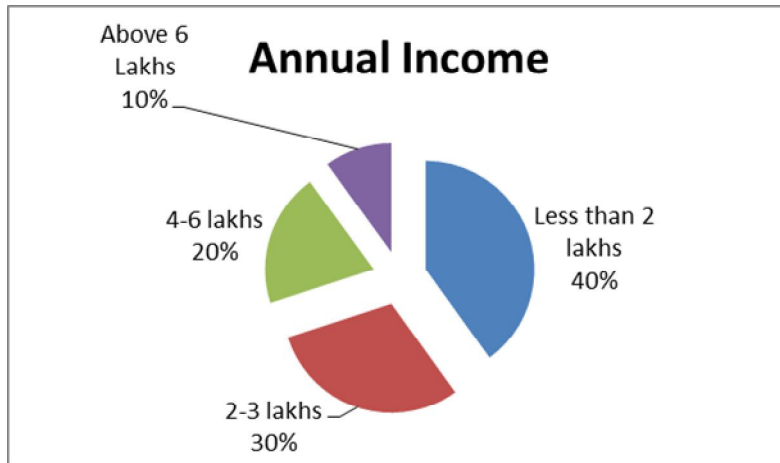
FIG

Interpretations

From the above table it can be inferred that 40% of the respondents belong to less than 2 lakhs limit, 30% of the respondents belong to 2-4 lakhs limit, 20% of the respondent belong to 4-6 lakhs limit and 10% belong to above 6 lakh limit.

6. Whether an account holder of HDFC Bank or not:

Yes	23	46%
No	27	54%

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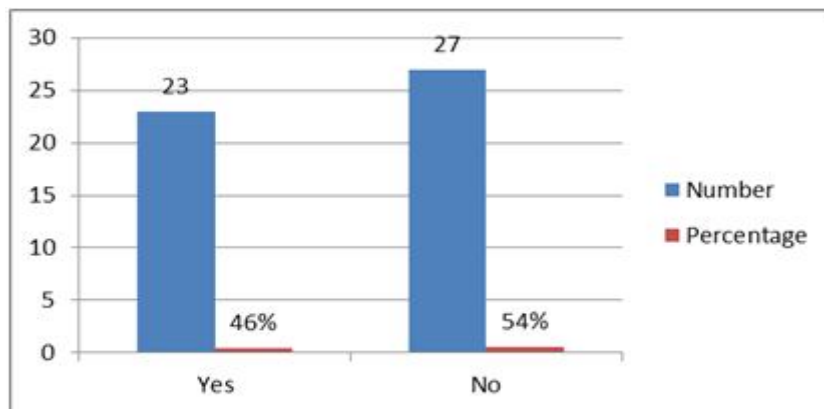
Interpretations

From the above table, it can be inferred that 46% of the respondents belong to those who have an account and 54% don't have an account.

7. Personal views about insurance

- Insurance protects you and your family

- Insurance is an absolute necessity for an individual or family

- Investment is one of the best investment options

Agree	15	30%
Strongly agree	5	10%
Neutral	12	24%
Disagree	18	36%

TABLE

FIG
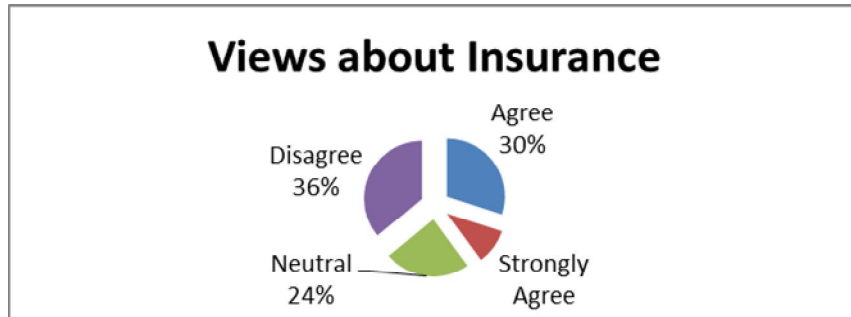
Inference

From the above table, it can be inferred that 30% of the respondents Agree to insurance, 10% agree of the respondents strongly agree, 24% belong to the neutral category and 36% disagree with the opinion.

8. Whether the customer is a life insurance policyholder of HDFC Bank

Yes	27	54%
No	23	46%

TABLE

FIG
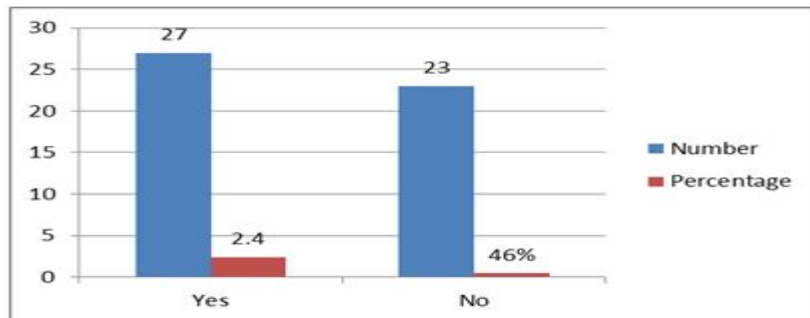
Inference

From the above table, it can be inferred that 54% of the respondents belong to the YES category while 46% belong to the NO category.

9. Source to know about HDFC Standard Life Insurance

HDFC BANK	10	20%
Advertisement	22	44%
Friends/ Relatives	8	16%
Others	6	12%
N/A	4	8%

TABLE

FIG
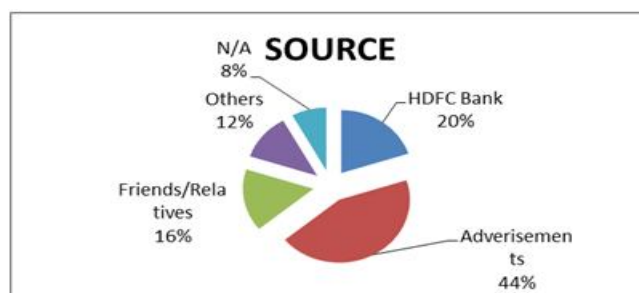
Interpretation

From the above table, it can be inferred that 20% of the respondents got to know about it from HDFC Bank, 44% from Advertisements, 16% from Friends/Relatives, 12% from others. Hence the majority of the respondents fall in these categories.

10. Aware of bank cross-sell Insurance Products

Yes	26	52%
No	24	48%

TABLE
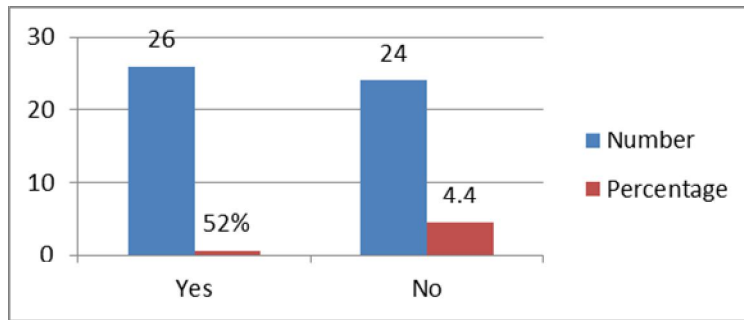
FIG Interpretation

From the above table, it can be inferred that 52% of the respondents belong to YES while 48% belong to NO category.

11. Advantage of buying the insurance policies through banks:

Expert Advice

Strongly Agree	20	40%
Agree	15	30%
Neutral	10	20%
Disagree	5	10%

TABLE
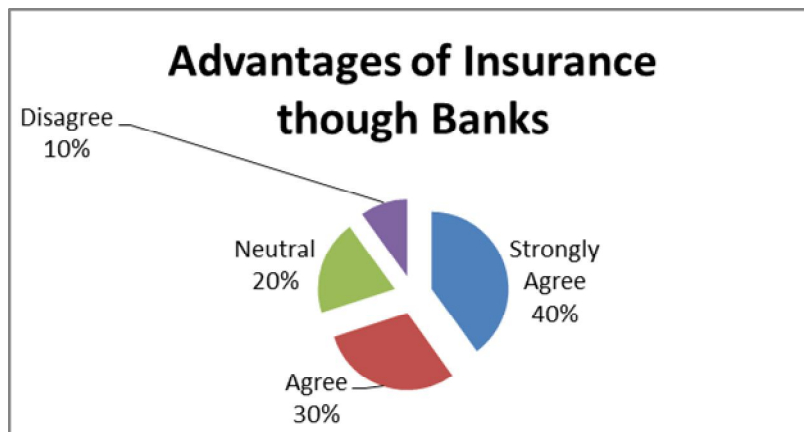
FIG

Interpretation

From the above table, it can be inferred that 40% of the respondents strongly agree that banks are the best option to buy insurance policies, 30% agree to the same, 20% of the respondents were neutral and 10% disagree with the same.

12. Familiarity with the type of policies offered by HDFC Standard Life Insurance:

YES	35	70%
NO	15	30%

FIG
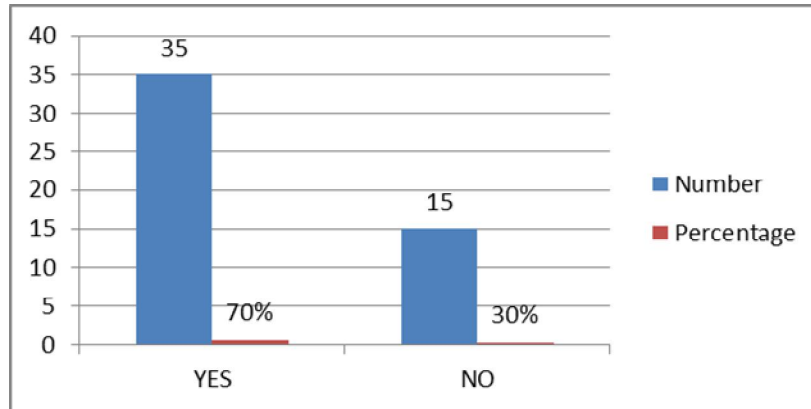
Interpretation

From the above table, it can be inferred that 70% of the respondents belong to the YES category while 30% belong to the NO category.

13. Do the HDFC Standard Life policies provide with the satisfaction of customer services:

Highly satisfied	12	24%
Satisfied	10	20%
Moderately Satisfied	15	30%
Dissatisfied	10	20%
Highly Dissatisfied	3	6%

TABLE

FIG

Interpretation

From the above table, it can be inferred that 24% of the respondents belong to Highly Satisfied, 20% belong to Satisfied, 30% belong to moderately satisfied, 20% belong to Dissatisfied and the remaining 6% are highly dissatisfied.

FINDINGS OF MY STUDY

- The **Reliability** dimension of service quality is better as compared to empathy and tangibility. Still, the score is low. For most services, customer's perceptions of whether the service has been performed correctly, and not provider-established criteria, are the major determinants of reliability. Customers of the bank hesitate to rely on the bank. Whenever they have a problem, the bank shows sincere interest in solving it but the services are not performed by a certain time as promised. The employees should take this problem seriously and take steps to remove it.

- As the score for **Assurance** is in second place at responsiveness, so the customers of HDFC bank are very confident and feel safe while transacting with the bank. Moreover, the employees of the bank have proved to be trustworthy. Employees are also educated enough to answer all the questions.

- According to my findings, the score of **Empathy** is not satisfactory but not unsatisfactory also. HDFC bank is unable to give individual attention to its customers and is unable to understand the specific needs of its

customers. But still, the bank has taken steps to satisfy its customers by keeping operating hours convenient to its customers and keeping their interest best at heart.

- There is not much gap between all the dimensions; this shows that HDFC BANK is a better service provider in all dimensions i.e. reliability, assurance, tangibility, responsiveness, and empathy. As a result of which, the customers are satisfied with the service offered by HDFC Bank.

CONCLUSION

Based on the study conducted it can be concluded that responsiveness, assurance, and reliability are the critical dimensions of service quality of HDFC bank and they are directly related to overall service quality. The factors that may delight customers tend to be concerned more with the intangible nature of the services, commitment, attentiveness, friendliness, care, and courtesy.

The employees give prompt services, are always ready to answer the questions and are trustworthy. The main sources of dissatisfaction appear to be cleanliness, up to date technology, modern equipment's, and neatly dressed up employees. The Tangibility dimension of service quality of HDFC BANK is highly disappointing and serious steps need to be taken to enhance this dimension. Customers of the bank are dissatisfied with the empathy dimension. To satisfy these customers, the management can take up some attempts, noted earlier as recommendations.

The study brings about the areas which require urgent attention of the employees, the management, and the policymakers of the industry. These are the areas in which customers are hugely dissatisfied with the services of the bank against their expectations. This high degree of dissatisfaction resulting from the services received questions the designs of services or subsequent response of the bank employees. These limitations are too serious to be avoided as these questions the front-line people dealing with customers and the approach of the management in taking customers seriously.

SUGGESTIONS

Reliability is an obvious place to start. Customers of the bank want to know their resources are safe and within trustworthy institutions. A way to ensure this peace of mind would be to take steps to ensure bank employees are well trained, so each bank associate can offer complete and comprehensive information at all times. Consistent policies combined with knowledgeable staff will foster a high degree of institutional cohesion and reliability.

Responsiveness, again when associated with a well-trained staff and timely answers to service-related questions, would make significant inroads into causing HDFC bank to be regarded as responsive. Staff should be encouraged to present relevant options to banking customers in a manner that does not resemble salesmanship so much as a desire to serve.

Learning to understand customers' needs will allow bank associates to offer enhanced services, perhaps lowering customers' banking costs and increasing their investment potential. This could also open up the possibility of increased profits for banks, for when perceived as more service and customer oriented, they will, in effect, become a useful and pleasant way to "shop".

Thus, the banking industries may continuously measure and improve these dimensions to gain customers' loyalty.

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CHALLENGES IN DIGITAL MARKETING

Dr. Amit Verma
Assistant Professor, Department of Commerce, Kalicharan PG College, Lucknow

ABSTRACT
Digital Marketing is becoming popular day by day and entrepreneurs are involving digital marketing in their businesses these days at faster pace. It changed completely the scenario and now business entrepreneur using internet to promote their businesses and stay connected with their customers. Through Digital Marketing Customers are influenced to buy products or services with the help of visual or audio persuasion. Products and Services are advertised to create awareness of its utility in the minds of potential buyers. In the era of globalization consequent changes are there in consumer buying patterns, the advertising industry has undergone under significant transformation in last 10 years. Before launching a product in the market pros and cons of the digital marketing must be analyzed. This article discusses the basic concept of Digital Marketing and second part of the paper is focused on challenges of Digital Marketing and lastly suggestions are provided to overcome the challenges.

Keywords: Digital Marketing, Internet, Challenges, Strategies

I. INTRODUCTION
Digital Marketing, which refers to all kinds of marketing using digital technologies on the internet to get to the consumer, it is more about understanding how people use these tools.

It includes various forms like Email Marketing, Search Engine Marketing, Social Media Marketing, Display Advertising and Mobile Advertising.

Although traditional advertising platforms mainly focused on newspapers, posters, expos and fairs, the radio and later TV, each of them bringing variety to the world of advertising, no invention changed marketing quite as much as the internet. Instead of advertising on platforms that everyone can view, companies now have the possibility to reach out to consumers in the exact moment of their need, based on their interests. With digital marketing enterprises can directly reach out to their target groups and provide more relevant products and information.

Internet has become the fastest medium for advertising the product and services these days. In comparison to the other mediums for advertisement, Internet advertising is experiencing tremendous growth. Total spending for Internet advertising remains relatively small compared to other medium. Handheld devices, such as mobile phones, Personal Digital Assistants (PDAs) and other wireless devices, make up the growing mobile device market. Geographic positioning features are included in mobile devices, the medium has the potential to provide marketers with the ability to target customers based on their geographic location. Currently, the most popular advertising delivery method to mobile devices is through plain text messaging, facebook, whatsapp etc.

Digital marketing plays a significant role in today's highly competitive world. Business Enterprises, Public Sectors, even voluntary or religious organizations, use Digital Marketing to promote a products, services or to promote a point of view.

II. REVIEW OF LITERATURE
According to Cova & Pace (2006) Now Communication among continents takes seconds, not weeks. There is a positive or negative impact when consumers feel your brand through the websites.

Kiani (1998) revealed a rules and regulations for promotion on the web, attract users by making it easy to find site of his or her interest, engaging user interests through linking to other sites which they will find valuable, ensure that they return by keep on updating content and keeping it updated, learn the preferences by tracking the activity on website, and relating to them by the information gathered to provide the customized content.

A study conducted by Parsons, Zeisser and Waitman (1998) revealed deeper into these rule and regulations which explain why these rules and regulation are important, there are the issues which are inherent in marketers and how these marketers are implementing them. Authors claim most of the marketers struggle in attracting their customers and present two key concepts .First, understand that the web is only an interactive medium; simply transferring content from traditional media to the web will likely to fail because it does not generate an interaction with the Customer. Secondly, to engage a customer marketer must valuable content.

According to Chaffey(2003) It is important to understand the relationship between digital communication and traditional communication in the old media; for example, TV, radio, newspapers, magazines and billboard ads, the communication model was and is one-to-many compared to one-to-one or many-to-many communication model in digital media like blogs, social networks, wikis and other social media

Foux (2006) suggests Social media is perceived by customers as a more trustworthy source of information regarding products and services than communication generated by organizations transmitted via the traditional elements of the promotion mix.

According to the Ayaz S. Peerbhoy (2010), founder-Director of MAA advertising Agency, Bombay – Bangalore that the concept of digital marketing as understood in the Indian conditions can be explained still further in terms of its effectiveness on and receptivity by the consumers and the markets if proper Scientific Research methods and techniques are applied. To advertising points, the author research is a part of the marketing activities "built-in-progress".

A clear understanding on digital marketing, market research, advertisement and sales force management i.e., recruitment, selection and training of sales staff is given by Roy, P.C (2010).

Patel, V.P. (2010) said that efficient advertising pushes the economy of the industry. Advertising is a link between production and consumption and yet it is integral part of marketing.

Parikh. J.C. (2013) explored further improvements and changes in the advertisement, selling and consumer relations necessitated by the introduction of man-made fibre fabrics. The survey makes some useful recommendations.

III. METHODOLOGY AND OBJECTIVES
The study is based on the secondary data which has been collected through reports, books, research paper and websites etc.

The present study is based on following objectives:

1) To study the Concept of Digital Marketing.

3) To study the Challenges of Digital Marketing.

4) To Provide Suggestions to Enterprises.

IV.FINDINGS OF THE STUDY
A) Concept of Digital Marketing
Digital marketing is generally interactive marketing of products or services using internet and digital technologies to reach the customers and also to promote the products & services of business enterprises. The key objective is to promote build more & more prospective customers and increase the sale of goods & services by adopting various digital marketing techniques.

Digital Marketing is the use of digital channels to promote market products and services to customers and enterprises. Manufacturers are using digital marketing as tools to attract more & more customers in urban area and rural area both.

B) Challenges of Digital Marketing
Companies are focussing on digital marketing these days more and more. No doubt, Digital Marketing is an expansion tool for the businesses but it is facing some challenges these days

1. Security and privacy: Most people do not completely trust companies and thus are careful about providing information about themselves To address this, it is imperative for e-businesses to adopt a sound policy and implement a fool-proof security measure.

2. Marketing based on Multiple channels: Most of the businesses are utilizing multiple channels, on- and offline .It is difficult to handle the situations sometime in the multiple channels.

3. Impersonal services: Businesses are operating online often use electronic methods of providing customer service, such as emailing and posting information on the website to answer possible user questions. This may be perceived by customers as just too impersonal or uncaring.

4. Internet connectivity: The Digital marketing is based on internet. In some areas, internet facility may not be accessible to the customers or with poor internet connections. The Digital Marketing can be unsuccessful in those areas having no or limited internet accessibility.

5. High Competition: Digital Marketing has a challenge when a customer make a search for a specific product and services of a specific company on internet, many competing goods, and services having same marketing strategies appear on the customer's home page. It will create a conflict and provides a customer an alternative option to choose cheaper and better quality product of another company. As a result, some customers lack the trust on a lot of advertisements that appear on a website or social media and consider it as fraud and look like a dishonest brand.

6. Risk of Hacking Strategies: The risk of hacking promotion strategies of a company always with the digital channels that is one of the drawbacks of digital marketing. The hackers or competitors can easily track and copy the valuable promotional strategies of a well renowned company and can utilize the strategy for their own purposes.

7. Anti-Brand Activities: Another drawback of digital marketing is that even a person or group of persons can harm the image of a recognized brand. Anti-brand activists, bloggers, and opinion leaders disapprove the image of a certain brand.

8. Beneficial for Limited Products: Another practical drawback of Digital Marketing is that it is more beneficial for consumer goods in comparison to the industrial goods and pharmaceutical products.

C) Suggestions to Enterprises
The following are the important suggestions to the enterprises:

1. Marketers need to understand the accessibility of the digital facilities before launching any product.

2. Marketers need to conduct pre market survey to identify the need of the consumers especially in digital marketing.

3. Consumers need to be aware of recent trends of digital marketing and there is a need to create a proper awareness.

4. As most of the studies revealed that the customers are risk averse and hence they need to be taught how to handle risk associated with recent trends in digital marketing.

5. The study ultimately suggests the readers and users to be aware of all the recent Digital marketing portals and make use of their utility to the maximum extent with utmost care and caution.

V.CONCLUSION
Digital marketing has redefined the concept of business from physical aspect of delivery to virtual aspects of marketing and selling. Digital activities are an increasingly important part of any marketing and sales strategy of a business. There is a paradigm of shift in how business is conducted from traditional model to Digital model.

Today Digital marketing is used by the companies at the global level but still there are a number of challenges faced by the businesses. Digital Marketing also empowers dissatisfied consumers to make bad comments that have the potential to greatly destabilize certain digital marketing campaigns and operations.

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CORPORATE SOCIAL RESPONSIBILITY: A STUDY ON RELATIONSHIP OF CORPORATE SOCIAL RESPONSIBILITY AND FINANCIAL PERFORMANCE IN INDIA

Rameet Kaur Sawhney[1] and Dr. Shobhit Wadhwa[2]
Research Scholar[1] and Associate Professor[2], ACCF, Amity University

ABSTRACT

Corporate Social Responsibility (CSR) has gained lot of attention and momentum in research with the introduction of Section 135 of the Indian Companies Act 2013 which was applicable with effect from 1st April 2014. Section 135 of Indian Companies Act2013 mandates (on comply or explain basis) that the companies having either net worth of Rs 500 crore or a turnover of Rs 1000 crore or net profit of 5 crore to spend at least 2% of its average preceding three financial years on CSR activities. Schedule VII of the Indian companies Act 2013 states the areas in which companies falling under the ambit of section 135 can invest their funds for CSR purposes. This paper focuses on to examine the priority areas adopted by the companies and establish the relationship between CSR expenditure and financial performance of the selected companies. The period for the study is 2014-2018 i.e. years post the implementation of The Companies Act 2013. This study is based on the companies forming part of the Nifty Fifty Index. The paper is based on the companies which have been constant participants of Nifty Fifty Index over the last decade. Our study uses the data hand collected from annual reports of the Indian companies.

Keywords: Corporate Social Responsibility, Indian Companies Act 2013, CSR Clause

INTRODUCTION

Major advancement in CSR was made in India with the Introduction of Section 135 of the Indian companies act 2013, which was applicable with effect from 1st April 2014 . In order to facilitate transparency and accountability, Government of India made it mandatory to undertake CSR activities and make the disclosure of the CSR activities for the companies falling under the ambit of the same.

LEGISLATIVE FRAMEWORK- THE COMPANIES ACT 2013

In India, CSR is governed by the section 135 of The Indian Companies Act 2013.Key major events before the enactment of this act are as following:

DATE	EVENT
DEC 2009	First time proposals were made for CSR to be voluntary provision under new companies act.
8th SEPT 2010	Parliament standing committee recommended CSR to be a mandatory requirement.
13th AUG 2013	Securities exchange board of India requires for disclosure of CSR spending by the largest 100 companies.
18th DEC 2012	Bill passed in Lok Sabha
8th AUG 2013	Bill passed in Rajya Sabha
29th AUG 2013	Bill received assent of the President of India
27th FEB 2014	Notified by the ministry of corporate affairs(MCA)
1st APRIL 2014	Section 135 containing provisions regarding CSR become applicable.

SECTION 135 OF THE COMPANIES ACT 2013

As per section 135, any company fulfilling any one of the following conditions during any financial year are required to constitute a CSR committee of board consisting of three or more directors, out of which one should be an independent director:

- Net worth of Rs 500 crore or more, or

- Turnover of Rs 1000 crore or more, or

- Net profit of Rs 500 crore or more.

Board of every companies are required ensure that company spends at least 2% in every financial year of the average net profits of the immediately preceding three financial years (calculated as per section 198). It also states the companies to give preference to local areas and areas around which it operates for the above mentioned spending. It further requires that if the company fails to spend the prescribed amount it should report the reasons for not spending the amount. Thus it is a comply or explain provision.

Schedule vii –Activities Eligible for CSR

As per schedule vii of The Companies Act 2013, activities relating to the following may be included for CSR:

   I. eradicating hunger and poverty;

  II. education;

 III. promoting gender equality and empowering women;

 IV. reducing child mortality and improving maternal health;

  V. combating human immunodeficiency virus, acquired immune deficiency

 VI. syndrome, malaria and other diseases;

 VII. ensuring environmental sustainability;

VIII. employment enhancing vocational skills;

 IX. social business projects;

  X. contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government or the State Governments for socio-economic development and relief and funds for the welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women; and

 XI. Such other matters as may be prescribed.

LITTERATURE REVIEW

CSR IN INDIA

The concept of Corporate Social Responsibility is not new to India. It has its roots in the history. In the 19th century CSR was viewed as philanthropic contributions made by merchant communities (especially Gujrati and Parsi) for building schools, temples, pilgrim rest houses, and providing relief during the disaster and helping the poor. CSR is a wider concept as compared with the philanthropic activities and includes larger set of activities (chakraborty, 2014)

Over the years although India has emerged to be one of the growing economies of the world ,it still faces the problems of poverty ,unemployment and undernourishment. In 2017,Global Hunger Index (GHI) ranked India 100 among 119 countries with a GHI score of 31.4,categorizing India in "serious category". Further, India was ranked at 130 out of the 189 countries on the Human Development Index by United Nation Development Programme(UNDP) for the year 2017.As per the Labour Bureau Report India has become the nation of the most unemployed in the world. This is majorly due to unequal distribution of income. CSR is an important framework to tackle this situation.

It is being reported that on CSR practices Asian countries are not that strong as compared to the western countries (KPMG, 2005).However, due to liberalization and globalization in 1991 and with the entry of MNCs and thus leading to rise of customer expectations, CSR has gained momentum in Asian countries like India. However CSR by Indian companies are still dominated by the Community Development (change, 2004).

In 2001, a 20 country public opinion survey reported that in respect of CSR demanded from corporate, India stood at the last level. Contribution towards CSR was by the corporate was discouraged due to problems related to evaluation as well as measurement of CSR activities (Krishna, 1992), absence of provable relationship between CSR and firm performance (british council , UNDP,CII and Pricewaterhouse coopers, 2002), weak standards (Suar, 2010), ambiguous policies and complicated tax systems (Centre for social Markets, 2001). However a shift is being noticed among the Indians, who now believe that companies apart from providing quality products must play a wider role towards the society (Kumar et al., 2001). Now the CSR has moved away from passive philanthropic activity to more rigorous one. As per few reports ,Indian companies consider CSR as a strategy for building brand image (british council , UNDP,CII and Pricewaterhouse coopers, 2002) (change, 2004). Major advancement in CSR was made in India with the Introduction of Section 135 of the Indian companies act 2013, which was applicable with effect from 1st April 2014 . In order to facilitate transparency and accountability, Government of India made it mandatory to undertake CSR activities and make the disclosure of the CSR activities for the companies falling under the ambit of the same.

CSR AND FIRM PERFORMANCE

Due to increased awareness and consideration for CSR, need arises to see its impact or relationship with the financial performance. As per Academic literature there has been mixed viewpoints regarding the correlation between CSR and firm performance. As per Empirical study conducted on 53 studies of different authors of

different nation concluded that around 72% of study shows positive correlation between CSR and firm performance,15% concludes neutral correlation , 6% negative correlation and around 7% as mixed correlation among the different companies.(MAGDALENA MIKOŁAJEK, 2016). On a theoretical back ground, CSR may lead to increase the productivity and hence financial performance since it underlines the good of the firm with its key stakeholders (Waddock and Graves, 1997). However, very few studies have been conducted in respect to Indian Companies. In this study an attempt is made to fill this gap and examine the correlation between CSR and firm performance of Indian companies post The companies Act 2013.

For the measurement of Firm's performance we have taken ROA – return on asset as a measure. In 1997 Griffin and Mohan found 80 different types of financial performance measures that have been used over 51 studies. Out of which ROA, ROE and return on sale were frequently used measures. Many researchers like Berman and Mc Gurie consider ROA to be authentic measure of financial performance. In firm with heavy assets base like manufacturing firms, ROA is a better indicator in comparison to others for firm performance (Suar, 2010)

OBJECTIVES
The study had the following objectives:

- To analyze the CSR expenditure post The Companies Act 2013.

- To examine the relationship between the CSR expenditure and Financial Performance.

RESEARCH METHODOLOGY
This is an Empirical study. In this study an attempt is made to study the CSR expenditure incurred by the participants of Nifty Fifty Index. To analyze the CSR expenditure post The Companies Act 2013 simple bar charts are used. In order to study the relationship between CSR expenditure and firm performance, Panel regression technique is applied.

In our study we have categorized areas as per schedule vii and clubbed few areas together which were of similar nature. These areas were identified in conjunction with the parameters as per which companies disclosed their CSR spending so that the research can be carried out in uniformity with the data available. Areas taken into this study are as follows

  I. Education

 II. Health and sanitation

III. Environment sustainability

IV. Minority welfare and women empowerment

 V. Livelihood

VI. Agriculture and rural development

VII. Others

DATA COLLECTION- This paper is based on Secondary Data. Since there is no proper complete database with respect to CSR (Suar, 2010) , Data of the selected companies is handpicked from the published annual reports of the companies in the Annexure C of the Annual Reports. Companies which have contributed towards CSR through Trusts, Trust's Annual reports are used to segregate the amount of contribution towards the different sectors. Data with respect to Return on Asset is collected from Prowess Database.

SAMPLE-This study is based on the NIFTY FIFTY Index. NIFTY FIFTY is one of the two major stock indices that are available in India, the other one is BSE Sensex NIFFTY FIFFTY index is based on weighted average of stock of 50 Indian companies – the companies which are selected as the participant of NIFFTY FIFFTY Index are those which represent the whole market.

Out of the 50 participant companies of NIFTY FIFTY Index, 30 companies are shortlisted. These 30 Companies are those companies which were consistently included in NIFTY FIFTY Index during the period of the study and whose required CSR data was available.

As many research has been conducted with the firms across ten industries (Rai, 2015), our selected companies are also from broad spectrum of industries. The industry wise breakup of the selected companies is as follows:
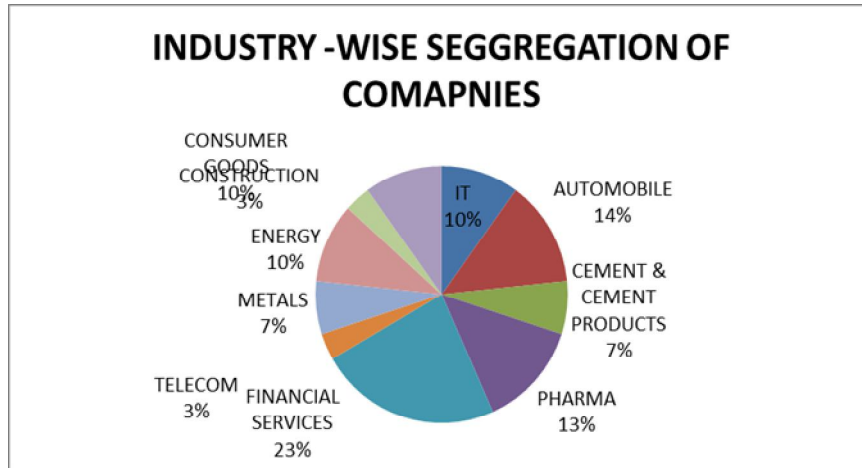
RESULT ANALYSIS

CSR EXPENDITURE
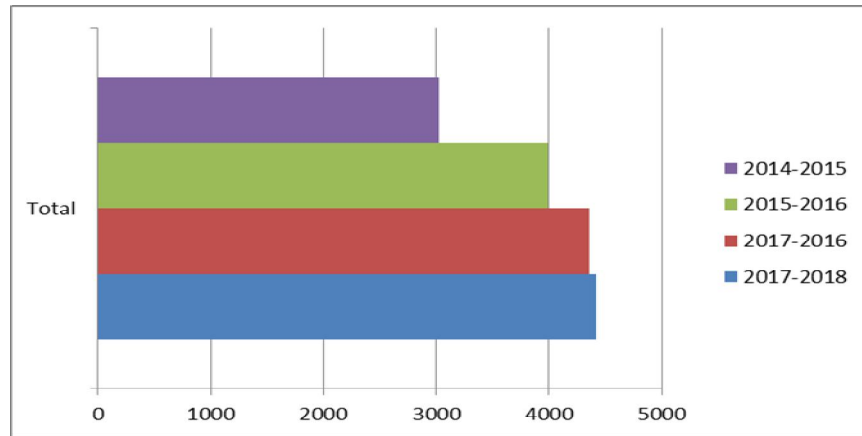
Over the four years, there has been an increase in the total CSR spending by the firms. However the rate of growth of the CSR expenditure has been high immediately after the implementation of The Companies Act 2013 at 32% approximately. Subsequently, there has been fall in the growth in CSR spending with growth rate of 9% and 1.3%.

PATTERN OF CSR SPENDING

It was not shocking to notice that for all the four years major proportion of spending was on the Education sector. Further, there has been an increase in the proportion of spending over the Education sector. After education, activities related to Health and Sanitation attracted the maximum spending. However, there is a decline in the proportion of spending on the health and sanitation activities over the years. The third priority sector is Agriculture and Rural development. Minority Welfare and women Empowerment attracted the least share in the total expenditure on CSR by the firm over the four years. The following Bar Chart gives the bird view over the share of each sector in total CSR expenditure:
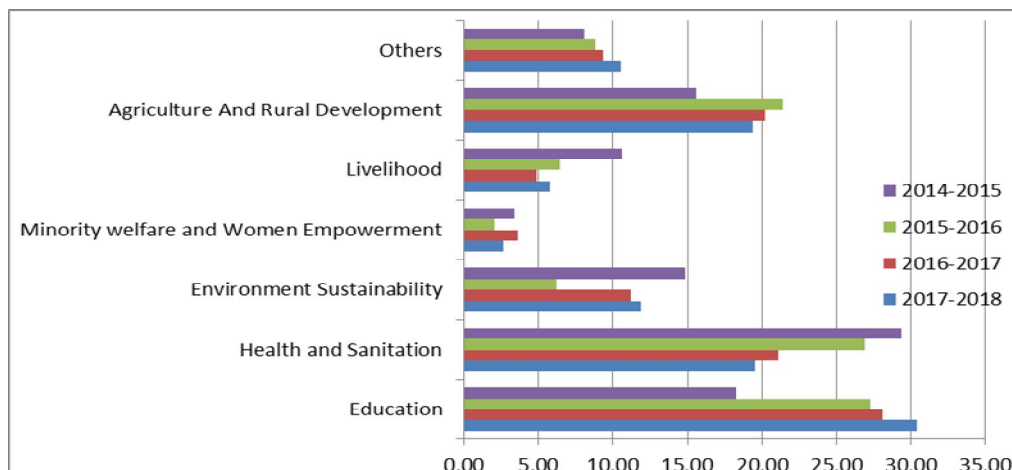
CSR AND FIRM PERFORMANCE
Panel regression technique is applied with the help of XLSTAT. Results indicate negligible relationship between CSR and Firm performance (ROA). Coefficient of CSR is 0.010 indicating that CSR has very less impact on the profitability of the firm.
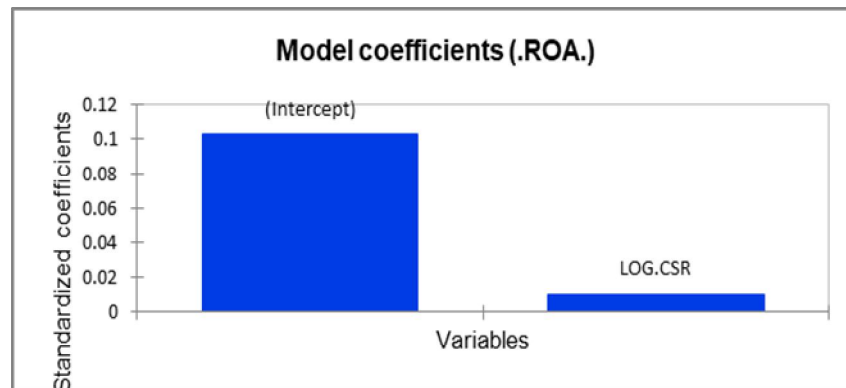
CONCLUSIONS
Corporate social responsibility which earlier was a voluntary contribution has now been made compulsory with the introduction of the Companies' Act 2013. After this transition of CSR, contribution of CSR has increased over the years .Thus Act was successful in giving boost to CSR in India. Education has remained the most priority sector for CSR contribution. However women empowerment and minority welfare is the sector which has attracted least contribution. More emphasis should be laid on minority welfare so that equal distribution of wealth is ensured otherwise CSR role for the country will not be fulfilled.CSR is seen as a mechanism through which companies which have wealth can disburse their positivity to the nation. Through this study we witness that impact of CSR on firm's performance is negligible. Corporate may see CSR as a tax that they need to pay .

SCOPE FOR FUTURE STUDY
- This study is based on only 4 years -2014-2015,2015-2016, 2016-2017and 2017-2018.Further study can be based on more number of years for more reliable results.

- This study is based on 30 companies only. Study with higher sample can give better results.

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A STUDY ON FACTORS AFFECTING THE SMILE CURVE

Prayas Agarwal
Amity College of Commerce and Finance Amity University, Noida

ABSTRACT
Implied Volatilities are usually used in the stock market to quote the price of options. Regardless of all the criticism and limitations, Black-Scholes Merton Model remains the mostly used option pricing model since 1973. Implied Volatility is one of the inferences out of the model which has come out over the past two and half decades. In this report, our aim is to create a smile of the Apple Stock Options and have a look at the properties of regression with estimating the volatility function. The results were quite straight out, higher the strike lower the implied volatility and vice versa in case of equity options.

INTRODUCTION
It is not possible to predict the shape of the volatility smile. Since its formation, the Black-Scholes Merton Model has had its limitations which have been criticized since then. Some of them are the assumption of constant values for the risk free rate of return and volatility over the period for the option. Also dividend is something which was questioned again and again since inception in 1973. However if we take a look at the real world, the stock market shows actual prices of traded options and upon observation we got to know some real results.

1. MEANING
The concept of Volatility Smile or Smile Curve is basically the relationship between implied volatility and strike prices of for options with a certain maturity.

In simple words, a volatility smile is a graphical plot of the implied volatility of an option with a certain maturity along with its strike prices.

2. USES
The volatility of an option increases as the option becomes increasingly In The Money or Out Of The Money. And being the lowest at At The Money with reference to Strike Price and Implied Volatility on the axis.
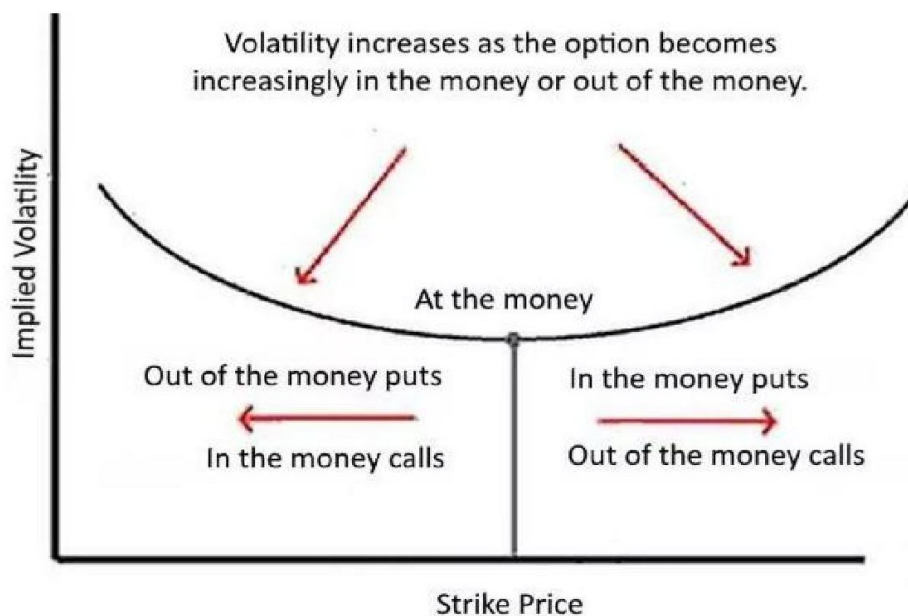
Volatility Smile Graph. Investopedia

3. LIMITATIONS OF USING THE VOLATILITY SMILE
Firstly, being the most important thing in this topic, we have to find out whether our selected option being actually traded aligns with a smile or not. This is one model that an option can align with but the implied volatility could align more with a reverse skew or a forward skew/smirk.

Moreover due to some other factors in the market, for example supply and demand, the volatility smile may not be a clean *u* shape as in my case. It may be a choppy one with an image showing more or less implied volatility than expected according to this model and the image stated above.

4. KEY TAKEAWAYS OF SMILE CURVE

- When options with the same expiration date and same underlying asset, but different strike prices, are graphed for implied volatility the tendency is for that graph to show a smile.

- The smile shows that the options that are furthest in- or out-of- the-money have the highest implied volatility.

- Options with the lowest implied volatility have strike prices at- or near-the-money.

- Not all options will have an implied volatility smile. Near-term equity options and currency-related options are more likely to have a volatility smile.

- A single option's implied volatility may also follow the volatility smile as it moves more ITM or OTM.

- While implied volatility is one factor in options pricing, it is not the only factor. A trader must be aware of what other factors are driving an option's price and its volatility.

5. PREVIOUS FINDINGS

A review of previous literature and a brief theoretical overview will be presented below. In section 2.1 we begin with a review of the Black-Scholes formula. This section leads us into the discussion about implied volatility and its informational content, which is presented in section 2.2. In section 2.3 we go further into earlier work involving the characteristics of the implied volatility surface. Finally we will discuss the implications of our parameterisation choice.

Black- Scholes

Fischer Black and Myron Scholes released their by-now classic paper on option pricing in 1973, and revolutionized the pricing and trade of derivatives through their intuitive pricing formula (Black & Scholes, 1973). Despite its initially theoretical application and its proven limitations when using it on live options, it remains one of the most used option pricing techniques today, and its inventors were awarded the 1993 Nobel Prize in Economics as a homage to their work.

The Black-Scholes formula for a European call option is:

$$C(S_t, K, \tau, \sigma) = S_t e^{-q\tau} N(d_1) - K e^{-r\tau} N(d_2)$$

where d_1 and d_2 are defined as:

$$d_1 = \frac{\ln(S_t/K) + \tau(r - q + \frac{\sigma^2}{2})}{\sigma\sqrt{\tau}} \qquad d_2 = d_1 - \sigma\sqrt{\tau}$$

St = Spot Price of the underlying asset K = Strike Price

t= Time to Maturity

R = Risk Free Rate of Return q= dividend yield

N(d) = Cumulative Density Function where d is the upper integral.

The intuition behind and is that they provide the risk-neutral probability measuresof an option's expiry, much like a moneyness term.

The model assumes that the underlying follows a geometric Brownian motionand that all options on the same underlying regardless of time-to-maturity and strike price have the same implied volatility. Empirical evidence has however shown that this assumption does not correspond with reality (Hull, 2008). As noted by earlier authors, it is the monotonicity in the Black-Scholes formula about the parameter of volatility that makes it possible to calculate the implied volatility. As the inverse of the formula has no closed-form solution, one cannot simply re-solve the formula to obtain the implied volatility, given an option price. However, as the formula predicts a flat implied volatility surface, one can use the Newton-Raphson algorithm to invert the Black-Scholes formula. This method has been widely accepted by researchers over the years, and uses the market price of the call option to compute the implied volatility.

Implied Volatility

Implied volatility can be described as the market's expected future volatility, and is linked to an option's market price. The measure should not be mistaken for historical volatility, given that historical volatility is linked to the earlier performance of the underlying, rather than the option price. Both measures have been widely studied over the years, and both have received credit for being the most accurate forecast of future volatility.

Whether or not implied volatility is an adequate measure of future volatility has been subject to much research. Canina & Figlewski (1993) found that implied volatility practically lacked any correlation with future volatility, when studying 17000 OEX call options on the S&P100 index. More recent work by Christensen & Prabhala.(1998) and Fleming (1998) however find implied volatility to be a superior measure compared to historical volatility when it comes to forecasting future volatility, in their studies of S&P100 index options. Christensen & Prabhala use longer time series and non-overlapping data, and is probably the most comprehensive study on the subject to date.

Estimation of the Volatility Function

By putting the option valuation model into the observed structure of option prices at time *t*, we roughly estimate the volatility function sigma(X,T), but sigma(X,T) is also an arbitrary function. We get different structural forms for the same including the ones mentioned below:

Model 0: $\sigma = a_0$

Model 1: $\sigma = a_o + a_1 X + a_2 X^2$

Model 2: $\sigma = a_o + a_1 X + a_2 X^2 + a_3 T + a_5 XT$

Model 3: $\sigma = a_o + a_1 X + a_2 X^2 + a_3 T + a_4 T^2 + a_5 XT$

Model 0 is the BSM Model in which the volatility rate is constant. Model 1 attempts to capture a variation with the asset price.

Whereas the next model which is Model 2 and 3 captures the additional variation which is always with respect to time.

But while using the volatility function structures such as Model 1 to 3, the approach does not ensure that the theoretical values which are fitted match the observed option prices. This can also be distinguished by the Derman and Kani(1994) and Dupire(1994) approach.

They suggested building a binomial tree or a trinomial tree with variable volatility. Each of these trees contain may *df* as an option price has to be fitted into. Only after that an exact fit of quoted option prices can be attained.

Only if the volatility function is constant through time, as is assumed by the model given, the implied tree at time *t* will be containing the implied tree at time *t+1*. Also, with reference to the terms of out basic approach, the coefficients at time *t+1* should be equal to the ones at time *t*.

Finally we should qualify the use of this approach because our overall procedure is not a testing procedure. Our " null hypothesis" being investigated is that volatility is an exact function of asset price and time, so that options could be priced exactly by a non-arbitrage function. Taking into consideration, a deviation from a strict theory like this, no matter how small, should cause a statistic test to reject it. Also there is no source of error which has been identified from the theory tolerable. Even if, a source of error is introduced, there is a restriction on the sampling distribution of the error could have been deduced. That restriction could have been the basis for a testing procedure. Barring such an approach, for which no consensus exists in the literature, the empirical procedure employed here will have to remain a descriptive one.

Whether the prediction errors are large or not is a matter of judgement.

APPLE OPTION PRICES AND IMPLIED VOLATILITY SMILE

The equity stock options will be serving as the basis of our empirical analysis. In this section, I have attached the option data which I have used in my analysis and documented all the observed patterns in the Black/Scholes implied volatilities.

LITERATURE REVIEW

1. Predicting The Smile by Viktor Berggren and Johan Blomkvist

In his study he had examined the properties of implied volatility surface with a focus on the ability to forecast the evolution with the external factors and lag- models. He did it by conducting a parameterization on the cross-

section of the volatility surface. He then combined the lag models. His last test was looking at a vectorised AR model to study the level of correlation between the lags of parameters.Along with the ultimate goal of finding a predictive power in their combined movements. It showed very little significance however with only one parameter showing a 1-lag correlation with another parameter at the 5% level.

2. Implied Volatility Functions: Empirical Tests by Dumas, Fleming and Whaley

The three of them claimed that the Black and Scholes valuation formula no longer holds in financial markets have appeared with increasing frequency recently. When the Black/Scholes formula is used to imply volatilities from observed prices of options, the volatility estimates vary systematically across exercise prices and times to expiration. Derman and Kani Dupire , and Rubinsteinargue this systematic behaviour is driven by the fact that the volatility rate of asset return varies with the level of asset price and time. They go on to propose that volatility is a deterministic function of asset price and volatility and develop appropriate binomial or trinomial option valuation procedures.

In the paper they applied the deterministic volatility option valuation approach to S&P 500 index option prices during the period June 1988 through December 1993 and find a number of interesting results. First, because of the limitless flexibility of the volatility function's specification, the DV model always does better in-sample than does the constant volatility model. Second, when the fitted volatility function is used to value options one week later, the model's predictions deteriorates with the complexity of the assumed volatility specification. Third, hedge ratios determined by the Black/Scholes model appear more reliable than those obtained from the DV option valuation model.

3. Implied Volatility Skew and Firm Level Tail Risk by Andrew Van Buskirk

He studied the relation between implied volatility skew and the likelihood of experiencing extreme negative returns, or tail risk. Using quarterly earnings announcements from 1996 through 2008, he showed that firms with greater volatility skew are more likely to experience large earnings period stock price drops. Outside of earnings announcement periods (i.e., when options have no earnings announcements in their horizons) volatility skew continues to predict significant negative price jumps. However, the predictive ability is not associated with specific disclosure events like management earnings forecasts or dividend declarations.

Taken together, his results revealed that implied volatility patterns contain information about firm-level tail risk. Volatility skew reflects tail risk both within and outside earnings announcement periods, indicating that the information in options markets extends beyond the events documented in his earlier research. However, while volatility skew predicts tail risk in non-earnings periods generally, it does not predict tail risk related to other specific disclosure events. His results also suggested that volatility skew is a firm characteristic and is associated with many factors typically thought to reflect firm risk.

Finally, the firm-level nature of volatility skew raises questions about the ability to infer financial reporting qualities from observed stock return distributions. Certain firms appear to have greater exposure to extreme event risk as a function of their underlying economics. Because of this, researchers evaluating financial reporting characteristics based on observed return distributions should be sure to control for the underlying economic drivers of those return distributions.

4. FX Volatility Smile ConstructioFX Volatility Smile Construction by Dimitri Reiswich and Uwe Wystup

They had introduced various delta and at-the-money quotations commonly used in FX option markets. The delta types were FX-specific, since the option could be traded in both currencies. The various at-the-money quotations had been designed to account for large interest rate differentials or to enforce an efficient trading of positions with a pure vega exposure. They had then intro- duced the liquid market instruments that parametrize the market and had shown which information they imply. Finally, they derived a new formula that accounts for FX specific market information and can be used to employ an efficient market calibration.

5. Option Pricing For Incomplete Markets Via Stochastic Optimization By Sergei Fedotov Sergei Mikhailov

An effective algorithm based on the discrete stochastic optimization approach had been presented that gave the option price and optimal trading stra- tegy for the incomplete market in which the risk incurred by selling an option cannot be completely hedged by dynamic trading. We illustrate the usefulness of the multistage optimization procedure by considering the effects of transaction costs, stochastic volatility with uncertainty, adaptive and forecasting processes. It should be noted that the usual way to cope with our ignorance of future security prices is to introduce the random processes with known statistical characteristics. However it is very easy to imagine a situation when so little is known about future prices in advance that it is simply impossible to suggest the exact statistics. We believe that the stochastic optimization approach involving adaptive and forecasting processes considered here is a promising way to deal with such situations.

A program package for the option pricing in an incomplete market has been developed. The package consists of two parts: analytical (Maple) and numerical (C). The stochastic optimization problem has been solved analytically by using Maple in the form of recurrent equations. The numerical part consists of rather simple calculations of recurrent equations.

There are several future directions to explore by using the method presented here. First, one may study the case with imperfect state information regarding the asset prices by using a stochastic game approach. Also, one can study various adaptive and forecast control problems. It should be noted that the preliminary work done here might be of big practical importance and it therefore merits further investigation including the computational aspect of our formalism.

RESEARCH METHODOLOGY

1. Purpose of Study

Our primary goal is to understand how the volatility surface is driven and to predict the smile accordingly. Rebonato(1999) states that the implied volatility of options is "wrong number to plug into the wrong equation to get the right price", which summarises what makes the research regarding the matter so interesting.

As the volatility surface is a de facto trading tool, on which investors and traders base multi-billion dollar decisions (CBOE, 2009), it is somewhat startling that the specifics regarding its progression over time is still under scrutiny. With this thesis we hope to bring some light on the matter, while also looking at the extent at which external factors, closely linked to option pricing, can affect the shape of the volatility surface.

Some of the other objectives are as follows:

- To study the concept Smile Curve and Options.

- To study the importance and role Smile Curve in Options.

- To analyze the overall impact of moneyness of the shape of the curve.

2. Contribution

Our results will be able to contribute to a more detailed understanding of the structural change of the implied volatility surface and its evolution over time. A deeper comprehension regarding the exogenous factors which affect the smile can i) help in creating more precise pricing models for options, and also ii) come to use as proxies for investors and traders to judge in which ways risk sentiments and prices are moving. Our hope is that these results can add to current research regarding option markets in general and highly liquid markets such as the S&P500 in particular. With the addition of some further research on lag power of our exogenous variables, we believe that it would be possible to create a parsimonious model to forecast the progression of the volatility surface.\

3. Type of Research

The research is of two types that are used for the study. One of the type of research is based upon the measurement of quantity or amount which gets applicable on the phenomenon which is expressed in quantity terms i.e. numbers.

The other type of research is qualitative research which is concerned with the qualitative aspects which is phenomena relating to the quality and the kind.

It is easy to analyse and express the factors affecting smile curve through only one type of research as few impacts can only be expressed in terms of graphs and numbers.

The questionnaire is a structured manner of the study which involves both type of qualitative and quantitative and qualitative information which is not relevant for my project.

4. Source of Data

Research design is partially descriptive, partially exploratory. The data for the current study was collected from various sources such as Yahoo Finance, Investopedia etc. To assess all the information, I have used the LINEST function in excel to get the regression data and their co-efficient in excel itself.

My data from the excel sheet is attached over in the Appendix 1.

ANALYSIS OF FINDINGS

Data Selection

My sample contains the observed prices of Apple Stock Options which are traded on the New York Stock Exchange (NYSE) during the period of February 2019.

Originally, Apple Stock Options are traded at the NYSE and have the ticker symbol

* AAPL *.

During the initial sub-period, the option's maturity is measured as the number of calendar days between the trade date and expiry date. After the initial period, the number of days to expiry is equal to the number of calendar days remaining less one.

Data Analysis

- My data collection started with taking data of option expiring in the months of March, April, May, June, July and October.

- Then I arranged all the options within a range of 150-200(174 being the spot price)

- After that I removed all the hyperlinks by copying the data into a new sheet.

- The next step was to calculate the maturity time of each option contract which ranged from 15 days to 232 days.

- Then I converted the data for days into years(dividing it by 365)

- After that I calculated the Implied Volatility using the Black-Sholes Merton Model(BSM Model) using macros.

- Then with the Implied Volatility, I tried to parameterize a0,a1,a2,a3,a4 and a5.

- Then I copied the Dumas Fleming Whaley Model for Implied Volatility.

- Then I created a column for K, K^2, T, T^2 and KT.

- Then I took the relationship between these factors and parametrized a0,a1,a2,a3,a4 and a5.

- I did this by using the *LINEST* function.

- LINEST is the excel function for running the least squares method to calculate the stats for a straight line and returns an array describing the same.

- SYNTAX for LINEST--→ =LINEST(y values, {x values} ,{ constant} ,{additional statistic})

- In my case, the y values were the Implied Volatility

- The x values were the values for K, K^2, T, T^2 and KT.

- The Constant and Additional Statistic was true.

- And then I got the values for a0,a1,a2,a3,a4 and a5 in reverse.

- Then I calculated the IV FIT by putting values of a0,a1,a2,a3,a4 and a5 in the Dumas Fleming Whaley Model for Implied Volatility.

- After that I formatted the axis according to the data (150-200) and then plotted the curve which is attached below.

- On the y-axis we have the Implied Volatility and on the x-axis we have Strike Price.
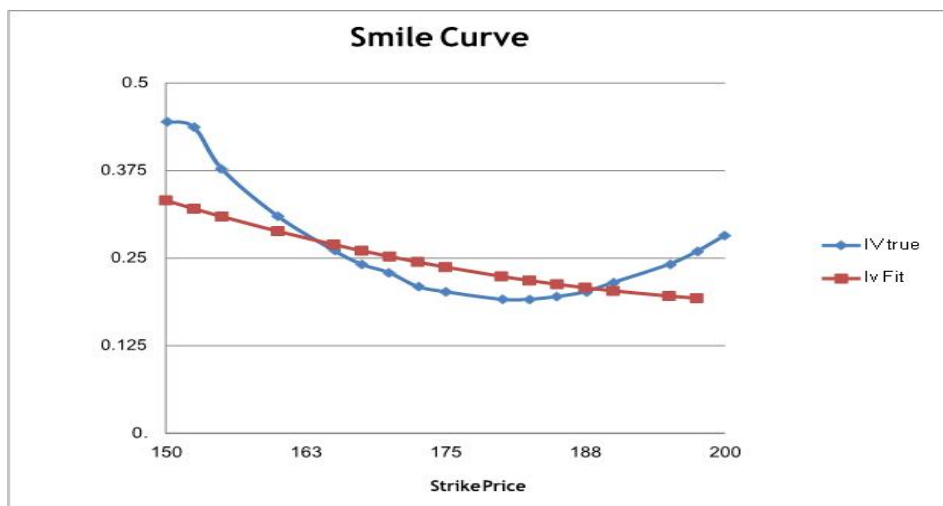
CONCLUSION

The conclusion for my project is that the ITM and OTM options have a comparatively higher maturity in comparison to the ATM options for the same maturity and other factors. It forms a simple smiling curve in this case. Also, in case of equity options only, a smiling curve is formed, but in case of currency options, it is the opposite. Also it is been found, that in the higher and lower ranges of strike price, the implied volatility is very high whereas in the middle ranges of the strike price, the implied volatility is not volatile.

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APPENDIX 1

Contract name	Last trade date	Strike	Last price	Bid	Ask	Change	% change	Volume	en interest	vd volatility		
AAPL190315C00150000	2019-02-27 1:30PM EST	150	24.75	24.6	24.8	0.23	0.94%	80	6,447	40.58%		Call 15 March expiry
AAPL190315C00152500	019-02-27 10:19AM EST	152.5	21.5	22.1	22.55	1.4	6.97%	2	16	42.97%		
AAPL190315C00155000	2019-02-27 1:36PM EST	155	19.7	19.65	19.85	-0.3	-1.50%	143	6,538	34.57%		
AAPL190315C00157500	2019-02-26 1:15PM EST	157.5	17.1	0	0	0	-	26	48	0.00%		
AAPL190315C00160000	019-02-27 10:54AM EST	160	13.63	14.75	14.9	-1.37	-9.13%	452	13,585	28.03%		
AAPL190315C00162500	2019-02-26 1:15PM EST	162.5	12.25	0	0	0	-	11	100	0.00%		
AAPL190315C00165000	2019-02-27 1:13PM EST	165	9.99	10.05	10.15	-0.21	-2.06%	234	27,741	23.63%		
AAPL190315C00167500	2019-02-27 1:51PM EST	167.5	7.85	7.85	7.9	0.15	1.95%	276	634	21.78%		
AAPL190315C00170000	2019-02-27 2:01PM EST	170	5.78	5.85	5.9	0.09	1.58%	1,100	29,167	20.90%		
AAPL190315C00172500	2019-02-27 1:51PM EST	172.5	4	4	4	0.07	1.78%	1,565	3,437	19.09%		
AAPL190315C00175000	2019-02-27 2:04PM EST	175	2.6	2.57	2.58	0.07	2.77%	4,064	43,216	18.57%		
AAPL190315C00177500	2019-02-26 3:59PM EST	177.5	1.48	0	0	0	-	2,504	3,402	1.56%		
AAPL190315C00180000	2019-02-27 2:05PM EST	180	0.83	0.8	0.82	0	-	9,597	31,267	17.80%		
AAPL190315C00182500	2019-02-27 1:50PM EST	182.5	0.4	0.41	0.42	-0.06	-13.04%	668	1,285	17.82%		
AAPL190315C00185000	2019-02-27 1:04PM EST	185	0.21	0.21	0.22	-0.02	-8.70%	763	12,121	18.26%		
AAPL190315C00187500	2019-02-27 1:35PM EST	187.5	0.12	0.11	0.12	-0.02	-14.29%	798	765	18.95%		
AAPL190315C00190000	2019-02-27 1:59PM EST	190	0.08	0.07	0.08	-0.01	-11.11%	252	22,128	20.31%		
AAPL190315C00192500	019-02-26 10:57AM EST	192.5	0.07	0	0	0	-	91	363	12.50%		
AAPL190315C00195000	019-02-27 12:51PM EST	195	0.04	0.03	0.04	0	-	313	5,636	22.85%		
AAPL190315C00197500	2019-02-27 9:52AM EST	197.5	0.04	0.02	0.04	0.01	33.33%	289	170	25.20%		
AAPL190315C00200000	019-02-27 11:23AM EST	200	0.03	0.02	0.04	0.01	50.00%	232	19,004	27.34%		

		197.5	0.04	0.02	0.04	0.01	33.33%	289	170	25.20%		
AAPL190315C00200000	019-02-27 11:23AM EST	200	0.03	0.02	0.04	0.01	50.00%	232	19,004	27.34%		
AAPL190418C00150000	2019-02-27 1:40PM EST	150	25.3	25.3	25.55	-0.2	-0.78%	21	6,317	32.20%		Call 18 April Expiry
AAPL190418C00155000	2019-02-27 1:29PM EST	155	20.55	20.5	20.75	-0.36	-1.72%	32	4,173	28.50%		
AAPL190418C00160000	2019-02-27 1:42PM EST	160	15.9	16.05	16.2	-0.3	-1.85%	76	30,685	25.84%		
AAPL190418C00165000	2019-02-27 1:07PM EST	165	11.82	11.85	11.9	0.04	0.34%	190	7,175	23.15%		
AAPL190418C00170000	2019-02-27 2:05PM EST	170	8.24	8.1	8.2	0.06	0.73%	619	14,571	21.84%		
AAPL190418C00175000	2019-02-27 1:55PM EST	175	5.15	5.1	5.15	0.04	0.78%	1,283	14,863	20.55%		
AAPL190418C00180000	2019-02-27 2:06PM EST	180	2.93	2.92	2.94	0.02	0.69%	12,759	21,358	19.69%		
AAPL190418C00185000	2019-02-27 1:37PM EST	185	1.44	1.45	1.46	-0.04	-2.70%	609	29,164	18.84%		
AAPL190418C00190000	2019-02-27 1:30PM EST	190	0.69	0.66	0.68	-0.02	-2.82%	299	17,467	18.56%		
AAPL190418C00195000	019-02-27 12:43PM EST	195	0.31	0.31	0.33	-0.04	-11.43%	75	1,774	18.92%		
AAPL190418C00200000	2019-02-27 2:07PM EST	200	0.16	0.15	0.16	-0.03	-15.79%	842	20,003	19.39%		
AAPL190517C00150000	2019-02-26 1:50PM EST	150	26.15	0	0	0	-	27	150	0.00%		Call 17 May Expiry
AAPL190517C00155000	2019-02-26 3:39PM EST	155	21.9	0	0	0	-	34	54	0.00%		
AAPL190517C00160000	2019-02-26 3:47PM EST	160	17.74	0	0	0	-	61	288	0.00%		
AAPL190517C00165000	2019-02-27 2:01PM EST	165	13.7	13.75	13.85	-0.3	-2.14%	69	449	25.84%		
AAPL190517C00170000	2019-02-27 2:04PM EST	170	10.4	10.35	10.4	0.05	0.48%	308	1,885	24.58%		
AAPL190517C00175000	2019-02-27 1:42PM EST	175	7.4	7.45	7.55	-0.15	-1.99%	277	1,317	23.79%		
AAPL190517C00180000	2019-02-26 3:46PM EST	180	5.29	0	0	0	-	267	2,249	1.56%		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
46	AAPL190517C00195000	2019-02-27 1:18PM EST	195	1.24	1.25	1.26	-0.05	-3.88%	39	741	21.42%							
47	AAPL190517C00200000	019-02-27 12:17PM EST	200	0.72	0.74	0.75	-0.09	-11.11%	93	525	21.38%							
49	AAPL190621C00150000	2019-02-27 1:53PM EST	150	26.65	26.65	26.85	-0.24	-0.89%	6,107	14,677	28.04%		Call 21 June Expiry					
50	AAPL190621C00155000	019-02-27 12:17PM EST	155	22.12	22.4	22.5	-0.38	-1.69%	58	7,868	26.42%							
51	AAPL190621C00160000	2019-02-27 1:53PM EST	160	18.4	18.45	18.5	-0.1	-0.54%	124	13,052	25.33%							
52	AAPL190621C00165000	2019-02-27 9:56AM EST	165	14.7	14.8	14.85	-0.3	-2.00%	88	8,819	24.43%							
53	AAPL190621C00170000	2019-02-27 1:17PM EST	170	11.55	11.6	11.7	-0.25	-2.12%	159	14,968	23.93%							
54	AAPL190621C00175000	2019-02-27 2:03PM EST	175	8.81	8.75	8.85	-0.06	-0.68%	548	10,710	23.15%							
55	AAPL190621C00180000	2019-02-27 1:39PM EST	180	6.37	6.4	6.5	-0.13	-2.00%	507	15,683	22.55%							
56	AAPL190621C00185000	2019-02-27 1:48PM EST	185	4.5	4.5	4.6	-0.25	-5.26%	55,385	10,108	22.00%							
57	AAPL190621C00190000	2019-02-27 1:30PM EST	190	3.15	3.1	3.1	-0.09	-2.78%	109	13,919	21.40%							
58	AAPL190621C00195000	2019-02-27 2:01PM EST	195	2.05	2.05	2.08	-0.12	-5.53%	146	7,174	21.17%							
59	AAPL190621C00200000	2019-02-27 1:53PM EST	200	1.32	1.32	1.36	-0.08	-5.71%	448	16,633	21.01%							
61	AAPL190719C00150000	019-02-27 10:37AM EST	150	26.1	27.25	27.5	-1.25	-4.57%	50	2,425	27.58%		Call 19 July Expiry					
62	AAPL190719C00155000	2019-02-27 9:40AM EST	155	23.5	23.1	23.3	0.34	1.47%	1	1,551	26.28%							
63	AAPL190719C00160000	019-02-27 11:01AM EST	160	18.55	19.2	19.45	-0.65	-3.39%	13	2,523	25.39%							
64	AAPL190719C00165000	2019-02-27 1:36PM EST	165	15.75	15.7	15.9	-0.45	-2.78%	51	3,265	24.57%							
65	AAPL190719C00170000	2019-02-27 1:46PM EST	170	12.55	12.55	12.7	-0.15	-1.18%	149	6,757	23.82%							
66	AAPL190719C00175000	2019-02-27 2:05PM EST	175	9.9	9.75	9.9	-0.1	-1.00%	535	5,974	23.16%							
67	AAPL190719C00180000	2019-02-27 2:04PM EST	180	7.5	7.45	7.55	-0.18	-2.34%	216	4,683	22.66%							

Tabs: 21 June 2019 | 19 July 2019 | 18 October 2019 | **150-200** | Sheet7 | Maturiy | IV BSM | Sheet1 | linest

	A	B	C	D	E	F	G	H	I	J	K	L	M
63	AAPL190719C00160000	019-02-27 11:01AM EST	160	18.55	19.2	19.45	-0.65	-3.39%	13	2,523	25.39%		
64	AAPL190719C00165000	2019-02-27 1:36PM EST	165	15.75	15.7	15.9	-0.45	-2.78%	51	3,265	24.57%		
65	AAPL190719C00170000	2019-02-27 1:46PM EST	170	12.55	12.55	12.7	-0.15	-1.18%	149	6,757	23.82%		
66	AAPL190719C00175000	2019-02-27 2:05PM EST	175	9.9	9.75	9.9	-0.1	-1.00%	535	5,974	23.16%		
67	AAPL190719C00180000	2019-02-27 2:04PM EST	180	7.5	7.45	7.55	-0.18	-2.34%	216	4,683	22.66%		
68	AAPL190719C00185000	2019-02-27 1:04PM EST	185	5.42	5.43	5.6	-0.38	-6.55%	31	3,986	22.18%		
69	AAPL190719C00190000	2019-02-27 1:58PM EST	190	3.95	3.9	4	-0.1	-2.47%	268	10,221	21.66%		
70	AAPL190719C00195000	2019-02-27 2:02PM EST	195	2.76	2.73	2.77	-0.11	-3.83%	258	2,812	21.19%		
71	AAPL190719C00200000	2019-02-27 1:19PM EST	200	1.87	1.86	1.88	-0.14	-6.97%	22	7,722	20.86%		
72													
73	AAPL191018C00150000	019-02-26 11:34AM EST	150	29.6	0	0	0	-	8	27	0.00%		Call 18 Oct Expiry
74	AAPL191018C00155000	2019-02-25 9:40AM EST	155	26.5	0	0	0	-	1	1	0.00%		
75	AAPL191018C00160000	019-02-27 10:31AM EST	160	21.2	22	22.3	-1.8	-7.83%	9	14	25.86%		
76	AAPL191018C00165000	019-02-26 10:02AM EST	165	19.7	0	0	0	-	12	66	0.00%		
77	AAPL191018C00170000	2019-02-26 2:55PM EST	170	16.13	15.85	15.95	0	-	25	52	24.62%		
78	AAPL191018C00175000	2019-02-26 3:36PM EST	175	13.51	0	0	0	-	52	297	0.10%		
79	AAPL191018C00180000	2019-02-27 2:04PM EST	180	10.85	10.75	10.9	-0.1	-0.91%	46	161	23.75%		
80	AAPL191018C00185000	019-02-27 12:25PM EST	185	8.65	8.75	8.85	-0.21	-2.37%	21	474	23.40%		
81	AAPL191018C00190000	2019-02-27 1:01PM EST	190	7	6.9	7.05	-0.2	-2.78%	14	148	22.99%		
82	AAPL191018C00195000	2019-02-26 3:36PM EST	195	5.7	0	0	0	-	215	510	3.13%		
83	AAPL191018C00200000	2019-02-27 1:31PM EST	200	4.3	4.2	4.35	-0.1	-2.27%	9	278	22.44%		
84													

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	A	B	C	D	E	F	G	H	I	J	K	L	M
2	Contract name	Last trade date	Strike	Last price	Bid	Ask	Change	% change	Volume	Open inte	Implied volatility		
3	AAPL190315C00150000	2019-02-27 1:30PM EST	150	24.75	24.6	24.8	0.23	0.0094	80	6447	0.4058		Call 15 March expiry
4	AAPL190315C00152500	2019-02-27 10:19AM EST	152.5	21.5	22.1	22.55	1.4	0.0697	2	16	0.4297		
5	AAPL190315C00155000	2019-02-27 1:36PM EST	155	19.7	19.65	19.85	-0.3	-0.015	143	6538	0.3457		
6	AAPL190315C00157500	2019-02-26 1:15PM EST	157.5	17.1	0	0	0	-	26	48	0		
7	AAPL190315C00160000	2019-02-27 10:54AM EST	160	13.63	14.75	14.9	-1.37	-0.0913	452	13585	0.2803		
8	AAPL190315C00162500	2019-02-26 1:15PM EST	162.5	12.25	0	0	0	-	11	100	0		
9	AAPL190315C00165000	2019-02-27 1:13PM EST	165	9.99	10.05	10.15	-0.21	-0.0206	234	27741	0.2363		
10	AAPL190315C00167500	2019-02-27 1:51PM EST	167.5	7.85	7.85	7.9	0.15	0.0195	276	634	0.2178		
11	AAPL190315C00170000	2019-02-27 2:01PM EST	170	5.78	5.85	5.9	0.09	0.0158	1100	29167	0.209		
12	AAPL190315C00172500	2019-02-27 1:51PM EST	172.5	4	4	4	0.07	0.0178	1565	3437	0.1909		
13	AAPL190315C00175000	2019-02-27 2:04PM EST	175	2.6	2.57	2.58	0.07	0.0277	4064	43216	0.1857		
14	AAPL190315C00177500	2019-02-26 3:59PM EST	177.5	1.48	0	0	0	-	2504	3402	0.0156		
15	AAPL190315C00180000	2019-02-27 2:05PM EST	180	0.83	0.8	0.82	0	-	9597	33267	0.178		
16	AAPL190315C00182500	2019-02-27 1:50PM EST	182.5	0.4	0.41	0.42	-0.06	-0.1304	668	1285	0.1782		
17	AAPL190315C00185000	2019-02-27 1:04PM EST	185	0.21	0.21	0.22	-0.02	-0.087	763	12121	0.1826		
18	AAPL190315C00187500	2019-02-27 1:35PM EST	187.5	0.12	0.11	0.12	-0.02	-0.1429	798	765	0.1895		
19	AAPL190315C00190000	2019-02-27 1:59PM EST	190	0.08	0.07	0.08	-0.01	-0.1111	252	22128	0.2031		
20	AAPL190315C00192500	2019-02-26 10:57AM EST	192.5	0.07	0	0	0	-	91	363	0.125		
21	AAPL190315C00195000	2019-02-27 12:51PM EST	195	0.04	0.03	0.04	0	-	313	5636	0.2285		
22	AAPL190315C00197500	2019-02-27 9:52AM EST	197.5	0.04	0.02	0.04	0.01	0.3333	289	170	0.252		
23	AAPL190315C00200000	2019-02-27 11:23AM EST	200	0.03	0.02	0.04	0.01	0.5	232	19004	0.2734		

Sheets: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | IV BSM | Sheet1 | linest

	A	B	C	D	E	F	G	H	I	J	K	L	M
25	AAPL190418C00150000	2019-02-27 1:40PM EST	150	25.3	25.3	25.55	-0.2	-0.0078	21	6317	0.322		Call 18 April Expiry
26	AAPL190418C00155000	2019-02-27 1:29PM EST	155	20.55	20.5	20.75	-0.36	-0.0172	32	4173	0.285		
27	AAPL190418C00160000	2019-02-27 1:42PM EST	160	15.9	16.05	16.2	-0.3	-0.0185	76	30685	0.2584		
28	AAPL190418C00165000	2019-02-27 1:07PM EST	165	11.82	11.85	11.9	0.04	0.0034	190	7175	0.2335		
29	AAPL190418C00170000	2019-02-27 2:05PM EST	170	8.24	8.1	8.2	0.06	0.0073	619	14571	0.2184		
30	AAPL190418C00175000	2019-02-27 1:55PM EST	175	5.15	5.1	5.15	0.04	0.0078	1283	14863	0.2055		
31	AAPL190418C00180000	2019-02-27 2:06PM EST	180	2.93	2.92	2.94	0.02	0.0069	12759	21358	0.1969		
32	AAPL190418C00185000	2019-02-27 1:57PM EST	185	1.44	1.45	1.46	-0.04	-0.027	609	29164	0.1884		
33	AAPL190418C00190000	2019-02-27 1:30PM EST	190	0.69	0.66	0.68	-0.02	-0.0282	299	17467	0.1856		
34	AAPL190418C00195000	2019-02-27 12:43PM EST	195	0.31	0.31	0.33	-0.04	-0.1143	75	3774	0.1892		
35	AAPL190418C00200000	2019-02-27 2:07PM EST	200	0.16	0.15	0.16	-0.03	-0.1579	342	20003	0.1939		
36													
37	AAPL190517C00150000	2019-02-26 1:50PM EST	150	26.15	0	0	0	-	27	150	0		Call 17 May Expiry
38	AAPL190517C00155000	2019-02-26 3:39PM EST	155	21.9	0	0	0	-	34	54	0		
39	AAPL190517C00160000	2019-02-26 3:47PM EST	160	17.74	0	0	0	-	61	288	0		
40	AAPL190517C00165000	2019-02-27 2:01PM EST	165	13.7	13.75	13.85	-0.3	-0.0214	69	449	0.2584		
41	AAPL190517C00170000	2019-02-27 2:04PM EST	170	10.4	10.35	10.4	0.05	0.0048	308	1885	0.2458		
42	AAPL190517C00175000	2019-02-27 1:42PM EST	175	7.4	7.45	7.55	-0.15	-0.0199	277	1317	0.2379		
43	AAPL190517C00180000	2019-02-26 3:46PM EST	180	5.29	0	0	0	-	267	2249	0.0156		
44	AAPL190517C00185000	2019-02-27 1:55PM EST	185	3.33	3.3	3.4	-0.15	-0.0431	228	1277	0.2231		
45	AAPL190517C00190000	2019-02-26 3:51PM EST	190	2.17	0	0	0	-	213	1987	0.0313		
46	AAPL190517C00195000	2019-02-27 1:18PM EST	195	1.24	1.25	1.26	-0.05	-0.0388	39	741	0.2142		
47	AAPL190517C00200000	2019-02-27 12:17PM EST	200	0.72	0.74	0.75	-0.09	-0.1111	93	525	0.2138		

Sheets: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | IV BSM | Sheet1 | linest

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
49	AAPL190621C00150000	2019-02-27 1:53PM EST	150	26.65	26.65	26.85	-0.24	-0.0089	6107	14677	0.2804		Call 21 June Expiry			
50	AAPL190621C00155000	2019-02-27 12:17PM EST	155	22.12	22.4	22.5	-0.38	-0.0169	58	7868	0.2642					
51	AAPL190621C00160000	2019-02-27 1:53PM EST	160	18.4	18.45	18.5	-0.1	-0.0054	124	13052	0.2533					
52	AAPL190621C00165000	2019-02-27 9:56AM EST	165	14.7	14.8	14.85	-0.3	-0.02	88	8819	0.2443					
53	AAPL190621C00170000	2019-02-27 1:37PM EST	170	11.55	11.6	11.7	-0.25	-0.0212	159	14968	0.2393					
54	AAPL190621C00175000	2019-02-27 2:03PM EST	175	8.81	8.75	8.85	-0.06	-0.0068	548	10710	0.2315					
55	AAPL190621C00180000	2019-02-27 1:39PM EST	180	6.37	6.4	6.5	-0.13	-0.02	507	15683	0.2255					
56	AAPL190621C00185000	2019-02-27 1:48PM EST	185	4.5	4.5	4.6	-0.25	-0.0526	55385	10108	0.22					
57	AAPL190621C00190000	2019-02-27 1:30PM EST	190	3.15	3.1	3.1	-0.09	-0.0278	109	13919	0.214					
58	AAPL190621C00195000	2019-02-27 2:01PM EST	195	2.05	2.05	2.08	-0.12	-0.0553	146	7174	0.2117					
59	AAPL190621C00200000	2019-02-27 1:53PM EST	200	1.32	1.32	1.36	-0.08	-0.0571	448	16633	0.2101					
60																
61	AAPL190719C00150000	2019-02-27 10:37AM EST	150	26.1	27.25	27.5	-1.25	-0.0457	50	2425	0.2758		Call 19 July Expiry			
62	AAPL190719C00155000	2019-02-27 9:40AM EST	155	23.5	23.1	23.3	0.34	0.0147	1	1551	0.2628					
63	AAPL190719C00160000	2019-02-27 11:01AM EST	160	18.55	19.2	19.45	-0.65	-0.0339	13	2523	0.2539					
64	AAPL190719C00165000	2019-02-27 1:36PM EST	165	15.75	15.7	15.9	-0.45	-0.0278	51	3265	0.2457					
65	AAPL190719C00170000	2019-02-27 1:46PM EST	170	12.55	12.55	12.7	-0.15	-0.0118	149	6757	0.2382					
66	AAPL190719C00175000	2019-02-27 2:05PM EST	175	9.9	9.75	9.9	-0.1	-0.01	535	5974	0.2316					
67	AAPL190719C00180000	2019-02-27 2:04PM EST	180	7.5	7.45	7.55	-0.18	-0.0234	216	4683	0.2266					
68	AAPL190719C00185000	2019-02-27 1:04PM EST	185	5.42	5.45	5.6	-0.38	-0.0655	31	3986	0.2218					
69	AAPL190719C00190000	2019-02-27 1:58PM EST	190	3.95	3.9	4	-0.1	-0.0247	268	10221	0.2166					
70	AAPL190719C00195000	2019-02-27 2:02PM EST	195	2.76	2.73	2.77	-0.11	-0.0383	258	2812	0.2119					
71	AAPL190719C00200000	2019-02-27 1:19PM EST	200	1.87	1.86	1.88	-0.14	-0.0697	22	7722	0.2086					

Tabs: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | **Sheet7** | Maturiy | IV BSM | Sheet1 | linest

Calculate — 100%

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
62	AAPL190719C00155000	2019-02-27 9:40AM EST	155	23.5	23.1	23.3	0.34	0.0147	1	1551	0.2628					
63	AAPL190719C00160000	2019-02-27 11:01AM EST	160	18.55	19.2	19.45	-0.65	-0.0339	13	2523	0.2539					
64	AAPL190719C00165000	2019-02-27 1:36PM EST	165	15.75	15.7	15.9	-0.45	-0.0278	51	3265	0.2457					
65	AAPL190719C00170000	2019-02-27 1:46PM EST	170	12.55	12.55	12.7	-0.15	-0.0118	149	6757	0.2382					
66	AAPL190719C00175000	2019-02-27 2:05PM EST	175	9.9	9.75	9.9	-0.1	-0.01	535	5974	0.2316					
67	AAPL190719C00180000	2019-02-27 2:04PM EST	180	7.5	7.45	7.55	-0.18	-0.0234	216	4683	0.2266					
68	AAPL190719C00185000	2019-02-27 1:04PM EST	185	5.42	5.45	5.6	-0.38	-0.0655	31	3986	0.2218					
69	AAPL190719C00190000	2019-02-27 1:58PM EST	190	3.95	3.9	4	-0.1	-0.0247	268	10221	0.2166					
70	AAPL190719C00195000	2019-02-27 2:02PM EST	195	2.76	2.73	2.77	-0.11	-0.0383	258	2812	0.2119					
71	AAPL190719C00200000	2019-02-27 1:19PM EST	200	1.87	1.86	1.88	-0.14	-0.0697	22	7722	0.2086					
72																
73	AAPL191018C00150000	2019-02-26 11:34AM EST	150	29.6	0	0	0 -		8	27	0		Call 18 Oct Expiry			
74	AAPL191018C00155000	2019-02-25 9:40AM EST	155	26.5	0	0	0 -		1	1	0					
75	AAPL191018C00160000	2019-02-27 10:31AM EST	160	21.2	22	22.3	-1.8	-0.0783	9	14	0.2586					
76	AAPL191018C00165000	2019-02-26 10:02AM EST	165	19.7	0	0	0 -		12	66	0					
77	AAPL191018C00170000	2019-02-26 2:55PM EST	170	16.13	15.85	15.95	0 -		25	52	0.2462					
78	AAPL191018C00175000	2019-02-26 3:36PM EST	175	13.51	0	0	0 -		52	297	0.001					
79	AAPL191018C00180000	2019-02-27 2:04PM EST	180	10.85	10.75	10.9	-0.1	-0.0091	46	161	0.2375					
80	AAPL191018C00185000	2019-02-27 12:25PM EST	185	8.65	8.75	8.85	-0.21	-0.0237	21	474	0.234					
81	AAPL191018C00190000	2019-02-27 1:01PM EST	190	7	6.9	7.05	-0.2	-0.0278	14	148	0.2299					
82	AAPL191018C00195000	2019-02-26 3:36PM EST	195	5.7	0	0	0 -		215	510	0.0313					
83	AAPL191018C00200000	2019-02-27 1:31PM EST	200	4.3	4.2	4.35	-0.1	-0.0227	9	278	0.2244					
84																

Tabs: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | **Sheet7** | Maturiy | IV BSM | Sheet1 | linest

Calculate — 100%

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
2	Strike	Bid	Ask	Start Date	End Date	Time in days													
3	150	24.6	24.8	02/28/2019	03/15/2019	15			Call 15 March expiry										
4	152.5	22.1	22.55	02/28/2019	03/15/2019	15													
5	155	19.65	19.85	02/28/2019	03/15/2019	15													
6	157.5	0	0	02/28/2019	03/15/2019	15													
7	160	14.75	14.9	02/28/2019	03/15/2019	15													
8	162.5	0	0	02/28/2019	03/15/2019	15													
9	165	10.05	10.15	02/28/2019	03/15/2019	15													
10	167.5	7.85	7.9	02/28/2019	03/15/2019	15													
11	170	5.85	5.9	02/28/2019	03/15/2019	15													
12	172.5	4	4	02/28/2019	03/15/2019	15													
13	175	2.57	2.58	02/28/2019	03/15/2019	15													
14	177.5	0	0	02/28/2019	03/15/2019	15													
15	180	0.8	0.82	02/28/2019	03/15/2019	15													
16	182.5	0.41	0.42	02/28/2019	03/15/2019	15													
17	185	0.21	0.22	02/28/2019	03/15/2019	15													
18	187.5	0.11	0.12	02/28/2019	03/15/2019	15													
19	190	0.07	0.08	02/28/2019	03/15/2019	15													
20	192.5	0	0	02/28/2019	03/15/2019	15													
21	195	0.03	0.04	02/28/2019	03/15/2019	15													
22	197.5	0.02	0.04	02/28/2019	03/15/2019	15													
23	200	0.02	0.04	02/28/2019	03/15/2019	15													
24																			

Tabs: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | **Maturiy** | IV BSM | Sheet1 | linest

	A	B	C	D	E	F															
25	150	25.3	25.55	02/28/2019	04/18/2019	49			Call 18 April Expiry												
26	155	20.5	20.75	02/28/2019	04/18/2019	49															
27	160	16.05	16.2	02/28/2019	04/18/2019	49															
28	165	11.85	11.9	02/28/2019	04/18/2019	49															
29	170	8.1	8.2	02/28/2019	04/18/2019	49															
30	175	5.1	5.15	02/28/2019	04/18/2019	49															
31	180	2.92	2.94	02/28/2019	04/18/2019	49															
32	185	1.45	1.46	02/28/2019	04/18/2019	49															
33	190	0.66	0.68	02/28/2019	04/18/2019	49															
34	195	0.31	0.33	02/28/2019	04/18/2019	49															
35	200	0.15	0.16	02/28/2019	04/18/2019	49															
36																					
37	150	0	0	02/28/2019	05/17/2019	78			Call 17 May Expiry												
38	155	0	0	02/28/2019	05/17/2019	78															
39	160	0	0	02/28/2019	05/17/2019	78															
40	165	13.75	13.85	02/28/2019	05/17/2019	78															
41	170	10.35	10.4	02/28/2019	05/17/2019	78															
42	175	7.45	7.55	02/28/2019	05/17/2019	78															
43	180	0	0	02/28/2019	05/17/2019	78															
44	185	3.3	3.4	02/28/2019	05/17/2019	78															
45	190	0	0	02/28/2019	05/17/2019	78															
46	195	1.25	1.26	02/28/2019	05/17/2019	78															
47	200	0.74	0.75	02/28/2019	05/17/2019	78															

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Calculate

	A	B	C	D	E	F															
47	200	0.74	0.75	02/28/2019	05/17/2019	78															
48																					
49	150	26.65	26.85	02/28/2019	06/21/2019	113			Call 21 June Expiry												
50	155	22.4	22.5	02/28/2019	06/21/2019	113															
51	160	18.45	18.5	02/28/2019	06/21/2019	113															
52	165	14.8	14.85	02/28/2019	06/21/2019	113															
53	170	11.6	11.7	02/28/2019	06/21/2019	113															
54	175	8.75	8.85	02/28/2019	06/21/2019	113															
55	180	6.4	6.5	02/28/2019	06/21/2019	113															
56	185	4.5	4.6	02/28/2019	06/21/2019	113															
57	190	3.1	3.1	02/28/2019	06/21/2019	113															
58	195	2.05	2.08	02/28/2019	06/21/2019	113															
59	200	1.32	1.36	02/28/2019	06/21/2019	113															
60																					
61	150	27.25	27.5	02/28/2019	07/19/2019	141			Call 19 July Expiry												
62	155	23.1	23.3	02/28/2019	07/19/2019	141															
63	160	19.2	19.45	02/28/2019	07/19/2019	141															
64	165	15.7	15.9	02/28/2019	07/19/2019	141															
65	170	12.55	12.7	02/28/2019	07/19/2019	141															
66	175	9.75	9.9	02/28/2019	07/19/2019	141															
67	180	7.45	7.55	02/28/2019	07/19/2019	141															
68	185	5.45	5.6	02/28/2019	07/19/2019	141															
69	190	3.9	4	02/28/2019	07/19/2019	141															

21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | **Maturiy** | IV BSM | Sheet1 | finest

	A	B	C	D	E	F															
63	160	19.2	19.45	02/28/2019	07/19/2019	141															
64	165	15.7	15.9	02/28/2019	07/19/2019	141															
65	170	12.55	12.7	02/28/2019	07/19/2019	141															
66	175	9.75	9.9	02/28/2019	07/19/2019	141															
67	180	7.45	7.55	02/28/2019	07/19/2019	141															
68	185	5.45	5.6	02/28/2019	07/19/2019	141															
69	190	3.9	4	02/28/2019	07/19/2019	141															
70	195	2.73	2.77	02/28/2019	07/19/2019	141															
71	200	1.86	1.88	02/28/2019	07/19/2019	141															
72																					
73	150	0	0	02/28/2019	10/18/2019	232			Call 18 Oct Expiry												
74	155	0	0	02/28/2019	10/18/2019	232															
75	160	22	22.3	02/28/2019	10/18/2019	232															
76	165	0	0	02/28/2019	10/18/2019	232															
77	170	15.85	15.95	02/28/2019	10/18/2019	232															
78	175	0	0	02/28/2019	10/18/2019	232															
79	180	10.75	10.9	02/28/2019	10/18/2019	232															
80	185	8.75	8.85	02/28/2019	10/18/2019	232															
81	190	6.9	7.05	02/28/2019	10/18/2019	232															
82	195	0	0	02/28/2019	10/18/2019	232															
83	200	4.2	4.35	02/28/2019	10/18/2019	232															
84																					
85																					

21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | **Maturiy** | IV BSM | Sheet1 | finest

Stock Price	Strike	Bid	Ask	Average	Time in days	Time	IV
174.52	150	24.6	24.8	24.7	15	0.041096	0.444863723
174.52	152.5	22.1	22.55	22.325	15	0.041096	0.437417184
174.52	155	19.65	19.85	19.75	15	0.041096	0.377523038
174.52	157.5	0	0	0	15	0.041096	4.65661E-09
174.52	160	14.75	14.9	14.825	15	0.041096	0.310129882
174.52	162.5	0	0	0	15	0.041096	4.65661E-09
174.52	165	10.05	10.15	10.1	15	0.041096	0.261403038
174.52	167.5	7.85	7.9	7.875	15	0.041096	0.241392008
174.52	170	5.85	5.9	5.875	15	0.041096	0.229255534
174.52	172.5	4	4	4	15	0.041096	0.209794394
174.52	175	2.57	2.58	2.575	15	0.041096	0.202222667
174.52	177.5	0	0	0	15	0.041096	0.002303296
174.52	180	0.8	0.82	0.81	15	0.041096	0.191501263
174.52	182.5	0.41	0.42	0.415	15	0.041096	0.191411139
174.52	185	0.21	0.22	0.215	15	0.041096	0.195458396
174.52	187.5	0.11	0.12	0.115	15	0.041096	0.201997687
174.52	190	0.07	0.08	0.075	15	0.041096	0.215345169
174.52	192.5	0	0	0	15	0.041096	0.012968886
174.52	195	0.03	0.04	0.035	15	0.041096	0.241327542
174.52	197.5	0.02	0.04	0.03	15	0.041096	0.259822723
174.52	200	0.02	0.04	0.03	15	0.041096	0.282517993
174.52	150	25.3	25.55	25.425	49	0.134247	0.350229
174.52	155	20.5	20.75	20.625	49	0.134247	0.308060986
174.52	160	16.05	16.2	16.125	49	0.134247	0.279281097
174.52	165	11.85	11.9	11.875	49	0.134247	0.251883226
174.52	170	8.1	8.2	8.15	49	0.134247	0.231538187
174.52	175	5.1	5.15	5.125	49	0.134247	0.216531628
174.52	180	2.92	2.94	2.93	49	0.134247	0.206454131
174.52	185	1.45	1.46	1.455	49	0.134247	0.196517413
174.52	190	0.66	0.68	0.67	49	0.134247	0.192245203
174.52	195	0.31	0.33	0.32	49	0.134247	0.194924339
174.52	200	0.15	0.16	0.155	49	0.134247	0.199632342
174.52	150	0	0	0	78	0.213699	4.65661E-09
174.52	155	0	0	0	78	0.213699	4.65661E-09
174.52	160	0	0	0	78	0.213699	4.65661E-09
174.52	165	13.75	13.85	13.8	78	0.213699	0.274567385
174.52	170	10.35	10.4	10.375	78	0.213699	0.259744427
174.52	175	7.45	7.55	7.5	78	0.213699	0.248738455
174.52	180	0	0	0	78	0.213699	0.001958744
174.52	185	3.3	3.4	3.35	78	0.213699	0.230571455
174.52	190	0	0	0	78	0.213699	0.005075899
174.52	195	1.25	1.26	1.255	78	0.213699	0.221321466
174.52	200	0.74	0.75	0.745	78	0.213699	0.220240555
174.52	150	26.65	26.85	26.75	113	0.309589	0.309104002
174.52	155	22.4	22.5	22.45	113	0.309589	0.289667011
174.52	160	18.45	18.5	18.475	113	0.309589	0.274991211
174.52	165	14.8	14.85	14.825	113	0.309589	0.262278649
174.52	170	11.6	11.7	11.65	113	0.309589	0.253656465
174.52	175	8.75	8.85	8.8	113	0.309589	0.24353161
174.52	180	6.4	6.5	6.45	113	0.309589	0.235695173
174.52	185	4.5	4.6	4.55	113	0.309589	0.228605377
174.52	190	3.1	3.1	3.1	113	0.309589	0.222858791
174.52	195	2.05	2.08	2.065	113	0.309589	0.21914124
174.52	200	1.32	1.36	1.34	113	0.309589	0.216404987
174.52	150	27.25	27.5	27.375	141	0.386301	0.304148982
174.52	155	23.1	23.3	23.2	141	0.386301	0.287186666
174.52	160	19.2	19.45	19.325	141	0.386301	0.273566875
174.52	165	15.7	15.9	15.8	141	0.386301	0.262673195
174.52	170	12.55	12.7	12.625	141	0.386301	0.252993559
174.52	175	9.75	9.9	9.825	141	0.386301	0.244129668
174.52	180	7.45	7.55	7.5	141	0.386301	0.237788842
174.52	185	5.45	5.6	5.525	141	0.386301	0.230885562
174.52	190	3.9	4	3.95	141	0.386301	0.224868366
174.52	195	2.73	2.77	2.75	141	0.386301	0.21998581
174.52	200	1.86	1.88	1.87	141	0.386301	0.216167676
174.52	150	0	0	0	232	0.635616	4.65661E-09

Sheet tabs: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | IV BSM | Sheet1 | linest

	A	B	C	D	E	F	G	H
57	174.52	150	27.25	27.5	27.375		141 0.386301	0.304146982
58	174.52	155	23.1	23.3	23.2		141 0.386301	0.287186666
59	174.52	160	19.2	19.45	19.325		141 0.386301	0.273566875
60	174.52	165	15.7	15.9	15.8		141 0.386301	0.262673195
61	174.52	170	12.55	12.7	12.625		141 0.386301	0.252993559
62	174.52	175	9.75	9.9	9.825		141 0.386301	0.244129668
63	174.52	180	7.45	7.55	7.5		141 0.386301	0.237788842
64	174.52	185	5.45	5.6	5.525		141 0.386301	0.230885562
65	174.52	190	3.9	4	3.95		141 0.386301	0.224868166
66	174.52	195	2.73	2.77	2.75		141 0.386301	0.21998581
67	174.52	200	1.86	1.88	1.87		141 0.386301	0.216167676
68	174.52	150	0	0	0		232 0.635616	4.65661E-09
69	174.52	155	0	0	0		232 0.635616	4.65661E-09
70	174.52	160	22	22.3	22.15		232 0.635616	0.280716815
71	174.52	165	0	0	0		232 0.635616	4.65661E-09
72	174.52	170	15.85	15.95	15.9		232 0.635616	0.264663915
73	174.52	175	0	0	0		232 0.635616	0.000395686
74	174.52	180	10.75	10.9	10.825		232 0.635616	0.251510325
75	174.52	185	8.75	8.85	8.8		232 0.635616	0.246902448
76	174.52	190	6.9	7.05	6.975		232 0.635616	0.241022515
77	174.52	195	0	0	0		232 0.635616	0.004013185
78	174.52	200	4.2	4.35	4.275		232 0.635616	0.233242144

Sheets: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | **IV BSM** | Sheet1 | linest

$$\text{Model 3: } \sigma = a_o + a_1X + a_2X^2 + a_3T + a_4T^2 + a_5XT$$

	A Stock Prio	B Strike	C Bid	D Ask	E Average	F Time in d	G Time	H IV	K	K^2	L T	M T^2	N XT
5	174.52	150	24.6	24.8	24.7	15	0.041096	0.44486372203905	150	22500	0.041096	0.001689	6.164384
6	174.52	152.5	22.1	22.55	22.325	15	0.041096	0.43741718400270	152.5	23256.25	0.041096	0.001689	6.267123
7	174.52	155	19.65	19.85	19.75	15	0.041096	0.37752303760499	155	24025	0.041096	0.001689	6.369863
8	174.52	157.5	0	0	0	15	0.041096	0.00000000465661	157.5	24806.25	0.041096	0.001689	6.472603
9	174.52	160	14.75	14.9	14.825	15	0.041096	0.31012983183647	160	25600	0.041096	0.001689	6.575342
10	174.52	162.5	0	0	0	15	0.041096	0.00000000465661	162.5	26406.25	0.041096	0.001689	6.678082
11	174.52	165	10.05	10.15	10.1	15	0.041096	0.26140303816646	165	27225	0.041096	0.001689	6.780822
12	174.52	167.5	7.85	7.9	7.875	15	0.041096	0.24139200802892	167.5	28056.25	0.041096	0.001689	6.883562
13	174.52	170	5.85	5.9	5.875	15	0.041096	0.22925553377718	170	28900	0.041096	0.001689	6.986301
14	174.52	172.5	4	4	4	15	0.041096	0.20979439374059	172.5	29756.25	0.041096	0.001689	7.089041
15	174.52	175	2.57	2.58	2.575	15	0.041096	0.20222266670317	175	30625	0.041096	0.001689	7.191781
16	174.52	177.5	0	0	0	15	0.041096	0.00230329576880	177.5	31506.25	0.041096	0.001689	7.294521
17	174.52	180	0.8	0.82	0.81	15	0.041096	0.19150126259774	180	32400	0.041096	0.001689	7.39726
18	174.52	182.5	0.41	0.42	0.415	15	0.041096	0.19141113851219	182.5	33306.25	0.041096	0.001689	7.5
19	174.52	185	0.21	0.22	0.215	15	0.041096	0.19545839633793	185	34225	0.041096	0.001689	7.60274
20	174.52	187.5	0.11	0.12	0.115	15	0.041096	0.20199768710882	187.5	35156.25	0.041096	0.001689	7.705479
21	174.52	190	0.07	0.08	0.075	15	0.041096	0.21534516941756	190	36100	0.041096	0.001689	7.808219
22	174.52	192.5	0	0	0	15	0.041096	0.01296888571233	192.5	37056.25	0.041096	0.001689	7.910959
23	174.52	195	0.03	0.04	0.035	15	0.041096	0.24132754188031	195	38025	0.041096	0.001689	8.013699

Sheets: 21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | IV BSM | **Sheet1** | linest

	A	B	C	D	E	F	G	H	J	K	L T	M T^2	N XT
23	174.52	195	0.03	0.04	0.035	15	0.041096	0.24132754188031	195	38025	0.041096	0.001689	8.013699
24	174.52	197.5	0.02	0.04	0.03	15	0.041096	0.25982272345573	197.5	39006.25	0.041096	0.001689	8.116438
25	174.52	200	0.02	0.04	0.03	15	0.041096	0.28251799289137	200	40000	0.041096	0.001689	8.219178
26	174.52	150	25.3	25.55	25.425	49	0.134247	0.35022899974138	150	22500	0.134247	0.018022	20.13699
27	174.52	155	20.5	20.75	20.625	49	0.134247	0.30806098598987	155	24025	0.134247	0.018022	20.80822
28	174.52	160	16.05	16.2	16.125	49	0.134247	0.27928109746426	160	25600	0.134247	0.018022	21.47945
29	174.52	165	11.85	11.9	11.875	49	0.134247	0.25188322644681	165	27225	0.134247	0.018022	22.15068
30	174.52	170	8.1	8.2	8.15	49	0.134247	0.23158818678111	170	28900	0.134247	0.018022	22.82192
31	174.52	175	5.1	5.15	5.125	49	0.134247	0.21653162781149	175	30625	0.134247	0.018022	23.49315
32	174.52	180	2.92	2.94	2.93	49	0.134247	0.20645413082093	180	32400	0.134247	0.018022	24.16438
33	174.52	185	1.45	1.46	1.455	49	0.134247	0.19651741255075	185	34225	0.134247	0.018022	24.83562
34	174.52	190	0.66	0.68	0.67	49	0.134247	0.19224520307034	190	36100	0.134247	0.018022	25.50685
35	174.52	195	0.31	0.33	0.32	49	0.134247	0.19492433872074	195	38025	0.134247	0.018022	26.17808
36	174.52	200	0.15	0.16	0.155	49	0.134247	0.19963234197348	200	40000	0.134247	0.018022	26.84932
37	174.52	150	0	0	0	78	0.213699	0.00000000465661	150	22500	0.213699	0.045667	32.05479
38	174.52	155	0	0	0	78	0.213699	0.00000000465661	155	24025	0.213699	0.045667	33.12329
39	174.52	160	0	0	0	78	0.213699	0.00000000465661	160	25600	0.213699	0.045667	34.19178
40	174.52	165	13.75	13.85	13.8	78	0.213699	0.27456738520414	165	27225	0.213699	0.045667	35.26027
41	174.52	170	10.35	10.4	10.375	78	0.213699	0.25974442716688	170	28900	0.213699	0.045667	36.32877
42	174.52	175	7.45	7.55	7.5	78	0.213699	0.24873849470168	175	30625	0.213699	0.045667	37.39726
43	174.52	180	0	0	0	78	0.213699	0.00195874166909	180	32400	0.213699	0.045667	38.46575
44	174.52	185	3.3	3.4	3.35	78	0.213699	0.23057145532221	185	34225	0.213699	0.045667	39.53425
45	174.52	190	0	0	0	78	0.213699	0.00507589895278	190	36100	0.213699	0.045667	40.60274

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
44	174.52	185	3.3	3.4	3.35	78	0.213699	0.23057145532221		185	34225	0.213699	0.045667	39.53425
45	174.52	190	0	0	0	78	0.213699	0.00507589895278		190	36100	0.213699	0.045667	40.60274
46	174.52	195	1.25	1.26	1.255	78	0.213699	0.22132146637887		195	38025	0.213699	0.045667	41.67123
47	174.52	200	0.74	0.75	0.745	78	0.213699	0.22024055477232		200	40000	0.213699	0.045667	42.73973
48	174.52	150	26.65	26.85	26.75	113	0.309589	0.30910400208086		150	22500	0.309589	0.095845	46.43836
49	174.52	155	22.4	22.5	22.45	113	0.309589	0.28966701123864		155	24025	0.309589	0.095845	47.9863
50	174.52	160	18.45	18.5	18.475	113	0.309589	0.27499121148139		160	25600	0.309589	0.095845	49.53425
51	174.52	165	14.8	14.85	14.825	113	0.309589	0.26227864902467		165	27225	0.309589	0.095845	51.08219
52	174.52	170	11.6	11.7	11.65	113	0.309589	0.25365646462888		170	28900	0.309589	0.095845	52.63014
53	174.52	175	8.75	8.85	8.8	113	0.309589	0.24353160988540		175	30625	0.309589	0.095845	54.17808
54	174.52	180	6.4	6.5	6.45	113	0.309589	0.23569517303258		180	32400	0.309589	0.095845	55.72603
55	174.52	185	4.5	4.6	4.55	113	0.309589	0.22860537748784		185	34225	0.309589	0.095845	57.27397
56	174.52	190	3.1	3.1	3.1	113	0.309589	0.22285879123956		190	36100	0.309589	0.095845	58.82192
57	174.52	195	2.05	2.08	2.065	113	0.309589	0.21914124023169		195	38025	0.309589	0.095845	60.36986
58	174.52	200	1.32	1.36	1.34	113	0.309589	0.21640498656780		200	40000	0.309589	0.095845	61.91781
59	174.52	150	27.25	27.5	27.375	141	0.386301	0.30414698179811		150	22500	0.386301	0.149229	57.94521
60	174.52	155	23.1	23.3	23.2	141	0.386301	0.28718666639179		155	24025	0.386301	0.149229	59.87671
61	174.52	160	19.2	19.45	19.325	141	0.386301	0.27356687467545		160	25600	0.386301	0.149229	61.80822
62	174.52	165	15.7	15.9	15.8	141	0.386301	0.26267319452018		165	27225	0.386301	0.149229	63.73973
63	174.52	170	12.55	12.7	12.625	141	0.386301	0.25299355853349		170	28900	0.386301	0.149229	65.67123
64	174.52	175	9.75	9.9	9.825	141	0.386301	0.24412966798991		175	30625	0.386301	0.149229	67.60274
65	174.52	180	7.45	7.55	7.5	141	0.386301	0.23778884205967		180	32400	0.386301	0.149229	69.53425
66	174.52	185	5.45	5.6	5.525	141	0.386301	0.23088556248695		185	34225	0.386301	0.149229	71.46575

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N
62	174.52	165	15.7	15.9	15.8	141	0.386301	0.26267319452018		165	27225	0.386301	0.149229	63.73973
63	174.52	170	12.55	12.7	12.625	141	0.386301	0.25299355853349		170	28900	0.386301	0.149229	65.67123
64	174.52	175	9.75	9.9	9.825	141	0.386301	0.24412966798991		175	30625	0.386301	0.149229	67.60274
65	174.52	180	7.45	7.55	7.5	141	0.386301	0.23778884205967		180	32400	0.386301	0.149229	69.53425
66	174.52	185	5.45	5.6	5.525	141	0.386301	0.23088556248695		185	34225	0.386301	0.149229	71.46575
67	174.52	190	3.9	4	3.95	141	0.386301	0.22486816626042		190	36100	0.386301	0.149229	73.39726
68	174.52	195	2.73	2.77	2.75	141	0.386301	0.21998581010848		195	38025	0.386301	0.149229	75.32877
69	174.52	200	1.86	1.88	1.87	141	0.386301	0.21616767626256		200	40000	0.386301	0.149229	77.26027
70	174.52	150	0	0	0	232	0.635616	0.00000000465661		150	22500	0.635616	0.404008	95.34247
71	174.52	155	0	0	0	232	0.635616	0.00000000465661		155	24025	0.635616	0.404008	98.52055
72	174.52	160	22	22.3	22.15	232	0.635616	0.28071681503207		160	25600	0.635616	0.404008	101.6986
73	174.52	165	0	0	0	232	0.635616	0.00000000465661		165	27225	0.635616	0.404008	104.8767
74	174.52	170	15.85	15.95	15.9	232	0.635616	0.26466391514987		170	28900	0.635616	0.404008	108.0548
75	174.52	175	0	0	0	232	0.635616	0.00039568636566		175	30625	0.635616	0.404008	111.2329
76	174.52	180	10.75	10.9	10.825	232	0.635616	0.25151032488793		180	32400	0.635616	0.404008	114.411
77	174.52	185	8.75	8.85	8.8	232	0.635616	0.24690244812518		185	34225	0.635616	0.404008	117.589
78	174.52	190	6.9	7.05	6.975	232	0.635616	0.24102251511067		190	36100	0.635616	0.404008	120.7671
79	174.52	195	0	0	0	232	0.635616	0.00401318538934		195	38025	0.635616	0.404008	123.9452
80	174.52	200	4.2	4.35	4.275	232	0.635616	0.23324214387685		200	40000	0.635616	0.404008	127.1233

21 June 2019 | 19 July 2019 | 18 October 2019 | 150-200 | Sheet7 | Maturiy | IV BSM | **Sheet1** | linest

Model 3: $\sigma = a_0 + a_1 T + a_2 T^2 + a_3 T + a_4 T^2 + a_5 KT$

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
4	Stock Prio	Strike	Bid	Ask	Time	IV		K	K^2	T	T^2	KT							
5	174.52	150	24.6	24.8	0.041096	0.444864		150	22500	0.041096	0.001689	6.164384							
6	174.52	152.5	22.1	22.55	0.041096	0.437417		152.5	23256.25	0.041096	0.001689	6.267123		A5	A4	A3	A2	A1	A0
7	174.52	155	19.65	19.85	0.041096	0.377523		155	24025	0.041096	0.001689	6.369863		0.008625	-0.13221	-1.5782	3.84907E-05	-0.01666	1.977708
8	174.52	160	14.75	14.9	0.041096	0.31013		160	25600	0.041096	0.001689	6.575342		0.003556	0.289032	0.655981	4.96324E-05	0.017408	1.522117
9	174.52	165	10.05	10.15	0.041096	0.261403		165	27225	0.041096	0.001689	6.780822		0.193814	0.092719	#N/A	#N/A	#N/A	#N/A
10	174.52	167.5	7.85	7.9	0.041096	0.241392		167.5	28056.25	0.041096	0.001689	6.883562		1.173385	66	#N/A	#N/A	#N/A	#N/A
11	174.52	170	5.85	5.9	0.041096	0.229256		170	28900	0.041096	0.001689	6.986301		0.136406	0.567395	#N/A	#N/A	#N/A	#N/A
12	174.52	172.5	4	4	0.041096	0.209794		172.5	29756.25	0.041096	0.001689	7.089041		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	174.52	175	2.57	2.58	0.041096	0.202223		175	30625	0.041096	0.001689	7.191781		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	174.52	180	0.8	0.82	0.041096	0.191501		180	32400	0.041096	0.001689	7.39726		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
15	174.52	182.5	0.41	0.42	0.041096	0.191411		182.5	33306.25	0.041096	0.001689	7.5							
16	174.52	185	0.21	0.22	0.041096	0.195458		185	34225	0.041096	0.001689	7.60274							
17	174.52	187.5	0.11	0.12	0.041096	0.201998		187.5	35156.25	0.041096	0.001689	7.705479							
18	174.52	190	0.07	0.08	0.041096	0.215345		190	36100	0.041096	0.001689	7.808219							
19	174.52	195	0.03	0.04	0.041096	0.241328		195	38025	0.041096	0.001689	8.013699							
20	174.52	197.5	0.02	0.04	0.041096	0.259823		197.5	39006.25	0.041096	0.001689	8.116438							
21	174.52	200	0.02	0.04	0.041096	0.282518		200	40000	0.041096	0.001689	8.219178							
22	174.52	150	25.3	25.55	0.134247	0.350229		150	22500	0.134247	0.018022	20.13699							
23	174.52	155	20.5	20.75	0.134247	0.308061		155	24025	0.134247	0.018022	20.80822							

Sheet2 | Sheet3

#	A	B	C	D	E	F	G	H	I	J	K	L
22	174.52	150	25.3	25.55	0.134247	0.350229		150	22500	0.134247	0.018022	20.13699
23	174.52	155	20.5	20.75	0.134247	0.308061		155	24025	0.134247	0.018022	20.80822
24	174.52	160	16.05	16.2	0.134247	0.279281		160	25600	0.134247	0.018022	21.47945
25	174.52	165	11.85	11.9	0.134247	0.251883		165	27225	0.134247	0.018022	22.15068
26	174.52	170	8.1	8.2	0.134247	0.231538		170	28900	0.134247	0.018022	22.82192
27	174.52	175	5.1	5.15	0.134247	0.216532		175	30625	0.134247	0.018022	23.49315
28	174.52	180	2.92	2.94	0.134247	0.206454		180	32400	0.134247	0.018022	24.16438
29	174.52	185	1.45	1.46	0.134247	0.196517		185	34225	0.134247	0.018022	24.83562
30	174.52	190	0.66	0.68	0.134247	0.192245		190	36100	0.134247	0.018022	25.50685
31	174.52	195	0.31	0.33	0.134247	0.194924		195	38025	0.134247	0.018022	26.17808
32	174.52	200	0.15	0.16	0.134247	0.199632		200	40000	0.134247	0.018022	26.84932
33	174.52	150	0	0	0.213699	4.66E-09		150	22500	0.213699	0.045667	32.05479
34	174.52	155	0	0	0.213699	4.66E-09		155	24025	0.213699	0.045667	33.12329
35	174.52	160	0	0	0.213699	4.66E-09		160	25600	0.213699	0.045667	34.19178
36	174.52	165	13.75	13.85	0.213699	0.274567		165	27225	0.213699	0.045667	35.26027
37	174.52	170	10.35	10.4	0.213699	0.259744		170	28900	0.213699	0.045667	36.32877
38	174.52	175	7.45	7.55	0.213699	0.248738		175	30625	0.213699	0.045667	37.39726
39	174.52	180	0	0	0.213699	0.001959		180	32400	0.213699	0.045667	38.46575
40	174.52	185	3.3	3.4	0.213699	0.230571		185	34225	0.213699	0.045667	39.53425
41	174.52	190	0	0	0.213699	0.005076		190	36100	0.213699	0.045667	40.60274
42	174.52	195	1.25	1.26	0.213699	0.221321		195	38025	0.213699	0.045667	41.67123
43	174.52	200	0.74	0.75	0.213699	0.220241		200	40000	0.213699	0.045667	42.73973
44	174.52	150	26.65	26.85	0.309589	0.309104		150	22500	0.309589	0.095845	46.43836

Sheet2   Sheet3

#	A	B	C	D	E	F	G	H	I	J	K	L
44	174.52	150	26.65	26.85	0.309589	0.309104		150	22500	0.309589	0.095845	46.43836
45	174.52	155	22.4	22.5	0.309589	0.289667		155	24025	0.309589	0.095845	47.9863
46	174.52	160	18.45	18.5	0.309589	0.274991		160	25600	0.309589	0.095845	49.53425
47	174.52	165	14.8	14.85	0.309589	0.262279		165	27225	0.309589	0.095845	51.08219
48	174.52	170	11.6	11.7	0.309589	0.253656		170	28900	0.309589	0.095845	52.63014
49	174.52	175	8.75	8.85	0.309589	0.243532		175	30625	0.309589	0.095845	54.17808
50	174.52	180	6.4	6.5	0.309589	0.235695		180	32400	0.309589	0.095845	55.72603
51	174.52	185	4.5	4.6	0.309589	0.228605		185	34225	0.309589	0.095845	57.27397
52	174.52	190	3.1	3.1	0.309589	0.222859		190	36100	0.309589	0.095845	58.82192
53	174.52	195	2.05	2.08	0.309589	0.219141		195	38025	0.309589	0.095845	60.36986
54	174.52	200	1.32	1.36	0.309589	0.216405		200	40000	0.309589	0.095845	61.91781
55	174.52	150	27.25	27.5	0.386301	0.304147		150	22500	0.386301	0.149229	57.94521
56	174.52	155	23.1	23.3	0.386301	0.287187		155	24025	0.386301	0.149229	59.87671
57	174.52	160	19.2	19.45	0.386301	0.273567		160	25600	0.386301	0.149229	61.80822
58	174.52	165	15.7	15.9	0.386301	0.262673		165	27225	0.386301	0.149229	63.73973
59	174.52	170	12.55	12.7	0.386301	0.252994		170	28900	0.386301	0.149229	65.67123
60	174.52	175	9.75	9.9	0.386301	0.24413		175	30625	0.386301	0.149229	67.60274
61	174.52	180	7.45	7.55	0.386301	0.237789		180	32400	0.386301	0.149229	69.53425
62	174.52	185	5.45	5.6	0.386301	0.230886		185	34225	0.386301	0.149229	71.46575
63	174.52	190	3.9	4	0.386301	0.224868		190	36100	0.386301	0.149229	73.39726
64	174.52	195	2.73	2.77	0.386301	0.219986		195	38025	0.386301	0.149229	75.32877
65	174.52	200	1.86	1.88	0.386301	0.216168		200	40000	0.386301	0.149229	77.26027
66	174.52	150	0	0	0.635616	4.66E-09		150	22500	0.635616	0.404008	95.34247

Sheet2   Sheet3

#	A	B	C	D	E	F	G	H	I	J	K	L
55	174.52	150	27.25	27.5	0.386301	0.304147		150	22500	0.386301	0.149229	57.94521
56	174.52	155	23.1	23.3	0.386301	0.287187		155	24025	0.386301	0.149229	59.87671
57	174.52	160	19.2	19.45	0.386301	0.273567		160	25600	0.386301	0.149229	61.80822
58	174.52	165	15.7	15.9	0.386301	0.262673		165	27225	0.386301	0.149229	63.73973
59	174.52	170	12.55	12.7	0.386301	0.252994		170	28900	0.386301	0.149229	65.67123
60	174.52	175	9.75	9.9	0.386301	0.24413		175	30625	0.386301	0.149229	67.60274
61	174.52	180	7.45	7.55	0.386301	0.237789		180	32400	0.386301	0.149229	69.53425
62	174.52	185	5.45	5.6	0.386301	0.230886		185	34225	0.386301	0.149229	71.46575
63	174.52	190	3.9	4	0.386301	0.224868		190	36100	0.386301	0.149229	73.39726
64	174.52	195	2.73	2.77	0.386301	0.219986		195	38025	0.386301	0.149229	75.32877
65	174.52	200	1.86	1.88	0.386301	0.216168		200	40000	0.386301	0.149229	77.26027
66	174.52	150	0	0	0.635616	4.66E-09		150	22500	0.635616	0.404008	95.34247
67	174.52	155	0	0	0.635616	4.66E-09		155	24025	0.635616	0.404008	98.52055
68	174.52	160	22	22.3	0.635616	0.280717		160	25600	0.635616	0.404008	101.6986
69	174.52	165	0	0	0.635616	4.66E-09		165	27225	0.635616	0.404008	104.8767
70	174.52	170	15.85	15.95	0.635616	0.264664		170	28900	0.635616	0.404008	108.0548
71	174.52	175	0	0	0.635616	0.000396		175	30625	0.635616	0.404008	111.2329
72	174.52	180	10.75	10.9	0.635616	0.25151		180	32400	0.635616	0.404008	114.411
73	174.52	185	8.75	8.85	0.635616	0.246902		185	34225	0.635616	0.404008	117.589
74	174.52	190	6.9	7.05	0.635616	0.241023		190	36100	0.635616	0.404008	120.7671
75	174.52	195	0	0	0.635616	0.004013		195	38025	0.635616	0.404008	123.9452
76	174.52	200	4.2	4.35	0.635616	0.233242		200	40000	0.635616	0.404008	127.1233
77												

Sheet2   Sheet3

'PUBLIC-PRIVATE PARTNERSHIP'- AN INNOVATIVE APPROACH FOR INFRASTRUCTURE DEVELOPMENT: A STUDY OF RAILWAYS IN INDIA

Dr. Mohit Kumar Ojha and CA Priti Sharma
Assistant Professor, Graphic Era (Deemed to be University)

ABSTRACT

Public-private partnership (PPP) has evolved as an innovative model for infrastructure development. The role of PPP is so vital that most of the countries are adopting this as a means for bridging infrastructure gap. The study focuses on the PPP initiatives in India in transport sector with major emphasis on railways and analyses the projects that have been implemented on PPP basis. Study is based on secondary data gathered from government websites, reports and journal articles. PPP initiatives in India have not gone up to a level it needs to be, but still sooner or later Government of India has recognized its importance. A lot of PPP projects are in pipeline in transport sector which shows much importance is now given to PPP model for infrastructure provision in India. Railway is lagging here as not much projects have been implemented on PPP basis especially on the fronts of modernization of railway stations. So, Ministry of Railway has to gear up and look positively towards PPP as a viable solution for extension of rail infrastructure. Study will prove helpful for government officials and to policy makers for implementing more and more projects on PPP basis. The study is focused only on transport sector and that too especially on railways which can be considered as a limitation of this study but it also provides us with the opportunity for further research including more sectors which will be helpful for comparativeanalysis.

Keywords: Public-Private Partnership, Infrastructure development, India, Transport Sector, Railway.

'Public-Private Partnership'- An Innovative Approach for Infrastructure Development: A Study of Railways in India

INTRODUCTION

Public-private partnership is presently the buzz word for infrastructure development in the world (Swain, 2009). Infrastructure provision is one of the biggest challenges in India as public sector is unable to develop the required infrastructure on its own due to lack of financial resources and capacity on the part of public sector (Mahalingam, 2010). Hence, role of private sector becomes eminently important for bridging the infrastructure gap in India (Mahalingam, 2010; World Bank Institute, 2012). Considering the resource constraint on part of public sector, Public-Private Partnership (here after referred to as PPP) seems to be most viable option for infrastructure provision (Mahalingam, 2010; World Bank Institute, 2012). In fact, many countries in lieu of economic development have promoted PPP as a means of economic progress (Das and Nandy, 2008). High population growth coupled with migration to urban areas has put lot of burden on existing infrastructure, posing a serious need for infrastructure provision to tackle the continuously growing demand. Proper modes of transport in the form of road, rail and airways is of utmost importance because the demand is increasing at very rapid pace than ever before. In this regard, provision of transport facility and adequate infrastructure is inevitable and PPP is the only way out. The study aims to look at the various projects undertaken under PPP basis in various transport sectors in India, especially in railways. Study focuses on various issues of project implementation and delivery like type of project, status of the project, estimated cost of the project and so on. Study also tries to find out the level of work done under PPP basis so as to provide necessary infrastructure in transportsector.

THEORETICAL BACKGROUND
Public-Private Partnership

A Public Private Partnership (PPP) is a partnership contract between the public and private sector so as to deliver a project or service, which would traditionally be provided by the public sector. As per Das (2012) "a PPP project involves partnership between (at least) one Government/public entity and a private sector entity, where the parties both contribute resources and take on significant responsibilities and risks related to the project in order to deliver pre-determined project outcomes". PPP can provide additional finance and also improve the allocation of resources and asset utilization (World Bank Institute 2012). There are numerous benefits of entering into PPP like cost saving, excellence in quality and system performance (Das and Nandy, 2008), increased efficiency (Asian Development Bank, 2008; Brinkerhoff and Brinkerhoff, 2011), improvement of services and productivity (Gupta and Roy, 2008), enabling the delivery of new technology (Das and Nandy, 2008), and so on which can be capitalized by public sector for providing suitable infrastructure for economic growth and development. But, in order to build a strong PPP model there must be a sense of partnership among

private and public sector so as to achieve the desired objectives of economic development, as Das (2012) has rightly pointed out that it is the term 'partnership' in PPP that is important. Hence, only joining hands with private sector will not solve the problem, issue is there should be mutual cooperation. Public-private partnership ensures benefits for all stakeholders' viz. government, private partners and amongst all public at large (Sharma,2009).

There are various models/schemes are available to implement PPP (Lakshmanan, 2008). Different countries have used different models of PPP in different sectors for infrastructure development (Davis, 1996; Blackwell, 2000; National, 2003; as cited by Zhang, 2005). In this regard and to provide an understating of various models, a brief summary of models has been provided below.

1. ServiceContract
It is a form of contract where government hires a public entity for carrying out specified services (Asian Development Bank, 2008). Government pays fees to private sector and retains the overall responsibility for service delivery (Das, 2012). The period of service contract generally ranges from one to five years, while payment to private entity is linked to its performance of the activities (Delmon, 2011).

2. ManagementContract
In management contract the management of part or whole of a public enterprise is contracted out to private sector. It is an extension of service contract (Asian Development Bank, 2008). The private entity is paid a predetermined rate for its operations or can be paid by way of share in profit.

3. Lease or AffermageContract
It is a form of PPP having lowest degree of privatization (Gupta and Roy, 2008). In this type of agreement government grants lease to private entity of its existing assets like land and building for service delivery. Private entity is responsible for entire service delivery process, whereas, government is responsible for capital expenditure (World Bank Institute, 2012). The term of lease varies from 10 years to 20 or 30 years and may be renewable after the expiry of lease period. There is slight difference between lease and affermage contract; in affermage contract the private operator and the government shares the revenue generated by service delivery. Various forms of lease/afermage agreements are Operation and Maintenance Contract (O&M), Build Own Maintain (BOM), Lease- Operate-Maintain contract, and so on.

4. ConcessionAgreement
In concession type agreement, government grants concession to a private operator known as concessionaire. The concessionaire is responsible for full delivery of the specified service. Concession agreement is used to describe a 'user-pay' PPP (World Bank Institute, 2012). Here the private operator is responsible for all the activities involved in service delivery like design, construction, operation, maintenance, collection, and so on. The users are charged concession fee and private operator is responsible to collect the user charges. Public sector's role is to set the performance standards and to ensure that such standards aremet.

5. Joint Venture(JV)
It is a type of contract where private and public sector joins hands to share the ownership of an existing entity or to create a new entity. The JV is formed to carry out a specific task and at the completion of the task either the JV is dissolved or it may be continued to carry out anothertask.

6. GreenfieldInvestment
It is form of private participation where a new venture is created for manufacturing new physical assets at locations where no such existing facility is currently present. Here the facilities are provided from the ground level. According to Lakshmanan (2008) "Greenfield investment is defined as an investment in a start-up project, usually for a major capital investment and the investment starts with a bare site in a Greenfield".

7. Built-Operate-Transfer and similar types ofarrangements
These are the types of arrangement where private operator takes the responsibility of building a new infrastructure. Private sector builds, operates, and maintains the infrastructure. Private sector is granted concession to charge user fee so as to recover its investment in the project and once the concession period is over the ownership of the asset is transferred to the government. Various countries are using these models like India, Croatia, China, Malaysia, Philippines, and so on. (Swain,2009).

PUBLIC-PRIVATE PARTNERSHIP IN INDIA
Though considering the huge importance of PPP in infrastructure development, it is still in a nascent stage in India (Sharma, 2009). In order to build a strong infrastructure base and to remove the infrastructure deficiency, huge investment is required. In this regard and considering the fiscal constraints and ever increasing liabilities of

government (Lakshmanan, 2008), importance of PPP gets doubled. The initiatives towards PPP have been started only after 1991, the era of economic reforms in the country, when the policy environment towards Public-Private Partnership for infrastructure development has been forwarded (Lakshmanan,2008).

Infrastructure projects are carried out at two levels in India; (1) at national level by central government and, (2) and at state and urban level by respective state government agencies, while very limited work has been done on both the fronts (Mahalingam, 2010). Till 2018 a total of 978 projects have been initiated in India, 496 under transport sector (World Bank, 2019), which if compared to other developed and developing countries, stands way below. Hence, there is serious necessity to develop the urban infrastructure and to embrace the PPP mode for this the stress placed by migration on existing urban infrastructure is at its peak (Mahalingam,2010).

PUBLIC-PRIVATE PARTNERSHIP IN RAILWAYS

Despite the decline of rail transport towards the end of 20thcentury (Givoni and Rietveld, 2007) it still provides a major source of transportation for majority of population in the country (Geetika and Nandan, 2010). Gauging from its tagline, Lifeline to the Nation, the importance of railways cannot be curtailed and the tremendous growth of economy has necessitated improved and enhanced rail infrastructure. Hence, for the development of railway infrastructure, PPP is regarded as a suitable option (Kumar, 2008). Catering to 22.23 million passengers every day and with over 67,338 route kilometres, 93,902 kilometers of running tracks, 1,149,835 million passenger kilometre, around 7,349 stations, and over 1.30 million workforces (as at 31stMarch, 2017) (www,indianrailway.gov.in), Indian Railways, under one management, ranks first in Asia and third overall in the world. Over the years Indian Railways traffic in BT km has shown a negative trend because of certain reasons like insufficient infrastructural investment, capacity shortages, organizational inefficiency, and so on, and at the passenger segment, Indian Railways isfacingproblemslikelackofsupplyandin-appropriateamenities (RaghuramandBabu,1999; Sharma, 2008; Geetika and Nandan, 2010; Geetika et al., 2016; Ghosh et al., 2017). Despite these drawbacks, Indian railways ranks second in terms of profit making public sector undertakings only after ONGC and a number of public-private partnership models have been encouraged in Indian Railways for capacity enhancement and modernization (Kumar, 2008). Ministry of Railway (here after referred to as MoR) is looking at private operators for building world-class railway stations (Price Waterhouse Coopers, 2008), where 22 railway stations had already been selected by MoR for developing into world-class stations under PPP basis (Kumar, 2008; Sharma, 2009). In this context, it is pertinent to assess the level of development achieved on infrastructural front by Indian Railways. The study has been conducted to address the issues related with level of adoption of PPP as primary mode for infrastructureprovision.

RESEARCH DESIGN
Objective of the Research
Study aims to identify the projects initiated in India on PPP basis in transport sector. The major emphasis would be on railway to analyze the status of infrastructure projects on PPP basis. Study also entails the status and number of projects in various sub sector of transport sector and draws a generalized conclusion regarding the status of PPP initiatives inIndia.

RESEARCH METHODOLOGY
Study is purely conceptual in nature based on analysis of secondary data gathered from websites and reports of various national and international agencies, and from scholarly journals. The data has been analyzed using MS Excel and interpretation has been done. Utmost care has been taken for the authenticity of data and to ensure this, only reliable websites of Government of India and other international bodies like World Bank, Asian Development Bank, and so on has been accessed.

DATA ANALYSIS AND INTERPRETATION
The data related to number of projects in transport sector in India under PPP basis and their relative investment is provided in figure 1.
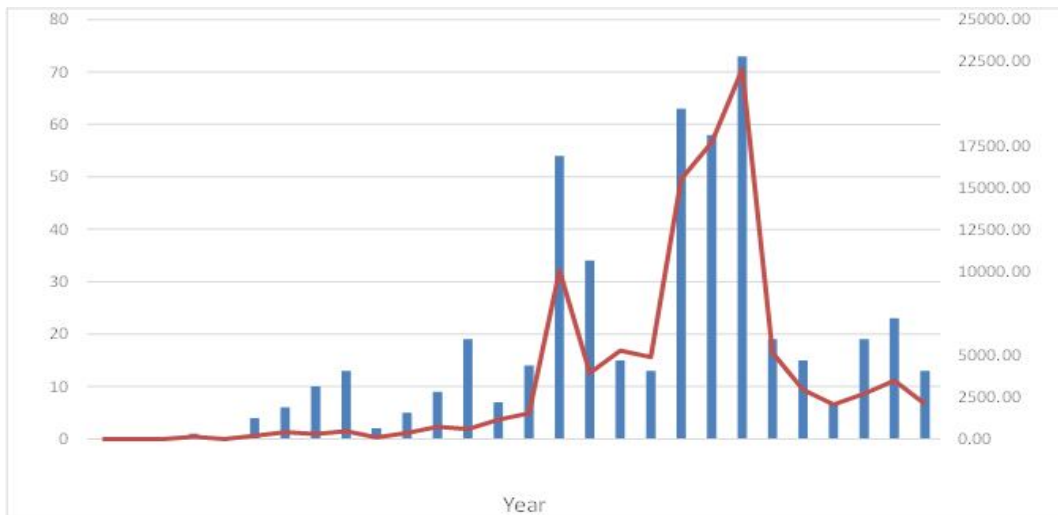
Figure-1: Year Wise Project Data (*Source: World Bank, 2019*) *Note: 2018 figures are for half year*
(Source: World Bank, 2019)

Figure 1 clearly shows that there is gradual increase in the number of private participation in infrastructure over the years; it started declining after 2006. It could be due to the fact that period of 2007-2009 is characterized by the period of Great Financial Crisis (GFC) because of which investment projects faced a big halt. As the economies started to stabilize after 2009, investment project in transport sector also seen rise in periods 2010, 2011 and 2012 respectively. 2013 saw a major dip in number of investment projects on the back of General Elections in 2014. It can be said that government is encouraging more and more private participation in infrastructure in recent years to combat major problems of public sector like resource constraint, lack of technical expertise, slow pace of project execution, and so on and to bridge the infrastructure gap.

Looking at the projects on the basis of type of project in transport sector, Table 2 provides year to year summary of projects under transportsub-sector.

Table 1: Project Break-up on Basis of Transport Sub-Sector				
Year	**Roads**	**Ports**	**Railways**	**Airports**
1994	-	-	-	1
1995	-	-	-	-
1996	3	1	-	-
1997	4	2	-	-
1998	9	1	-	-
1999	10	3	-	-
2000	2	-	-	-
2001	2	2	-	1
2002	7	1	1	-
2003	16	2	1	-
2004	6	1	-	-
2005	8	3	1	2
2006	46	6	-	2
2007	32	2	-	-
2008	11	3	1	-
2009	11	1	1	-
2010	57	4	1	1
2011	55	1	2	-
2012	71	2	-	-
2013	18	1	-	-
2014	13	2	-	-
2015	6	1	-	-
2016	16	2	1	-
2017	20	-	2	1
2018	12	1	-	-

It is clearly evident from Table 1 that projects are concentrated towards roads and the pattern is consistent for past three decades since inception.

Figure 2: Transport Sub-Sector WiseBreak-Up
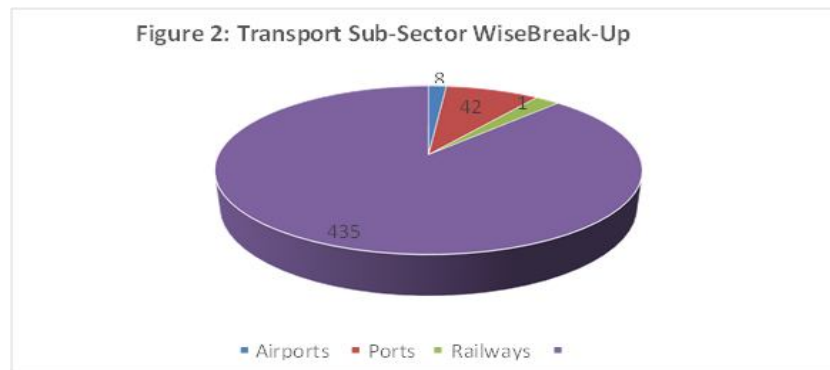
Further considering the overall figures, Figure 2 shows that, till date, almost 87 per cent of projects are related to road infrastructure development and another nine per cent of projects are related to ports. Airports and Railways combined together have able to drive only around four per cent of PPP projects by Central Government.

Status of Transport Sub-Sector Projects at Central and State level The status of projects as depicted by table 2 shows that most of the projects are under process in the category of central projects as around 46% of projects are under implementation. If we look at the figures on sub-sector basis, Ports have maximum completion rate as 30 out of 71 (42.2 per cent) projects have been completed; followed by roads, railways, and airports with completed projects percentage of around 22, 21 and 15 per cent respectively.

Looking at state projects it can be seen that most of the projects are in pipeline (51.46 per cent to be specific) which is because of delay and lazy process from the part of the state government and relating agency. This phenomenon is also because the private participation has been initiated recently by state government for infrastructure development. In Railway only one completed project has been recorded and five projects are in pipeline. This is very discouraging from the part of the state government, but the brighter side is that state government have recognized the importance of PPP for infrastructure development and are initiating a lot of projects under privateparticipation.

Sl. No.	Ministry / Sector	Completed Projects		Projects Under Implementation		Projects in Pipeline		Overall Status	
		No. of Projects	ProjectsCost (INR crore)	No. of Projects	ProjectsCost (INR crore)	No. of Projects	Projects Cost (INR crore)	No. of Projects	Projects Cost (INR crore)
Table 2: Status of Transport Sector Projects (till 2018)									
					Central Sector				
1.	National Highways	68	25,614	160	1,55,252	68	68,536	296	2,49,402
2.	Ports	30	9,448	22	19,226	19	8,577	71	37,251
3.	Airports	3	5,883	2	25,237	14	24,585	19	55,705
4.	Railways	4	1,561	3	3,441	12	58,100	19	63,102
Total (Central Projects)		**105**	**42,506**	**187**	**2,03,156**	**113**	**159,798**	**405**	**4,05,460**
					State Sector				
1.	Roads	155	20,506	129	78,190	294	1,45,563	578	2,44,259
2.	Ports	27	45,864	13	31,999	41	53,788	81	1,31,651
3.	Airports			6	5,071	12	16,582	18	21,653
4.	Railways	1	197	1	594	5	2,812	7	3,603
Total (State Projects)		**183**	**66567**	**149**	**115854**	**352**	**2,18,745**	**684**	**4,01,166**
Source: Compiled from Draft Compendium of PPP Projects in Infrastructure, Planning Commission, Govt. of India									

Projects on PPP basis in Railway
Railway has initiated very few projects on PPP basis for enhancing and developing rail infrastructure. In Indian Railways, PPP has been evolved having organization at the center point (Gupta and Roy, 2008). Organizations

in the form of Special Purpose Vehicle (SPV) have been formed in Indian Railways for big rail projects, outsourcing, leasing, licensing, and so on. Brief summary of organizations formed under PPP basis by Indian railway is provided in table 3 below:

Table-3: Organizations formed by Indian Railway on PPP Basis	
Organizations	**Main Features**
Konkan Railway Corporation Ltd. (KRCL)	**Year of Formation:** 1990 **Partners:** Ministry of Railways and four state governments of Maharashtra, Goa, Karnataka and Kerala. **Purpose:** To construct a new 760km coastal railway line to cut short the distances from Mumbai to Goa, coastal Karnataka and Kerala. **Model/Type:** BOT concession Model by MoR for 10 years **Structure:** Conventional government contracting with the major construction risk borne by company. No risk assumed by state governments and their role limited to extending their share of equity fund. **Lesson(s) Learned:** Creation of a project specific company enables better project management and provides new benchmark.
Mumbai rail Vikas Corporation (MRV)	**Year of Formation:** 2001 **Partners:** MoR and Government of Maharashtra. **Purpose:** Up gradation of Suburban railway infrastructure in Mumbai. **Structure:** Joint Venture SPV where MOR holding 51% and state government the rest. **Lesson(s) Learned:** The doors of future financing of the projects through Indian financial institutions was opened up.
Container Corporation	**Year of Formation:** 1988 **Purpose:** Developing multi-modal transport facilities like terminal facilities, container carriers etc. **Lesson(s) Learned:** Indian Railway should focus on to fit business interest instead of return on investment.
Indian Railway Catering and Tourism Corporation (IRCTC)	**Year of Formation:** 1999 **Purpose:** For developing the hospitality sector in Indian Railways through private participation. **Lesson(s) Learned:** Captive market peripheral services provided by Indian Railway are a low risk high return business opportunity for PPP.
Pipavav Railway Corporation Limited (PRCL)	**Year of Formation:** 2001 **Partners:** MoR and Gujarat Pipavav Port Limited (GPPL) a private company. **Purpose:** For 270 km gauge conversion and port linking project to link Pipavav Port with Surendranagar in Gujarat. **Model/Type:** BOT concession for 33 years **Structure:** A 50:50 joint venture SPV **Lesson(s) Learned:** Traffic guarantee from port is not an adequate market risk mechanism.
Rail Vikas Nigam Limited (RVNL)	**Year of Formation:** 2003 **Purpose:** Strengthening of the Golden Quadrilateral (GQ) for running of goods trains at 100 kmph, port connectivity projects and construction of mega bridges. Also proposes to create nine SPVs and execute 11 projects on BOT. **Structure:** Wholly government owned Umbrella SPV **Lesson(s) Learned:** Only creating an Umbrella SPV is not adequate but it has to be provided with appropriate authority to make decisions on its own without requiring government's approval every time and at each stage.
Hassan Mangalore Rail Development Company (HMRDC)	**Year of Formation:** 2003. **Partners:** Ministry of Railway and Government of Karnataka (GOK) **Purpose:** executing a 183 km long gauge conversion project for linking New Mangalore Port Trust port to Hassan in Karnataka. **Model/Type:** Concession was granted for 32 years by MOR **Structure:** Umbrella SPV with MOR and GOK holding 41% equity each. **Lesson(s) Learned:** Similar to those of PRCL and RVNL.
Source: Compiled from Gupta & Roy, 2008	

The overall analysis shows that the organizations have performed well and they have managed to achieve their objectives. Some lessons have to be learned from these organizations that proper authority has to be provided to the SPVs so that they can take decisions on their own and need not to approach state government for approval every time. Creating project specific SPV is a good mean for service delivery.

There are organization that have been formed under PPP; very few projects have been initiated by MoR on PPP basis for the development of rail infrastructure. Table 4 provides the projects that have been initiated on PPP basis by IndianRailways.

Table 4: Status of Railway Projects at Central and State Level (till 2018)			
Central Sector Railway Projects by Ministry of Railways			
Completed Projects			
Sr. No.	**Name of The Project**	**Project Cost (in INR Crore)**	**Date of Completion**
1.	SurendraNagar - PipavaRail connectivity project	373	Mar-03
2.	Hassan - Manglore gauge conversion port connectivity Project	293	May-06
3.	3 Gandhidham - Palanpur gauge conversion port connectivity Project	500	Nov-06
4.	Bharauch – Dahej	395	Mar-12
Total - Ministry of Railways (4 Projects)		**1,561**	
PPP Projects under Implementation			
Sr. No.	**Name of The Project**	**Project Cost (in INR Crore)**	**Date of Award**
1.	Haridaspur - Paradeep port connectivity (New Line)	1,186	Dec-07
2.	2 Obulavaripalle - Krishnapattam (New Line)	1,203	Nov-07
3.	Anugul – Sukinda	1,052	May-10
Total - Ministry of Railways (3 Rail Projects)		**3,441**	
Projects in Pipeline			
Sr. No.	**Name of The Project**	**Project Cost (in INR Crore)**	
1.	Elevated Rail Corridor in Mumbai (Churchgate-Virar)	20,000	
2.	Redevelopment of Stations at 8 locations (Mumbai CST, Bijwasan, New Delhi, Chandigarh, Habib Ganj, AnandVihar, Mumbai Central and Pune(Shivaji Nagar)	7,500	
3.	Sonenagar - Dankuni Dedicated Freight Corridor project	1,700	
4.	Other Port Connectivity projects at 10 locations	5,000	
5.	Logistics Park at 8 locations JNPT, Sanand, Rewari, Dadri, Manesar-Bawal, Pithampur(Indore), Karla (Nasik,Pune), Dholera	7,000	
6.	Loco and coach manufacturing unit at Madhepura Locomotive Factory	2,500	
7.	Loco and coach manufacturing unit at Marhowra Diesel Locomotive Factory	2,050	

8.	Loco and coach manufacturing unit at Palakaad Coach manufacturing factory	550	
9.	Captive Power Generation by Windmills	1,800	
10.	Captive transmission lines for wheeling power	1,000	
11.	1 Energy conservation projects	1,000	
12.	Captive Power Generation, Adra power plant	8,000	
Total - Ministry of Railways (12 Projects)		**58,100**	
State Sector Railway Projects			
Completed Projects			
State	**Name of The Project**	**Project Cost (in INR Crore)**	**Date of Completion**
Gujarat	Dahej - Bharuch gauge conversion	197	2012
Total-1 Railway Project		**197**	
PPP Projects under Implementation			
State	**Name of The Project**	**Project Cost (in INR Crore)**	**Date of Award**
Orissa	Haridaspur-Paradeep Railway Project	594	NI*
Total-1 Railway Project		**594**	
PPP Projects in Pipeline			
State	**Name of The Project**	**Project Cost (in INR Crore)**	
Gujarat	Dahej-Bharuch Guage Conversion	197	
	Hazira Missing link new line	115	
	Surat LRT	Not Available	
	Gandhidham- Palanpur Guage Conversion	500	
	Regional Railway System	2,000	
Total-5 Railway Projects		**2,812**	
Source: Compiled from Draft Compendium of PPP Projects in Infrastructure, Planning Commission, Govt. of India			

Table 4 provides that only 19 projects have been initiated by MoR at central level, while only 7 have been implemented by State Government on PPP basis. Majority of the projects are related to construction of new rail lines, corridors or for gauge conversion; no such PPP project has been initiated for the restructuring, development and modernization of railway stations. It clearly shows a lackluster response from the part of MoR.

Conclusions and Recommendations

Infrastructure development is inevitable for economic growth in today's fast changing environment and globalization has put tremendous pressure on existing infrastructure. In order to bridge the infrastructure gap and to provide necessary infrastructure, PPP is considered as favorite option by various country. India has also adopted the PPP model for developing its infrastructure base but the process is still in a very nascent stage. Study concludes that though a lot of initiatives on PPP basis have been taken in transport sector; railways has received very less attention. Various projects that have been initiated in railways sub-sector are mostly concentrated towards gauge conversion, construction of new lines and corridors; railway stations remain a neglected area as no such projects has been undertaken for modernization and development of stations to provide passengers with a better place and environment for their temporary stay at platforms. This necessitates the need from the part of MoR to take considerable steps towards development of stations on world-class standard and for this they have to embrace PPP to its fullest. A number of railway projects are in pipeline and faster execution of those projects will definitely change the infrastructure scenario in India. Finally, it can be concluded that off late India has recognized the importance of private participation for developing infrastructure base but still we have to go a long way for embracing the model as a primary means of infrastructure provision.

SCOPE FOR FUTURE RESEARCH

Every research encompasses certain limitations and the present study is based on secondary data compiled from various international agencies and from reports of government undertakings, different dimensions could be explored and in-depth assessment can be made if primary data by way of interviews can be included. Further the study focuses on transport sector in general and railways in specific, studies are welcomed to consider other sectors as well for assessment of performance of PPP projects to gauge efficacy of PPP as the most suitable mode for infrastructuredevelopment

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PROFIT TO PURPOSE: DEVELOPING AN INTEGRATED CSR STRATEGY

Yashika Chakarwarty[1] and Kunika Arora[2]

Assistant Professor[1], Department of Commerce, K. L. Mehta Dayanand College for Women, Faridabad
(Affiliated to Maharshi Dayanand University, Rohtak, Haryana)
Assistant Professor[2], Department of Management, K. L. Mehta Dayanand College for Women, Faridabad
(Affiliated to Maharshi Dayanand University, Rohtak, Haryana)

ABSTRACT

Although CSR is not a new concept in India. Before the enactment of Companies Act 2013, there were various other laws like Factories act-1948, Minimum Wages Act-1948, Payment of wages act-1936, Environment protection act-1986 etc., which addressed the responsibility of corporates towards the society. Ministry of Corporate Affairs (MCA) issued corporate social responsibility guidelines in 2009, which was the very first step taken by the government towards business responsibility which stated that each company should have a CSR policy and that they should allocate a certain budget for CSR activities. There are many companies which were voluntarily taking initiatives and contributing towards society, since decades but it did not bring much change.

CSR has picked its pace and became popular after the amendments of Companies Act, 2013. But it still is one of the least understood concept amongst the public. CSR is often misunderstood as philanthropy. It is the duty of all the stakeholders to contribute towards the society, neither as a favor nor as charity, but as their responsibility.

This paper studies about the concept of CSR in detail and whether CSR is implemented in real sense. It puts an emphasis on the initiatives taken by the Indian companies and how these companies spend on CSR activities in India. This paper also discusses about the current status of CSR in India, with its challenges and suggestions on what further improvements can be made.

Keywords: Corporate Social Responsibility, Ministry of Corporate Affairs, Companies Act, philanthropy, stakeholders

1. INTRODUCTION

"No success in material terms is worthwhile unless it serves the needs or interest of the country and its people" – JRD TATA

India has the world largest youth population but is the home for poverty as more than half of the population of India still resides in villages and is deprived off necessities of life. Although it is the responsibility of government to look after the welfare of society, but alone government cannot solve all the issues simultaneously like health, education, sanitation etc. So, it becomes the duty of all the stakeholders to look after the society. As the corporates take the resources from society, society expects something in return. So, they should take little initiatives and contribute towards socio-economic development of the country, neither as a favor nor as charity but as their responsibility. Corporate social responsibility is made up of three words which means responsibility of the corporates towards the society. According to Business for Social Responsibility (BSR) "Corporate Social Responsibility is operating a business in a manner which meets or excels the ethical, legal, commercial and public expectations that a society has from the business. Bowen has suggested that the "social responsibility of businessman refers to the obligations of businessmen to pursue those policies, to make those decisions or to follow those lines of action which are desirable in terms of the objectives and values of our society." It is a concept where companies not only consider the profitability but also the interest of society and environment as a whole. It is away through which companies integrate the social, economic, environmental concerns into their culture, decision making, strategy etc. It is the way of balancing both economic and environmental goals. As the corporates grow, their non-financial responsibility increases. CSR is not a new concept in India but with increasing population and illiteracy, the conceptof CSR is gaining importance. CSR is the only hope among people for rural development.

1.1 EVOLUTION OF CORPORATE SOCIAL RESPONSIBILITY

Corporate Social Responsibility concept is not new in India. India has one of the oldest and rich tradition of CSR. This concept dates back to Mauryan history, where philosophers like Kautilya have put emphasis on ethical practices. Indian culture believes in sharing the wealth with underprivileged section of society. They follow the principle of sharing and caring. Every religion had their own philosophy in implementing the concept of CSR. Hindus followed Dharmada where sellers charged a specific amount from buyers and the amount was used for charitable purposes. Sikhs used to organize langar at free of cost to feed the poor in gurudwaras. Islam

preached the law of Zakaat in which they used to donate a portion of their earnings for charity. The history of CSR can be divided into four phases:

1.1.1. FIRST PHASE: CSR AS A CHARITY OR PHILANTHROPY
The traditional concept of CSR was in the form of charity and philanthropy which is practiced even today. In the pre industrial era up to the 1850s, people used to share their wealth by building temples and donating money at the time of crisis like famine. After 1859s, in colonial period the approach towards CSR changed. Many industrialists like TATA, BIRLA integrated economic objective with social development and started setting up charitable, education institutes.

1.1.2. SECOND PHASE: CSR FOR INDIA'S SOCIAL DEVELOPMENT
At the time of independence struggle, Mahatma Gandhi ji had put emphasis on sharing the wealth to deprived class of society. Gandhi ji gave the concept of trusteeship where Indian companies and industries were regarded as "temples of modern India". He influenced industrialists to build a trust for colleges, training institutes which worked for rural development, removal of untouchability and women empowerment.

1.1.3. THIRD PHASE: INDIA AS A MIXED ECONOMY
This phase had its relation to mixed economy. In the beginning, public sector was given much importance for socio-economic development. Its main objective was social welfare of people. This period was called as "the era of command and control" because of the policy of industrial licensing and quota system prevailing in the country. However, the result of public sector was not very effective which lead to shift in role of development from public to private sector.

1.1.4. FOURTH PHASE: INDUSTRIAL POLICY REFORMS
The period of 1990s bought an industrial reform in the economy. The licensing and quota system were abolished, and efforts were made to integrate India with the global world which gave a boost to the economic growth. This did not lead to decrease in philanthropy and donations rather increased the CSR. Indians exporting out of the country where bound to follow the compliance and international standards.

1.2. CURRENT STATUS OF CSR IN INDIA
Before the enactment of Companies Act 2013, there were various other laws like Factoriesact-1948, Minimum Wages Act-1948, Payment of wages act-1936, Environment protectionact-1986 etc which addressed the responsibility of corporates towards the society. Ministry of Corporate Affairs (MCA) issued corporate social responsibility guidelines in 2009 which was the very first step taken by the government towards business responsibility which stated that each company should have a CSR policy and they should allocate a certain budget for CSR activities. These guidelines were then reviewed in the year 2011 called as national voluntary guidelines on social, economic, environmental and economic responsibilities of business,2011.

Although some companies were voluntarily taking initiatives for the welfare of the society but that did not make much difference in the economy. It became very important for rural people to enjoy the same quality and standard of life as urban population is enjoying. So, the government announced in the year 2013 to make CSR mandatory by amending the companies act and adding section 135 in the companies act 2013. Although India is a mixed economy, but it has to operate within the limits of the government. Economic objective of earning profit remains the primary aim of the business but every corporate at the same time must comply with the legal rules and regulations of the government and contribute towards corporate social responsibility as per the limits prescribed in the Act.

According to section 135 of Companies Act, 2013, every company having net worth of Rs500 crore or more, or turnover of Rs 1000 crore or more or net profit of Rs 5 crore or more during any financial year has to spend 2% of its average annual net profit on CSR activities. Various activities in which amount has to be spend on CSR is mentioned in **schedule V11 of companies act 2013.** The act also mentions every such company to constitute corporate social responsibility committee consisting of minimum 3 directors out of which one director should be independent director. If the company in any financial year could not spend the amount of CSR as per the prescribed limit, then its Board of Directors shall specify the reasons for spending the amount in its reports. Regional backwardness is an alarming issue now days which needs to be solved at the earliest. Even today, many villages are not provided with necessities like power supply, safe drinking water etc. They are still dependent on traditional methods for earning their livelihood, poverty and hunger is still prevailing there. India has the capability of becoming a developed country if proper planning is done and everyone contributes a bit. This way the private investment will flow in rural area and this will reduce the gap between rich and poor. CSR is the only ray of hope for improving the condition of our country.

1.2.1. NATIONAL VOLUNTARY GUIDELINES

Ministry of Corporate Affairs issued these guidelines on July 8, 2011 which consisted of 9 principles as follows:

Principle 1: Ethical conduct in all functions.

Principle 2: Provide goods and services that are safe

Principle 3: Promote wellbeing of employees

Principle 4: Responsible towards all the stakeholders.

Principle 5: Respect and promote human rights

Principle 6: Protect the environment

Principle 7: Operate within the legislative framework of government

Principle 8: Support inclusive growth and equitable development.

Principle 9: Provide value to customers

SEBI decided that every company should compulsorily include Business Responsibility Report in their annual report.

2. REVIEW OF LITERATURE

The main goal of literature review is not just to write summaries of the research papers already written but to review and critical analyze their study and find the existing research gaps. The various studies on the topic are as follows:

Waseen Jahangir (2017) studied about the comparison of corporate social responsibility practices in pre and post 2013 era. The study concludes that prior to Company's act 2013, companies preferred direct method to fund CSR activities, but after 2013, it has been seen that companies started spending on CSR through third party also. The results also show that after mandatory CSR 2013, companies are funding in areas like sports, national heritage etc which was not very popular before 2013. Even after CSR becoming mandatory, there is still seen a gap between actual amount spend by CSR and the limit prescribed by the government. The reason for underutilization of funds is being disclosed by annual reports of the companies.

Sangeeta Bansal (2014) studied the spending on corporate social responsibility by firms after mandatory CSR 2013. The year 2013 bought a remarkable change, it was in this year that government announced CSR as compulsory which came into effect on 1-04-2014. The results show that before 2013, companies were doing CSR voluntarily may be for goodwill, but it is interesting to see that in the year 2012-13 just after the compulsion, companies CSR spending increased even when CSR became compulsory from the year 2014. So, spending on CSR showed an increasing graph though less than the prescribed limit by the government. It has also been seen that area in which companies are spending their CSR in depends on their type and nature of the company.

Dr. Ratan Borman, Dipanjan Chakarborty (2014) reviewed the corporate social responsibility provisions in companies act 2013. With the increase in population of India, the people below poverty line were also increasing. It was then that the government found it necessary to amend the companies act and make CSR mandatory for the companies falling under the limit mentioned under section 135 of companies act 2013. This section has also listed various activities which are eligible under CSR. Section 135 requires company to set up a CSR committee unless exempted. For spending on CSR activities, the company can either collaborate with other companies or spend through some third agency or even carry out the activity directly. It has also become compulsory for companies to disclose the amount spend on CSR in their annual report and if they couldn't spend in accordance with the prescribed limit then they have to mention the reason along in their report.

Sai PVS (2017) made a comparative study of CSR before 2013 and after 2013. The study is purely based on secondary data like text books, journals etc. The research showed that before 2013, most of the companies did not mention the amount spend on CSR in their balance sheet or annual report. It has also been researched that many companies were using CSR as a tool for marketing to improve their brand image. Before 2013, not many companies paid attention on CSR. After coming of companies act 2013, it was seen that companies spending towards CSR increased compared to previous years but still it was not up to the limit as prescribed by the government. So, it has become very important for the companies to understand their responsibility towards the society for socioeconomic development of the country.

Poonam (2016) in her paper explained the corporate social responsibility in rural sector. She had studied the initiatives taken by selected private and public companies for development of rural sector. The research is entirely based on secondary data which includes company's websites, web-based research etc. The paper concludes that all the public sector banks are adopting corporate social responsibility practices in rural areas for their welfare services like health, but their results are still not up to the mark. In order to survive in the market and also for socio economic development, it is very important for all the India companies to adapt to CSR practices irrespective of their size, goals, location, objectives etc.

Dipti Mal and Dr. Kavita Chauhan (2014) examined the impact of corporate social responsibility in rural areas. In India, more than half of the population resides in villages and are still in a very poor condition. Alone government is not responsible for their welfare, but itis the duty of all the stakeholders to help in socio economic development of the country and improve their standard of living. 5 PSU'S and 5 private companies were selected at random to study CSR initiatives by using secondary data. The research shows that in spite of government taking initiatives for literacy, education remains the top priority of the companies. The corporate houses are also making efforts for poverty reduction by adopting various villages. The result also shows that companies are using various machineries for funding in CSR. Some of them spend their income in the programs which are sponsored by government, some give their funds to a local known NGO and some implement it through direct methods.

Arobindo Mahato (2016) studied the corporate social responsibility spending on education sector of under privileged children. India has the world's largest youth population but is a home for poor beings. So, main aim of government should be towards providing education. If the problem of illiteracy is solved, rest all other issues will be solved automatically. Although, government amended the constitution by making education free and compulsory for the age group of 6 to 14 years, but the result is still not satisfactory. So, the concept of CSR is gaining importance now days. The result shows that amongst so many issues like hunger, poverty, sanitation, health, education is the top most priority of corporate houses. Companies are taking many initiatives to improve the quality of education and their efforts are showing a significant impact on the development of the country. The conclusion drawn from this research is that a framework should be made where the government and corporate houses join together and work for the welfare of the society.

Dr. Namita (2015) surveyed the impact of CSR on the overall development of the society. To study this, 12 public and private Indian companies from different sectors were selected. Methodology was based on internet-based research. It has been seen during the research that many companies have taken initiative towards development of rural areas, education being at the top on the list. Other initiatives include issues on health, infrastructure, environment etc. It has also been notices that companies are spending on CSR through local agencies or collaborating with NGOs, but they do not have a separate CSR department.

J. Sridevi (2015) had studied the impact of CSR on women empowerment. Our country will not be developed unless and until the advantage of development reaches all sectors of the country. Even till date, women have to face so many problems and are not treated equal to men. Corporate social responsibility is the only ray of hope for women empowerment and to remove this gender inequality. Companies have started taking efforts towards removing this discrimination and invest in women's education, health, awareness etc. CSR can play a very important role in women empowerment and improving the condition of society.

Anil Kaushil (2016) studied the benefits and challenges of CSR. The corporate social responsibility has a direct correlation with employee commitment and retention. CSR is also a very good marketing tool for corporate houses to improve their brand image Spending on CSR is neither a favor nor a charity, it is just giving back to society what we have taken from it. Government alone is not responsible for welfare, but it is the duty of all stakeholders to make out country a developed one.

Maniktala Jatin and Punjabi L.C. (2016) studied the perspectives and challenges in rural India which was based on secondary data collected from journals, magazines etc. Companies from variety of sectors were selected to study their initiatives. It is surprising to see that education is at the top priority among the companies followed by health and livelihood. The research concludes that now Indian companies have realized that there can be no stability in the country with socio economic development, but every company should have an effective CSR team to implement it.

Dr. Reena Shyam (2016) analyzed the CSR initiatives and studied the challenges faced by CSR in India. The study in purely based on secondary data. The result showed that there is lack of community participation in CSR activities and CSR lacks transparency. The CSR was just used by companies as a means of marketing and

building their brand. For effective implementation of CSR activities, there should be awareness among people and equal participation of all the stakeholders.

RESEARCH GAPS: Most of the existing studies on CSR analyzed CSR practices in India in general. The existing researches focused on the initiatives taken by Indian companies towards CSR but there are very limited researches which analyze whether CSR is implemented in real sense or not.

3. OBJECTIVES OF THE STUDY

- To develop an understanding about the concept of CSR
- To study the recent status of CSR In India
- To study whether CSR is implemented in real sense or not
- To examine the proportion of CSR expenditure in India by selected Indian companies
- To study the impact of CSR on society specifically on health sector.
- To study the challenges of CSR faced in India
- To provide suggestions for improving CSR activities

4. RESEARCH METHODOLOGY

The main source of data is "Secondary". The data is procured from different sources like company's websites, annual reports, articles, newspapers etc.

For the purpose of the study, top 10 companies according to market capitalization have been selected namely:

1. Reliance
2. TCS
3. HDFC bank
4. HUL
5. ITC
6. HDFC Ltd
7. Infosys
8. SBI
9. ICICI bank
10. Kotak Mahindra

The CSR contribution made by the selected companies in various sectors for the three financial years 2015-16, 2016-17, 2017-18 have been studied.

The data has also been collected from the reporting survey which is conducted by KPMG to review the Annual reports of top 100 companies.

To study the impact of CSR on health, National health profile report 2018 was also studied.

5. DATA ANALYSIS:

CSR spending by some of the top companies are as follows: -

5.1.1. CSR Contribution of SBI (in crores)

AREAS	2015-16	2016-17	2017-18
EDUCATION	19.5	8.86	8.95
HEALTH	60.04	17.52	15.09
SKILL	44.66	47.57	56.55
DISABILITY	5.41	1.57	1.19
ENV.	4.78	3.57	2.05
SPORTS	2.21	1.46	5.43
CULTURE	1.20	1.80	-
OTHERS	6.12	27.47	23.7
TOTAL	143.92	109.82	112.96

(Annual report of SBI)

CSR SPENDING IN 2017-18 BY SBI

Legend: EDUCATION, HEALTH, SKILL, DISABILITY, ENV., SPORTS, CULTURE, OTHERS
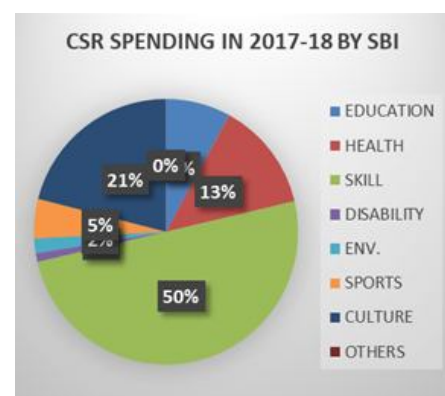
5.1.2. CSR CONTRIBUTION OF RELIANCE (in crores)

AREAS	2015-16	2016-17	2017-18
RURAL TRANSFORMATION	107	138	195
HEALTH	314	267	148
EDUCATION	2515	227	373
SPORTS	9	27	50
OTHERS	7	15	5
TOTAL	652	674	771

(Annual report of Reliance)
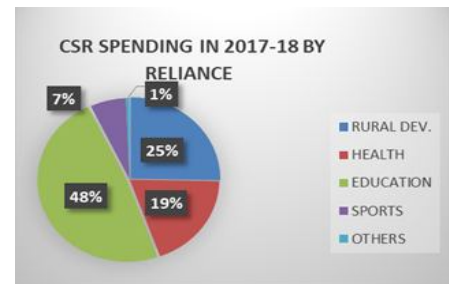
5.1.3. CSR CONTRIBUTION OF TCS (IN CRORES)

AREAS	2015-16	2016-17	2017-18
EDUCATION	78.08	90.6	91
HEALTH	79.44	88.3	136
HERITAGE	0.33	0.2	-
ENVIRONMENT	0.07	0.6	1
TCS FOUNDATION	118.07	20	172
DISASTER	18.24	-	-
TOTAL	294.23	379.7	400

(Annual report of TCS)
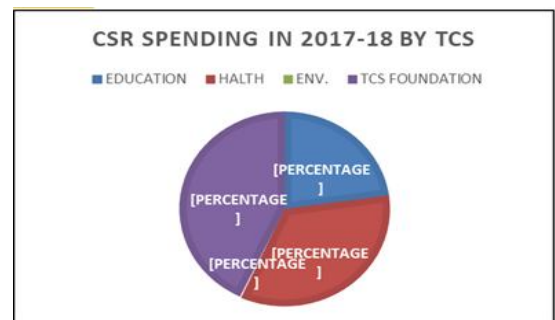
5.1.4. CSR CONTRIBUTION OF ICICI (IN CRORES)

AREAS	2015-16	2016-17	2017-18
EDUCATION	450	475	560
RURAL DEV.	1196	1303.2	1040.6
DISASTER	38.7	-	-
ARMED FORCE	-	-	50
FINANCIAL LITERACY	-	9.3	30
OTHERS	15.1	36.1	23.2
TOTAL	1700	1820	1703.8

(Annual report of ICICI)
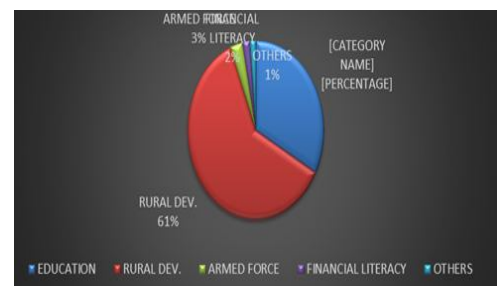
5.1.5. CSR CONTRIBUTION OF HUL (IN LAKHS)

AREAS	2015-16	2016-17	2017-18
EDUCATION	4342	4413	4177
HEALTH	1917	2809	3356
ENV.	2251	2288	3002
GENDER EQUALITY	194	224	198
RURAL DEV.	508	654	544
TOTAL	9212	10388	11609

Annual report of HUL)
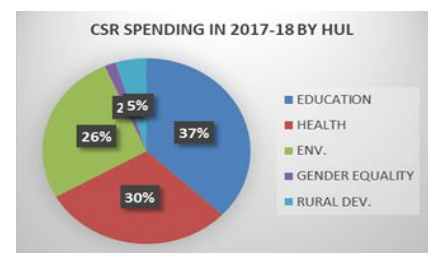
5.1.6. CSR CONTRIBUTION OF ITC (IN LAKHS)

AREAS	2015-16	2016-17	2017-18
HEALTH	5795	10544	10216
EDUCATION	4747	4493	4549
ENV.	7213	7399	7304
NATIONAL HERITAGE	93	218	243
SPORTS	-	-	-
RURAL DEV.	5085	3657	5201
OTHERS	1817	1285	1585
TOTAL	24750	27596	29098

(Annual report of ITC)
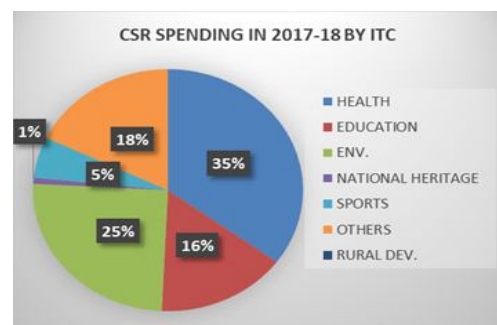
CUMMULATIVEE ANALYSIS

CSR EXPENDITURE IN TERMS OF % OF 3 YEARS OF AVERAGE NET PROFIT

COMPANY	2015-16	2016-17	2017-18
RELIANCE	2.3%	2.13%	2.12%
TCS	1.64%	1.7%	1.6%
HDFC BANK	1.57%	2%	2.04%
HUL	2%	2%	2%
ITC	2%	2%	2%
HDFC LTD.	2%	2%	2%
INFOSYS	1.58%	2%	2%
SBI	2%	2.2%	2.15%
ICICI BANK	1.62%	1.8%	2%
KOTAK MAHINDRA	0.69%	0.63%	0.17%

It is very clear from the above table and graphs that the contribution towards CSR spending is increasing every year with education and health at the top in the list. Most of the companies prefer spending in these two areas. It can also be inferred from the table that more than half of the companies are spending equal to or more than the 2% prescribed limit.

6. KPMG'S REPORTING SURVEY 2018 OF TOP 100 COMPANIES:

The reporting survey is conducted by KPMG to bring about a reflection of India's CSR journey. The annual reports of top 100 companies according to its market capitalization are reviewed and then the findings are given every year for various stakeholders like government, corporates etc.

The findings show that

- During the year, companies have spent INR 7,536.3 crores which is 47 % more as compared to the amount which they have spent in the year 2014-15. This shows that the expenditure towards CSR is showing a remarkable increase every year.

- It is also very interesting to see that there are total of 64 companies which have spent 2% or more during the year which was only 32 companies in the year 2014-15.

- It has also been seen that there has been a drastic increase in the amount of spending in areas like health, sanitation, education being education and health at the top in the list with education at 35% and health at 25%.

- 6 states which house 60% backward district of India receives only 15% CSR fund, whereas 5 states with 15% backward districts received more than 70% CSR funds.

- There re around just 14 companies which have spent less than 1% on CSR during the year.

- Maharashtra, Orissa, Uttar Pradesh have the highest number of CSR projects in India.

The KPMG findings have also shown that the amount of expenditure have been increasing at a rapid rate and education and health are the two major areas which are most preferred by the companies. It has also been studied that the states which are already developed are receiving highest amount of CSR as compared to the ones which are under developed.

7. NATIONAL HEALTH PROFILE-2018

To study the impact of CSR on health, health sector being the top priority of the companies, National Health Profile report 2018 was studied. The report released by Union Health Minister in 2018 covers major health sector areas. Some of the key points are:

- One doctor serves a population of 11,000 which is 11 times more than WHO recommendation

- In Bihar, one doctor serves the population of 28,391

- Government spending in healthcare is 1.5% of GDP which is very low as compared to other countries

- The gap of infant mortality rate between rural and urban area is still very high although life expectancy has increased but is still low compared to many countries

- Public hospitals are affordable but are over crowded

- Cases of influenza A H1N1 witnessed a 21-time increase.

- Figure of dengue also saw a rise

8. FINDINGS

The findings of the paper are

- The research concluded that there is a substantial increase in CSR spending as compared to previous years.

- It can also be seen than more than half of the companies are spending on CSR as per the prescribed limit set by Companies act2013, there are many companies which are even spending beyond the prescribed limit.

- The research also finds that nearly 60% of the funds for Corporate Social Responsibility are spent on health and education however there is much more that companies can do to improve the health conditions of India.

- Just for the sake of meeting 2% criteria, companies donate funds in hospitals

- CSR is much beyond philanthropy.

- KPMG survey also showed that most developed states in India are receiving highest amount of CSR funds

- Education, health, water is at the topmost priority of every company ignoring the areas like technology, sports, culture etc.

9. SUGGESTIONS

- CSR should be redefined. It is not a responsibility, it's a relation between corporate and society.

- The target should be on how the hospital will run, the target should be on how to reduce the treatment cost specially for the poor people, the target should be on how to increase the number of doctors in rural areas.

- Focus on health care should shift to health rather than medical care. It has been seen that we wait for people to fall sick and then give them the treatment rather we should take some initiatives to take care of them from the time when they are healthy. Eg swachh bharat abhiyan,

- It is important to do base-line survey and need assessment survey before starting any project to analyze in which area the funds are needed the most.

- Using recent technology, we can revolutionize health sector.

- The dream of our honorable prime minister that by 2022, India must be rid of poverty and corruption, can be achieved only when the CSR funds goes in the right direction.

- It is not the money but the distribution of money which can solve the problem.

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A STUDY OF RELATIONSHIP BETWEEN SOCIAL MEDIA AND CONSUMER BRAND LOYALTY

Uttera Choudhary[1], Dr. Priya Jhamb[2] and Dr. Surinder Sharma[3]
Research Scholar[1] and Assistant Professor[2], Amity University, Noida
Associate Professor[3], Doaba College, Jalandhar

ABSTRACT

Assembling and keeping up brand loyalty are the focal subjects of exploration for researchers and marketers for a long time. Marketers are making use of different strategies to keep up the brand faithfulness of their customers. One of the latest advertising strategies is social media marketing. Companies comprehend the expanding fame of online networking and the impacts it can have on publicizing and advancements and the general association with the customers. And that is the reason they have expanded their spending on promoting through social networking channels. The main objective of this research study was to find out the relationship between social media and consumer brand loyalty. The data were collected using survey questionnaires which were circulated both online and offline. Sample size for the study was 200 respondents who were active social media users. The methodology used was descriptive statistics. The results of the study prove that there is strong relationship exist between social media and consumer brand loyalty. The area covered under the research study was north India. This research study will be very useful for the researchers who are working towards exploring the different strategies which can be used to strengthen the relationship between social media and consumer brand loyalty.

Keywords: Brand, Brand loyalty, Consumers, Social media marketing

INTRODUCTION

Social media is the collective of online communications channels dedicated to community-based input, interaction, content-sharing and collaboration. Earlier marketers have used only traditional methods and strategies to maintain the brand loyalty of the customers which include brand elements and classical marketing mix variables. But now the scenario has changed and new methods of marketing such as events, sponsorships, celebrity endorsements, one to one marketing activities, Digital marketing and social media marketing are gaining importance.

In the modern context of business, marketing is no longer about the stuff that an organisation makes, but about the stories that those organisations tell. Further because of the digitalisation social media platforms have become the most influential tool to influence the loyalty level of the consumers towards the different brands available.

Social media marketing is turning into a more noticeable wellspring of promoting and publicizing and is being utilized all the more reliably by organizations attempting to get their name out to people in general and in the brains of consumers. Individuals devotes their 33% of the time in a day on social media platforms (Lang,2010). Since innovation is turning out to be more and more in each year and ads are appearing online like never before, web promoting is turning into a part of the advertising arrangement for some organizations. A number of loyal followers who follows your brand, shows interest in your brand, will post positive feedback about your brand's product or services will increase the value of your brand (Dholakia&Durham,2010). The structure of this study is as per the following. We start with the literature review followed by the research methodology then findings and analysis. Conclusion and limitation of the study is given at the end.

LITERATURE REVIEW

The popularity of internet showcasing with shoppers is unprecedented on the grounds that web promoting and publicizing can give customers more data, more intuitiveness, and can track the interests of buyers (Janal 1995). Shoppers can release the promotions they are not inspired by, and participate in the intuitive ads better to their interests. This gives buyers a feeling of control over an organization's promotions (Schumann and Esther 2007). Not just does web showcasing give shoppers the ability to deal with the promotions they get to be presented to, yet it likewise passes on the latest news and reports in regards to an organization. An important way an organization can keep up their picture is through their site. An organization's site, as a type of internet advertising, can influence the way a buyer sees the brand of an organization.

Another vital viewpoint organizations need to deliver is to separate their items or administrations far from the opposition and showcase the elements and advantages their items show over the opposition (Czerniawski and Maloney 1999). Demonstrating how one item is superior to another item will permit customers to pick up learning of the advantages of the item with the likelihood of relating their needs to the elements of the item. Imparting the ascribes to buyers will permit an organization to make a one of a kind situating of their image by showing how their image can profit the lives of customers (Saaksjarvi and Samiee 2011).

Organizations who can convey the right data through ads and advancements to impact how a shopper chooses to invest their energy and cash has a magnificent possibility of creating brand dependability from their purchasers. Organizations equipped for building up an effective web showcasing procedure with an objective of keeping up a deep-rooted relationship additionally have the opportunity to create brand steadfastness from their buyers. Be that as it may, with online networking still generally new to the business showcase, the adequacy of advancements through social networking with expectations of brand steadfastness still stays unanswered.

Social media marketing is different than traditional methods of marketing; therefore, it requires special attention and strategy building to achieve brand image and loyalty. Social media marketing is related to Relationship marketing, where the firm need to shift from "trying to sell" to making connections with the consumers (Gordhamer, 2009).

Staying focused in today's quick moving business scene requires a strong online networking methodology. Organizations procure online networking specialists and advisors to settle on substance and qualities of their offers and exercises in online networking situations so that the hearts and brains of the shoppers are caught and mark reliability takes after (Coon, 2010). Inside this point of view, the point of this paper is to shed light on buyer viewpoint on the online networking consequences for brand dedication so suggestions can be attracted for firms to create viable online networking advertising exercises for their brands. Research by E Marketer has demonstrated that customers go to online networking destinations to stay aware of a brand's items in limited time battles (Mangold and Foulds, 2009; Leggat, 2010). For instance, Pepsi and Coca-Cola both connected online client dedication projects to draw in clients by offering unique advancements; free mp3 downloads CDs et cetera (Mangold and Foulds, 2009). Also, clients view online networking destinations as an administration channel, where they can connect with on continuous bases with the organizations (Leggat, 2010). Be that as it may, purchasers like to see overhauled content on online networking. In this way, Google has changed the calculation of their hunt framework to empower clients to see the overhauled content first (Freidman, 2011).

Bashar, Ahmad,and Wasiq (2012) has done a detailed study to understand the effectiveness of social media as a tool of marketing .An effort has been made to analyze the extent in which social networking sites can help the consumers in making their purchase decision. Results of their paper suggested that social media is growing at a very fast speed and has a very bright future in the coming years of marketing.so it is time for the firms to implement their marketing strategies by making use of social media and create fan pages for their brand so that maximum people can follow their brand.

Georgios Tsimonis & Sergios Dimitriadis, (2014) has explained the different reasons that leads to a brand get involved with social media networking sites. Social media has evolved at a very fast pace and gaining popularity among the people continuously. Thus, in order to keep up with the technological development's companies decide to register themselves on social media. Viral nature of these networking sites has also made them popular. In the era of Digitalization these networking sites are fastest mode of spreading the Brand name or any other relevant information related to companies. Cost saving and competitive advantage are another important factor which push the companies to get them registered on social media platforms.

Yoshida, Gordon, Nakazawa, Shibuya, Fuziwara (2018) has explained the significance of consumer engagement on social media with the brand and behavioral brand loyalty. This study suggested various new ways of using social media for the engagement of consumer. Online brand community identification, opinion seeking and entertainment value of social media pages are the important factors which positively influence online brand community identification which further has a strong impact on brand related social media engagement. These findings are similar to the previous research studies that shows keeping, forming & extending relationships with others in social media communities were the main motivation for social media engagement (Jahn &Kunz, 2012; Mollen & Wilson,2010). Behavioral brand loyalty is positively influenced by social media engagement.

RESEARCH METHODOLOGY

OBJECTIVE

TO STUDY THE RELATIONSHIP BETWEEN SOCIAL MEDIA AND CONSUMER BRAND LOYALTY.

SAMPLE AND DATA COLLECTION.

IN THIS RESEARCH PRIMARY DATA WAS USED TO STUDY THE RELATIONSHIP BETWEEN SOCIAL MEDIA AND CONSUMER BRAND LOYALTY. THE QUESTIONNAIRES WERE CIRCULATED THROUGH ONLINE AND OFFLINE MODES TO 200 RESPONDENTS. THE SAMPLING TECHNIQUE USED TO DRAW THE SAMPLE WAS CONVENIENCE SAMPLING. ALL THE STATEMENTS OF THE QUESTIONNAIRE WERE FRAMED BY USING FIVE-POINT LIKERT SCALE WHERE (1= STRONGLY DISAGREE AND 5 STRONGLY AGREE). VARIOUS

STATISTICAL INVESTIGATIONS WERE PERFORMED BY USING SPSS. THE EXAMINATION TOOLS WERE RELIABILITY ANALYSIS, MEAN SCORE AND STANDARD DEVIATION.

PILOT TESTING WAS CONDUCTED TO CHECK THE RELIABILITY OF THE DATA. THE VALUE OF CRONBACH'S ALPHA SHOULD BE MORE THAN 0.6 (MOH &ZAIDATUN,2001). FOR THIS STUDY THE CRONBACH'S VALUE WAS .705 WHICH SHOWS GOOD INTERNAL CONSISTENCY OF SCALES.

FINDINGS AND ANALYSIS

The total number of respondents for this research study were 200 respondents. The results or findings of the study were divided into various sub parts. These were demographic analysis, reliability analysis and descriptive statistics.

Demographic analysis

Table 1 shows the demographic profiles of the respondents. Various variables which were covered here were gender, age, occupation and income level of the respondents. As per the results out of 200 respondents 53.5% respondents were male and rest 46.5% were females. Majority of the respondents i.e. 74% of the total respondents comes under the age group between 19-24 years, followed by age group 25-34 years which constitute 18 % and age group up to 18 years and 35-44 years constitute 4% each out of total respondents. The variable occupation was categorised into 4 heads namely student, unemployed, self-employed and working professional. As per the finding's students constitute 48%, self-employed constitute 4%, working professional constitute 42.5% and 5.5% of the respondents were unemployed. Under the variable income majority of the respondents around 42% comes under the category of income as none, followed by the income category up to 20000 which constitute 28.55 % then income category between 20000-50000 constitute 21.55% and 8% of the respondents falls under the head income more than 50000. So, demographic information provides that the most active social media users are the students with no income and age group of 19-24 years who are following their preferred brand on social media and their loyalty level is influenced by presence of a brand on social media.

Demographic Profiles of the Respondents			
Demographic Factors		Frequency	Percentages (%)
Gender	Male	107	53.50
	Female	93	46.50
Age	Up to 18 years	8	4.00
	19-24 years	148	74.00
	25-34 years	36	18.00
	35-44 years	8	4.00
Occupation	Students	96	48.00
	Self Employed	8	4.00
	Working Professional	85	42.50
	Unemployed	11	5.50
Income	Up to 20000	57	28.50
	20000-50000	43	21.50
	50000 and above	16	8.00
	None	84	42.00

Table-1

Reliability analysis

The objective of this research was to study the relationship between social media and consumer brand loyalty. Reliability analysis of a data is undertaken to check the internal consistency of scales. The value of Cronbach's alpha was .705(shown in table 2) and any value more than 0.6 is acceptable value for the reliability analysis.

Reliability Analysis	
Cronbach's Alpha	Number of Items
0.705	12

Table-2

Descriptive analysis

In order to study the relationship between social media and consumer brand loyalty respondents were asked to provide responses on the different statements which were framed on five point likert scale that ranges from strongly agree(5) to strongly disagree (1).The statements were related to the significance of social media for

introduction of new products, for brand image & recognition, brand loyalty, brand trust, brand advocacy and social media as platform of resolving the problems of the consumers. The mean values of all the statements ranges from 3.66 to 4.35(shown in table 3) which shows that majority of the respondents have marked their responses on agree which means that in their opinion social media and their brand loyalty has a strong relationship. Brands which are making use of social media as part of their marketing strategies tends to enjoy a competitive advantage over its competitors. Results of the study shows that social media platforms are very significant in developing a strong bond between brand and its users.

Descriptive Analysis			
Statements	**Mean**	**S.D.**	**Cronbach's Alpha value**
Social media presence of a brand strengthens the relationship between brand and its user	4.34	0.726	0.701
Social media enables the easy introduction of new product features in the market	3.97	0.901	0.685
Brand loyalty programmes on social media are very important for creation of brand loyalty	3.84	0.919	0.683
Positive word of mouth of my preferred brand on social media leads to repeat purchase of same brand's product	3.92	0.909	0.675
Social media facilities of sharing of your experience improves image of a brand	3.73	0.979	0.669
Social Media increases brand recognition	3.93	0.910	0.679
A strategic social media plan proves influential in consumer being brand loyal	4.35	0.700	0.711
Brand communities operating on social media enhances brand trust and loyalty	3.66	0.963	0.714
Brand registered on social media influences the attitude and behaviour of the consumers	3.91	0.925	0.677
Social media enables me to advocate my favourite brand	3.79	0.954	0.671
Social media helps in recommendation of my favourite brand to other consumers	3.86	0.975	0.684
Social media platforms are very convenient mode of resolving the problems of consumers	3.80	0.975	0.675

Table-3

LIMITATION AND SCOPE OF FUTURE RESEARCH

Despite of these contributions, there can be additional areas of investigation and scope of future research. We have examined the different aspects which demonstrates the relationship between social media and brand loyalty. In this study we have basically covered the general ideas and ideas in the social media and brand loyalty literature. However, in future researcher may try to get more deeper insight in this area of research.

The main limitation of this study is that social media platforms are very difficult to manage because of its dynamic nature and here consumers are in a very dominating position then ever before. They can make use of social media platforms to raise their opinion and express their ideas and experiences. So, if a company wants to make use of social media platforms to increase the loyalty level of consumers towards their preferred brand, they should be very careful while implementing social media marketing strategies and its potential consequences. So, it is very important for the companies to keep updated themselves with the changing environment of social media then only they will be able to make best possible use of social media marketing. Limited time frame. Limited number of respondents and limited geographical area of research are other important limitations of the study.

CONCLUSION

Over the years, online networking platforms have step by step expanded in fame and it is accepted that web-based social networking will keep on increasing in prevalence. As online networking keeps on developing,

organizations should participate in statistical surveying to comprehend which destinations are prominent at this point of time and concentrate on securing similar web-based social networking platforms trying to achieve their objective markets viably. The results of this study show that social media presence of a brand has a very strong impact on loyalty level of consumers. Companies registered over social media has competitive advantage over their competitors. So, with the expanding popularity of online networking destinations with consumers, organizations should be locked in reliably to stay with their situated as the top organization in the brains of their clients. In any case, organizations additionally need to remember purchasers would prefer not to be over-burden with overhauls from their most loved organizations, or their once most loved organisation. Organizations need to participate in market research in order to figure out what social networking destinations are the most prominent for their region, as well as the age range with current social media accounts. Companies need to be very cautious in formulating and implementing of different social media marketing strategies in a manner to keep these consumers coming back to their brands on a more reliable premise.

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STATISTICAL ANALYSIS OF DAILY CRUDE OIL PRICE DATA

Anindita Bhattacharjee and Guneet Kaur

Amity College of Commerce and Finance, Amity University, Noida

ABSTRACT

Financial data are highly volatile in nature. The volatility in the price makes it difficult to predict the future trend. Analysing volatility involves finding the amount of uncertainty or risk which causes changes in a security's value. In this work, an attempt to investigate the statistical behaviour of the daily Crude Oil price of MCX is taken which may lead to describe the behaviour of price of petrol as both of them are believed to be correlated. The data is taken from Multi Commodity Exchange of India (MCX) which is an independent commodity exchange. Volatility of the price is analysed in terms of return volatility and a model is proposed to explain the behaviour of the return volatility.

INTRODUCTION

Economic status of a country depends on the status of its financial market. A financial market is a complex system which can be described as an interaction of buyers, sellers, financial advisers and many others. Interplay between all these components induces volatility in the financial market making it risky for investment. Thus it is essential to have a deeper understanding of the market trend prior to making any decision. In the present study, an attempt is taken to understand and analyse a financial market data from the perspective of investors. Daily crude oil price of MCX (Multi Commodity Exchange of India) is considered as a representative case in this study. It is commonly believed that the price of crude oil in the international market, impacts the price of petrol and petroleum products of a country. As a result the impact is expected to be reflected in the commodity exchange market.

In this work, main focus is given to explore and analyse the behaviour of the daily crude oil price. Historical data (referred as asset price henceforth) of Energy segment is taken into consideration for the analysis from www.mcxindia.com. Statistical characterization of the data is done by applying relevant tools *i.e.* central tendency, measures of dispersion etc. Later on an attempt is taken to capture the risk associated in the data to the extent possible with the help of a Model. Over the last few years, modelling volatility and measuring risk of a financial time series has become a interesting area and has been considered with a great deal of attention from academics, researchers and others(Chris Brooks, 2008; Chuliá, Guillén, & Uribe, 2017; Chuliá, Pinchao, & Uribe, 2018).In the foregoing discussion the price dynamics is described in terms of the change in asset price i.e. return. Volatility of the return is characterized with the help of various statistical measures. Moreover, the volatility of the return series is captured by applying GARCH model.

The main objectives of this paper are :
- To investigate the volatility of crude prices using various statistical tools.

- To describe volatility by GARCH model.

- To provide guidance about the future trend to the investors.

LITERATURE REVIEW

A lot of investigation has been done on financial data in order to understand the complex dynamics of the data. A number of works are reported in literature using standard or advanced tools of econometrics. Among these, ARCH and GARCH model of modelling volatility deserve special mention. The main idea of using various GARCH models is to determine which one of these linear and nonlinear asymmetric models simulate the observed data more accurately. The volatility forecasts of the GARCH-class models are evaluated using the superior predictive ability test and with more loss functions. Return volatility of spot market prices of crude oil (WTI) and natural gas (Henry Hub) for two different terms is analysed by (Saltik, Degirmen, & Ural, 2016) using different types of GARCH class models such as GARCH, IGARCH, GJRGARCH, EGARCH, FIGARCH, FIAPARCH(Saltik et al., 2016). (Wei, Yu; Wang, Yudung; Huang, 2010) also tried to capture the volatility features of two crude oil markets Brent and West Texas Intermediate (WTI) by using a greater number of linear and nonlinear generalized autoregressive conditional heteroskedasticity (GARCH) class models to capture the volatility features (Wei, Yu; Wang, Yudung; Huang, 2010). Their work was intended to determine a model which ensures to get a maximum return of the investments and minimum loss for returns held by individual investors and fund managers, private sector budget planning decision makers, and state agencies forecasting about macroeconomic indicators. Another interesting study by (Du, Yu, & Hayes, 2009) is about investigation of those factors that potentially have an impact on the volatility of crude oil prices and also

to analyse the possible linkage between this volatility and agricultural commodity markets(Du et al., 2009). Several properties of crude oil price dynamics are established in this paper, including mean-reversion, an asymmetry between returns and volatility, volatility clustering, and infrequent compound jumps. All these works are based on the market price of the commodity. The present work is aimed at analysing the asset price of the commodity exchange market for investment. The volatility discussed here does not exhibit the actual price fluctuation in the market, rather it provides information about the fluctuation of price in the commodity exchange market.

RESERCH METHODOLOGY
DATA SOURCE
The study is based on the secondary data, collected from Multi Commodity Exchange of India (MCX) which is an independent commodity exchange. Historical data (referred as asset price henceforth) of Energy segment is taken into consideration for the analysis. Daily report of Crude oil gas over the period of ten years from 2nd November 2015 to 1st January 2019 has been taken for the analysis. Price volatility has been studied in the framework of daily return per lot as follows: total value traded has been divided by the total traded contract to get average turn over per contract which has been considered for further computation.

Data Analysis
Crude oil price is the key variable in the present work, which at time t is denoted by x_t. The logarithmic return of the asset price series $\{x_t\}$ is computed as follows:

$$r_t = \frac{(x_{t+1} - x_t)}{x_t} = \frac{x_{t+1}}{x_t} - 1 \qquad (1)$$

$$R_t = \ln(r_t) = \ln(x_{t+1}) - \ln(x_t) \qquad (2)$$

The time series of R_t is considered for further analysis (c.f.Fig.1).
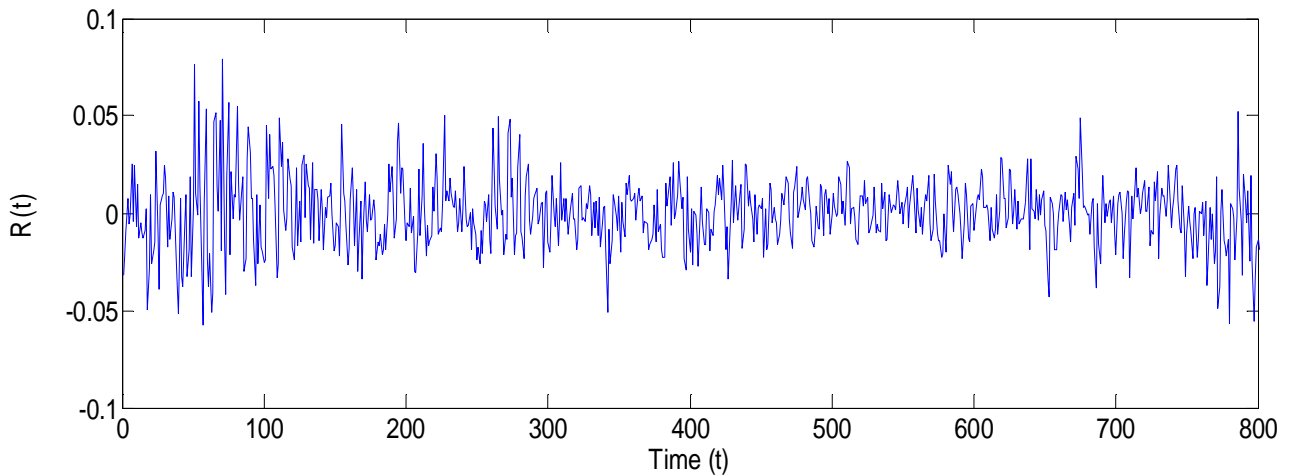
Fig-1: Time series of return of daily crude oil price per contract plotted at each instant of time

It is evident from the above figure that the return is highly volatile over the time span of investigation. Large fluctuations are found to follow large fluctuations while small fluctuations are followed by small fluctuations i.e. volatility is seen to be clustered in the data. Clustered volatility hints at the fact that the existence of conditional variance. We intend to model the conditional variance of the return data.

The basic descriptive statistical measures are estimated in order to statistically characterize the data. We find a positive mean return which indicates the fact that average trend in the change in price is positive. The highly volatile nature of the return series is captured by plotting a histogram (Fig.2). Computed central tendencies, the maximum, minimum return, standard deviation and all other measures are shown in Fig. 2. It is clear that the histogram is not following a symmetric distribution and the computed kurtosis is also more than 3. This shows that the returns are not normally distributed. This is further verified by quantile plot(Fig.3). Both tails of the return distribution of the sample data are not coincident with the Normal distribution where as the central part of both distribution are coincident. This indicates that the return distribution of the sample data is not following Normal distribution, rather it is fat tailed. For modelling volatility, the condition of stationarity is required to be satisfied.
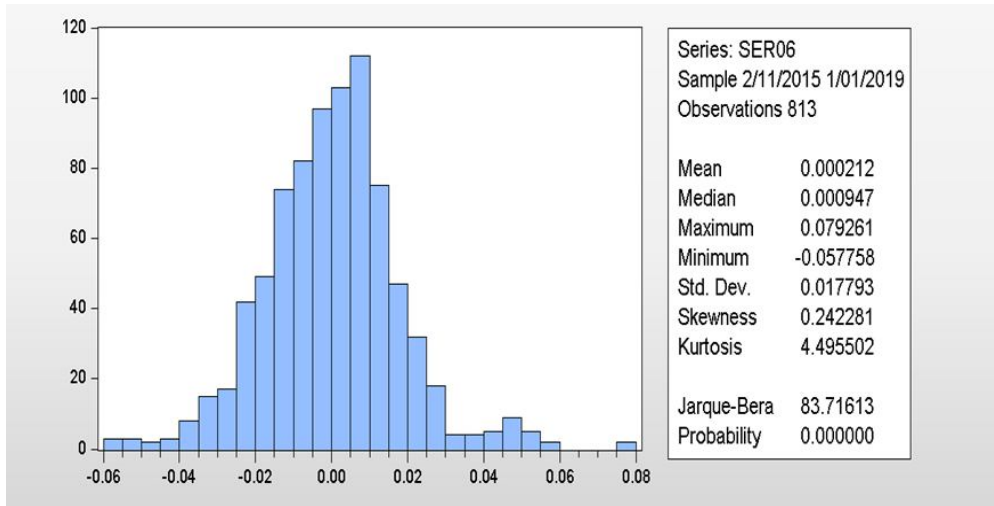
Fig-2: Descriptive statistics of crude oil
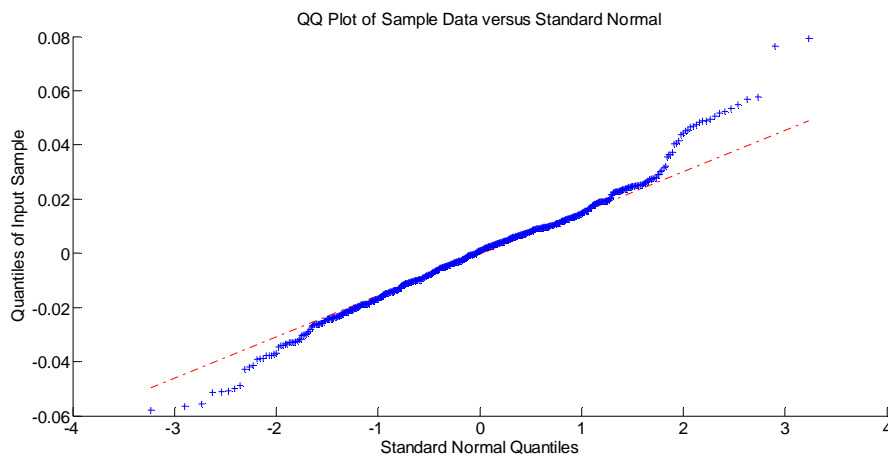
Fig-3: Quantile plot of the sample data (shown in blue colour)Vs the standard normal distribution(shown in red colour)

Stationarity of the data is tested by Augmented Dicky Fuller test which is based on hypothesis testing for identifying whether the data is auto correlated and the condition of stationarity is found to be satisfied. Later on autocorrelation of the return and squared return is also computed directly from the return data using software functions and related graphs are plotted in Fig.4. Plots of autocorrelation clearly indicate the existence of significant auto correlation between the present data with its immediate past. In other words, the current level of volatility tends to be positively correlated with its level during the immediately preceding periods. It could be stated that 'volatility is autocorrelated'. This characteristic of the series also supports the existence of conditional variance or volatility clustering.
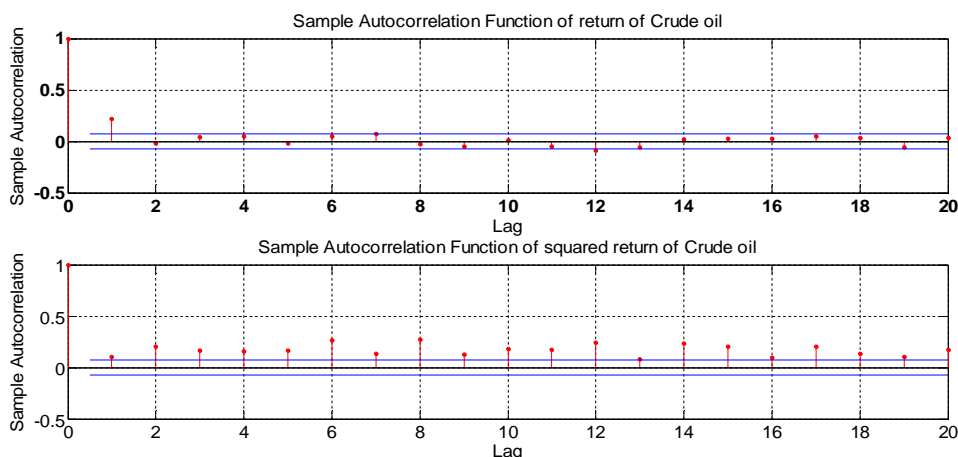
Fig-4: Autocorrelation showing the history dependent volatility for return(upper panel) and squared return (lower panel)

Further the data is modelled by GARCH (1,1)model of heteroskedasticity. ARCH lag and GARCH Lag are taken to be 1 for simplicity. Following is the model under consideration:

$$\sigma_t^2 = \alpha_0 + \alpha_1 x_{t-1}^2 + \beta_1 \sigma_{t-1} \tag{3}$$

$$x_t \equiv \eta_t \sigma_t \quad \text{where} \quad \eta_t \sim N(0,1)$$

Estimated parameters are : $\alpha_0 = 4.23931e\text{-}06$, $\alpha_1 = 0.0582648$ and $\beta_1 = 0.928353$

The return series is simulated using the above estimated parameters and plotted against the actual series of return (c.f. Fig. 5)
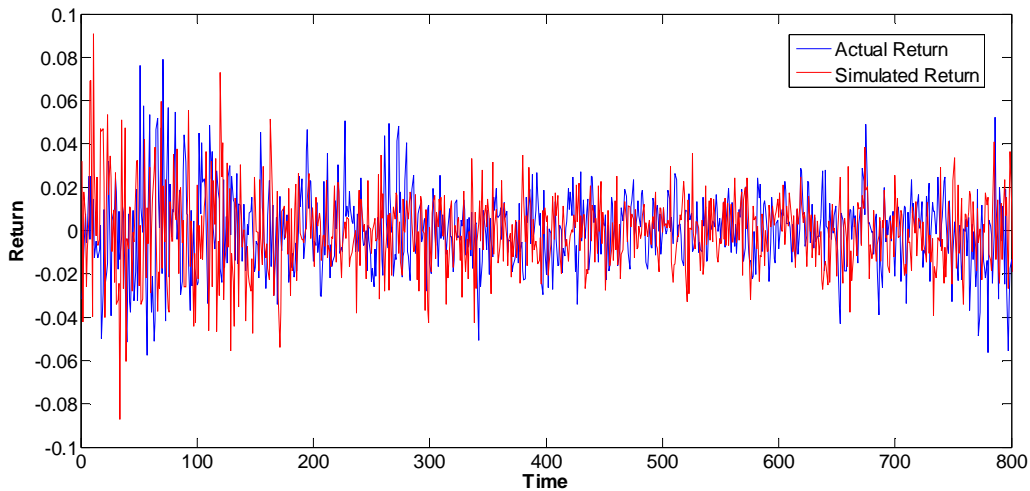
Fig-5: Time series of the sample data (in blue) and the simulated data (in red)

It is evident from the above figure, that simulated series is somewhat similarly behaving with the observed sample data. Goodness of the fitted model is further tested by the normality test of residuals. Jarque Bera test of normality is performed and the residuals are seen to be normally distributed at 1% level of significance.

We have also constructed the histogram (Fig. 6) of the simulated series and compared it with the histogram of the sample data by Chi-square test in view of goodness of fit. Our simulated series has been seen to satisfy the criteria of goodness of fit at 5% level of significance.
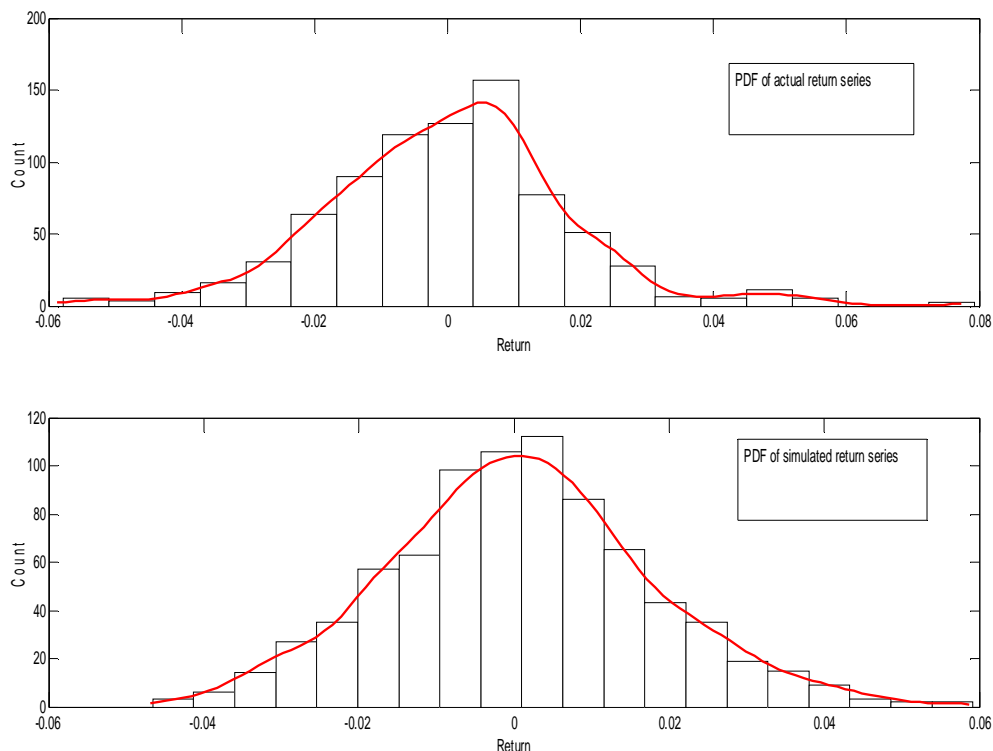
Fig-6: Histogram of the return of curde oil price; upper panel:the sample data, lower panel:the simulated data

CONCLUSION

The present work is focused on investigating and modelling the volatility of the return of crude oil price. Emphasis is given on the modelling as this can lead to forecasting. Descriptive statisticss are estimated in order to explain the characteristics of the return. Average return of an asset has an important role to play from the perspective of investment. It benefits the investors if known or predicted in advance. On the contrary, the fluctuation around the mean return makes it uncertain. Fluctuation is explained by Garch (1,1) model. Forecasting of a uncertain financial series benefits the investors or financial advisors in view of prior information for investment. The model constructed here may provide more information by applying other types of GARCH model and may be compared with GARCH (1,1) model in view of best fit to the data. This work is in progress.

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A STUDY ON UNDERSTANDING AND IDENTIFYING THE CHALLENGES FACED BY INDIAN E-COMMERCE INDUSTRY

Dr. Vinod Kumar[1] and Rohan Singh[2]
Associate Professor[1], Amity College of Commerce and Finance, Amity University, Noida
Student[2], Amity Institute of Biotechnology, Amity, University, Noida

ABSTRACT

In present scenario the online business is growing exponentially all across the globe, and it is definite that e-commerce will be the future. The current scenario of retail sale through e-commerce has achieved 17,520 million USD in the year 2018 and expected to reach to 52,301 million USD by 2022. Moreover in India more than 420 million people uses internet until 2018, the number is still a bit less if we compare it with other developed countries of the world but the increase rate of new internet users is also very high. Most of the big merchants are already doing their business online and in the coming days it is certain that other players will also going to start their business online, it is because of the multifaceted advantages of e-commerce. The present condition of e-commerce in India is satisfactory but still lot of potential is untapped. This study emphasize on identifying the challenges faced by e-commerce industries in India. Since the study is the analysis of secondary data through reliable sources. Some of the recent studies identified few common challenges which the industry is facing. The major challenges are poor internet literacy, lack of cyber laws, cash on delivery issues, huge competition, and lack of trust on online transactions etc. Over here, an attempt to study the reality of e-commerce in India has been made, like the present scenario of e-commerce, challenges faced by the e-commerce giants and the future of e-commerce in India.

Keywords: E-Commerce, Growth, Online, India, Internet.

INTRODUCTION

The increase in the use of internet in the recent years has opened new opportunities for business. E-commerce is a great example of a business online or we can say that, any business online is considered as e-commerce. Online business has become one of the most important component in boosting the economy of a country, and hence for a country like Indiaits really important to have a huge number of e-commerce giants operating in the country. E-commerce is basically something that requires an online transaction, helps consumer to get products and goods at a lower and better cost, provide tremendous amount of choices and is time efficient. E-commerce requires a proper internet connection to organize a business online. E-commerce is a kind of website of a vendor on the web, who sells services and goods straightway to the buyers or the consumer from the portals. These portals require a digital shopping basket or a shopping bag system and let the customers pay through any sort of online transaction like credit card, debit card or EFT (electronic funds transfer). The market of e-commerce in India is great, there are huge amount of national and international e-commerce brands like **Amazon, eBay, Flipkart, Snapdeal, Indiamart**etc, are present and are successfully operated. Online business has now become a vital tool for huge and small business across the world and it is not only about selling online to the customers but also engaging customers. The situation of online business was not that good in India during the initial days because of various reasons like lack of internet, lack of public awareness, but slowly and gradually an increase in the market of e-commerce have been seen in the recent years. But still there are certain problems that are considered as barriers to e-commerce like lack of security, hacking, hand touch, cash on delivery etc.

**E-commerce means "electronic commerce", it is associated to the purchasing and retailing of goods and products by employing the use of internet, and the transfer of capital and information to achieve these transactions. It can also be defined as any sort of transaction that is happening on or through internet.

More detailed definition of E-commerce :- it is defined as the utilization of electronic communication and data digital processing technology in business trade to make, built and retransform the various links for value development among or in between organization and individual (C. Nisha and G. Sangeeta, 2012).

VARIOUS MODELS/TYPES OF E-COMMERCE
B2B (Business to Business)
In this model a particular business sells to another business. It involves working of two or more business together like, the manufactures selling their goods to the distributers, wholesalers selling their product to the retailers. The cost in this models is based on different situations like quality, quantity, logistics etc.

B2C (Business to Customer)

In this type of business, the goods and services are sold directly to the customers by the use of internet. The goods and services are represented properly on the web with all of essential details; the customers can cancel or ask questions about the product through their online portals or simply by calling to their customer care department. E.g.- someone ordering air conditioner from patym.in.

C2B (Consumer to Business)

The model of consumer to business includes the customers which are selling services or goods to the business. In consumer to business the customers benefits the business in some or the other way, it's not always about money exchange but also about the various ideas like, ideas to increase the productivity of the business etc. E-commerce websites have a specific portal or place for the customers to contribute. There are various ways by which the consumers can benefit the business like by writing a review about the product that they had purchased, informing them about the delivery (good or bad). There are a lot of people who writes blogs and make various videos about a specific company, and if the company likes their work they are offered money or some other services in return.

C2C (Consumer to Consumer)

Consumer to consumer is a type of business model in which the goods and services are exchanged in between the consumers. In this model the sellers are the normal consumers like us, which makes this model more flexible as the consumer which is selling his product knows the psychology of the other consumer hence it become easy for them to exchange their entities. This process of buying-selling from the consumer to consumer takes place on a specific platform which is available on the web , these platform charge certain fee as commission which totally depends on sites to sites. **eBay.in , QUIKR.com, OLX.in** are some of the example of the platform on which these sort of transaction takes place. As we know the platforms that the customers are using is a business hence this model of e-commerce can also be called as **C2B2C**e-commerce i.e**. Consumer to Business to Consumer.**

REVIEW OF LITERATURE

In the paper of (Elizabeth & McGregor, 2000) they examined the growing impact of online market on business, public policies, education and customers. In that paper various discussions about public policy and the future of e-commerce was told.

Centeno (2004), told that, the 24/7 availability, easily access in remote region and low prices of the goods and services are the reason that makes customers to do the transaction online.

Dasgupta&Sengupta (2002), they analyzed the growth and future of e-commerce in India.

Durkin, et. al. (2008), says that, the easy ways of the goods presented through online transaction makes the customer to adopt online transaction.

MadhukarSarode (2015), he ends by saying that e-commerce is the future of markets and bazaars, and the distance between the manufactures and the customers has been lowered down. He further says that the future of e-commerce is huge but because of certain problems like bad cyber security etc., people are facing problems.

Raghunath &Panga (2013), analyzed that people who are new on the internet will be scared to do any sort of online business. To kill this type of thinking from the users mind the e-commerce industry should come up with some ideas that indentify their insecurities and elevate it. E-commercehave thousands of options and opportunity in various regions but it needs to have careful platform or applications for the customer's safety.

H. Ramchandani (2016), she tells that, e-commerce has greatly affected the work of the normal market retailers particularly the small ones. The international e-commerce retailers are giving tough time to the national ones. But in country like India the consumers believe in "touch and feel" i.e. they like to use or examine the product before actually buying it.

Calisir and Gumussoy (2008), they have compared the customers thought about the online transaction and all the other forms of banking options and concluded that phone transaction and Any Time Money(ATM) replaces each other.

Abhijit (2013), in the field of business e-commerce has changed everything and is a next revolutionary thing. E-commerce has amended the way buy and selling of goods and services used to work. According to him the distance is no more a barrier for the buyers as 3G and 4G has connected the world very nicely.

RESEARCH METHODOLOGY

Research methodology is basically a theoretical examination of the ways and steps applied to a field of study. This involves the process of accumulation of the data and information require for decision making. As this is a kind of secondary paper that's why methodology may have involved the journals, books, surveys, websites, research papers of other researchers etc. All this has been used to study and know more about the e-commerce industry in India, there benefits , future of e-commerce and various problem related to e-commerce market in India. Every sort of data that has been used in this research paper will be acknowledged with proper references wherever necessary.

PRESENT CONDITION OF E-COMMERCE IN INDIA

In Indiae-commerce is still developing, but this industry have millions of things to offer in country like India.

E-commerce industry in India had started in late nineties and only B2B was operated during that time. After some time B2C came in picture of e-commerce and the first thing that a business offered to the customers was a matrimonial site. At that point of time the biggest barrier was the slow speed of the internet and its high cost. The very first e-commerce website **rediff.com** was launched in India in February 1997, this site became the busiest and most trafficked platform for Indians and non-residents.

In the recent years an increase in the amount of companies in e-commerce industry has been seen in India. Huge number of Indian platform are converting their websites into e-commerce based sites rather than just depending on the revenues which they collect from advertisement. In today's world e-commerce has become our daily necessity as all sorts of goods and services are available their on the web. You don't need to move your feet to get something rather you just need to type few things on the web and you are good to go. The tactics of the e-commerce sites are to target the customers in all the possible way, that's why they don't miss even a single chance to advertise about their product. The websites selling all sorts of products are called as Multi Product E-commerce, for example AMAZON, FLIPKART etc. There are sites that are specific to a product called as Single Product E-commerce, for example Pepperfry.com which only sells furniture. In India more than 55% of the people using internet visit e-commerce websites, which is a great number.

Below are the reports showing the amount of traffic received by Indian e-commerceindustry :

Below are the reports showing the increase in e-commerce industry in India in the recent years :

As we can see from the above two pictures that there have been a tremendous increase in the industry of e-commercein India.

FUTURE OF E-COMMERCE IN INDIA

In India more than 420 million people uses internet until 2018, the number is still a bit less if we compare it with other developed countries of the world but the increase rate of new internet users is also huge. Internet has become an integral part of our daily life, there are tons of things that you cannot do without internet like banking, booking a cab etc, that's why more and more people are joining the internet system. Below is the fig. showing increase in internet users in India :
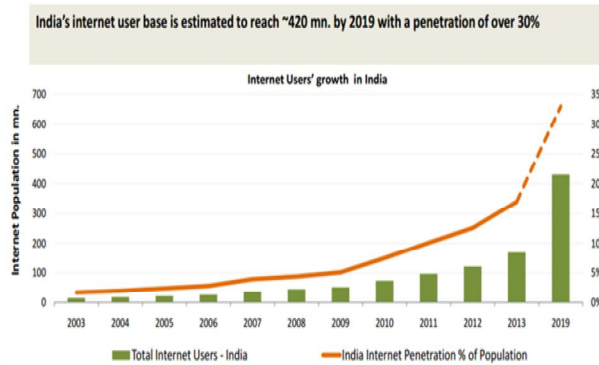
E-commerce is the one of the most used thing on the web, hence we can say that the future of e-commerce is astonishing in India.

Following are the main reasons for the growth of e-commerce in India:-

- Cheap internet (reliance JIO changed the internet market in India).

- 24X7 availability of the internet.

- Easy access through the smart phones.

- Pop-up adds, on every website you go.

- Easy return and replacement policies.

Below is the fig. showing the future estimate increase of e-commerce in India :
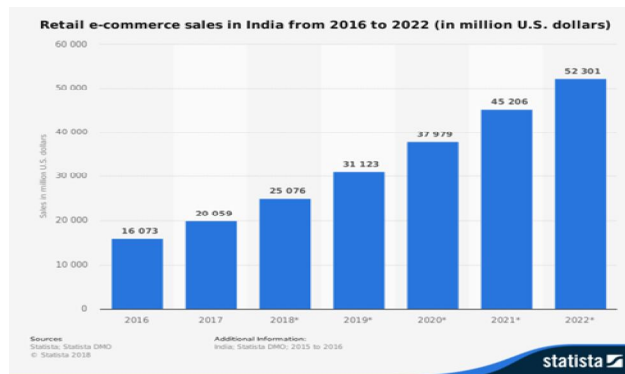
CHALLENGES OF E-COMMERCE IN INDIA

India is growing its e-commerce industry everyday but there are a lot of problems and challenges due to which the growth of e-commerce is quite slow. People still don't want to pay online i.e. to do online transaction; there are people who want to check the products before buying which is not possible.

Following are the main reasons (detailed) for the slow growth of E-commerce in India :-

1. Cash on Delivery

In India maximum number of people prefers paying the money once they receive the product as they don't believe in banking online. The problem with COD is that the merchant selling theproduct, receives the money after a long time as that money go through a lot of stages before actually reaching to the merchant, due to this several merchant don't sell their product online.

2. Poor knowledge about internet

There are still good amount of people in India which don't have access to internet and know nothing about it, most of them come from the rural areas of the country. But the problem is not only with the people not having

the access to the internet rather there are huge numbers of people that have access to internet but they lack the knowledge of using the internet.

3. Lack of awareness about the internet

Along with proper knowledge people should also be aware of the rules and regulation of internet. People don't know their basic rights and ethics; these people are scared of using certain things on the web in order stay away from any kind fraud. People should know what to do when such situation is parked on them.

4. Unsecure environment

In today's world there are lot of frauds happening on the web and e-commerce fraud is considered as one of the biggest in the list. People receive a lot of fraud calls from various phone numbers asking about the ones card details. There is almost no privacy left when you are present on the web, that's why people avoiding doing business on the web as it involve transaction of huge amount of money. The problem of privacy is faced not only by daily e-commerce customers but also to the various stakeholders, cooperate and companies that are working online.
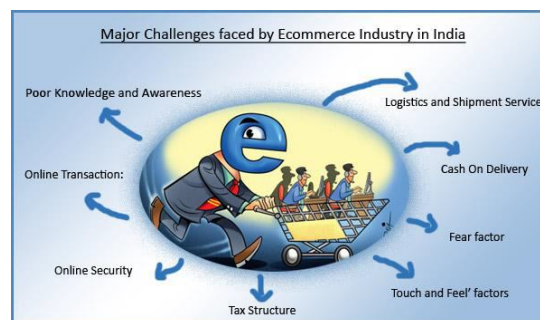
5. Transaction online

Maximum number of Indian consumer don't trust paying money online, they don't like the concept of paying through credit card, debit card, net banking etc. This is one of the main reasons why e-commerce growth is slow in the country.

6. Problem in address

A lot of time there is confusions of locating the exact location , sometime the parcels are dropped at someone else's place and once any parcel is dropped at a certain place, the owner of the address has the full right to keep that parcel. Big companies don't face such sort of problem much.

7. Huge Competition

In India there is a huge competition among different companies. These companies put aggressive pricing on their products, which is beneficial for the customers but not for the companies, due to which a lot of merchant stop selling their goods and services online because they get better price when they sell the same thing in the offline market.

8. Absence of Cyber Law

Absence of cyber law is one of the biggest reasons why the developing pace of e-commerce industries is not good in India. The evolving e-commerce industry has increased legal uncertainty in India. Even after all this evolution we are still using the old consumer protection act 1986, which should be amended.

9. "Touch and Feel" Factor

A huge population in India still loves to check the product physically before actually buying it. People are not satisfied by just looking at some pictures rather they want to try, inspect their desired product before buying. That's the reason of these people not going online and buying the product.

10. Logistics and Supply Chain

The logistic services in India requires a lot of improvement. As a lot of people India live in the rural areas and most of the time the e-commerce companies fail to provide their services in those area because of their weak logistic services. These problems can be eliminated by opening various warehouses in remote locations, hiring more delivery boys etc. This sort of problem is faced by more than 97.5% of the e-commerce companies.

CONCLUSION

E-commerce is now one of the most essential things for huge number of people in India. The e-commerce industry has tremendous opportunity to offer. The present scenario of e-commerce is also good but it is not the best, for that e-commerce companies should take proper steps to increase their productivity. E-commerce

industries must acknowledge their mistakes and should work on the process of eliminating it. To overcome the barriers it is also our job to aware people around, tell them what is wrong and what is right. Government should also take initiatives to encourage both the businesses and consumer to digitalize their areas.

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CHANGING TRENDS IN THE INDIAN NON LIFE INSURANCE INDUSTRY POST DE-TARIFFICATION

Ashraf Alam

Amity Business School, Amity University, Noida

ABSTRACT

This research paper studies the growth and changing perspective of the Indian General Insurance Industry post Detariffication . This paper also studies the changing prospects and problems faced by the industry in the post Detariffication phase. The paper aims at analyzing the impact of Detariffication on the various aspects of Non Life Insurance business like the Gross Underwritten Premium, Total Number of Policies Issued, Market share of the Public and Private insurers, Segment or Line of Business wise Premium collected. The paper analyses the challenges faced by the industry post Detariffication. The steep discount on rates in the Detariff era increased the competition among the players. The private insurers gained a strong ground in this phase with the help of competitive rates and better services as compared to their public sector counterparts. The other line of businesses like Liability insurance.

Health, Trade Credit, Extended Warranty, Cyber insurance etc saw a constant growth. The Pradhan Mantri Fasal Bima Yojna also acted as a booster for the sector and has infused almost 4000 Cr of premium in the industry in the last two financial years. Due to the natural catastrophic losses in the recent years the industry is under stress and some price correction is required under the Fire & Engineering portfolios.

INTRODUCTION

The Economic scenario of India has changed substantially in general and post liberalization in specific. Owing to the economic slowdown the changes are likely to get even fierce. With the changes which are already existing and the ones expected in the coming times the companies would be constrained to look for new investments, new means of doing business and even an overall reformation of the business.

Further to this a strong General Insurance mechanism which can provide the necessary security and sustainability to the businesses will be of much importance.

The financial well being and development of the General Insurance industry in itself will lead to the strengthening of the overall industry. Furthermore being in the business of risk coverage the Non Life Insurance players should recognize their own risks as well as the risks of their clients.

The General Insurance industry has witnessed lots of changes over a period of time, from being a private to nationalized and being back to an open aggressive market.

The law and regulations driving the sector have also seen lot of changes over time.

The Tariff Advisory Committee was formed in the year 1968 for the purpose of controlling the ways of operating, terms & conditions and tariff set by the Non Life Insurers operating in India. In 1973 the General Insurance Business Nationalization Act came into force after being passed in the year 1972.

This Act led to the consolidation of the 107 Non Life insurers operational in India.

And post this, four subsidiary companies were formed as National Insurance Co Ltd, Oriental Insurance Co Ltd, New India Assurance Co Ltd, and United India Insurance Co Ltd and the General Insurance Corporation of India as the main holding company. The formation of IRDA was done to regulate and control the insurance business in India.

In the year 2000 after the privatization happened the four PSUs were directed to operate in individual capacities and the GIC as the reinsurer.

The year 2007 marked as a historic milestone in the Indian General Insurance Industry. In this year the Detariffing of the premium rates was implemented as the premium rating was prevalent in the industry from the last 5 decades.

The market behavior of the insurers has been significantly impacted post the detariffication scenario. Currently there are 33 non-life insurance companies operating in India, of which 6 are under public sector, the four subsidiaries of GICI now performing as individual entity, the Export Credit Guarantee Corporation Ltd. (ECGC) and Agriculture Insurance Company of India Ltd (AIC).

The pricing in the General Insurance Sector was controlled by the Tariff Advisory Committee till the year 2007. The purpose of introducing internal tariffs was the protection of consumer's interests.

However this system left small scope for competition in the insurance space.

From 1st January 2007 the TAC was withdrawn which used to control the rates under the Motor, Fire, Engineering and Workmen compensation and other line of businesses. But apart from this the Third party motor rates have been regulated and fixed by Insurance Regulatory and Development Authority.

OBJECTIVES OF THE STUDY

1. To familiarize and explain the implementation of Detariffication in the Indian General Insurance Industry.

2. Analysing the impact of Detarrifing on various aspects of businesses in the Non life sector.

3. To ascertain the advantages and disadvantages of the Detariffing.

4. To analyze the changes and impact on the Gross underwritten premium, Number of policies issued, market share of the public and private sector insurers post the Detariffication and the impact on the Segment wise premium underwritten.

LITERATURE REVIEW

The Tariff rate is the scheme of premium basis a predefined schedule and the coverage applicable to a line of business. A Tariff driven rate in the Indian context is the bare minimum rate which needs to be charged for a particular coverage or risk.

Any reduction in the prescribed rate will be a breach of the Tariff.

De- Tariffing is the concept where the Non life companies are given the freedom to charge any premium less than the prescribed rate and they can offer any degree of discount on the premium.

THE PHASES OF DE- TARIFFING IN INDIA

Prior to 1st Jan 2007 the Fire, Motor, Engineering Insurances came under the purview of the Tariff structure which prescribed predetermined rates for the calculation of premiums. Post this date the Tariff regime came to an end and the insurance coverage was freed, except the compulsory third party insurance like the motor third party insurance which comprised of total market premium of 25000 Cr in the year 2006-07 i.e., 12% of the Total market premium.

After this freedom of rates came in place there was a huge opportunity for the Non Life insurers to capitalize on this and broaden their consumer base by selling insurance solutions without any price restrictions.

The pricing would only depend on the how the insurer perceives the risk.

The competitors were now competing on other aspects of business such as customer service , improved TAT on policy issuance and endorsements and one major parameter i.e. the claim settlement or service at the time of any claim.

REQUIREMENT OF DETARIFFICATION

The Fire, Motor & Engineering portfolio rates were controlled under the Tariff regime which constituted of 20% , 42% and 8% of the total 25000 Cr insurance business in the year 2006-07.

The tariff rate of Fire & Engineering was comparatively higher than the market forces would have forced them to be incase of a Detariffed scenario.

However the Motor Third Party rates as per the tariff were extremely insufficient, which constitutes 12% of the total insurance business. This led to the insurers incur more operating losses. The combined loss ratio under the motor portfolio is 130% as compared to the fire and engineering combined LR of 75% & 80% respectively.

As the motor portfolio comprises of 42% of the total non life insurance business. There were losses of 3000 Cr due to the prevalent motor tariff rates. The operating profit which was generated by the fire & engineering line of businesses were not sufficient to nullify the huge losses incurred in the motor business.

The De- Tariffing process was done in a phased manner which comprises of primarily two phases

1st Phase – One of the major step was the flexibility provided in pricing the risk however keeping a standard coverage, terms & conditions which was implemented from Jan 1 2007.

2nd Phase – After 1st April 2008 the insurers got the flexibility of making changes in the policy coverage, terms, conditions and wordings along with their own perception of risk and pricing.

ADVANTAGES OF DE-TARIFFICATION

1. As 40% to 50% of the total premium collected is utilized by the insurers in procurement of business and in the huge infrastructure involved by the Insurance companies. With the advent of De- Tariffing the insurers have been forced to curb the extra cost involved and keep the premiums competitive for the end customers.

2. Entering new market segments has always thought to be an expensive option, due to high cost of infrastructure and distribution involved, post De- Tarrifing Rural and Retail markets are set to develop and grow.

3. Minimal or No involvement of courts or jurisdiction in the pricing mechanism or other issues except the statutory ones When the market forces would decide the premium and pricing basis the risk exposure and analysis of the risk by the insurers. There would hardly be any rationale left for the courts to intervene in the same.

4. Till date the customers with high risk exposures were being charged low rates at the cost of the premium collected from the mediocre or low risk customers. The low risk clients are pushed to pay higher premiums irrespective of their low risk business. With the advent of De – Tariffing such unfair exercise are likely to be ceased.

5. When premium rate is on higher side there is a pressure on the end user to implement loss mitigation tools and to ensure imparting knowledge on how to keep the loss ratios under check. As an adverse loss ratio would impact the premium and would push it on a higher side. That is why there is concept of No claim bonus in motor and other policies. For example the owner of a car would drive carefully so as to avoid accidents which would result in an own damage loss or a third party loss.

6. The concept of cross subsiding between various line of businesses would end and separate pricing and risk analysis of various LOBs would be done.

7. Insurers would not only play the role of an insurance distributor but actually behave like an underwriter and keep focus on the correct pricing mechanism considering the risk involved which would subsequently end up strengthening the financial stability of the organizations.

8. The companies would focus more on the loss minimization exercise and risk mitigation programs which would result in lesser losses and overall beneficial scenario for the organization itself and the insurance companies as well.

CHALLENGES AND INTIMIDATIONS WITH DE- TARIFFICATION

1. It would become difficult for the insurers to maintain the growth and the market share they were enjoying because of the sudden reduction in the premium figures, which would trigger because all the insurers would like to maintain their market share and retain their existing clientele especially the corporate ones.

2. As an effect of the increasing insalubrious competition, the solvency margin of the Non life insurers can decline and in particular the private companies. As a result of this the IRDAI would be required to come out with much stricter measures against the insurers who default.

3. The IRDAI has setup new guidelines as per which the insurers can file their product and post approval they can use the same in the market. The filing of the new product as per the Detariff rates would be challenging for the insurers in terms of timely compliance and hit the market before the competition.

4. The unethical pricing will force smaller companies to do a wrongful underwriting which would result in insolvency and bankruptcy and closure of these companies.

This would also lead to consolidation and acquisition of the smaller companies by the larger ones.

5. The De- Tariffing of the marine portfolio led to the dropping of the marine rates to a rock bottom level. This led to the below consequences.

a) The private insurers became too discerning in writing the marine program and very few companies were ready to underwrite the marine risk.

b) The clients who only want to get the marine program covered and don't have any other line of businesses to

cross subsidize the insurer face lot of resistance from the insurers and ridiculous rates for placing the marine business.

c) De- Tariffing of the marine portfolio if considered exclusively has resulted in reduction in the profit margin.

6. As a result of De- Tarffing the overall premiums under the Fire and engineering lines are expected to come down by about 40 % to 45%. This would create discomfort within the Reinsurers community on a global level. This situation would have a negative impact on the treaty arrangement of the Indian Non Life insurance companies which they have with the Global Reinsurance companies. As a result of the skewed rating in Indian market, the global rates would also become likely to come under stress.

7. On the contrary the common and average customer of insurance is hardly concerned about the changes in the tariff space, what he desires is only the best customized product for him at a reasonable premium. The average customer is more concerned about the services, timely policy issuance and speedy & hassle free claim settlement.

With effect from 1st January 2007 the Non Life Insurance sector was fully De- tariffed, however third party motor insurance being an exception. The upcoming analysis captures the performance of the private and public sector based on the premiums, growth and profitability. For the purpose of data analysis we have taken into account the figures relates to top three private and public sector companies. As the consolidated figures for these companies comprise 70% of the total Non life business.

The Fire insurance business constitutes of approximately 20% of the entire non life market, which saw a severe declining trend in the growth after De- Tariffing being implemented. As a result of De- Tariffing various insurers started offering heavy discounts on Fire premiums which were as high as 90%. This was being done to attract more and more clients and increase their customer base. The pricing was not based on the kind of risk which was involved. Rather all the insurers were focusing on increasing their market share and to push their position upwards. The prevalent discounting led to the softening of the market till 2010, however. The market driven system has led to such a ridiculous situation where the insurers are covering large risks for hardly any premium.

And the basic covers for Fire, Earthquake , Storm , Inundation , Thunder etc are being almost free of cost. However the pricing is expected to become stable in the future.

As a result of the steep reduction in the Fire & Engineering premiums the loss ratios became worse for both the private & public sector insurers. The data analysis shows that there is a increase in the claims ratio for private as well as the public sector companies. The private insurers always had a better claims ratio as compared to their public counter parts, which is the result of a better risk management capability and operational flexibility, however there was a spike in the Fire loss ratios in the year 2007-

10. The increase in the claim ratio also resulted in the hardening of the Reinsurance market and its rates. The claims ratio rose from approx 50% to 75%, after De – Tariffing, and consequently affecting the profitability of the non life insurer.

DATA ANALYSIS & RESEARCH METHODOLOGY

The data used for this study is the secondary data derived from various sources. Variables used are premium, market share, segment wise premium, number of policies.

The statistical tools utilized are Ratio Analysis , Factor Analysis and Analysis of Variance.

Table No – 1.1: Number Of Policies

Period	Year	No Of Policies Issued			Growth Rate Over Previous Year (%)		
		Private Sector	Public Sector	Industry	Private Sector	Public Sector	Industry
	2001-02	16.14	213.54	229.68			
	2002-03	16.76	418.85	435.61	3.84	96.15	89.66
	2003-04	32.98	384.27	417.25	96.78	-8.26	-4.21
Pre Detariff	2004-05	51.44	446.34	497.78	55.97	16.15	19.30
	2005-06	89.47	421.93	511.4	73.93	-5.47	2.74
	2006-07	126.92	339.72	466.64	41.86	-19.48	-8.75

Post Detariff						
2007-08	187.03	385.47	572.5	47.36	13.47	22.69
2008-09	219.22	451.37	670.59	17.21	17.10	17.13
2009-10	240.84	434.04	674.88	9.86	-3.84	0.64
2010-11	287.65	505.76	793.41	19.44	16.52	17.56
2011-12	329.3	528.14	857.44	14.48	4.43	8.07
2012-13	380.56	689.68	1070.24	15.57	30.59	24.82
2013-14	424.47	600.06	1024.53	11.54	-12.99	-4.27
2014-15	504.97	677.82	1182.79	18.96	12.96	15.45
2015-16	549.44	671.32	1220.76	8.81	-0.96	3.21
2016-17	624.45	918.18	1542.63	13.65	36.77	26.37
2017-18	787.13	920.58	1707.71	26.05	0.26	10.70
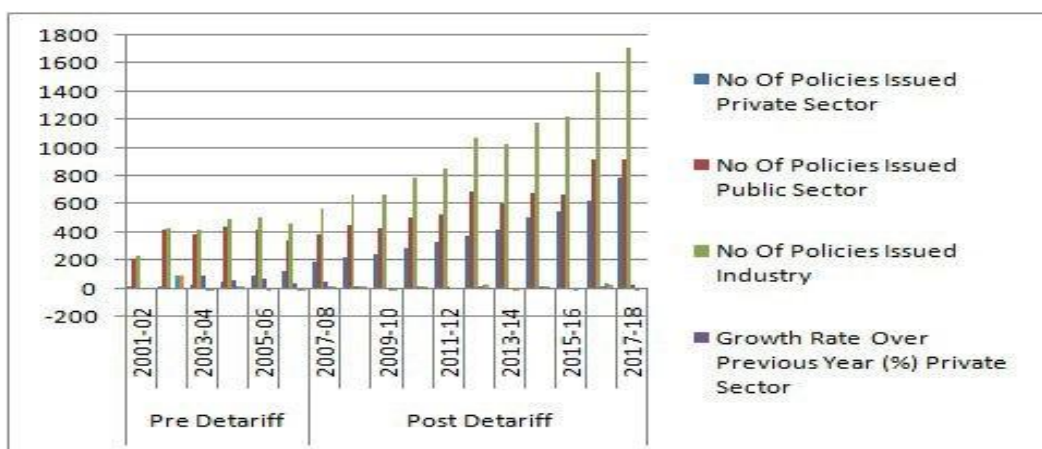
The Table No – 1.1 illustrates the impact of de- tarrification on the number of policies issued by the general insurance companies in the public and private space.

Post De-Tariffication there has been a substantial increase in the number of policies issued in the non life industry. The private sector companies also played a very crucial role and contributed to the growth in the numbers. The customer focused approach of the private companies assisted them to increase their market share and grab the same from the prevailing public sector companies. In the year 2000-01 the total number of policies issued by private players is 16.14 Lac which rose to 504.97 in the year 2014-15. While the figure for public sector companies for the same period is 213.54 to 677.82.

The new private companies who started operations in the year 2001-02 saw a fabulous growth of 96.78 % in the number of policies in the third year i.e. 2003-04. However the public sector companies recorded a negative growth of (-8.26%) in the same year.

The public sector insurers witnessed a downward trend in the number of policies issued from the year 2005 to 2007. On the contrary the new private players saw a decent growth in this period. The mentioned trend indicates a positive impact of De-Tariffication on the Non life sector. The opening up of the industry for private players has definitely added a new zeal to the sector, however the growth in terms number of policies was higher in the pre de- tariff period as compared to the post de- tariff period. There has been a substantial increase in the market share of the private insurers as compared to the public sector companies.

Table 1.2 – Gross Direct Premium (GDP)
The Gross Direct Underwritten premium (GDP) is the total premium earned by the insurance company by underwriting various risks. The GDP is a strong indicator to analyze the growth of the company and the industry as a whole. Examining the GDP figures will be helpful in understanding the difference in the business booked by the insurance companies in the Pre and Post De- Tariff regime. The increase in GDP indicates growth for the non life insurers and enhanced stability of the industry. This also indicates the penetration of insurance in the country which impacts the economy as well in a positive manner.

The GWP data depicted in Table 1.2 shows the trend of the collected premium in the Pre and Post De- Tariff phases.

Table 1.2 Gross Direct Premium (GDP)

Period	Year	Gross Underwritten Premium (Cr)			Growth Rate Over Previous Year (%)		
		Private Sector	Public Sector	Industry Total	Private Sector	Public Sector	Industry Total
Pre - Detariff	2000-01	7.14	10491.88	10499.02			
	2001-02	466.59	11917.59	12384.18	6434.87	13.59	17.96
	2002-03	1341.60	13520.44	14862.04	187.53	13.45	20.01
	2003-04	2257.73	14284.65	16542.38	68.29	5.65	11.31
	2004-05	3507.64	14948.82	18456.46	55.36	4.65	11.57
	2005-06	5362.66	15976.44	21339.10	52.89	6.87	15.62
	2006-07	8646.57	17283.45	25930.02	61.24	8.18	21.51
Post De- Tariff	2007-08	10992.00	17813.71	28805.71	27.13	3.07	11.09
	2008-09	12321.09	19107.31	31428.40	12.09	7.26	9.10
	2009-10	13977.00	21838.85	35815.85	13.44	14.30	13.96
	2010-11	17424.63	26417.21	43841.84	24.67	20.96	22.41
	2011-12	22315.03	32263.46	54578.49	28.07	22.13	24.49
	2012-13	27950.69	37071.79	65022.48	25.25	14.90	19.14
	2013-14	32010.30	40980.06	72990.36	14.52	10.54	12.25
	2014-15	35090.06	45016.62	80106.68	9.62	9.85	9.75
	2015-16	43846.74	53164.63	97011.37	24.95	18.10	21.10
	2016-17	59662.79	68465.55	128128.34	36.07	28.78	32.08
	2017-18	73734.10	76928.04	150662.14	23.58	12.36	17.59
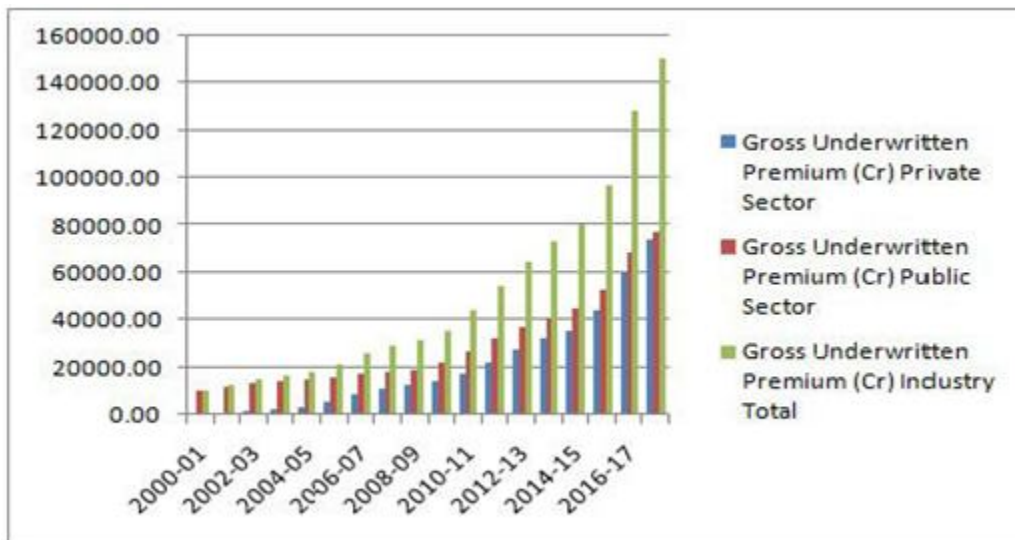
The private sector companies started their operations with a total premium collection of 7.14 Cr in the 1st years of operations and went up to 35090 Cr., in the year 2014-15. The GDP of the public sector companies in 2006-07 is 17283 Cr and it went up to 19107 Cr in the year 2008-09 after the De-Tariffing was implemented. The industry witnessed a growth between 17.29% in the year 2002-03 and a growth of 11.75% in the year 2014-15.

During the Pre detariff period the private insurers never witnessed a growth less than 52.89% however in the post detariff period the scenario is totally different.

Interestingly in the case of the public sector insurers the growth rate in the pre detariff period was very stagnant, which substantially improved in the post detariff period. The growth of the private sector insurance companies have wavy in fashion as it has been high in one year and gain low in the next year.

The private sector companies have been successful in grabbing the market share on account of innovations and being more enterprising in terms of business. They have been successful in stabilizing their business and establish their identity in the market.

Table-1.3: (Market Share Of Public General Insurance Companies)

Period	Year	National	Oriental	United	New India	Total
Pre - Detariff	2000-01	21.60	31.01	22.42	24.89	99.92
	2001-02	19.70	20.17	22.46	33.90	96.23
	2002-03	19.59	16.71	17.65	28.35	82.30
	2003-04	21.74	18.16	19.67	25.94	85.51
	2004-05	21.74	17.26	16.84	24.09	79.93
	2005-06	17.31	17.32	15.50	23.55	73.68
	2006-07	15.32	15.77	14.05	20.14	65.28
Post De- Tariff	2007-08	14.40	13.69	13.44	18.97	60.50
	2008-09	14.10	13.06	14.09	18.15	59.40
	2009-10	13.36	13.68	15.13	17.45	59.62
	2010-11	14.61	12.82	14.98	16.67	59.08
	2011-12	14.73	11.44	15.47	16.16	57.80
	2012-13	14.56	10.41	14.71	15.94	55.62
	2013-14	13.18	9.19	12.52	14.88	49.77
	2014-15	13.28	8.75	12.62	15.60	50.25
	2015-16	12.43	8.63	12.71	15.72	49.49
	2016-17	11.11	8.43	12.54	14.92	47.00
	2017-18	10.75	7.6	11.57	15.08	45.00
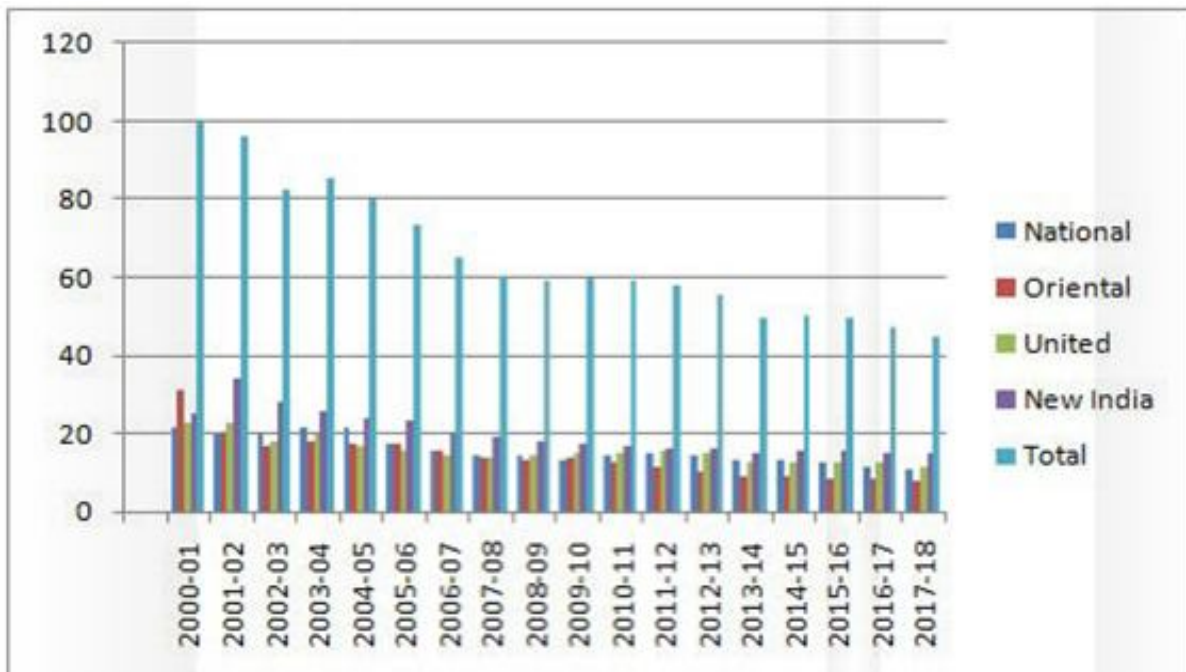
The Market share of the insurance companies is derived as the percentage of Gross Direct Premium and its an important indicator in analyzing the performance of the insurers.

The Market share of the public sector companies have considerably decreased during the period 2000-01 to 2014-15 and on the other hand the private sector companies have been successful in increasing their market share year on year.

Table-1.4: (Market Share of Private General Insurance Companies)

Table 1.3 and 1.4 portray a detailed analysis of the market share of the private and public sector insurers from 2000-01 to 2014-15. The public sector insurers had a share of 96% at the inception of the private players in the sector, this share gradually reduced to 50% in the year 2014-15.

The private insurers were successful in gaining share from less than 1% in year 2000-01 to around 50% in the year 2014-15. There was a steep downfall in the market share of the public sector insurers indicating their inefficiency in maintaining their own renewals.

The performance of the private insurers was higher in the pre detariff period as compared to the post detariff period. Its very evident that the public sector insurers tried hard to maintain their renewals and give a tough competition to the private sector players in the post detariff phase.

This sense of competition was lacking in the public insurers in the pre de tariff phase, however it increased in the post detariff phase.

Table-1.5: Line Of Business Wise Premium Growth

Year	Segment Wise Premium (Cr)				Growth Rate Over Previous Year (%)			
	Fire	Marine	Motor	Others (Inc.	Fire	Marine	Motor	Others (Incl.
2000-01	484	297	4000	1700				
2001-02	2928	870	5000	1800	504.96	192.93	25.00	5.88
2002-03	3268	1070	5580	2100	11.61	22.99	11.60	16.67
2003-04	3457	1147	6000	2500	5.78	7.20	7.53	19.05
2004-05	3331	1228	7236	3500	-3.64	7.06	20.60	40.00
2005-06	3774	1284	8569	4347	13.30	4.56	18.42	24.20
2006-07	4132	1628	10697	5139	9.49	26.79	24.83	18.22
2007-08	3459	1799	12685	7250	-16.29	10.50	18.58	41.08
2008-09	3383	1956	13336	11676	-2.20	8.73	5.13	61.05
2009-10	3869	2168	15047	13536	14.37	10.84	12.83	15.93
2010-11	4555	2519	18173	17330	17.73	16.19	20.77	28.03
2011-12	5430	2875	24239	20333	19.21	14.13	33.38	17.33
2012-13	6659	3029	29630	23655	22.63	5.36	22.24	16.34
2013-14	7392	3154	33824	26240	11.01	4.13	14.15	10.93
2014-15	8058	3020	37379	36229	9.01	-4.25	10.51	38.07
2015-16	8731	2984	42301	42362	8.35	-1.19	13.17	16.93
2016-17	9538	2917	50251	65422	9.24	-2.23	18.79	54.44
2017-18	10781	2895	59246	77741	13.03	-0.78	17.90	18.83
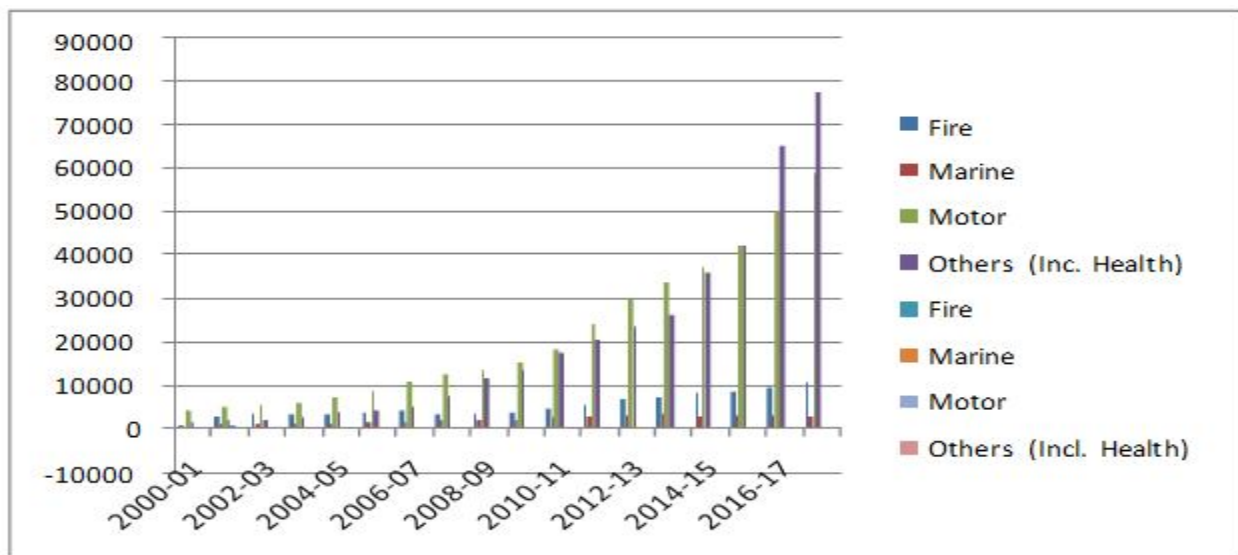
The Detariffication directly impacted the Fire & Engineering portfolios of the insurers which is evident from the negative growth in the year 2007-08 & 2008-09. The Motor portfolio also got impacted with a decrease in growth post the detariffication, but recovered as third party didn't come out of the Tariff regulation. The Own damage portion of the motor portfolio only got the hit. The marine portfolio has got effected and there is no substantial growth since 2012-13 because of the cross subsidisation of the

profitable Fire portfolio. There has been decent growth in the other line of business like Liability, Trade Credit, Extended Warranty, Cyber Insurance, etc. post Detariffication.

Wheather based crop insurance & Live Stock Insurance was launched by the government in the year 2007-08.Rashtriya Swasthya Bima Yojna was launched for BPL category in 2008-09 which led to 61% growth. Rajiv Ghandhi Shilpi Swasthya Yojna was launched for Artisans & handloom workers in 2007-08 which led to a 41.08% growth.

The steep growth of 54% in the other segment in year 2016-17 is primiarily due to the launch of Pradhan Mantri Fasal Bima Yojna which gave a booster to the sector with a premium of 24, 000 Cr.

FINDINGS ON THE BASIS OF OBJECTIVES

1. The reason for the shift of the market from the public sector to the private players was primarily because of the inability of the nationalized insurers for further market penetration. The operational approach of the PSU's were not customer friendly.

2. Government led insurance schemes led to a major boost for the sector.

3. Post Detariffication 943 and 159 new products have been introduced by the private and public sector companies respectively. Innovative and more customized products have been introduced primarily by the private insurers.

4. The increase in the Foreign Direct Investment from 26% to 49% has also acted as a major boost for the sector. This will open up avenues for more players to start operations in the industry.

5. Prior to Detariffication it is observed that the insurance penetration and density was very meager. After the detariffication the industry has portrayed improvements. The penetration of Non Life insurance has improved from 0.56 % in year 2000 to 1 % in 2018. Low penetration suggests of a huge potential in the sector and large untapped market. This in turn indicates huge scope for new players in the industry.

6. The customer service levels and customised products have been a game changer.

7. The fire & engineering premiums continue to be under stress.

CONCLUSION & RECOMMENDATION

- The introduction of Reforms in the General Insurance industry is an ongoing process. Detariffication of the industry compelled the competitors to design their premium structure based on their own understanding of the risk under the IRDA guidelines.

- The entry of private players led to competition among insurers which consequently resulted in the improvements and development of the sector at large. The overall performance of the sector of the industry witnessed positive changes in terms of product development , premium growth, market penetration, introduction of information technology and over all economic growth.

- Introduction of new products like Extended warranty, Cyber insurance, Title Insurance will act as a game changer in the industry. Some correction in pricing of the Fire & marine portfolio is also required.

- The insurers should work towards minimization and control the Cross Subsidization of other line of businesses with profitable fire & engineering portfolios. Customer centric and innovative new products should be designed as per customer's requirements.

- More focus on automation and technological advancement in the sector is the need of the hour.

- Insurers should focus on making Underwriting profits rather than relying on investment income, to sustain long term growth.

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CORPORATE SOCIAL RESPONISIBILITY OF INFOSYS LTD.: A CASE STUDY

Ashmeet Kaur, Arunima Chaudhary, Anushka Soni and Anirudh Madan

Amity Business School, Amity University, Noida

ABSTRACT

Infosys foundation, the philanthropic arm of Infosys, was created with the aim of helping the poor and upbringing the under privileged communities. This case study puts into limelight the major influential activities conducted by Infosys foundation towards fulfilling CSR ("Corporate Social Responsibility") over the past four years (2014-18) bringing prominent changes to the organisation. The study would derive out how contribution towards "Corporate Social Responsibility" helps in improving the reputation as well as goodwill of a company. The broad outcome of the case study suggests an optimistic impact of CSR activity on the performance of Infosys.

Keywords
- *Infosys*
- *Infosys Foundation*
- *Corporate Social Responsibility*
- *Memorandum of Understanding*

INTRODUCTION

Established in 1981, Infosys is a NYSE listed global consulting and IT services company with more than 225,000 employees. From a capital of US$250, it has grown to become a US$11.54 billion company with a market capitalization of approximately US$ 41.6 billion. In its journey of over 35 years, it has catalysed some of the major changes that have led to India's emergence as the global destination for software services talent. It pioneered the Global Delivery Model and became the first IT Company from India to be listed on NASDAQ. Its employee stock options program created some of India's first salaried millionaires Infosys and alliance partners jointly deliver business solutions that address its clients' business and technology problems. It addresses specific client needs as well as develops tools and methods to accelerate the successful deployment of solutions while reducing risk. In line with its corporate governance model and strategy of transparency, it does not solicit or accept influence or marketing assistance fees from any of our partners. Instead, its relationship focuses on joint investment in solutions, tools, and training.

Apart from its headquarters in Bengaluru, Infosys Ltd. has over 50 offices worldwide. Infosys Ltd. has its branches in majorly four continents namely, America, Asia-Pacific, Australia and Europe (Annexure 6).

DILEMMA

The management needs to investigate thoroughly the workings, achievements, total investments etc. of the Infosys Foundation over the past four years. It needs to figure out how many volunteers have put in the efforts, what all major activities have taken place and so far how many milestones it has achieved.

OBJECTIVES

To find out the overall growth of Infosys foundation and how it has contributed to a sustainable environment and for outlining innovative practices, employee growth and all other major activities undertaken under different focus areas in past four years.

- **GROWTH**

Growth can be measured by looking at some pertinent statistics, such as overall sales turnover, number of employees, dividend per share, return on equity and number of clients. Infosys Ltd. showed growth in the no. of employees from 2,00,364 in 2017 to 2,04,107 in 2018 (Annexure 1). No. of clients increased from 1,162 in 2017 to 1,204 in 2018 (Annexure 2) and total sales turnover increased from Rs.59,289 crore to Rs.61,941 crore (Annexure 3). Dividend per share increased from Rs.25.75 in 2017 to Rs.43.5 in 2018 (Annexure 4). Return on equity was 21.40% in 2017 that increased to 24.10% in 2018 (Annexure 5).

LITERATURE REVIEW

Ms. Nidhi Khurana Asia Pacific Institute of Information Technology, Panipat (2011)– STRATEGIC CORPORATE SOCIAL RESPONSIBILITY: CHALLENGING SUSTAINABLE ACTIONS IN INDIA: Ms. Nidhi Khurana of Asia Pacific Institute , Panipat has focused on the reasons to analyse the strategic gap between CSR implementation and CSR effectiveness and to identify the focused sectors where sustainable actions of strategic CSR are required to create synergies in India. The paper urges the Corporate not to look CSR as a non- profit activity in fact in the long run, expenditure in CSR can help increase profitability.

Bhupender & Vikas Kumar Joshiya, Assistant Professor, University of Delhi (2012)- ISSUES AND CHALLENGES OF CORPORATE SOCIAL RESPONSIBILITY IN INDIA: Bhupender and Vikas Kumar Joshiya, Assistant Professor , University of Delhi elaborated that over the time, CSR expanded to include both economic and social interests. Companies have become more transparent in accounting and display, public reporting ‟ due to pressures from various stakeholders. In this research paper CSR status, challenges of CSR, policies for CSR in India are studied. The concept of CSR is now firmly rooted on the global business agenda. But in order to move from theory to concrete action, many obstacles need to be overcome. Many positive outcomes can arise when businesses adopt a policy of social responsibility.

Alex Edmans (2012)- THE LINK BETWEEN JOB SATISFACTION AND FIRM VALUE, WITH IMPLICATIONS FOR CORPORATE SOCIAL RESPONSIBILITY: On an international level, Alex Edmans has derived out the link between job satisfaction and firm value with the implications of the CSR. Companies listed in the "100 Best Companies to work for in America" generated 2.3% to 3.8% higher stock returns per year than their peers from 1984 through 2011. These results have three main implications. First, consistent with human resource management theories, job satisfaction is beneficial for firm value. Second, corporate social responsibility can improve stock returns. Third, the stock market does not fully value intangible assets, and so it may be necessary to shield managers from short term stock prices to encourage long run growth.

CORPORATE SOCIAL REPONSIBILITY

"The best way to find yourself is to lose yourself in the service of others."-Mahatma Gandhi CSR is a gesture of showing the company's concern and commitment towards society's sustainability and development. It is the ethical behaviour of a company towards society. CSR is a self-regulating business model that helps your company be socially accountable- to itself, its stakeholders and the public. CSR is the commitment of businesses to contribute to sustainable economic development working with employees, their families, the local community and the society at large to improve their quality of life in ways that are good for both business and development. Companies adopt CSR to build up their reputation and goodwill. CSR is the responsibility of an organisation for the impact of its decisions and activities on society, the environment& its own prosperity.

INFOSYS FOUNDATION

Infosys Foundation is a non-profit organisation based in Karnataka, India, established in 1996 as an arm of Infosys Ltd. to support the underprivileged sections of the society. The foundation covers mainly five focus areas viz. education, rural development, healthcare, arts and culture, and destitute care. The foundation is solely funded by Infosys, and no external donations are accepted. The foundation is headed by Sudha Murthy. At the outset, the Infosys Foundation implemented programs in Karnataka, and subsequently extended its coverage to Andhra Pradesh, Arunachal Pradesh, Bihar, Delhi, Gujarat, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttarakhand and West Bengal.

- **JOURNEY**
  - In 1996, the Infosys Foundation was instituted to fulfil the social responsibilities of Infosys Limited. Sudha Murthy, N.S. Raghavan and G.R. Nayak were its first trustees.
  - In 1997-98, the Shalegondu Granthalaya (a library for every school) program was launched to help schools in rural areas set up their own libraries.
  - In 1998-99, the Foundation initiated several programs to improve computer literacy among students and teachers in rural areas.
  - In 2000-01, the Foundation constructed an orphanage commenced at the Maharshi Karve Stree Shikshana Samsthe, Pune.

- In 2001-02, Infosys Foundation was awarded the Economic Times Corporate Citizenship Award 2001 for outstanding philanthropic work- National Level.

- In 2002-03, the Foundation sponsored the construction of a paediatric block in the Capital Hospital at Bhubaneswar, Odisha.

- In 2003-04, the Foundation's association with Akshaya Patra began, with funds being released for the midday meal program, which now covers 10 states of India.

- In 2004-05, After a devastating tsunami hit the southeastern coast of India, the Infosys Foundation sponsored and conducted aid work in Tamil Nadu and the Andaman islands.

- In 2005-06, the Foundation constructed a pediatric hospital at Capitol Hospital in Bhubaneswar, which caters to poor patients.

- In 2006-07, it sponsored a folk festival in Bengaluru to provide direct market opportunities for rural artisans and help sustain their traditional arts and crafts.

- In 2007-08, it completed the construction of an advanced paediatric block at Wenlock Hospital in Mangaluru and a community eye centre at the Sankara Nethralaya, Bengaluru.

- In 2008-09, it provided grant to the Vidya Poshak program in Dharwad for offering financial assistance to poor meritorious students of the year.

- In 2009-10, it donated funds to the Sri Chayadevi Anathashrama Trust for efficient running of their orphanage in Mysuru.

- In 2010-11, it actively participated in extensive flood relief work across five districts of North Karnataka.

- In 2011-12, it funded the construction of a school building in Konappana Agrahara, Bengaluru, in association with the Electronics City Industries Association (ELCIA).

- In 2012-13, it constructed more than 10,000 toilets through the Parishudh initiative in a large number of rural districts across India and in the backward districts of Karnataka.

- In 2013-14, it launched the Jnanavikasa program covering the districts of Dharwad, Haveri, Gadag and Belagavi.

- In 2014-15, Infosys foundation partnered with Chennai Mathematical Institute in September, 2014 to improve the quality of education.

- In 2015-16, To improving and promoting education and enhancing vocational skills, foundation committed to support the renovation of seven schools in Arunachal Pradesh and two schools in Assam of Vivekananda Rock Memorial.

- In 2016-17, The foundation joined hands with the Tata Memorial Centre, Mumbai to find a cure for Cancer.

- In 2017-18, The Foundation lent a helping hand to Harish- Chandra Research Institute (HRI), Allahabad to fund the establishment of chair professorship in the area of Mathematics or theoretical physics

- **EMPLOYEE GROWTH PROGRAMMES**

Infosys supports individual volunteering efforts of the employees. Besides supporting employee-led CSR and eco-groups at campuses, they also have the '**I, Citizen of the Earth**' (iCoE) program to support the development of social leadership competencies and to promote responsible citizenship among their employees. We have internal forums to encourage our employees to share their volunteering experiences and this provides the impetus to the rest of the employees in the organization.

Another unique initiative at Infosys is the '**community empathy**' program that allows employees who are passionate about volunteering to take up to six months off from work to pursue community work which could include

a) Working with charitable organizations / governmental / para-governmental organizations / industry forums / other regulatory organizations in the area of education, health or any other area of general public interest as decided by the selection committee panel of the company.

b) Teach full time for the period of one year at any of the approved engineering colleges and management institutions as published on the Community Empathy Sabbatical portal.

c) Join approved Research & Development (R&D) organizations for taking up non-commercial research activities for public welfare and in public interest.

This Policy has been created to support employees who wish to pursue their interest in community service by providing them with leave of absence as well as a fellowship stipend through the sabbatical.

- **HEALTHCARE**

a) 2014-15

▪ Sponsored with Rs.4.25 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf) for the purchase of a new Computed Tomography (CT) scan machine for the Ramakrishna Mission Hospital, Itanagar, Arunachal Pradesh.

▪ Granted a corpus fund of Rs.1.06 crore to the Vittala International Institute of Ophthalmology, Bengaluru to provide eye care surgeries to poor. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

▪ Granted Rs.1 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf) to Schizophrenia Research Foundation, Chennai towards establishing a dementia care and resource centre and for promoting positive mental health in schools and colleges.

▪ The Foundation (through Sankara Nathralaya Foundation) funded the new community hospital and set up training programs in Ophthalmology (science of eye disorders), nursing, operation theatre technology and medical laboratory technology in Chennai.

▪ By 2014-15, Swami Vivekananda Integrated Rural Health Centre (SVIRHC) has treated 3,747 leprosy patients and 11,083 tuberculosis patients, conducted 408 reconstructive surgeries on leprosy patients, and free eye operations on 16,869 patients in Pavagada, Karnataka. The treatment was only made possible with the financial help of Infosys Foundation who funded Rs.6.02 crore. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

▪ Granted funds to the Cancer Institute (WIA), Chennai, towards the setting up of cancer registry and screening projects- the HPV vaccination program.

b) 2015-16

▪ Funded Rs.5 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf) to Foundation of Revitalization of Local Health Traditions in support of revitalizing India's medical heritage through the conservation of 6,560 species of medical flora.

▪ Assisted Penn Nalam, a unit of Sri Dhanvantri Trust, to build a breast cancer research institute to study, detect, treat and cure the disease. For the construction, the Foundation has donated Rs.2 crore. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

▪ Supported Bhagwan Mahaveer Viklang Sahitya Samiti (BMVSS) in allocating funds for research activities that involve the installation of infrared cameras at gait laboratories.

c) 2016-17

▪ Funded Rs.5.21 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf) for the construction of 100 metre skywalk at the Government Medical College, Thiruvananthapuram.

▪ Donated Rs.1 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf) for the establishment of a component separation unit in the Rashtrotthana Blood Bank in Hubballi, Karnataka that ensures supply of safe blood to those in need.

▪ Funded entirely the project of constructing an overnight shelter (Ashray) proposed by L.V. Prasad Eye Institute (LVPEI) for its post-surgery patients from remote areas.

▪ Funded the construction of Infosys Institute of Robotic Surgery at Narayana City, Bengaluru. Also, funded the procurement of the Da Vinci Surgical System that helps the patients in reduced loss of blood during surgeries and speedy recovery.

d) 2017-18

- Donated Rs.2.51 (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf) crore for the Comprehensive Child Care Program, with the with the aim to screen 15,000 children for eye ailments with the support of Vittala International Institute of Ophthalmology (VIIO). By 2018, more than 8,000 school children had been screened, mostly from government schools in economically backward area.

- Granted Rs.1.43 crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf) for the renovation and maintenance of the building, earlier constructed in Capital Hospital, Odisha in the year 2003.

- Sponsored an advanced neurosurgical operating microscope at the Government Medical College, Thiruvananthapuram. The microscope can easily detect tumor without any damage.

- **EDUCATION**

a) 2014-15

- Infosys foundation partnered with Chennai Mathematical Institute in September, 2014 to improve the quality of education and funded Rs. 33.25 crore through foundation. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- Infosys Foundation introduced the Spark-IT program in September 2014 in Hyderabad, Bengaluru, Chennai, Pune for enhancing the employability of engineering graduates and for which they provided Rs. 15.59 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- With a fervent belief that children cannot learn when hungry, the Infosys Foundation has set out to address their basic needs to nurture active learners i.e. uninterrupted mid-day meal, scholarships for girl students in Ramakrishna Mission run schools in Rural Bengaluru and funded Rs. 26.03 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

b) 2015-16

- To support the spirit of innovation and research of the students, the Foundation has partnered with IIIT-Delhi for the establishment of the Infosys Centre for Artificial Intelligence(AI) at the institute for which they funded Rs. 8 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- The foundation also instituted chair professorship at the Indian Institute of Management(IIM-A) aimed at encouraging funds management research for which the foundation funded Rs. 5 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- To improving and promoting education and enhancing vocational skills, foundation committed to support the renovation of seven schools in Arunachal Pradesh and two schools in Assam of Vivekananda Rock Memorial for which they funded Rs. 6 crores(https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

c) 2016-17

- The foundation joined hands with the Tata Memorial Centre, Mumbai to find a cure for Cancer for which they funded Rs. 5 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- Foundation encouraged students at Bhagavatula Charitable Trust school in Visakhapatnam to pick up skills like spinning yarn, tailoring and embroidery along with regular studies and funded Rs. 6.66 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- One lakh meals prepared by the Akshay Patra Foundation in the hi-tech kitchen in many government schools in India - keeping students in school by eradicating classroom hunger funded by Infosys Foundation with Rs. 15.64 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

d) 2017-18

- Infosys Foundation sponsored the renovation of the lab into a state-of-the-art lecture theatre at Presidency University, Kolkata, which now hosts eminent scholars and professors, helping the

university to impart liberal education to everyone for which it funded Rs 5 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- The Foundation lent a helping hand to Harish- Chandra Research Institute (HRI), Allahabad to fund the establishment of chair professorship in the area of Mathematics or theoretical physics for which foundation funded Rs. 5 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- The foundation provided the infrastructure of the TIFR (Tata Institute of Fundamental Research), Bengaluru for which they funded Rs. 3 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- **ART & CULTURE**

a) **2014-15**
- Donated Rs.1crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf) in Raja Dinkar Kelkar Museum situated in Pune. Since its establishment it has instituted permanent galleries, produced various publications and established a graphic art and all of this with the help of funds granted by Infosys Foundation. Its main objective of collaborating with the museum was to create a museum city at par.

- A temple, 1600 years old was restored to its original glory with the help of the funds given by the foundation. This happened with the help of the partnership with Bhartiya Vidya Bhawan(BVB). The foundation also funds the cultural festival that takes place at the complex every year.

b) **2015-16**
- As a result of the partnership with BVB, the corpus fund was expanded with Rs.5crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf) in this year and the Bhavan Infosys outreach program was expanded in Kerela, Gujarat, Odisha, Telengana, Andhra Pradesh, Maharashtra and Rajasthan.

c) **2016-17**
- To celebrate Buddhist history, the foundation conducted a cultural fest at Anupu, Andhra Pradesh from December 9 to 11, 2016. This was again as a result of partnership with Bhartiya Vidya Bhawan. The festival featured about 350 performers.

- The foundation contributed Rs.1.5crore (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf) to the corpus fund of the Sanket trust, Ranga Shankara, Bengaluru to promote theatre activities and for bringing together young directors and actors.

d) **2017-2018**
- The second and third editions of the festivals at Lakshmeshwara complex were held in the first week of January of 2017 and 2018.

- Funded Anahad Foundation Equal projects in Rajasthan.

- Granted help to two of the projects of Archive of Indian Music (AIM) in 2017 whose basic motive is to restore masterpieces like first recording of the national anthem from gramophones for the future generation.

- **DESTITUTE CARE**

a) **2014-15**
- Granted funds for construction of hostels for destitute girls and additional funds were provided for midday meal scheme.

- Granted funds for training tribal people in the use of natural dyes and traditional weaving being promoted by Charaka Society, Heggodu.

- Sponsored air tickets for Indian women who were a victim of abuse and trafficking in Bahrain.

b) **2015-16**
- In association with Ramakrishna Mission, Sri Ramakrishna Ashrama, and Confederation of Indian Industries (CII). They have provided medical supplies, and blankets to the people affected in the calamity. Around Rs.13 crores were stimulated into the project. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- A corpus fund for ensuring equity in education by imparting quality education and higher values to the girl child.

- Renovation of old age homes run by Ramakrishna mission, grants were provided to benefit the elders.

c) 2016-17

- In association with Directorate of Indian Army Veterans (DIAV) they have opened a redressal window for the families of martyrs and provide them monetary grants. The amount allocated was Rs.19.46 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- The foundation has granted funds to Indian Red Cross Society to build a new serai which would curb the problem up to a large extent. Amount capitalized was Rs.5.02 crores.(https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- In 2016 parts of northern Karnataka were hit with drought. Infosys foundation with concerned authorities helped the drought-hit areas by providing them fodder and water. Infosys initiated Rs.3.57 crores into the project. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

d) 2017-18

- In association with Kidwai Memorial Institute of Oncology, Infosys Foundation has been providing food and care free of cost to cancer patients in Bangalore, Karnataka. The total budget allocated was Rs.20.68 crores and Total amount spent was Rs.7.02 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- The nation has granted funds for the construction of Red Cross Sarai at postgraduate Institute of Medical Education and Research (PGIMER).

- Budget allocated was Rs.19 crores and the amount spent was Rs.14 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- **RURAL DEVELOPMENT**

a) 2014-15

- Provided funds for imparting sexual and reproductive health education and creating awareness.

- Donated water purifier-cum-cooler, solar water heaters, water tank and steel cupboards to the Gurukula Anathasharama, Mysuru.

- Helped the Ponani Municipal Corporation in Kerala to implement ways of water supply scheme benefiting the people.

b) 2015-16

- A Public-Private Partnership was formed between the state government and Infosys Foundation capitalized Rs.12.35 crores to construct 200 homes. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-16.pdf)

- To support the work on sustainable development of 1300 tribal villages and to run skill development programs that empower the tribal youth.

- A corpus fund for the creation of a database of all children in the age group of 0-15 yrs covering rural areas of Karnataka for tracking

c) 2016-17

- Bal-Mitra Gram or Child-Friendly Village is the idea initiated by the foundation to empower children in the villages. Infosys Foundation initiated an amount of 1.10 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- Jhabua, a district in Madhya Pradesh is one of the places which suffers every year due to lack of water although, it receives 1000mm of rainfall annually. The water usually flows down due to hilly terrain. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- Shivganga Samagra Gramvikas Parishad (SSGP) which works in tribal areas. Infosys Foundation has helped this foundation to build Libraries and providing skills to locals regarding water harvesting. Amount capitalized by the foundation is 3.99 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)

- Kalyan Ashram with the help of Infosys Foundation has built hostels.Earlier the hostel could provide the accommodation to only 6 girls but now it can accommodate up to 24. The amount of capitalized was 1 crore. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-17.pdf)
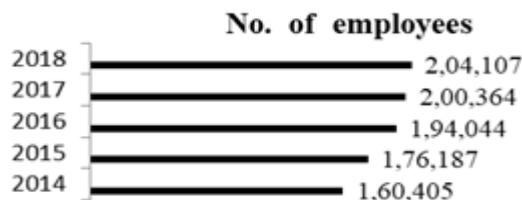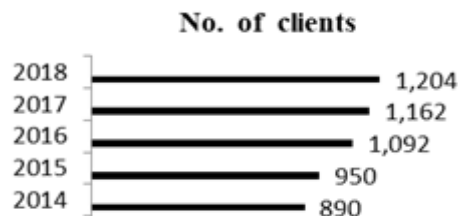
d) 2017-18

- By extending the help to Vishakha Zilla Nava Nirmana Samithi (VJNNS), people are able to get drinking water at their doorstep. The budget allocated was Rs.4.26 crore and the amount spent was also Rs.4.26 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/ Infosys-AR-18.pdf)

- Mudipu a village area with poor transport connectivity posing a major hindrance to the growth of the area. Infosys Foundation has allocated Rs.17.81 crores and the amount spent is Rs.13.7 crore. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- Infosys Foundation has funded the construction of toilets blocks in Hyderabad and Bangalore as a part of swachh Bharat Abhiyan. The amount spent was Rs.5.71 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

- Infosys Foundation has funded to reconstruct government schools in Mulabagilu and Mysuru with an investment of Rs.4.09 crores. (https://www.infosys.com/investors/reports-filings/annual-report/annual/ Documents/Infosys-AR-18.pdf)

CONCLUSION

Established in 1996, Infosys Foundation has so far implemented various social agendas covering its five focus areas. Even before CSR was made compulsory, Infosys formed the foundation, a not-for-profit initiative, to uplift the society. So far it has partnered with various organisations, funded hundreds of trusts and granted a helping hand to those in desperate need. The works done by the foundation have brought prominent changes to the society at large. It has covered all of its five focus areas while giving equal importance to all of them separately . It has successfully implanted various innovative projects at different locations all over India. For attaining sustainable development and equitable society, Infosys foundation is always on its toes.

ANNEXURE

1. (Source: https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)
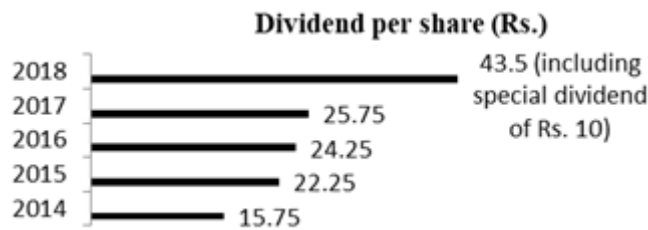
No. of employees

Year	No. of employees
2018	2,04,107
2017	2,00,364
2016	1,94,044
2015	1,76,187
2014	1,60,405

2. (Source: https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

No. of clients

Year	No. of clients
2018	1,204
2017	1,162
2016	1,092
2015	950
2014	890

3. (Source:https://economictimes.indiatimes.com/infosys-ltd/yearly/companyid-10960.cms)

Total sales turnover (Rs. crore)

Year	Total sales turnover (Rs. crore)
2018	61,941
2017	59,289
2016	53,983
2015	47,300
2014	44,341

4. (Source: https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

Dividend per share (Rs.)

Year	Value
2018	43.5 (including special dividend of Rs. 10)
2017	25.75
2016	24.25
2015	22.25
2014	15.75

5. (Source: https://www.infosys.com/investors/reports-filings/annual-report/annual/Documents/Infosys-AR-18.pdf)

Return on equity

Year	Value
2018	24.10%
2017	21.40%
2016	22.70%
2015	24.10%
2014	22.90%

6. (Source: https://www.infosysbpm.com/about/Pages/locations.aspx ; http://abhisays.com/india/office-locations-of-infosys-in-india.html)

INDIA		
Bengaluru	Bhubaneswar	Thiruvananthapuram
Chandigarh	Chennai	Pune
Jaipur	Mangalore	Mumbai
Mysore	New Delhi	Hyderabad
	Gurugram	
AMERICA		
Brazil	Canada	Costa Rica
Mexico	United States	Puerto Rico
ASIA-PACIFIC (APAC)		
India	China	Philippines
AUSTRALIA		
EUROPE		
Czech Republic	Poland	United Kingdom (UK)
	Netherlands	

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DEVELOPMENT AND CHANGE MANAGEMENT IN SCIENTIFIC ORGANIZATIONS USING METHODOLOGICAL APPROACHES OF STRATEGIC MANAGEMENT

Maltseva Anna Andreevna

Lurye Scientific and Methodological Center for Higher School Innovative Activity of Tver State University, Tver, Russia

ABSTRACT

As part of the study, theoretical and methodological issues of scientific organizations' development management were studied which included the identification of the definition and key characteristics of scientific organizations' development management.

The study proposes a procedure for planning of organizational changes and strategies for its implementation in relation to a special group of economic entities that is scientific organizations. The aim of the work is to identify the most appropriate approaches and techniques for scientific organizations to implement strategic changes.

The author applied the balanced scorecard approach, common in strategic analysis, to the problem of scientific organizations managing, taking into account the specifics of its functioning, which provides planning and monitoring the development trajectory of the structure.

Keywords: scientific organization, organizational change, change strategy, change management, development management.

THE RELEVANCE OF RESEARCH

Modern realities require significant changes in various fields of activity, including scientific ones. Scientific organizations are the backbone of the country's scientific complex and exceed the values of key resource and effective indicators for the university and production sectors.

Over the past few years, the team of Tver InnoCentre has been conducting research aimed at creating scientific and methodological foundations and management tools for scientific organizations, whose specifics is differ significantly from the traditional companies (Slattery, 2013; Maltseva, Barsukova, Gridchina, Kuzmina, 2017). The chosen topic is highly relevant due to the intensification of state policy in the field of science. Active reforming of scientific organizations is a global trend in the development of the science system, aimed at strengthening the positions of individual structures in the global scientific and educational space, the development of interdisciplinary and applied research. Scientific organizations, in turn, must change and adapt to new conditions in order to successfully operate in tough competition and realize their mission (Slattery, 2013).

Another circumstance that determines the relevance of the proposed research topic is connected with the complexity of the theoretical and practical problems of strategic management, which predetermines the need to create a coherent theory of forming strategies for implementing changes in scientific organizations.

The need to form an effective modern management system in the field of science and innovation, ensuring increased investment attractiveness of the research and development, as well as the effectiveness of investment in this area, effectiveness and demand for research and development to achieve the goals of the scientific and technological development of the country is declared in the Strategy of the Scientific and Technological Development of the Russian Federation for the long term.

This system have to meet the requirements of high adaptability to the growing complexity of the global economy which is impossible to achieve in the framework of traditional vertically oriented and "bureaucratic" models.

Scientific organizations as subjects of the economy should be the subject of an increasing number of studies aimed at developing organizational, economic and managerial models for their development that would ensure the prospective growth of the effectiveness of these structures and, as a result, the country's scientific and technical potential.

THE RESULTS OF TERMINOLOGICAL ANALYSIS

As part of the study, a comprehensive analysis of the existing approaches to the definition of the essential characteristics of change management and development management was conducted, and the relationships between them were established taking into account the specifics of scientific organizations (Jansson, 2013).

Based on the results of terminological analysis, the following definitions are introduced for research purposes:

• change management of in scientific organizations is a set of actions aimed at the adoption, testing, active distribution and development of new approaches to conduct activities by a scientific organization;

• development management of scientific organizations is a well-planned set of management activities, regular targeted impact on the internal processes and organizational elements of the scientific organization, which ensures their transformation aimed at increasing the current and future performance, performance indicators, increasing the resource potential, has a positive effect on quality characteristics of the ultimate scientific and technical products and the development of its new promising species.

The basic definitions explaining the essence of the above definitions and including the characteristics of the specificity of scientific organizations are:

• internal processes of scientific organization;

• organizational elements of a scientific organization;

• performance and efficiency of the scientific organization;

• resource potential of a scientific organization.

In accordance with the classical approach, the following types of business processes in companies can be identified that can be transformed into the activities of scientific organizations:

1. The main processes (create added value, a product that has a value to an external client, the income of the organization):

• processes for obtaining new knowledge (conducting R&D, design and development works);

• processes of applying new knowledge (commercialization of results of intellectual activity, educational activities, expert and analytical activities, scientific and technical services).

2. The ensuring processes (support the infrastructure of the organization and contribute to the effective implementation of the main processes):

• logistics;

• ensuring the smooth operation of equipment, including scientific;

• security ensuring;

• information support;

• accounting and legal support activities, etc.

3. The management processes (ensure the functioning of the organization, management of current activities):

• strategic management;

• financial management;

• marketing management;

• personnel management.

4. The development processes (ensure the improvement and development of the organization).

The main differences between the internal processes of scientific organizations from others for example commercial structures are primarily in the focus of the main processes. The processes of development that among other things are the subjects of this research occupy a special niche in the system of internal organization processes and primarily has a project nature. For ensuring the systematic development of scientific organizations the main processes should become the most important object of management for the purposes of this research, which does not exclude the development of measures to improve the supporting and management processes.

Internal processes are mainly dynamic while the impact on the static characteristics of the system - scientific organization - also in a number of cases provides a significant effect. They include such characteristics:

• mission and strategy;

• organizational management structure;

• system of internal and external communications;

• corporate culture, image, etc.

Priority and expediency of changes that are given above and other organizational elements of scientific organizations directly follows from the principle of priority the structure over the functions that underlie the process approach in already created organizations.

Issues of performance and efficiency of scientific organizations are given special attention at the present stage. A typical methodology for assessing the performance of scientific organizations executing R&D, design and development and technological works of civil purpose, that was approved by Decree of the Ministry of Education and Science of the Russian Federation No. 161 dated March 5, 2014, includes the following characteristics:

• performance and relevance of scientific researches;

• development of human resources;

• integration into the world scientific space, dissemination of scientific knowledge and increasing the prestige of science;

• resource support for the activity of a scientific organization.

In general the system of indicators included in the methodology covers the most significant aspects of scientific organizations' activity including certain aspects of their development. At the same time performance is more a characteristic of the covering period while development is stipulate prospects.

The controversy about these issues does not calm down that is due to the very specific nature of science's field, in most cases the incompatibility of the results and effects obtained by various scientific organizations and also in some cases promising benefits that cannot be assessed based on the results of the reporting period.

Kulagin (2011) raises the question about the need to distinguish the concepts of "performance" and "efficiency" for scientific organizations. The author gives the concrete examples which in view of the need to improve the effectiveness of activity scientific organizations lowered the quality of conducted researches and experiments that ultimately led to their low performance and create a layer of researches called pseudoscience.

Effectiveness of a scientific organization, according to the scientist, is the opinion of the founder: what is the cost of a full and high-quality performing of assigned tasks by scientific organization. The performance of a scientific organization is the ability to receive results on specific scientific and technical projects or problems.

The author suggests to create a system for assessing and managing scientific organizations based on a mission that can be different in terms of founders, customers (consumers), the organization (team) itself, business partners. At the same time it should be aimed at satisfying the stakeholders groups that mentioned above as well as the scientific community and ensuring that scientific results that meet the world standards.

When we transform this view on the problem of the interrelation of "performance" and "effectiveness" of a scientific organization the author sharing Kulagin's opinion came to the conclusion that it is necessary to combine them optimally with the prevalence of the first.

Thus the indicator of scientific organization's development should be performance indicators that are normatively fixed at the federal level and ensure their regular evaluation, as well as the qualitative growth of the content characteristics of scientific research results that can be identified exclusively by an expert method with the involvement of specialists from relevant fields of knowledge.

When one defined the resource potential of a scientific organization first of all, special types of resources are allocated for the creation of scientific and technical products as the key result of their activity: material and intangible.

An increase of the organization's assets as a whole or some of its types will be indicator of the growth of material resources. The standard methodology is not applicable to assess intangible factors.

In the works of the author the issue of intellectual capital that is the basis for creating new knowledge, i.e. the key direction of the scientific organization's activity was actively studied (Maltseva, 2016).

Within the framework of the research which was made by the author the intellectual capital of scientific organizations was structured (Figure 1).
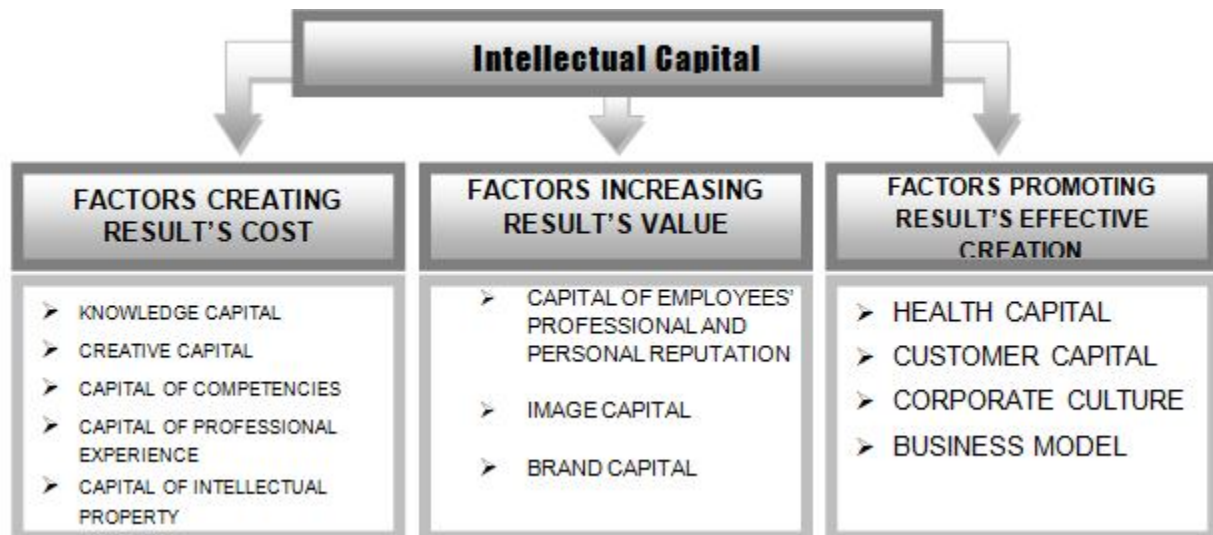
Figure-1: Intellectual capital's types classification by the degree of influence on the result of scientific organizations activity

Because of the immateriality and complexity of assessing intellectual capital as a resource it seems appropriate to concentrate it around the factors that create result's value, the build-up of such factors will indicate the development trends of the organization.

STRATEGIC DEVELOPMENT PRIORITIES OF RUSSIAN SCIENTIFIC ORGANIZATIONS

Creation of an effective methodology of development of scientific organizations is possible with the support of the basic foundations of models of organizational development (Taute & Taute, 2012).

Two polar concepts of organizational development were proposed by Beer and Nohria (2000): E-theory and O-theory. E-theory is oriented toward the organization's financial goals, to their effective achievement. O-theory is consider the organization as a self-developing system, largely oriented toward corporate goals and culture, the motives of employees of the organization (Galdikas and Voiku, 2013).

Considering E and O theories as applied to the specifics of scientific organizations, it is noted that the current conditions for reducing the budget financing of science, which put scientific organizations in need of searching for additional sources of funds, requires the use of E-theory as the base. At the same time, due to the specifics of the activities of scientific organizations, i.e. the generation of new knowledge and their distribution, as well as the creative nature of such activity, O-theory can be considered as more preferable for such structures.

Summarizing the analysis results (Maltseva, Veselov, Bedenko, 2017), it is noted that the priorities of domestic scientific organizations of the public sector are largely in achieving high financial performance, which is caused by the requirements of state policy and the market, most of the funding is allocated on a competitive basis. At the same time, the prevalence of E-model in the development of scientific organizations can contribute to the development of deformations in its social role as a generator and translator of advanced knowledge, since the achievement of significant scientific results can occur abruptly and not depend on criteria and indicators.

Another approach to the selection of models of organizational development of scientific organizations is their classification by the most significant factor (Funtov, 2010): development with an economic effect; development without assessing the economic benefits; external development; inner development; technological development; human development.

According to the research results (Maltseva, Veselov, Bedenko, 2017), the largest number of scientific organizations implement the external development model. Approximately equal values of indicators for models without economic benefits, internal development and human development. Low values for models of technological development and development with an economic effect. This is determined by the instability of funding of scientific organizations due to the high dependence on the state budget funds, and, as a result, the possibilities of financing the expansion of the material and technical base.

High growth rates that determine the external model of development are due to the significant importance of image characteristics for scientific organizations, since, they are the producers of a unique product, i.e. new knowledge, they provide an opportunity for financial development precisely due to high business reputation.

The external development of scientific organizations is mainly related to the formation of image characteristics, which in most cases do not determine the financial results of the structure, which causes the contiguity of development for the two models of the largest number of organizations. Similarly, the internal development of scientific organizations is primarily associated with the development of human capital, which is a key source for the generation of new knowledge. Thus, the implementation of several development models within the framework of individual structures is fully proved.

MODERN APPROACHES TO THE IMPLEMENTATION OF CHANGE STRATEGIES IN SCIENTIFIC ORGANIZATIONS

The change strategy is a case-by-case approach that takes into account the following factors (Galdikas & Voiku, 2013):

• rate of change;

• degree of management by managers;

• using of external structures;

• central or local concentration of forces.

Among the strategies types listed in the literature (Gans, 2011) the most suitable for scientific organizations are: *a strategy based on negotiations; analytical strategy; action-oriented strategy.*

The directive strategy in most cases is not flexible and does not allow to take into account all the specific features of creative research activities, and also because of the universality and unification of requirements it does not allow to take into account the differences in the functioning of individual structures and activities of various scientists and specialists. In addition, it is the source of the greatest resistance to change, which is especially pronounced in the scientific community.

The normative strategy, which in most cases is based on external assessment of activities, does not fully correspond to the specifics of scientific organizations, that as well not always take into account the specifics of the scientific organization's internal environment, and causes resistance to change, which is enhanced by the participation of leading scientists and specialists in implementing changes.

The most common ways of changes in organization are:

1) *Specialists' strategy*. It involves inviting an external consultant that planning changes in the organization, then evaluating and commencing the implementation of his proposals, often in the form in which they were presented.

2) *Learning strategy*. It involves inviting an external consultant, supplemented by training activities to create the necessary readiness and eliminating the resistance to change.

3) *The strategy of joint activities*. It involves joint direction and implementation of the change process with the consultant, management and staff of the organization.

All the above-mentioned strategies has the great importance for scientific organizations, since it is advisable to use the resources of the external environment more and more in the interests of increasing interdisciplinarity, expanding the pool of promising scientific research and reducing personnel inbreeding. To implement the above strategies, both individually and collectively, the following formats are used:

• an invitation to the work of leading scientists from other organizations, including foreign ones;

• internships for employees in scientific organizations;

• implementation of joint researches with other scientific organizations, including grants, programs, etc.;

• scientific events (conferences, forums, round tables, etc.);

• participation in the work of public organizations and associations of scientists.

An important issue is the implementation of planned changes. The following three methods of introducing changes are most commonly used: *"big bang", "trial introduction" and "parallel operation"* (Flamgolts, 2012).

The specificity of the activities of scientific organizations determines the feasibility of applying the two latter techniques, since it has a higher inertia compared to other activities. For the formation of a fundamentally new research area or project, a scientific background is required, which is usually formed in the process of ongoing

research. The big bang technique can have a demotivating impact on the organization's personnel, thereby significantly reducing productivity at the transformation stage and creating precedents for resistance to change.

The issues of the scientists' motivation in the framework of practical activities and directly in the process of change demonstrate the fact that the specificity of scientific activity as creative work, which results depend on the individual abilities of workers, determines the characteristics of resistance to change (Maltseva & Klyushnikova, 2017).

Research work is most often performed by highly motivated people who have a high interest in the work itself in the structure of labor values (Cole & Cole, 1973). At the same time, at the present stage, the increasing influence, often the primary one, has a material factor, which also influences resistance to change.

It is noted that for leveling resistance to change from scientific staff because of the specifics of their work it is equally important to provide an opportunity to participate in the planning of organizational changes to freely express their attitude to innovations, to create a sense of belonging to potential problems and changes, which as a result will increase awareness and making changes.

Due to specific motivational features of creative research teams, it is necessary to additionally competent motivational support of the process of introducing changes, since motivation is a powerful incentive tool for the effective activity of a research team or organization.

The practical significance of the study is in the fact that the obtained results can be used as a theoretical and methodological basis for developing programs for the improvement of organizational forms and managing methods of scientific organizations, as well as change strategies.

The issues of implementing strategies for managing scientific organizations are presented in the study of the National Research University Higher School of Economics, which combines information on various aspects of managing scientific, scientific and technical activities and their results. The study systematized the best practices of research organizations in terms of strategic changes based on the analysis of in-depth interviews, which include:

• selection of priority areas of research and development;

• creation of collegial bodies of strategic management;

• assessment of internal and external factors affecting the current position of the organization.

Thus, to determine the strategic priorities of scientific organizations, the foresight methodology can be used or the involvement of a wide range of researchers and cooperation with other organizations can be ensured.

Among the strategically significant factors of the development of scientific organizations, the uniqueness of the product, the qualitative characteristics of the team, a rational organization management strategy and a number of others are stand out.

DEVELOPMENT MANAGEMENT OF SCIENTIFIC ORGANIZATIONS USING BALANCED SCORECARD

Strategic management become one of the most promising mechanisms for development management of scientific organizations in conditions when they are faced with new opportunities and new risks associated largely with the changing role of the state as the main customer and subject of influence, forming the state order and standards for evaluating the activities of scientific organizations. In this regard, strategic management begins to be considered by organizations in the field of science as a breakthrough point for effective change management, as one of the methods that determine the organization's competitiveness and investment attractiveness in the long term.

One of the most popular recently methods connecting the development of the strategy and the operational activities of an organization is the Balanced Scorecard (BSC). BSC translates the mission and overall strategy of the company into a system of clearly defined goals and objectives, as well as key performance indicators that determine the degree of achievement of these orientations.

Despite the availability of works describing the structure and features of the application of the BSC toolkit in the modern economy, it is not enough attention has been paid in the literature to researching its use in the management system of a scientific organization. At the same time, it should be noted that recently this topic has been actively discussed by the university community and there are projects for its practical implementation.

To ensure the management of a scientific organization, it is necessary to take into account specific factors of activity, peculiarities of the evaluation of research work and the formalization of indicators for the convenience of their definition and monitoring.

The process of strategic management requires regular assessment and analysis of the dynamics of various aspects of the organization's activity. It is necessary to assess not only the financial situation, but also the competitiveness, the organization of business processes, the availability of resources, which together form the economic sustainability of the organization. Such assessment, especially in relation to the activities of a scientific organization, should be based more on non-monetary indicators.

For the purposes of this study and in connection with the above, typical components of the BSC for scientific organizations have been transformed in connection with the specifics of their activities in the following 5 perspectives: "Public Significance" (what should a scientific organization be in order to meet the interests of the state and society), "Finance" (what financial indicators should it achieve), "Consumers" (how to work with clients in order to achieve the necessary financial indicators), "Internal processes" (how to rationally organize internal business processes to provide optimum performance to create customer value), "Human Resources and Development" (what kind of employees, knowledge, technologies we need to ensure the effectiveness of internal processes) (Maltseva and Barsukova, 2017).

At the same time, causal relationships are implemented as follows: human resources are mobilized to achieve the stated strategic goals through internal processes; the results, as a result of the processes, are compared with the wishes of all interested parties and thus serve as the starting point for improving research activities and increasing the social significance of a scientific organization.

All described perspectives are interrelated elements of the scientific organization's BSC, the development of which begins with an analysis of its strategy, mission, vision and set strategic goals. At the same time, the result of this analysis should be the organization's "strategic map" (Fig. 2), which will reflect all the strategic goals, key success factors contributing to their achievement for each of the five BSC prospects.

In the study of author, a model of BSC is detailed developed for a simulated scientific organization (it is not given in the work due to volume limitations), which can be adapted for a specific case: the decision-makers should select those indicators from the aggregate number of indicators proposed in the system which correspond to the fullest extent with the strategic goals of the organization (Maltseva and Barsukova, 2017).

The choice of the number and the type of indicators for a particular scientific organization depends on the specifics of its activities, mission, legal form, etc. With this end in view, an organization can analyze causal relationships between indicators using correlation coefficients, which will allow to identify the strongest relationships and select the most significant indicators.
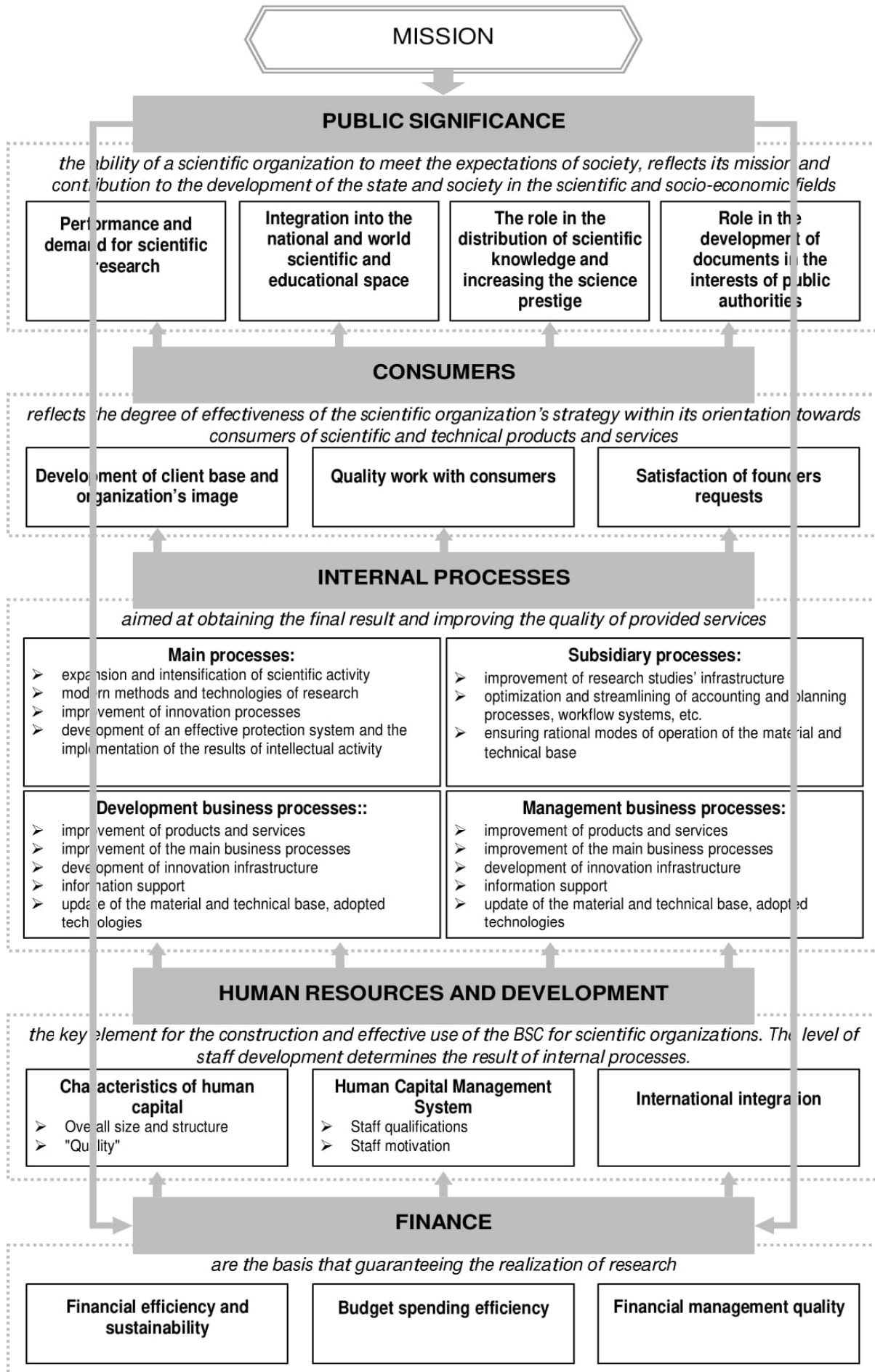
MISSION

PUBLIC SIGNIFICANCE

the ability of a scientific organization to meet the expectations of society, reflects its mission and contribution to the development of the state and society in the scientific and socio-economic fields

| Performance and demand for scientific research | Integration into the national and world scientific and educational space | The role in the distribution of scientific knowledge and increasing the science prestige | Role in the development of documents in the interests of public authorities |

CONSUMERS

reflects the degree of effectiveness of the scientific organization's strategy within its orientation towards consumers of scientific and technical products and services

| Development of client base and organization's image | Quality work with consumers | Satisfaction of founders requests |

INTERNAL PROCESSES

aimed at obtaining the final result and improving the quality of provided services

Main processes:
- expansion and intensification of scientific activity
- modern methods and technologies of research
- improvement of innovation processes
- development of an effective protection system and the implementation of the results of intellectual activity

Subsidiary processes:
- improvement of research studies' infrastructure
- optimization and streamlining of accounting and planning processes, workflow systems, etc.
- ensuring rational modes of operation of the material and technical base

Development business processes::
- improvement of products and services
- improvement of the main business processes
- development of innovation infrastructure
- information support
- update of the material and technical base, adopted technologies

Management business processes:
- improvement of products and services
- improvement of the main business processes
- development of innovation infrastructure
- information support
- update of the material and technical base, adopted technologies

HUMAN RESOURCES AND DEVELOPMENT

the key element for the construction and effective use of the BSC for scientific organizations. The level of staff development determines the result of internal processes.

Characteristics of human capital
- Overall size and structure
- "Quality"

Human Capital Management System
- Staff qualifications
- Staff motivation

International integration

FINANCE

are the basis that guaranteeing the realization of research

| Financial efficiency and sustainability | Budget spending efficiency | Financial management quality |

Figure-2: Strategic map of the objectives of the scientific organization

According to the authors, the effectiveness of introducing the BSC model into the practice of managing scientific organizations is that organizations are able to comprehensively and visually present their development strategy, tune the organization's functioning system to achieve strategic goals, manage non-financial factors to achieve financial results, adjust activities on the early stage of problems.

The system, built on both generally accepted and specially designed indicators, does not provide the full potential of its testing at the current moment, but creates opportunities for its specification within the framework of solving specific managerial tasks in individual scientific organizations.

These BSC indicators can be the basis for developing key performance indicators for structural units and individual employees, including within the framework of a flexible system of material incentives (effective contract).

CONCLUSIONS

Thus, in modern conditions of market transformations, science is the basis of the country's socio-economic development, the transition to an innovative economy, and large-scale development projects for the high-tech sector of the Russian economy necessitate the development of a new approach to the qualitative modernization of the science sector, which determines the relevance of research issues of strategic planning of scientific organizations' activity.

Further improvement of the strategic planning of scientific organizations' activity based on the basic methodology of development management should ensure a more active integration of organizations of science sphere in the country's socio-economic system not only as providing structures for the real economy, but also to further development a specific market for scientific and technical products, as the basis for the implementation of the country's innovative vector of development.

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TO STUDY THE FACTORS INFLUENCING CONSUMERS IN SELECTION OF CAB SERVICES USING AHP

Monika Arora[1] and Diksha Shukla[2]
Associate Professor[1], IT/Operations Head, Apeejay School of Management
Student[2], PGDM HR Operations, Apeejay School of Management

ABSTRACT

The development of transportation in India has undergone tremendous improvements. Due to the rapid advancement in the field of technology, consumers have started using internet for every small or big thing. Where versatility becomes the supreme need for an individual hence the need for transport service especially the private conveyance increased in the metro cities. In the past years, enormous modifications have taken place in the cab service industry. The cab service industry is one of the fastest growing transport industries in India where Inception of mobile transportation has boosted the need of cab service providers like Ola, Uber and Meru. They serve the needs of huge mass of commuters in Delhi NCR. The radio cab industry entered Delhi Transportation Sector almost a decade ago to address the parameters like safety, reliability, comfort, ease of availability and many more. Thus such parameters become the selection choice for commuters while booking a particular cab service. This paper is aimed to find the various parameters that are involved in influencing the consumers in selection of a cab service. A framework, Analytic Hierarchy Process (AHP) which is one of the multi criteria evaluation methods is proposed to study and prioritize the parameters involved in selection of cabs. In this paper Ola, Uber and Meru Cabs; the three most popular cab services identified.

Keywords: Transportations, Technology, Cab services, Ola, Uber, Meru, Parameters, AHP.

INTRODUCTION

Today technology brings countless added advantages to a lot of businesses and transportation service sector is a special case in this rule. In the past years transportation facilities had went through massive changes in all the metro cities. As technology has changed the face of transportation. Expansion and development of the cities adds on huge burden to the city traffic and then commuters try to find a reliable and comfortable mode of transportation. Amongst the diverse modes of transportation the app based cab service has become the most favored and the most accepted modes of transportation for the commuters in the metro and the urban cities. The expansion of the organized car rental industry is growing steadily with the help of technology and has made transportation a lot more comfortable. People today use smart phones enabled with the latest technologies, in which they download the mobile applications of these rental cabs and can book the cab, from a variety of cabs anytime from their current location till their chosen drop location which provides ease to the customers and saves a lot of time as well. The expectations of common people to enjoy the perks of less crowded air conditioned rides, clean and quality vehicles for their day to day commuting are also been fulfilled by the introduction of radio taxis. The perfect blend of internet usage and smart phone penetration among the people has been efficiently utilized to provide hassle free cab services to the customers. The ease of cab booking from remote locations, the comfort and transparency of payments have made this business model a great success. A number of companies have stated their operation of cab services in the Indian market and in this paper we have taken Ola, Uber and Meru as the most popular cab services.

Table 1: A brief introduction of all the three cab services

S. No	Cab Service	Owner	Year of establishment	Headquarters
1	Ola	Bhavish Aggarwal, Ankit Bhati	December, 2010	Bangalore, Karnataka, India
2	Uber	Travis Kalanick, Garrett Camp	March, 2009	San Francisco, California, United States
3	Meru Cabs	Neeraj Gupta	April, 2007	Mumbai, India

1. Ola

Ola Cabs is an India based online cab booking company developed by ANI Technologies Pvt. Ltd. It was founded as an online cab aggregator in Mumbai and is presently based in Bangalore. Ola cabs has totally transformed the way the Indian travels and is also high in demand amongst the customers. Ola provides a range of cab services to its customers starting from luxury to economy. They also offer ride sharing facility and a subsidiary named Food Panda for online ordering and delivery of food. They facilitate their cab services through their website and mobile applications wherein they accept both cash and cashless payment options by Ola money for which customers need to have a unique id and password.

2. Uber

Uber Technologies Inc. is a worldwide American online transportation network company who offers ride sharing, online cab booking, food on the go through their subsidiary named Uber Eats. They also operate through their websites and mobile applications. Uber provides an unlimited fleet of vehicles. It also offers a variety of payment options to its customers.

3. Meru

Meru Cabs is a Mumbai based cab service provider. They operate through calls, their website, and mobile application and accept payments through multiple wallet options. Meru Cabs has a partnership with Google Now for providing instant alert to their customers if they wish to book a cab from their current location and providing them reminders for their cab pickups.

As Indian customers are smart, price sensitive and demanding so they consider a lot of parameters while booking any of the above discussed cab services. Therefore these cab providers need to be persistent with their customer services and also needs to be updated on the changing customer needs.

REVIEW OF LITERATURE

According to the literature, the online cab service entered the Indian market in 2007 and since then it has gone through a lot of innovations. The increased use of smart phones and usage of mobile internet made the task smoother for the cab providers. With the help of the mobile applications of these cab services the cab is just a touch away from the customer as they provide door to door cab service. Today these cabs hold an important place in the transportation network of the city as a high number population relies on these cab services. Online cab service in India is the most liked and favored means of transportation among all the generations as it provides the users with a lot of benefits and has overcome the shortcomings of public transport.

It is more convenient, safe and comfortable for the senior citizens, kids, housewives, people who are sick or physically challenged as these cabs are ready to satisfy the different needs of different customers because they all are working in the same direction to have more and more happy, satisfied and loyal customers therefore they ought to take care of the customers' needs.

Since the market is emerging and everybody is keen to acquire the greatest market share therefore all the cab service providers are gearing up to provide customers with the best of their services and are trying to gain as many customers as possible.

On the other hand, customers look for the cab service which suits their needs and fulfills their requirements which are based on certain parameters. Where parameters are basically the definable and measurable characteristics, values and attributes of a product or a service. They are the factors that determine the performance of a product or a service. Every customer has different set of preferences and they choose their cab accordingly because getting a safe and reliable cab is a major challenge in the city.

Customers face a lot of problems of getting overcharged, or sometimes the drivers' refuses to go to the desired place of the customer and many times the drivers' are not aware of the directions and also there are a lot of cases where the drivers misbehaves with the passengers. Therefore customers are becoming more cautious before choosing a cab service and they always go for comparison between the various cab providers available because they want the full value of their money. Hence, customer satisfaction is becoming increasingly important as customers' wants high quality with supreme customer service. Therefore through the review of literature below are some parameters that are highly preferred by the customers of the three cab services that are taken in this paper.
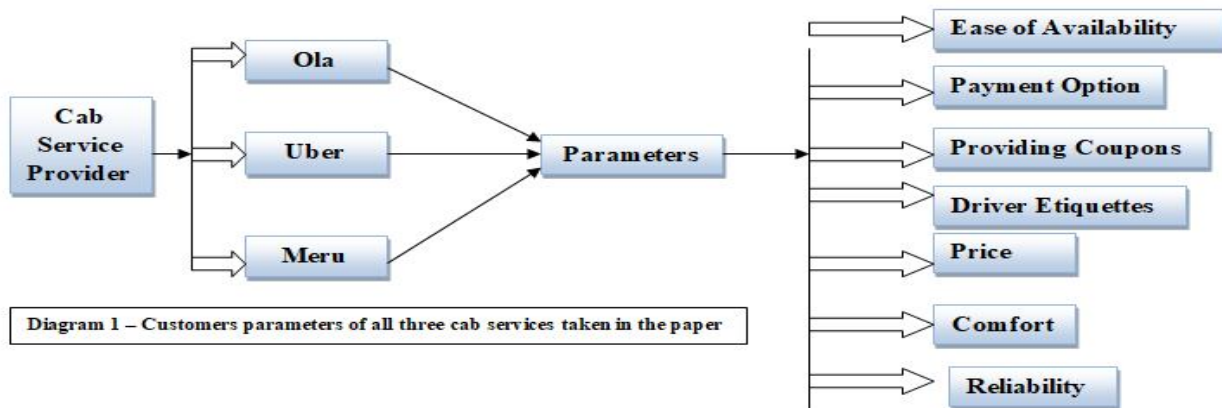

Diagram 1 – Customers parameters of all three cab services taken in the paper

Table-2: Detailed list of all the parameters

S. No	Parameters	Definitions	References
1	Ease of Availability	The availability if the cabs as and when required by the riders, whether they need it now or after some time	Pacific Business Review International Volume 9 Issue 9, March 2017. Utsav Pandya, Rishi Rungta, Geetha Iyer
2	Price	The amount of money that is charged from the customer for the cab they want to hire	Pacific Business Review International Volume 9 Issue 9, March 2017. Utsav Pandya, Rishi Rungta, Geetha Iyer
3	Payment Option	Various alternatives available to the rider to pay for cab they have hired.	Pacific Business Review International Volume 9 Issue 9, March 2017. Utsav Pandya, Rishi Rungta, Geetha Iyer
4	Providing Coupons	This implies that how frequently the cab service provider , provides customers with various discounts and coupons	Shanthi D et al., Inter. J. Int. Adv. & Res. In Engg. Comp., Vol.–06(02) 2018 [857-860]
5	Driver Etiquettes	The way the driver behaves with the passengers, the time he takes in reaching to the passenger	Watchareebhorn Sakunlertvattana (2016)
6	Reliability	Means the ability to execute the service with consistency, punctuality	International Journal of Accounting and Business Management Vol.5(No.2), November 2017 Indra Balachandran, Ibrahim Bin Hamzah
7	Comfort	service comfort means the availability of service such as seats, space, journeys, and air conditioning	International Journal of Accounting and Business Management Vol.5(No.2), November 2017 Indra Balachandran, Ibrahim Bin Hamzah

RESEARCH METHODOLOGY

A multi criteria decision making approach known as Analytic Hierarchy Process (AHP) was developed by Saaty (1980). Analytic Hierarchy Process is an organized process for dealing with complex decisions. It is an explicit and structured process of handling both qualitative and quantitative approaches. It provides an overall complete and logical framework for solving a decision problem, for showcasing and evaluating its elements and then relating those elements with final objectives and finding the best alternate solutions. AHP has grabbed the attention of many researchers mainly due to its great mathematical properties and also the fact that the data required for analysis is easy to obtain.

AHP first crumbles the decision problem into small sub-problems so that it can be comprehended more easily. The base of this model is comparing all the elements against each element and then it creates a pair wise relationship matrix of all the variables that have been compared. The AHP then initiates final weights in response to all the evaluation criteria's on the basis of decision maker's choices and inputs. In the next step of AHP, regarding the fixed criteria, a score is assigned to each option on the basis of decision maker's choice of paired comparison. More higher the score, more better the performance of the option in relation to the defined criteria. In the final step, AHP combines the criteria weights and option scores and thus determines the overall score for each option and also defines a subsequent ranking. The overall score assigned to each given option is an aggregate sum of all the scores that it obtained from the entire criterion.

It also provides an approach for computing the numeric scale for the measurement of both types of performances that is qualitative as well as quantitative. The values that are included in the pair wise comparison of AHP are determined by the scale proposed by Saaty (1980).

The key steps involved in this AHP technique are explained below, Saaty (1980):

1. The first is to define the problem statement.

2. Explain all the objectives of the problem and consider all purposes, actors and its outcomes.

3. Recognizing the standard specifications that impact the performance.

4. Configure the condition in different levels of hierarchies comprising of goals, standards, sub-standards, yardsticks and substitutes.

Table-3: Scale for comparison of all the parameters

Option	Numerical value(s)
Equal	1
Marginally strong	3
Strong	5
Very strong	7
Extremely strong	9
Intermediate values to reflect fuzzy inputs	2, 4, 6, 8
Reflecting dominance of second alternative compared with the first	Reciprocals

5. Each element is compared on the corresponding level and is then adjusted on the numerical scale. This procedure requires [n (n -1) / 2] comparisons, where n represents the number of elements with the considerations that diagonal elements will be equal or 1 and the other elements of the comparison will have the reciprocals.

6. In the sixth step calculations are performed to find the maximum Eigen value, consistency index (CI), consistency ratio (CR), and normalized values for each alternative. Where λ max is the maximum Eigen value of the judgment matrix.

$$CI = \frac{\lambda \max - n}{n-1}$$

7. This CI score can then be compared with that of a random matrix, RI. The ratio obtained [CI / RI], is known as the CR (consistency ratio). According to Thomas L. Saaty (1980) the value of CR should be less than 0.1.

8. In the last step, we check for the maximum Eigen value, CI value and CR value and if all three are satisfactory then decision is taken based on the normalized values; or else the whole technique will be performed again is until these values fall in a required suitable range.

PROPOSED FRAMEWORK

Whenever the users choose any cab service they always keep in the mind a list of parameters upon which they make their final choice. From the literature review; Ola, Uber and Meru are the three main cab service providers identified. Further, the selection parameters involved are Ease of Availability, Price, Payment Option, Providing Coupons, Driver Etiquettes, Reliability and Comfort. These parameters are compared with each other based on the users' choices using AHP. The scores are calculated and high prioritized preferences are identified.

FINDINGS AND RESULTS

In this research analysis, the parameters that are identified from the literature review are compared against each other for every cab service and are then prioritized / ranked using the AHP selection approach as discussed above in research methodology. The data for the analysis is collected from 100+ customers. All the findings and result of the data analysis using AHP are presented in this section.

Table-4: Evaluation of weights of all the parameters

Parameters	Ease of Availability	Price	Payment Option	Providing Coupons	Driver Etiquettes	Reliability	Comfort	Sum	Weightage
Ease of Availability	0.51	0.26	0.27	0.31	0.69	0.08	0.32	0.30	0.30
Price	0.17	0.09	0.16	0.17	0.03	0.25	0.32	0.10	0.10
Payment Option	0.10	0.03	0.05	0.17	0.03	0.25	0.02	0.06	0.06
Providing Coupons	0.06	0.02	0.01	0.03	0.03	0.01	0.01	0.03	0.03
Driver Etiquettes	0.17	0.61	0.49	0.31	0.23	0.41	0.32	0.10	0.10

Reliability	0.51	0.03	0.02	0.24	0.05	0.08	0.54	0.30	0.30
Comfort	0.17	0.03	0.27	0.31	0.08	0.02	0.11	0.10	0.10
	1.67	1.06	1.29	1.55	1.12	1.10	1.64	1.00	1.00

The above table shows the comparison of all the parameters with themselves and with each other as well where the sum total of all the weights is (1). According to the customer preferences Ease of availability and Reliability have the highest scores of (0.30) each and are therefore the most desired and most important choices amongst customers. Then Price, Driver Etiquettes and Comfort are the second highest priorities of customers with a score of (0.10) each. Payment Option stands third with a weight of (0.06) and Providing Coupons is the least preferred choice of customers which has a score of (0.03).

Table-5: Evaluation of all the cab services as per "Ease of Availability"

Ease of Availability	Ola	Uber	Meru	Sum	Weightage
Ola	0.692307692	0.692307692	0.692307692	2.076923077	0.692307692
Uber	0.230769231	0.230769231	0.230769231	0.692307692	0.230769231
Meru	0.076923077	0.076923077	0.076923077	0.230769231	0.076923077

As per the AHP analysis, the parameter Ease of Availability goes best with Ola as it has the maximum customer preference and weightage of approximate (69%). Uber stands second on the customers list with a weight of (23%) and Meru is the least preferred among customers as it has only (7%) of weightage.

Table-6: Evaluation of all the cab services as per "Price"

Price	Ola	Uber	Meru	Sum	Weightage
Ola	0.6	0.714285714	0.333333333	1.647619048	0.549206349
Uber	0.2	0.238095238	0.555555556	0.993650794	0.331216931
Meru	0.2	0.047619048	0.111111111	0.358730159	0.11957672

As per the AHP analysis, the parameter Price is the most affordable in Ola as it has the maximum weightage of (54%) among all the three. Uber has the second place on the customers list with a score of (33%) and Meru is the least preferred with a score of (11%).

Table-7: Evaluation of all the cab services as per "Payment Option"

Payment Option	Ola	Uber	Meru	Sum	Weightage
Ola	0.652173913	0.72972973	0.333333333	1.715236976	0.571745659
Uber	0.217391304	0.243243243	0.6	1.060634548	0.353544849
Meru	0.130434783	0.027027027	0.066666667	0.224128476	0.074709492

This table shows the preference of Payment Option among customers between all the three cab services where Ola is the most dynamic and provides different modes of payment and has therefore got a score of (57%). Uber stands second with a score of (35%) and Meru is the least preferred with the minimum score of (7%).

Table-8: Evaluation of all the cab services as per "Providing Coupons"

Providing Coupons	Ola	Uber	Meru	Sum	Weightage
Ola	0.762711864	0.789473684	0.692307692	2.244493241	0.748164414
Uber	0.152542373	0.157894737	0.230769231	0.54120634	0.180402113
Meru	0.084745763	0.052631579	0.076923077	0.214300419	0.071433473

As per the AHP analysis Ola has the best Coupon services and has therefore got the highest score according to customers' choice which is (74%). Uber stands second with a score of (18%) and Meru is the least preferred choice of customers with a score of (7%).

Table-9: Evaluation of all the cab services as per "Driver Etiquettes"

Driver Etiquettes	Ola	Uber	Meru	Sum	Weightage
Ola	0.428571429	0.428571429	0.428571429	1.285714286	0.428571429
Uber	0.428571429	0.428571429	0.428571429	1.285714286	0.428571429
Meru	0.142857143	0.142857143	0.142857143	0.428571429	0.142857143

According to the analysis of AHP, Ola and Uber both have the best drivers and have therefore got the highest scores from customer preferences of (42%) each. Meru comes last with a score of (14%).

Table-10: Evaluation of all the cab services as per "Reliability"

Reliability	Ola	Uber	Meru	Sum	Weightage
Ola	0.6	0.714285714	0.333333333	1.647619048	0.549206349
Uber	0.2	0.238095238	0.555555556	0.993650794	0.331216931
Meru	0.2	0.047619048	0.111111111	0.358730159	0.11957672

As per the customers choices Ola seems the most Reliable with a weightage of (54%). Uber stands second with a score of (33%) and Meru is the least preferred with a score of (11%).

Table-11: Evaluation of all the cab services as per "Comfort"

Comfort	Ola	Uber	Meru	Sum	Weightage
Ola	0.161290323	0.333333333	0.152542373	0.647166029	0.21572201
Uber	0.032258065	0.066666667	0.084745763	0.183670494	0.061223498
Meru	0.806451613	0.6	0.762711864	2.169163477	0.723054492

This table shows the customer preferences about Reliability, which is the most highest with Meru with a score of (72%). Ola comes second with a score of (21%) and Uber comes last with a score of (6%).

Table-12: Weights of all the parameters with ranking

Cab Service Provider	Ease of Availability	Price	Payment Option	Providing Coupons	Driver Etiquettes	Reliability	Comfort	Weightage	Priority
Ola	0.69230769	0.54920635	0.57174566	0.74816441	0.428571429	0.549206349	0.21572201	0.55474605	I
Uber	0.23076923	0.33121693	0.35354485	0.18040211	0.428571429	0.331216931	0.0612235	0.27978839	II
Meru	0.07692308	0.11957672	0.07470949	0.07143347	0.142857143	0.11957672	0.72305449	0.16546556	III

The above table shows the AHP analysis of weights of all the parameters corresponding to each cab service and in addition the cab services are ranked in order of their preferences by the customers. It is found that all the three cab services when got evaluated against each parameter, Ola scored the highest of all with every parameter. Uber has slightly lower ratings and hence is on the second position and Meru has got the lowest weights and hence comes under the least preference of customers.

CONCLUSION

AHP proved to be a more appropriate and well timed approach for this analysis as it helped in finding the best cab service out of all three. Moreover in total seven parameters were identified through the literature review that are of the customers concern while selecting a cab service.

Through AHP the pairwise comparison matrices of all the parameters were created and sum and weights were calculated. At last a final matrix was created which contained the highest weights under each parameter corresponding to each cab service and they thus identified the most preferred cab service among the customers. As per the results, Ola is ranked the first and the most preferred cab service among all customers and it scores high on every parameter. Uber stands second and Meru comes third. In addition to this, Ease of availability and Reliability are the most crucial parameters for customers while searching a cab because they got the highest weights based on the customers preferences. Then Price, Driver Etiquettes and Comfort come together in order of their weights. While Payment Options and Coupons are the least important for customers.

This study therefore proves to be very useful and helps in finding the most desirable parameters while selecting a cab service using AHP.

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REUSE AND RECYCLE OF PACKAGING MATERIAL: A CRITICAL EVALUATION

Dr. Harsh Kumar[1] and Khyati Mehndiratta[2]

Associate Professor[1], Finance, Amity University Uttar Pradesh (AUUP), Former Assistant Vice President, Cluster Head-Banking Operations, Yes Bank Ltd. and Operations Head, Axis Bank

Research Scholar[2], Amity College of Commerce and Finance, Amity University Uttar Pradesh (AUUP)

INTRODUCTION

This report is based on the topic reuse and recycle of packaging material, a critical evaluation.

In this report I will be dealing with the packaging material and its importance highlighting the fact that one can reuse and recycle the packaging material to save the environment and sustain it.

This report also consist of a critical evaluation wherein I will be dealing with the techniques and strategies used by foreign countries or foreign marketers related to the reuse and recycle of the packaging material and comparing them with those used by Indian marketers.

Now before starting up with the reuse and recycling techniques of packaging lets know a little bit about packaging. What is basically Packaging? Why do we need Packaging? What harm does the Packaging material cause to the environment? How can we reuse and recycle the Packaging material and be environment friendly?

And finally, A comparative analysis of packaging and reuse and recycle of the material between the domestic country and the foreign country.

What is packaging?

Packaging basically means designing, evaluating and producing a container for a product. In other words, we can say that packaging is an activity to protect the product from any physical damage and at the same time attracting the customer by its appearance.

Packaging is multi-layered like a dairy milk chocolate has three layers of packaging viz.

First one the chocolate bar is covered in an aluminum foil i.e. the primary packing given to the chocolate.

The second layer of packing is the purple cover containing all the relevant information regarding the brand name, company's address, date of manufacturing, date of expiry, price of the chocolate, ingredients used etc. for the benefit of the customers. This type of packing is known as secondary packaging.

The third layer is used for shipping or for the purpose of transportation. This layer is just for transferring large amount of material from one place to another. This container might be a cardboard box, plastic box, thermocol box etc. seeing the mode of transportation and the time taken for the delivery.

Why do we need packaging?

In today's world, most of the business enterprises uses packaging as a crucial marketing tool as:

- **Protection**

Packaging helps in protection of the product. It basically prevents breakage, prevents spoilage by creating a barrier to moisture, light, gasses, aromas and flavors, it also prevents product from contamination, theft and tampering.

- **Information**

Packaging provides information about the product to its customers like how to use the product, nutritional and storage of the product, any safety warnings related to the product, contact information and the date of manufacturing and expiry, cost of the product etc.

- **Brand Recognition**

Packaging also helps in brand recognition, as the consumers see the package and they can immediately recognize the company or brand.

For example, Dairy Milk chocolate, comes in a purple color package, seeing the purple color one can easily identify the company or brand of the chocolate as no other chocolate brand comes in that color packing.

- **Promotion**

Attractive packages helps in tapping customers. Marketers also use packaging for labeling i.e. they usually mention important details on the package of the product like product features, ingredients, benefits and any

other promotional message etc. The innovative packaging also helps the company in gaining huge profits, a unique design to the product's package help to grab consumer's attention.

For example, The Calcium Sandoz Bottles targeted at children and designed a dog shaped bottle for gaining kids attention and it also targeted women by creating a lady shaped bottle for them.

Thus, packaging is an important tool for influencing the consumer to initiate sale as the consumer first comes in contact with the package and then with the product.

What Harm does Packaging material cause to the environment?

Packaging Industry nowadays is minting money, paying miniscule attention to the detrimental effects of packaging material to the environment. Everything is getting exponentially heightened as we go up the eco system.

The packaging industry with its light weight, disposable and cheaper material evolved quickly. Use of wood, paper as packaging material is directly depleting the forests resources. Toxic chemicals cause soil degradation and severe pollution. They are the threat to the environment and the adverse affects are irreparable.

Needless to say that many a times it is the packaging material that tends to attract the consumers. The flip side of it is that these tempting packaging products are blindly adding to the massive mountain of waste and pollution.

Consumers have become so selfish that they are not only robbing the natural resources but contributing to the disaster effects of pollution. The owners of dealing into this gigantic problem lie on the shoulder of each one of us. The silver line is that if we limit the dependence on packaged products and material, the problem can be controlled to a large extent.

Needless to say that many a times it is the packaging material that tends to attract the consumers. The flip side of it is that these tempting packaging products are blindly adding to the massive mountain of waste and pollution.

Different types of packaging materials which are most commonly used; are paper, cardboard, glass, foam, plastic, aluminum etc. To avoid these harmful effects of packaging material one should practice recycling and reusing which will ultimately benefit us and help us in having a beautiful Earth.

What is Recycling? Why is it important?

Recycling basically means to breakdown and reuse the materials that might otherwise be scrap. In other words, it is an action or a process of converting the waste material into reusable useful materials. Thus, preventing, removing, reducing and lowering the green house gas effects, energy consumption, water pollution, air pollution and also saving a lot of cost. Most of the business firms and organizations practice recycling activities by putting labelled containers or bins in the general public area like parks or close to homes or in the streets.

There are many advantages of recycling and with emerging new and developed technologies recycling the materials has been an easy task to achieve and with few efforts and a little concern towards the environment we would be able to create a green and clean planet, save and sustain the Earth. Recycling is though beneficial for the environment at the same time developing some positive effects on our economy as well. It is a key component of modern waste reduction and also the third component of the 3R's viz. Reduce, Reuse and Recycle waste hierarchy.

There are enormous benefits and these are far reaching and everyone gains when people prefer to do Recycling activities in their daily routine. Either it is a community effort to save and sustain and have clean and green surroundings or on a large scale to help a firm or an organization in saving hundreds and thousands of dollars or money on waste management, the advantages of a systematic Recycling process is countless. Some of these are mentioned below:

(I) Environmental Benefits

- By Recycling we can avoid millions of tons of material from entering landfills, thereby retaining space for junk that cannot be reused. Landfills not only violate the environment but also creel the grace of the city.

- The pollutants that are liberated into the air and water can largely be reduced with a rise in the Recycling activities.

- Largely reduces the amount of energy used in day to day life by not requiring yield of new materials. For example, one bulb can be charged for up to 4 hours with the energy saved from one Recycled glass bottle. In gist, Recycling reduces the greenhouse gas emissions into the air.

- Recycling lowers down the garbage or dirt overflow and preserves the Earth's natural resources like minerals, tress, raw materials etc, thus making the Earth a delightful place to live.

(II) Economic Benefits

- Accurate Recycling arrangements reduces the cost to be incurred by the government, business owners and taxpayers.

- Research has proved that by an ongoing Recycling process and people indulging in this activity may help in creating employment opportunities.

- It can also be useful in earning money or income by just collecting the Recyclable materials to a place where Recycling process is done.

What is Reusing? Why is it important?

Reusing is basically an idea or method of using the same product or item again. For example, people can reuse the back side of the paper printed on one side or the plastic bottles or pickle jars for storage purpose or some decorative purpose.

People generally mix the two terms Recycling and Reusing. Recycling basically means to break down the product or item by some manufacturing processes and from them making or developing a new product whereas, if we talk about Reusing it is simply just repeatedly using the same product or item either for the same purpose for which it was or for fulfilling some other purpose.

Normally, people reuse the items such as plastic bottles, glass jam jars or bags and so on which not only saves the resources and benefits the environment but also saves a lot of time, money and energy.

Reusing an item again and again helps in avoiding waste or junk. Some easy to reuse materials maybe containers and packaging materials like boxes or bags. Reusing is an easy task as here you need not apply any processes. Here are some of the advantages of reusing:

- **MONEY**

Reusing the materials or products helps in saving a lot of money. Instead of purchasing new products or boxes or containers one can reuse them in their houses which will ultimately save money. Nowadays, all the products are so expensive also the manufacturing of these products like plastic, paper, glass etc. imitate large amount of toxic materials which harm the environment also these items are non-biodegradable thus to handle them and recycle them is a tough task. Many business firms and organizations can also benefit from this by cutting down or lowering down their costs and stocks.

- **LANDFILLS**

Landfills are basically dumping sites for disposal of waste materials by burial. Recent studies have proved that landfills are filling up swiftly, thus to reuse items is very important to maintain a delightful place to live and have a clean and green environment. If one reuses an item 6 times before throwing it then it is equal to disposing 5 times those materials.

- **RAW MATERIALS**

Any product needs a lot of several materials which are placed together or using some processes are made into a single product. Reusing the materials helps in reducing the no. of items used by supplier to make a single product. Materials such as wood pallets and paper etc. are extracted from trees and are finally converted into tables and notebooks. This disrupts the ecological balance and increases the amount of oxygen, reduces global warming and lowers down greenhouse gas effect and save the ozone layer and Earth.

- **ENERGY**

Making new packaging products involves a large amount of electricity and energy consumption and fuel to run the machines for manufacturing the packages. As per research, in making up a single piece of package almost 70% of energy is used. Thus, reusing is very useful in saving the energy.

How can we Reuse and Recycle the Packaging material and be environment friendly?

Recycling and Reusing is not a difficult task to do. One can easily do recycling and reusing by:

- Getting involved in local recycling and reusing programs.

- Spreading awareness about recycling and reusing activities and educating kids and people to throw their garbage or junks in dustbins.

- Cleaning the surroundings and picking up waste material from nearby places such as parks and streets.

- Many of us have tools and other items that we don't use on a regular basis. We should do sharing with our neighbors and friends or we can also rent these products like; power tools, ladders, garden tillers, boats, and other equipments.

- Reusing the papers that is printed on one side will be very useful for saving the environment and trees.

- Reusing containers and other materials like glass jars or jam jars or pickle jars or bottles of Coke and Pepsi for storage and decorative purposes.

- Bringing lunch in a reusable bag or box or containers.

- For shopping using a reusable bag such as jute or a cloth bag rather than purchasing a polythene bag from the stores or shops.

- Using leftover water from AC to water the plants will not only save water but also help in reducing green house gas effects.

These practices may help in saving and sustaining the environment and all should practice such activities.

List of common materials that can be recycled and reused
There are countless materials that can be Recycled and Reused nowadays. It will take a long time and extreme energy consumption to look at the minutest details of all the exiting materials that can be Recycled. Here are few materials that people might come across in their daily routine, and these can be recycled easily with just putting little efforts. The list of some of the recyclable and reusable materials are mentioned below:

(I) Metal
Metal a very resourceful material if recycled takes more than 70% less energy as compared to producing a new metal.

- **ALUMINUM FOIL**
It can be recycled very easily by just melting down the foil products and simply repurposing it.

- **ALUMINUM/ STEEL/ TIN CANS**
The cans, like that of Pepsi and Coke or coffee cans or soup containers or vegetable cans etc. , can be recycled or reused and be beneficial in preserving a large amount of energy as compared to producing or making a new one.

(II) PAPER AND CARDBOARD
Paper is a material that can be enormously recycled. Recycling paper also helps in saving the tress and limiting the green house gas effects. Producing or making new papers is more costly than recycling the old ones. It will also help in sustain the environment.

- **CORRUGATED CARDBOARD**
The most of our daily or mass purchases involve the use of cardboard boxes that are used for packaging. Cardboard is the most common item or material used for the transportation purposes. Cardboard is also used in making or packing the food products like cereals, tissue boxes, toothpastes etc. Thus, it should be properly recycled which would save a lot of energy.

- **MAGAZINES AND NEWSPAPERS**
All of us daily read magazines or newspapers for knowing the facts related to the world. But many times the newspapers or magazines as a collection are just waste or occupies a lot of space. So, reusing the other side of the paper that is printed on one side will help in saving trees and recycling these materials can thus, make your surroundings clean and save energy.

- **OFFICE PAPER AND POSTER BOARD**
In an office place, the use of paper is seen very much. In a day at least thousands of transactions are put into words on paper. Papers are in the mailbox, printers or anywhere else and can be simply repurposed to save large amount of energy and high production cost for every new piece of it.

(III) GLASS
Glass is a material that is found in our daily purchases such as glass bottles and jars. But these materials are not as flexible as compared to paper or metal products when we talk about reusing and recycling.

- **FLINT GLASS**
A flint glass is a clear glass which is used to make the larger part of the glass i.e. up to 60%. Most of the time products bottled in clear glass containers do not respond too quickly. Thus, it should be recycled very carefully.

- **AMBER GLASS**

An amber glass is a class which is used to make less glass market than a flint glass i.e. it makes up to 30% as it can only be made into other amber coloured glass item when recycled.

- **EMERALD GLASS**

An emerald glass means or relates to the glass wine and beer bottles. These are sensitive to temperature and sunlight and is hard to recycle.

REVIEW OF LITERATURE

Table-1

Name of the Author	Davorin Kralj and Mirko Markic
Year	2008
Name of the Journal	WSEAS Transaction on Environment and Development
Title of the paper	Building Material Reuse and Recycle
Methodology Adopted	Analytical
Major Arguments	• When the potential of the material increases, it diverges or become more dispersed in landscape. • Increase in energy of new and existing building will be by member state of minimum requirement of energy performance of new buildings and renovation of existing buildings. • Zero waste, integrated recycling, international approaches, reuse of materials, resource optimization, waste reduction and deconstruction
Conclusion and Findings	• To protect environment, save resources and conserve energy – 'Green' management technique is designed. • For minimum waste and improving energy efficiency, a model of recycling construction material using expanded glass is suggested. • Sustainable Development is a continuous process and is not a one-time document.

Table-2

Name of the Author	Guirong Zhang and Zongjion Zhao
Year	2012
Name of the Journal	Physics Procedia
Title of the paper	Green Packaging Management of Logistics Enterprises
Methodology Adopted	Descriptive
Major Arguments	• Green Logistics aims to reduce pollution and make effective and efficient flow of goods. • Waste packaging material includes paper, plastic, metal, glass and for this we need manpower, material and financial resources.
Conclusion and Findings	• Development of Green packaging is to have light weight, recyclable, reuse the material and not to use non-eco-friendly material. • Lowering the cost of packaging, Green packing, easy to recycle packing is done to achieve the certification requirement.

Table 3

Name of the Author	William C. Jones and Bryon P. Gehman
Year	2000
Name of the Journal	United States Patent
Title of the paper	Recyclable Article Packaging System
Methodology Adopted	Conceptual

Major Arguments	• There is a need to recycle plastic and paper products. • For transportation, paper along with corrugated board and plastic films are used.
Conclusion and Findings	• In this invention, the packaging system can be recycled and it comprises of a sheet member, which in turn comprises of a base portion and first and second end portion. • First and second end portion of the said sheet have pocket which helps to engage end portion. • Film member and sheet member may be separated and only after recycling.

Table-4

Name of the Author	S.G.Lee and X.Xu
Year	2005
Name of the Journal	Int. J. Environmental Technology and Management
Title of the paper	Design for Environment's Life Cycle: Assessment and Sustainable Packaging issue
Methodology Adopted	Analytical
Major Arguments	• Innovative way of packaging includes synthetic and starch based bio degradable polymers. These may be reused, recycled and dematerialized. • LCA (Life Cycle Assessment) of packaging is becoming more important because of increased volumes of goods which use plastic trays and plastic fortified molded polyesters.
Conclusion and Findings	• Diverse range of LCA has been carried out in the industry. • European public is more in favor of LCA than US public as there is unequal treatment of qualitative and quantitative measures.

Table-5

Name of the Author	Kenneth Marsh and Betty Bugusu
Year	2007
Name of the Journal	Journal of Food Science
Title of the paper	Food Packaging- Roles, Materials and Environmental issues
Methodology Adopted	Descriptive
Major Arguments	• The principle role of food packaging is to protect food from outside influence and damage. • Food packaging can retard deterioration, retain beneficial effects of processing, extend shelf life and maintain or increase the quality and safety of food. • Materials used for food packaging are glass, metal, plastics, paper etc which need to be recycled otherwise they can harm the environment.
Conclusion and Findings	• The purpose of food packaging is to maintain the safety and quality of food which shall go on. • The impact of packaging on environment can be minimized if careful analysis and selection of food packaging material is done keeping in mind the EPA guidelines. • The packaging material should not be thrown by consumers as it is it should rather be recycled in a procedural manner.

Table-6

Name of the Author	Claude Bergerioux and Shizuoka
Year	1996
Name of the Journal	United States Patent
Title of the paper	Easy to recycle laminated material for Packaging use

Methodology Adopted	Conceptual
Major Arguments	• Packaging is very important for protection of the product. • Packaging items used may harm the environment and this is an invention to protect the environment which relates to laminated materials used for making packaging products that are easy to recycle.
Conclusion and Findings	• Laminated materials if used for packaging purpose will be beneficial as they can be easily recycled and do not provide any harmful effect on the environment. • The pulp in the paperboard base material layer 1 can be separated from the thermoplastic synthetic resin i.e. laminated thereon, so these components can be recycled for future use. • Another objective of the laminated material for packaging is to obtain a separated thermoplastic synthetic resin that does not contain paper fibers.

Table-7

Name of the Author	Luz Claudio
Year	2012
Name of the Journal	Environmental Health Perspectives
Title of the paper	Our Food: Packaging and Public Health
Methodology Adopted	Analytical
Major Arguments	• The Art and Science of food packaging have evolved a long way from those origins. Today, products are often wrapped in multiple layers of packaging to get them safely from the point of manufacture to consumers' cupboard and refrigerators. • Food packaging can improve food safety by alleviating bacterial contamination. • It is well known that chemical components from packaging can migrate into foods thus having adverse human health effects.
Conclusion and Findings	• Food packaging is necessary as it protects the food from damage but it can have harmful effects on our health and environment, thus on should use the 3R's reduce, reuse and recycle for these packaging items. • Innovations in packaging materials and processes are being developed that use alternative materials to address the migration of potentially toxic chemicals into food.

Table-8

Name of the Author	Vivian W. Y. Tam
Year	2012
Name of the Journal	The Open Waste Management
Title of the paper	Rate of Reusable and Recyclable Waste in Construction
Methodology Adopted	Descriptive
Major Arguments	• Waste management is very important as it effects the environment and human health at large. • Construction Activities are generating huge amount of pollutants which causes air pollution, causing serious health problems like cancer and asthma. • Construction packages involve use of paper, glass, metal, timber etc. which needs to be handled with care.

Conclusion and Findings	• Environment is getting polluted due to construction activities, which seems to be uncontrollable.
	• To reduce these harmful effects of construction activities, the 3R's must be used i.e. reuse, reduce and recycle.
	• This research paper investigates the rates of reusable and recyclable waste for paper, timber, metal, glass etc. It was found that metal is highest in recyclable material and plastic is the lowest.

Table-9

Name of the Author	Stuart Ross and David Evans
Year	2003
Name of the Journal	Journal Of Cleaner Production
Title of the paper	The Environmental Effect of reusing and recycling a plastic based packaging system
Methodology Adopted	Analytical
Major Arguments	• Plastics are a part of our daily life, but they aren't safe, they have various harmful effects on our environment. • Plastic litters the land, kill the animals and are non-biodegradable. • Plastic is used tremendously in packaging industry.
Conclusion and Findings	• Plastic upsets the food chain, causes groundwater pollution, land pollution, air pollution, kills animals also it is poisonous and expensive as well, still they are in use everywhere. • Recycle plastics • Use of polythene must be reduced rather use eco friendly materials like jute bags

Table-10

Name of the Author	Victor Corral Verdugo, Gerardo Bernache, Lilia Encinas and Lynda C. Garibaldi
Year	1994-95
Name of the Journal	J. Environmental Systems
Title of the paper	A Comparison of two measures of reuse and recycling behavior: Self report and material culture
Methodology Adopted	Analytical
Major Arguments	• Reuse and Recycling of materials like steel and aluminum are very important as they are non bio degradable and one need to sustain these materials. • This analysis is based on comparison of two types of data obtained using regression analysis and thus finding correlation between them. • Reuse and Recycle is very important as they decrease the amount of waste on the planet and preserve natural resources by maintaining space and cutting down landfills.
Conclusion and Findings	• The analysis shows that the actual recycling behavior influences the self perception of being a recycler of steel, while the perceived recycling behavior influences being a recycler of aluminum. • The findings of the study revealed a one to one comparison of both the measures of reuse and recycle behaviors produced a lack of correspondence in almost every case • The comparison of recycling aluminum and steel for both the methods

	resulted in a significant correlation but this correlation was low in practical terms.

Table-11

Name of the Author	Michela Vellini and Michela Savioli
Year	2008-09
Name of the Journal	Elsevier
Title of the paper	Energy and Environmental Analysis of Glass container production and recycling
Methodology Adopted	Analytical
Major Arguments	• Every activity carries an environmental impact as a result the concept of sustainable development has been introduced. • The glass production comprises of 4 stages; batch preparation, melting, moulding and annealing, in this context recycling option should be carefully examined as the production process complexities and interconnection with many other additional operations may have harmful impact on environment.
Conclusion and Findings	• In this analysis the LCA methodology has been used for analyzing the glass production process. • The focus of the study was Reuse and Recycle of the products made up of glass packaging. • Reuse and Recycle is important as glass is a non bio degradable and may have harmful effects on the environment..

Table-12

Name of the Author	Luke T. Faulstick
Year	1995
Name of the Journal	United States Patent
Title of the paper	Recyclable/ Reusable containers for packaging graphical sheet materials
Methodology Adopted	Conceptual
Major Arguments	• The principle objective of the study was to provide improved, low cost, environment friendly packaging containers for graphical sheet materials. • The study focuses on the ideas of having alternative materials that can be used for packaging purposes which are environment friendly and low cost. • The materials used for packaging nowadays like plastic, glass, aluminum etc are non biodegradable and carries harmful effect on health and environment.
Conclusion and Findings	• Packaging is very important for saving the product from any kind of damage and also other uses of packaging are being invented as packaging for brand recognition or labeling or promoting etc but the basic function of packaging is to protect the product. • Packaging is important and cannot be avoided but the materials used for packaging purpose need to be avoided or reused and recycled as these materials carry harmful effects on the environment. Thus, the researchers have given an idea of using eco friendly, low cost, recyclable packaging materials.

OBJECTIVES OF RESEARCH

- This research has been conducted in the light of solving the problem of waste generated from many packaging materials which are versatile in nature and are also non-biodegradable and have harmful effects on our environment.

- According to Prime Minister Narendra Modi and his efforts towards having a clean and green environment, we should also put our hands together in helping him by practicing or following the idea of reusing and recycling techniques in our daily life.

- This report basically aims at spreading awareness in the minds of people regarding reusing and recycling benefits which ultimately help in having a delightful place to live.

- This report also seek to know how much people are concerned towards protection of environment and practice these techniques of reusing and recycling in their daily life and are environment friendly also how much they have knowledge about this idea and the benefits related to it.

- This report also aims at having a Green and Clean Earth, reducing the pollution and saving natural resources.

- It also gives us an overlook towards other countries how they are practicing these techniques and where we Indians are lacking.

RESEARCH METHODOLOGY

The research methodology done in this study is a combination of qualitative and quantitative methods and analysis through both primary and secondary data. I have conducted a survey through a questionnaire and collected primary data to know how much people are aware about the idea and benefits of recycling and reusing also I wanted to know how much people are concerned towards the environment.

Questionnaire method is one of the most common instrument or technique to collect data and reach out to realistic findings and solutions.

A questionnaire is a set of questions, first part relating to the general information about the person who is filling it and his or her demographic features like name, age, occupation, gender etc.

The next part of the questionnaire relates to the real topic. The questions in the questionnaire are usually in the form of objective type or ranking questions.

In case you are dealing with or collecting primary data via questionnaire method you must be very careful about framing the right questions that too in a right order.

The main aim of a questionnaire is to collect facts and opinions and know about the attitude of a target set of respondents about a particular problem or an issue. This method is very popular and is generally used in case of big issues.

The questionnaire which is framed can either be mailed to the respondents using e-mails or via social media sites like instagram, whatsapp, facebook etc. It can also be a printed questionnaire given to the public. These respondents are supposed to read and understand the question and accordingly give their response.

Questionnaire method is simple, easy, involve low cost, free from any baises and can cover large sample spaces which ultimately helps us in having realistic and reliable results to the problem.

DATA ANALYSIS

Data Analysis is basically a technique or a process of analyzing the data collected from the survey i.e. primary data or the secondary method by using some modeling and calculations.

It involves multiple steps such as preparing a data base then processing it, applying the models and finally getting on to the results and framing our decisions.

It is a systematic process involving logical techniques and statistical tools to evaluate data.

In my research work I have analyzed my data using factor analysis as a technique which reduces a large number of variables or factors into few numbers.

Factor analyses basically involves identifying a group of scores which are then broken down into sub categories or factors. These scores lead to grouping and this series is determined through factor analysis.

In short, the idea is to reduce the data and represent a wide range of inputs on a smaller scale and analyze the inter-relationship among these variables also known as factors.

## RESULT AND INTERPRETATION

DEMOGRAPHIC CHARACTERISTICS
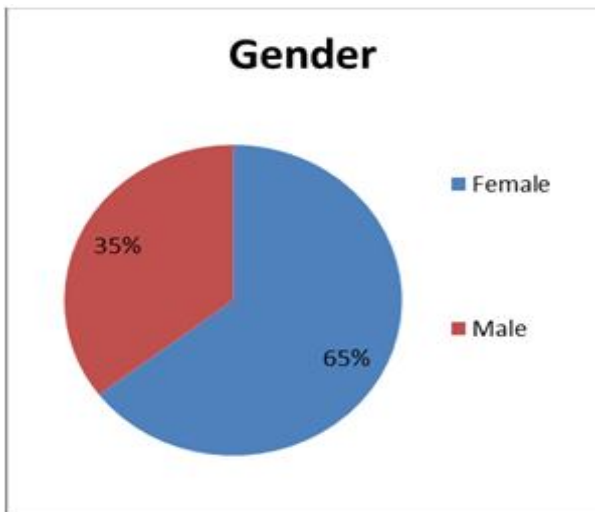
In my survey, conducted through questionnaire method I have taken 113 responses out of which 64.6% are females and rest 35.4% are males who have responded to the
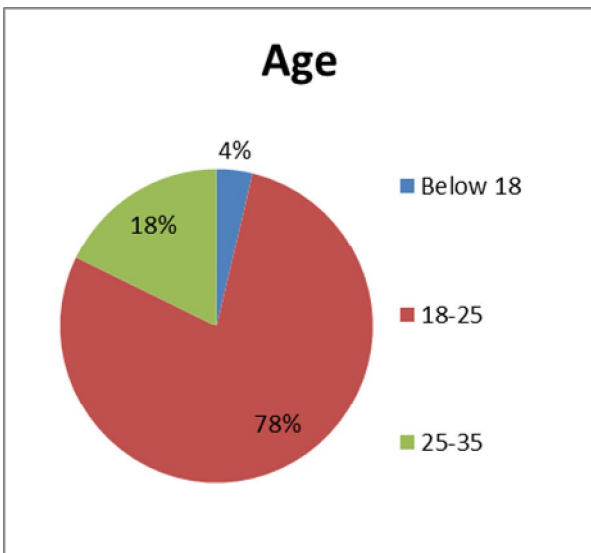
The survey also consists of different categories of age groups which can easily be seen in the graph. Most of the percentage of the questionnaire is filled in by the people of the age group 18-25 years.
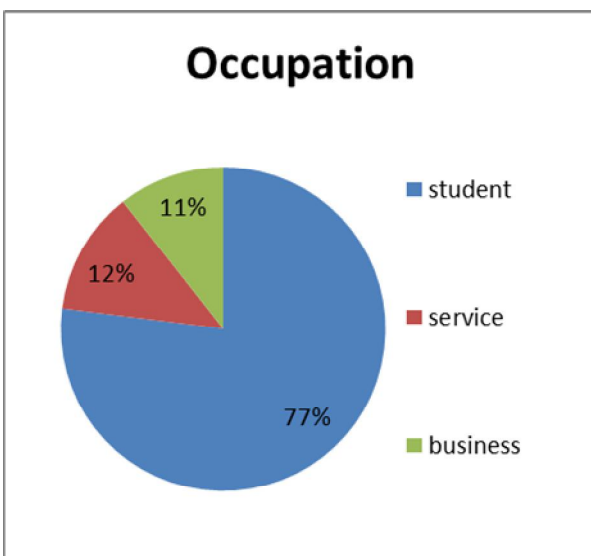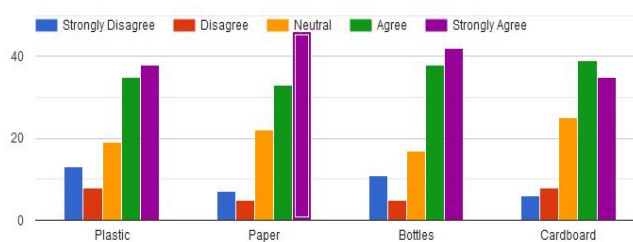

The questionnaire is filled in by 77% of the candidates being students, 12% being service providers and rest 11% are business owners.
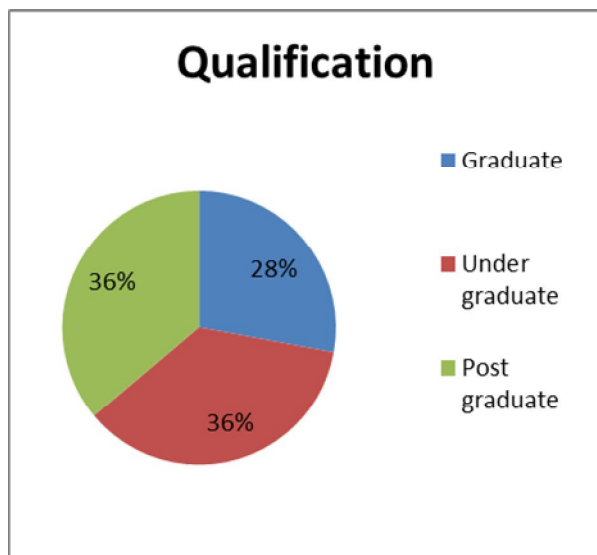
Out of 113 responses 36% are post graduates, 36% are under graduates and the rest 28% are graduates.

PEOPLE'S VIEW ON REUSING AND RECYCLING

I prefer to recycle/reuse materials like:

I prefer reusing/recycling as I feel that it helps
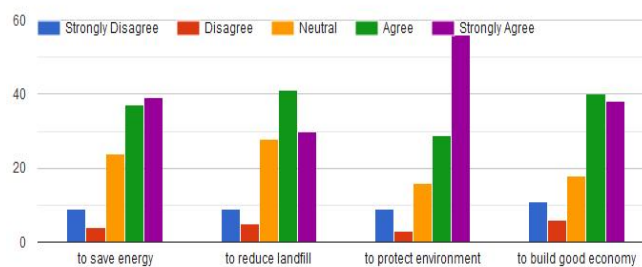
I believe that reusing/recycling the packaging product from grocery store is convenient
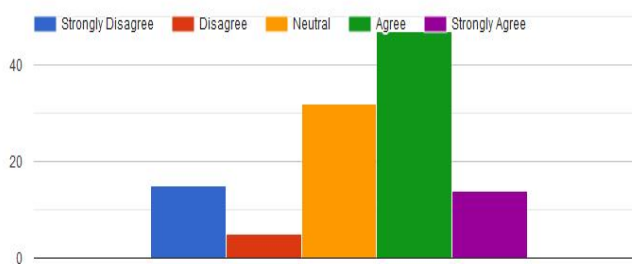
I always make an effort to reuse/recycle the packaging of products or items that I purchase from grocery shop
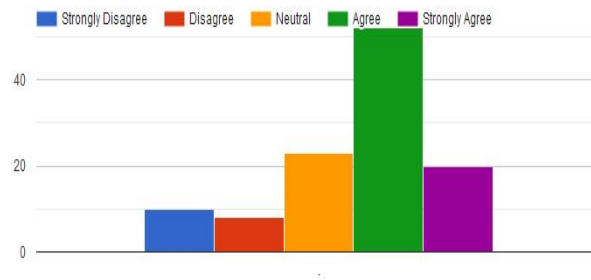
I always make use of the paper that is printed on one side by either using the other side of it or recycling it
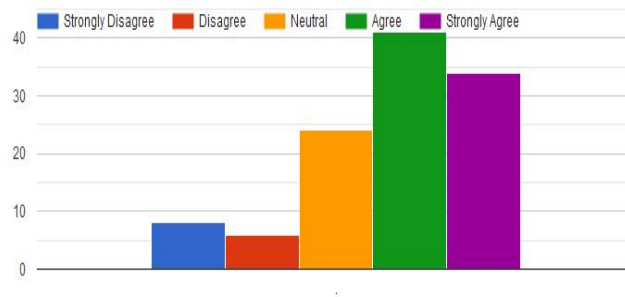
For shopping I mostly use or carry a bag that is:
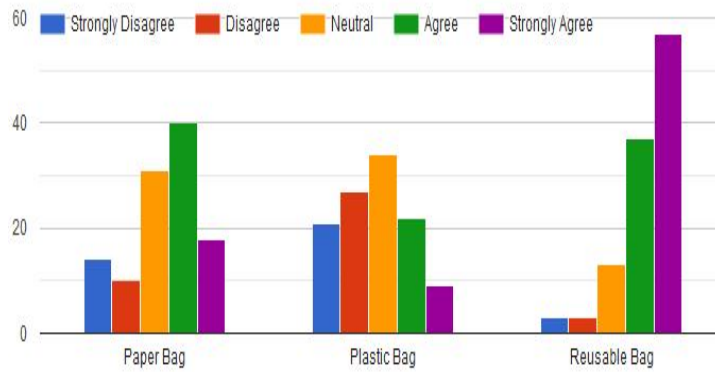
I mostly purchase those products that are made from recycled material
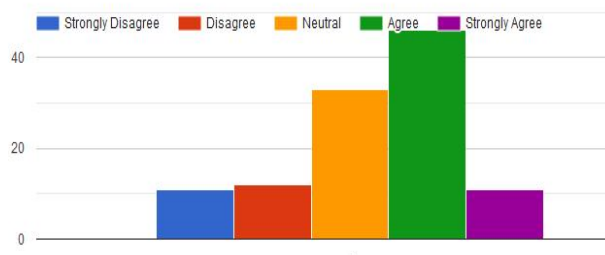
I believe that people need to be educated on the subject of recycling and reusing the items
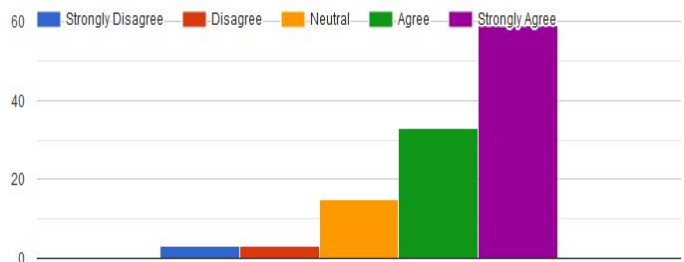
I mostly carry a box or a bag that can be reused by me to bring my lunch to school/college/office
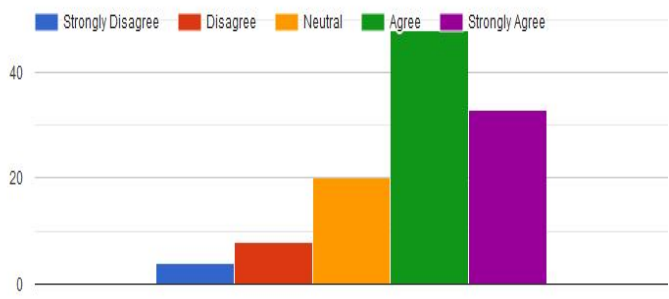
My buying decision of a product or item is affected by the packaging of the product
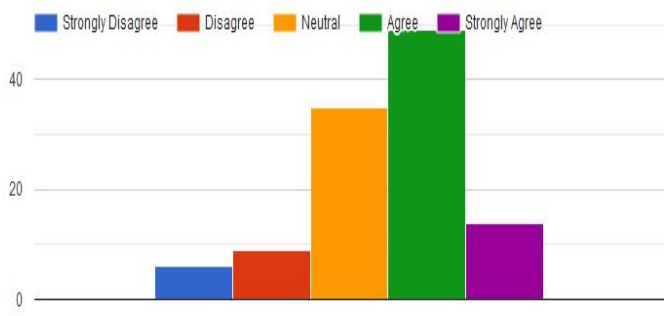
I mostly reuse the items like bottles such as of Coke, Pepsi etc.
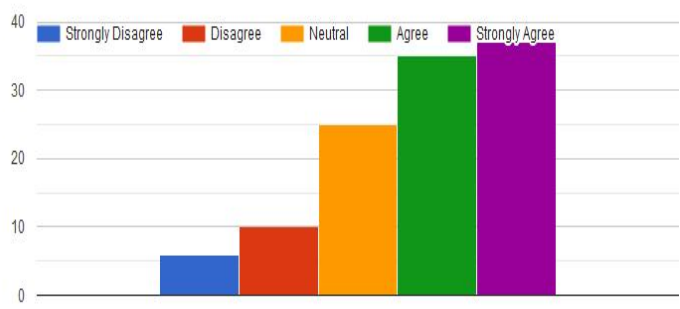
I mostly reuse the polythene bags that I get from the market

FACTOR ANALYSIS

Notes		
Notes		
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Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
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	N of Rows in Working Data File	208
Missing Value Handling	Definition of Missing	MISSING=EXCLUDE: User-defined missing values are treated as missing.
	Cases Used	LISTWISE: Statistics are based on cases with no missing values for any variable used.
yntax		FACTOR /VARIABLES X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20 X21 X22 X23 X24 /MISSING LISTWISE /ANALYSIS X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17 X18 X19 X20 X21 X22 X23 X24 /PRINT INITIAL KMO EXTRACTION ROTATION /CRITERIA MINEIGEN(1) ITERATE(25) /EXTRACTION PC /CRITERIA ITERATE(25) /ROTATION VARIMAX /METHOD=CORRELATION.
Resources	Processor Time	00:00:00.05
	Elapsed Time	00:00:00.02
	Maximum Memory Required	68472 (66.867K) bytes

[DataSet1]

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.834
Bartlett's Test of Sphericity	Approx. Chi-Square	1520.722
	df	276
	Sig.	.000

Communalities		
	Initial	Extraction
X1	1.000	.803
X2	1.000	.790
X3	1.000	.764

X4	1.000	.705
X5	1.000	.908
X6	1.000	.847
X7	1.000	.819
X8	1.000	.879
X9	1.000	.794
X10	1.000	.631
X11	1.000	.560
X12	1.000	.679
X13	1.000	.643
X14	1.000	.574
X15	1.000	.501
X16	1.000	.714
X17	1.000	.668
X18	1.000	.330
X19	1.000	.567
X20	1.000	.456
X21	1.000	.614
X22	1.000	.703
X23	1.000	.732
X24	1.000	.740

Extraction Method: Principal Component Analysis.

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.183	34.097	34.097	8.183	34.097	34.097
2	2.752	11.465	45.563	2.752	11.465	45.563
3	1.774	7.390	52.953	1.774	7.390	52.953
4	1.345	5.602	58.556	1.345	5.602	58.556
5	1.227	5.114	63.670	1.227	5.114	63.670
6	1.140	4.751	68.421	1.140	4.751	68.421
7	.982	4.090	72.511			
8	.899	3.746	76.257			
9	.837	3.487	79.744			
10	.678	2.823	82.567			
11	.608	2.534	85.102			
12	.566	2.357	87.458			
13	.484	2.018	89.476			
14	.402	1.676	91.152			
15	.362	1.509	92.661			
16	.316	1.315	93.977			
17	.302	1.258	95.235			
18	.225	.936	96.171			
19	.216	.900	97.071			
20	.191	.796	97.868			
21	.174	.726	98.594			
22	.141	.586	99.179			
23	.114	.474	99.654			
24	.083	.346	100.000			

Total Variance Explained			
Component	Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %
1	3.958	16.492	16.492
2	3.197	13.320	29.812
3	3.016	12.567	42.380
4	2.455	10.231	52.611
5	2.370	9.873	62.484
6	1.425	5.937	68.421
7			
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24			

Extraction Method: Principal Component Analysis.

Component Matrix[a]						
	Component					
	1	2	3	4	5	6
X1	.633	-.115	-.569	-.124	-.160	-.157
X2	.741	-.069	-.436	-.053	-.201	-.049
X3	.706	-.056	-.496	.021	-.047	-.119
X4	.735	.034	-.362	-.043	-.145	-.103
X5	.745	-.266	.315	-.327	-.158	.226
X6	.719	-.205	.303	-.371	-.122	.210
X7	.823	-.301	.172	-.082	-.122	-.016
X8	.763	-.187	.332	-.334	-.138	.145
X9	.567	.483	.273	.055	-.205	-.345
X10	.497	.443	.221	.338	-.080	-.137
X11	.645	-.001	.039	.294	.107	-.210
X12	.279	.726	.032	.084	-.207	.150
X13	-.017	.488	-.157	.215	-.367	.447
X14	.508	-.200	.042	.471	-.153	.170
X15	.417	.229	.324	-.004	-.297	-.286
X16	.709	-.138	.016	.242	.190	.311
X17	.664	-.123	.138	.369	.184	-.151
X18	.325	-.231	.307	.197	.188	.053
X19	.504	-.250	.073	.278	.362	.192

X20	.353	.538	.075	-.017	.156	.107
X21	.574	-.058	-.063	-.151	.364	-.348
X22	.350	.548	.103	-.321	.382	-.143
X23	.651	.082	-.387	-.069	.240	.297
X24	.252	.674	-.079	-.201	.346	.238

Extraction Method: Principal Component Analysis.[a]

a. 6 components extracted.

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
X1	.878	.154	.039	-.002	.059	-.056
X2	.820	.260	.160	.035	.139	.057
X3	.826	.109	.225	.085	.106	-.036
X4	.751	.223	.163	.124	.222	.022
X5	.226	.880	.259	.040	.116	-.036
X6	.216	.854	.210	.107	.113	-.055
X7	.402	.640	.401	-.063	.251	-.138
X8	.229	.846	.237	.098	.200	-.078
X9	.175	.174	.078	.292	.801	.013
X10	.102	.007	.330	.273	.639	.170
X11	.346	.078	.512	.090	.380	-.140
X12	.089	.003	-.043	.487	.439	.489
X13	.045	-.096	-.072	.177	.086	.767
X14	.245	.159	.596	-.205	.177	.246
X15	.075	.268	.019	.048	.649	-.008
X16	.315	.318	.689	.169	-.009	.100
X17	.263	.125	.667	.038	.326	-.176
X18	-.081	.222	.498	-.035	.074	-.141
X19	.148	.169	.698	.097	-.096	-.102
X20	.068	.062	.121	.586	.257	.153
X21	.399	.152	.248	.273	.162	-.518
X22	.069	.101	-.045	.753	.252	-.234
X23	.590	.205	.333	.433	-.180	.099
X24	.077	.003	-.010	.843	.027	.153

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.[a]

a. Rotation converged in 7 iterations.

Component Transformation Matrix						
Component	1	2	3	4	5	6
1	.588	.497	.482	.247	.336	-.044
2	-.074	-.282	-.261	.724	.436	.365
3	-.768	.440	.199	-.012	.400	-.127
4	-.070	-.556	.668	-.287	.239	.317
5	-.163	-.252	.406	.543	-.394	-.543
6	-.166	.327	.223	.195	-.570	.673

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

INTERPRETATION AND CONCLUSION

As per the graphs shown, they all tell us that amongst the people who all are concerned and how much are they worried about saving the environment. What is basically, their reaction towards the idea of recycle and reuse practices.

If I talk about plastic then about 80% of people are in favor of or prefer to do recycling and reusing activities and about 20% do not prefer such activities.

Seeing the packaging material paper most of the people around 90% prefer to save paper and trees as well

Bottles and Cardboards are also the materials which people preferably recycle and reuse.

Most of the people practice or are in support of this idea as they all are environment friendly and prefer that recycling and reusing activities help to save the environment.

Approximately 60% of people feel that it is easy to reuse and recycle packaging material purchased from the grocery store. But unfortunately 40% of the people have difficulty in this. But still many of the people make an effort to recycle and reuse. Making an effort can also add on and help in this idea.

Amongst these responses, the very highly reused and recycled material seen was paper and in this survey people were also asked to tell that whether they use the back side of the paper which is printed on one side and the result was commendable almost 99% people do save paper and ultimately the trees and the planet.

Polythene is one of the toxic and non-biodegradable material which is not at all easy to recycle. People when go for shopping were suggested to mostly take a reusable bag like cotton or cloth or jute bag and people do take it also nowadays government has banned polythene in the market and 70% of people also carry a reusable box for lunch with them to their schools or offices and colleges.

Almost 80% of the people try to purchase recyclable and reusable items or products from the market and 90% of people believe that Yes! all should be educated on this idea and it is of a great zeal.

As told above how important is packaging to us, people normally purchase those products which look attractive and have a good packaging. Around 60% of people believe that their buying decision is based on the packaging of the product.

People are practicing and involving the habits of reusing and recycling in their daily lives which helps to reduce landfills, pollution and save energy and protect environment and also develop the economy. They have started reusing the bottles of coke and pepsi and also the polythene bags which they get from stores on shopping. Also approximately all the people are well aware and know about the ways and benefits to reuse and recycle the materials like paper, plastic, glass and metal. Amongst these materials, people have more knowledge about paper and plastic recycling and reusing as compared to the glass and metal recycling and reusing.

People nowadays are being more environment friendly and putting efforts to save and sustain it.

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EVALUATING THE IMPACT OF SELECTED MACROECONOMIC VARIABLE ON STOCK RETURNS- IN THE CONTEXT OF INDIAN STOCK MARKET

Sarika Keswani[1], Bharti Wadhwa[2] and Ashneet Kaur[3]
Research Scholar[1] and Associate Professor[2], Symbiosis International University, Pune
Assistant Professor[3], Gitarattan International Business School, Delhi

ABSTRACT
PURPOSE: The prices of shares and other financial assets have always been of great importance for the progress of economic activities and have also played a vital role in the economy of nations and this is seen in history. Macroeconomic variables imply the prosperity of any economic system and decide the future of investments. Macroeconomic variables influence the pricing process in any economy. The uncertainty of macroeconomic variables affects stock and commodity markets, which significantly determines price volatility. The stock market is a critical phase of the financial system of our country, since it plays an important role in channeling the savings from the deficit sector to the surplus sector.

DESIGN / METHODOLOGY / APPROACH: This study sought to analyze the effect of certain macroeconomic variables (disposable income, government policies, interest rate, exchange rate and inflation) on the performance of securities markets in the national stock exchange and Bombay. Therefore, the study used an empirical research project. Therefore, an empirical research project helped to determine the causal relationship between the selected macroeconomic variables and the stock market returns in the NSE and BSE. To analyze the relationship between the selected variables, the study used the most complete model of dickey fuller, correlation, multiple regression and the most common causality test. The period of time examined is 2006-2016 and all tests are performed on the basis of monthly data.

RESULTS: The results show that the variables are stationary in the first difference. There is a strong effect between disposable income, government policies, the exchange rate and the share price in the NSE, which means that if there is any alteration of these variables, it will affect the prices of the shares in the case of NSE and Sensex. which implies that any change in these variables will affect the prices of the shares in the case of sensex. In addition, there is an unfavorable relationship between the interest rate and the inflation rate and the share price in the NSE, which implies a change in the interest rate and inflation that will not have a high effect on the prices of the actions and will be in a negative direction. In addition, to verify the impact of selected macroeconomic variables on Indian stock prices, a multiple regression was used that showed that these variables (disposable income, government policies, exchange rate, interest rate and inflation rate) They have an Influence in the prices of the shares to the NSE and the BSE.

The null hypothesis shows that the stock prices (Nifty) do not generate macroeconomic variables and neither does the hypothesis that the macroeconomic variable does not cause Granger to cause the prices of shares (Nifty) and (Sensex), except disposable income. Inflation and the exchange rate in stock prices due to the significant F-statistics. In addition, the research implies that an alteration in the net macroeconomic variables of disposable income, inflation and the exchange rate have had a statistically insignificant impact on changes in share prices, while the alteration of the prices of the shares seems to be an insignificant factor that explains part of the movements in the variable macroeconomic framework. The research paper recommends that there is a unidirectional causality of disposable income, the rate of inflation and the exchange rate to share prices.

Keywords: Macro-Economics, Stock Market, GDP, Investor, Inflation and Economic Growth

INTRODUCTION
Prices of share and other financial assets have always been of great significance in the progress of economic activity and also played vital role in economy of nations and this is seen in history. Many researchers also have proved that stock market have always played significant role in nation's prosperity, developing capital formation and supporting economic growth of the economy (Charles and Adjasi, 2008; Essaied, Hamrita et al., 2009; Pilinkus, 2015). Being one of the most fundamental components of a free-market economy, stock market has been helping the companies to arrange capital from shareholders in exchange for shares in ownership to the investors. Stock prices are considered as indicator of country's economic status and society. Share prices also influence many other things like household wealth, savings and decisions. It will not be wrong to say that stock market is an integral part of the financial system of any nation because it plays important role in navigating funds and bringing together investors and savers to lead economic growth. Investors watchfully invest funds by studying the performance of the market and its market index. The market index acts as yardstick to assess

function of individual portfolios and also gives insights for forecasting future trends in the market The new growing economies stock markets can be tactful to elementary changes in macroeconomic structure and policies, which plays a significant role in achieving financial stability.. As stock market is important pillar of the nation's economy, it is cautiously watched by governmental bodies, companies and investors too. (Nazir et al., 2010). As stock market is essential for economic and financial stability, economic policy makers and researchers try to give it smooth and risk free operations by keeping in view the behavior of the stock market.

The persistent relationship between macroeconomic variables and stock prices has weakened the interest of the economists, financial analysts, investors, practitioners and policy makers (Kwon and Shin, 1999). However the relationship between the two variables has been deep rooted since two decades and is an area of interest among the academicians and researchers.the initial attempts were made by Fama in 1981, thereafter there has been increasing efforts to evaluate the relationship between the two variables with the help of empirical studies among one country or a group of country. Macro economic variables are responsible for the expansion of an economy and they are responsible for the amount of investments. These variables are responsible for the price determination process. The fluctuations in the macro economic variables have an impact in the stock and commodity which leads to the fluctuation in the prices. Stock market is one of the most important sector which helps in diverting savings from the deficit sector to the surplus sector.

LITERATURE REVIEW
Impact of Macroeconomic Variables on Stock Market:
Canova and Nicolo (2000) dissected the observational interdependencies among resource returns, genuine action, and swelling from multicountry and worldwide perspectives, utilizing the VAR display. Month to month information from 1973:1 to 1995:12 was utilized for the investigation. Factors utilized were - measure of ostensible stock returns (SR), incline of the ostensible term structure (TERM), genuine movement development (IP), and expansion (INF). The discoveries of the examination proposed that advancements in ostensible stock returns are not fundamentally identified with swelling or genuine movement, that the U.S. term structure of loan fees predicts both household and outside swelling rates and local future genuine movement.

AL-Sharkas, Adel (2004) paper investigated long haul balance connections between a gathering of macroeconomic factors and the Amman Stock Exchange record (Jordan), by utilizing macroeconomic factors, to be specific, mechanical creation file, the customer value file, cash supply (M2) and the Treasury charge rate. Quarterly information from 1980:Q1 to 2003:Q3 was utilized alongside the technique of vector blunder revision display (VECM) was utilized for the investigation. The consequences of the investigation demonstrated that these macroeconomic factors are cointegrated i.e., there exists a cointegrating connection among the factors.

Menike (2006) explored the impacts of macroeconomic factors on stock costs in developing Sri Lankan securities exchange (Colombo Stock Exchange), utilizing multivariate relapse. Month to month time arrangement information from September 1991 to December 2002 was considered for the examination. Various factors were used for the analysis such as cash supply, conversion standard, expansion rate and loan cost. Further the research explains that there exists an inverse relation between swelling costs and conversion costs with respect to the stock costs of the Colombo Stock Exchange(CSE) and the adverse influence of the Treasury charge rate explains that with the increase in the loan fee on treasury securities the costs of the stocks fall.

Chuang et al. (2007) scrutinized that stock prices in Taiwan, Hong Kong , Singapore and South Korea were influenced by the money supply and budget deficit. He used the quarterly data for the same. It showed a long – run balance relationship between money supply, budget deficit and stock prices among the countries taken into consideration. Moreover in the short run stock prices also take time to adjust completely with the changes in the monetary and fiscal policy.

Sohail and Hussain (2009) inspected the long-run and short-run connections between Lahore Stock Exchange and macroeconomic factors, for example, file of mechanical creation, cash supply (M1), loan cost and CPI in Pakistan. Quarterly information beginning from 1973:1 to 2004:4 were utilized for the examination. Cointegration test and VECM approach were utilized to assess the consequences of the examination. The outcomes uncovered that there is a negative effect on customer value record on stock returns, while the modern generation file, genuine successful swapping scale, cash supply had a noteworthy constructive outcome on the stock returns over the long haul.

Tripathi (2011) surveyed and tried to analyse the relationship between market efficiency and the novel relationship between selected Macroeconomic variables by using Ljung-Box Q test, Breusch-Godfrey LM test, Unit Root test, Granger Causality test. The study proposed that there is autocorrelation between the Indian Stock market and Macroeconomic Variables implying that the asset prices fully reflect the available information. It

was established that there is bidirectional relationship between stock market and BSE volume, exchange rate and BSE volume with the help of Granger Causality test.moreover the study recommended single diection functioning from international stock market to domestic stock market, interest rate, exchange rate and inflation rate specifying the influence in the stock market movement.

Sajjad, Shafi, Jan, Saddat and Rehman (2012) inspected the connection between Karachi stock trade and macroeconomic factors, i.e. expansion rate, conversion standard, treasury bills and loan cost by utilizing month to month time arrangement information from January 2005 to December 2010. The co-mix test and granger setback was connected to drive the short and long haul examination. The outcomes discovered bi-directional granger causality amongst KSE and swapping scale and unidirectional granger causality exists from loan fees to KSE.

Ozlen & Ergun (2012) took the info from Gregorian calendar month 2005 to could 2012 in their analysis studies and mistreatment rate of exchange, rate, rate, current businessperson deficient and percent as independent variables and stock returns as variable quantity by mistreatment the Autoregressive distributed lag technique they complete that rate of exchange and rate area unit the necessary variables within the stock value fluctuation and have vital result on securities market returns.

Khan et al. (2012) examined the result of rate of exchange, rate, and rate on stock returns of KSE one hundred index. They used 3 independent variables and one variable quantity. Khans et al. used information from 2001 to 2010 for his or her analysis and used multiple linear regressions for analysis. They complete that rate and rate have insignificant result on stock returns and rate of exchange has vital result on stock returns of metropolis stock market.

Rafy (2014) found causative relationship among KSE one hundred index and shopper indicator, rate, import and export, and rate of exchange. to know the association of those variables with securities market they use nineteen year information from 1992 to 2012. Enforced multivariate analysis and farmer relation take a look at to examine the association. Their study incontestable bi-directional relationship between interest and KSE one hundred index whereas no causative relationship exists between export, shopper indicator and KSE one hundred index

Ouma & Muriu (2014) investigated impact of economics variables on securities market returns in African nation from 2003 to 2013. The study unconcealed that money offer, rate of exchange and inflation distress the securities market come backs in African nation and that they area unit vital determinants of NSE whereas rate of exchange have negative impact on securities market return.

Sarwar, Aftab, Khan, and Qureshi (2014) analyzed the part of macroeconomic components like merchandize import, CPI, industry file, exchange adjust, swapping scale file, unrefined petroleum costs, merchandize send out, wide cash supply and dollar cost on stock return Karachi Stock Exchange (KSE), Pakistan, utilizing month to month information for the period from January 1997 to December 2013. Numerous relapse and relationship procedures were utilized for the exact discoveries of the examination. The discoveries demonstrated that the exchange adjust and swapping scale contrarily influence the KSE 100 stock file, in spite of the merchandize import, CPI, industry file, unrefined petroleum cost, merchandize send out, expansive cash supply, and dollar value that influences it emphatically.

Ilahi, I., Ali, M., and Jamil, R. A. (2015) researched the linkage between macroeconomic factors, to be specific swelling rate, conversion standard and financing cost on securities exchange returns in Pakistan (Karachi stock trade), by utilizing month to month recurrence time arrangement information from January 2007 to December 2012. The strategy connected was Multiple Linear Regression with the end goal of information examination. The investigation found that there is a powerless association between macroeconomic factors and securities exchange returns.

Mugambi and Okech (2016) enquired the relationship between macroeconomic variables on the stock returns of listed banks in the Nairobi Securities Exchange. The study exhibited that interest rate, exchange rate and inflation have significant influence on bank stock return, while GDP had an insignificant influence on bank stock returns. For the same Secondary data was used from Central Bank Of Kenya for a period from 2000 to 2015. To establish the relationship the research used correlation analysis, Unit Root test and the linear regression model. The research also proposed that there should exist a steady macroeconomic environment and a moderate intervention by the government in designing the monetary policy.

Poornima and Ganeshwari (2016) examined the dynamic relationship between NIFTY index and exchange rate by taking into consideration daily closing indices data from July 2014 to July 2016 The research scrutinized that

there exist an adverse relationship between the aforesaid variables and Granger causality test emphasized a unidirectional causal relationship between NIFTY returns and exchange rates.

RESEARCH METHODOLOGY

I Research Design
This study sought to analyze the effect of selected macroeconomic variables (Disposable income, Govt. Policies, Interest Rate, Exchange rate and inflation) on stock market returns at the National and Bombay Stock exchange. Thus, the study employed an empirical research design. Therefore, a empirical research design helped in determining the causal relationship between selected macroeconomic variables and stock market returns in NSE and BSE.

II Data Collection
For this study, the interaction of stock price and selected macroeconomic variables which are disposable income, Govt Policies (tax rates), Interest rates, inflation and exchange rates were analyzed.

This study used secondary data. Secondary date was collected from the different websites. To have consistency in the analysis, available annual average data of NSE index was transformed into monthly data. Empirical analysis in this study covers a 10-years period (April 2006 -March 2016) using monthly time series data. For stock prices (NSE and BSE) values of end of the month nifty and sensex price index were used. As a proxy to inflation, CPI (consumer price index) was used. The exchange rate represented by using nominal effective exchange rate, the bilateral exchange rate with reference to US dollar.

Database of inflation, exchange rates, interest rates, Government policies and disposable income was taken from website of economic outlook and industry outlook. i.e. prowess database. All values converted into log.

III Data Analysis
The data was analyzed using using E-views version 8.0. Descriptive statistics of the study variables was computed and presented in the form of the mean, maximum, minimum and standard deviation whereas several inferential statistical models were used to draw conclusions.

IV Analytical Models
Augmented dickey fuller model, normality test, serial correlation, multicollinearity, heteroskedasticity, multiple regression and the granger causality test were used to analyze the relationship between study variables.

1 Augmented Dickey Fuller Model or Unit Root Tests
The Augmented Dickey Fuller (ADF) test was applied to estimate the unit root. ADF tests normally check the stationarity series where; if the ADF statistics exceeded the critical value, the null hypothesis of unit root in the series was rejected.

2. Multiple Regression Analysis
Regression analysis was used to establish the relationship between the independent and dependent variable.

Stock returns = a + β1 DOI + β2 GP + β3 INF + β4 INT + β5 ER + e

Where,

Stock returns is the monthly % change in stock market returns.

DOI is the monthly disposable income.

GP is the monthly govt policy related to taxes direct and indirect both.

INF rate is the monthly change in the rate of inflation measured by monthly changesin the CPI.

INT rate is the monthly change in the rate of interest

ER is the monthly changes in the Exchange rate

εt is defined as the error term

In the above equation, β0 is constant and β1, β2, β3, β4 are the coefficients of selected macroeconomic variables, while the error term denoted by e is the residual error of the regression.

3. Granger Causality Test
The Granger causality test was utilized to decide the relationship between (or more) factors so as to observe the direction of causality. Granger Causality Tests the short-run causal relationships between the dependent variable and every one of the variables can be tested by Granger Causality tests (Paramaia; Akway, 2008). A test of causality is to know whether the lags of one variable go into the equation for another variable (Enders 1995).

ANALYSIS AND INTERPRETATION

Time Series Results and Measurements of Macroeconomic Variables

In this study, five macroeconomic predictors namely: Disposable income, Govt Policies (Taxes), Inflation rate, interest rate, and exchange rate and the criterion variable was stock market returns, as measured by the NSE All Share Index.120 monthly time series observations for all variables from April 2006 to March 2016 was made that is, N=120 (See Table 1 below) and performed the calculations for the different descriptive statistics for the chose variables under examination. This methodology was to help in the description of the basic fundamental attributes of chosen factors. Descriptive statistics of the examination variables were exhibited in Table 1. The table showed information for sample means, medians, maximums, minimums, standard deviations, skewness, kurtosis as well as the Jarque-Bera statistics and probabilities (p-values).

Table-1: The summary of results is given below:-

Variables	Index Nifty	Index Sensex	Disposable Income	Govt. Policies	Exchange Rate	Inflation Rate	Interest Rate
Mean	5540.394	18482.34	6532500.	44.25400	51.38051	6.733167	1.284833
Median	5329.925	17728.85	5485919.	42.50000	49.09500	6.730000	0.780000
Maximum	8901.850	29361.50	12440620	48.49000	68.25000	6.920000	6.740000
Minimum	2755.100	8891.610	2493458.	42.50000	39.36000	6.530000	1.650000
Std. Dev.	1532.885	5019.722	3133945.	2.236048	8.225928	0.116633	1.991698
Skewness	0.389351	0.365326	0.357782	0.645408	0.434928	0.233296	1.945760
Kurtosis	2.587365	2.623372	1.584068	1.776211	1.887068	2.415990	5.971116
Jarque-Bera	3.883226	3.378499	12.58448	15.81933	9.976324	2.793878	119.8573
Probability	0.143472	0.184658	0.001851	0.000367	0.006818	0.247353	0.000000
Sum	664847.3	2217881.	783900000	5310.480	6165.661	807.9800	154.1800
Observations	120	120	120	120	120	120	120

The results of the descriptive statistics are presented in Table 1. The average is 5540,394 (NSE), 18482.34 (BSE) and the median is 5329,925 (NSE), 17728.85 (BSE) of the dependent variable, which is the price index showing where the data center is located. The largest data value is 8901,850 (NSE) and the smallest value is 2755,100; these larger and smaller data show the data range. The asymmetry of this data is -0.168605, which is> 0, so its distribution on the right, with extreme values on the right side, and the average is having the concentration of most of the values on the left side. The value of kurtosis is 1.795949, which is less than 3 that has no leptokurtic distribution because here the mean is lower than the median and is a plasticized plastic distribution. The value of Jarque-Bera is not greater and the probability is 0.013576 which shows that the data are not distributed normally.

The average is 8998671 and the median is 7623205 of independent variable which is the largest data value is 18062901 and the smallest value is 4162654, this data sample is larger and smaller is the data range. The asymmetry of this data is - 0.784792 which is on the left side. This is not the case for this reason. The value of Jarque-Bera is not greater and is 0.000447, which shows that data are not normally distributed. The average is 63.78770 and the median is 59.81290 of the independent variable which is the exchange rate that shows where the data center is located. The largest data value is 85.20460 and the smallest value is 51.86880, this larger and smaller data sample is the data range. The asymmetry of this data is - 1.138111, which is> 0, hence its distribution on the right, with extreme values on the left side. The value of kurtosis is 2.760138, which is less than 3 that does not have a leptokuric distribution because its mean is lower than the median and its distribution is placid. The displayed value is 0.000001 which is not normally distributed. The average is 0.792424 and the median is 0.655000 of independent variable which is the rate of inflation that shows where the data center is located. The largest data value is 3.340000 and the minimum value is -0.880000, this larger and smaller data show the data range. The asymmetry of this data is - 0.488966 which is on the left side. The value of kurtosis is 3.293144, which is greater than 3 which have leptokurtica distribution.

The value of Jarque-Bera is not greater and the probability is 0.056910, which shows that the data are normally distributed. The average is 8.672879 and the median is 8.900000 of independent variable, which is the interest rate that shows where the data center is located. The largest data value is 14.01000 and the lowest value is 1.210000, this increasingly large data shows the range of data. The asymmetry of this data is -0.527122, which is> of 0, so its distribution to the right, with extreme values on the right and average sides, has the concentration of most of the values on the left side. The value of kurtosis is 2.139403, which is less than 3 that does not have leptocuic distribution because here the mean is lower than the median and is a flagrant Kurtic distribution. The

value of Jarque-Bera is not greater and the probability is 0.006139, which shows that the data is not normally distributed.

Table-2: ADF Unit Root Test Analysis at level

Variables	t-Statistics	ADF at level	Critical Value at 1%	Critical Value at 5%	Critical Value at 10%
Disposable Income	0.963125	0.9960	-3.486064	-2.2885863	-2.579818
Govt. Policies	-0.211717	0.9327	-3.486064	-2.2885863	-2.579818
Interest Rate	-1.587157	0.4860	-3.486064	-2.2885863	-2.579818
Inflation Rate	-3.428783	0.0118	-3.486064	-2.2885863	-2.579818
Exchange Rate	-0.195464	0.9348	-3.486064	-2.2885863	-2.579818
Stock Prices Nifty	-1.156109	0.6916	-3.486064	-2.2885863	-2.579818
Stock Prices Sensex	-1.173040	0.6845	-3.486064	-2.2885863	-2.579818

Table-3: ADF Unit Root Test Analysis at 1st difference

Variables		ADF at 1st Difference	Critical Value at 1%	Critical Value at 5%	Critical Value at 10%
Disposable Income	-12.17866	0.0000	-3.486064	-2.2885863	-2.579818
Govt. Policies	-10.94320	0.0000	-3.486064	-2.2885863	-2.579818
Interest Rate	-10.78045	0.0000	-3.486064	-2.2885863	-2.579818
Inflation Rate	-13.29100	0.0000	-3.486064	-2.2885863	-2.579818
Exchange Rate	-8.378613	0.0000	-3.486064	-2.2885863	-2.579818
Stock Prices Nifty	-11.13451	0.0000	-3.486064	-2.2885863	-2.579818
Stock Prices Sensex	-10.74663	0.0000	-3.486064	-2.2885863	-2.579818

ANALYSIS AND INTERPRETATION

ADF test has applied to check the stationary of the data. All the variables are stationary at 1st difference

4. PRELIMINARY TESTS

4.1 Multicollinearity Test

The multicollinearity test between independent variables is of great importance because the presence of collinearity leads to greater errors in the results of the study. Multicollinearity occurs when the independent variables, in the case of this study, select macroeconomic variables, are correlated. According to Barnor (2014), if two or more independent variables depend linearly on each other, one of them should be included instead of both, since it increases the standard errors, which causes the results to be distorted.

A multicollinearity test was performed on data based on one of the basic assumptions that regressors should not be correlated with each other. The hypothesis was that if more than one of the variables is correlated with others, it is said that multicollinearity is present. This study used the inflation factor of variance (VIF) approach to verify multicollinearity. The general rule according to this method is that if the inflation factor of the variance of the explanatory variables is greater than ten, the variables are called collinear.

The results of the variance inflation factor (VIF) were shown in Table 4. The results in Table 4 show that the explanatory variables are not collinear, since the VIF for all the variables is less than ten, which means that multicollinearity does not. It exists among all the explanatory variables in the study. This is consistent with the investigation of multicollinearity tests carried out in similar studies in Kenya. Some of the studies that have shown similar results are: Kirui et al (2014), Aroni (2011) and Olweny (2011).

H0: There is no multicollenarity problem.

Table-4: Multicollinearity Results for the Macroeconomic Variables

Variable	VIF
INTEREST_RATE	1.594642
INFLATION_NEW	1.481506
GOVT_POLICIES	1.061619
EXCHANGE_RATE	1.088252
DISPOSABLE_INCOME	1.220328

Sensex

Table-5: Multicollinearity Results for the Macroeconomic Variables

Variable	VIF
INTEREST_RATE	1.051868
INFLATION_NEW	1.576279
GOVT_POLICIES	1.523118
EXCHANGE_RATE	1.045766
DISPOSABLE_INCOME	1.058643

4.2 Auto Correlation

According to Koutsoyiannis (1993), autocorrelation, refers to the relationship, not among two (or more) different variables, however between the successive values of the identical variable. it's miles a mathematical illustration of the diploma of similarity between a given time collection and a lagged model of itself over successive time intervals.

A number of methods have been used to test autocorrelation. The most common methods are; the Durbin-Watson statistic, Portmanteau and Lagrange Multiplier (LM). This study chose to employ Portmanteau and Lagrange Multiplier (LM) tests. In these methods, autocorrelation occurs if the P-values are more than 0.05. Results in table 6 and 7 indicate that there is no auto correlation since the p-values are less than 0.05 at lag 4 and 2 respectively.

Table-6: VEC Residual Portmanteau Tests Results for Autocorrelation

Autocorrelation, also known as serial correlation, is the correlation of a signal with a delayed copy of itself based on the delay. Actually, it is the similarity between observations based on the time delay between them.

H0: no serial correlations (Nifty)

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	2.694828	Prob. F(2,111)	0.0720
Obs*R-squared	5.510533	Prob. Chi-Square(2)	0.0636

Interpretation: Null hypothesis is not rejected because P value is >.05 so it indicates that there is no problem of serial correlation.

Table-7: VEC Residual Portmanteau Tests Results for Autocorrelation (Sensex)
H0: There is no serial correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.992076	Prob. F(2,111)	0.3741
Obs*R-squared	2.089798	Prob. Chi-Square(2)	0.3517

Interpretation: Null hypothesis is not rejected because P value is >.05 so it indicates that there is no problem of serial correlation.

4.3 Normality Test

A normality check is completed to determine whether or not or now not the pattern records has been acquired from a normally distributed population. The test sought to test the normality of the data that is crucial specifically while parametric checks like correlation and regression evaluation are used

The normality of records used become evaluated by means of figuring out the skewness and kurtosis values and imparting histograms. the scale of normally distributed data is that its skewness have to be equal to 0 and kurtosis equals to three.

Skewness presents records approximately the symmetry of the distribution at the same time as kurtosis presents records about the peakedness of the distribution. (Tabachnick & Fidell, 2007).

To test whether the data follow the normal probability distribution, Shapiro Wilk take a look at for normality turned into accomplished. The test has a null hypothesis that the data is normally distributed. The test statistics for normality distribution of every variable are shown in table 8 and 9. From the results, the normality measures

did not suggest extreme departure from normality assumption due to the fact, table 8 and 9 suggests that the skewness of all variables had been under one and hence in the 0 range at the same time as the Kurtosis was within the range of 3. And jarque-bera value should not be less than 0.05.
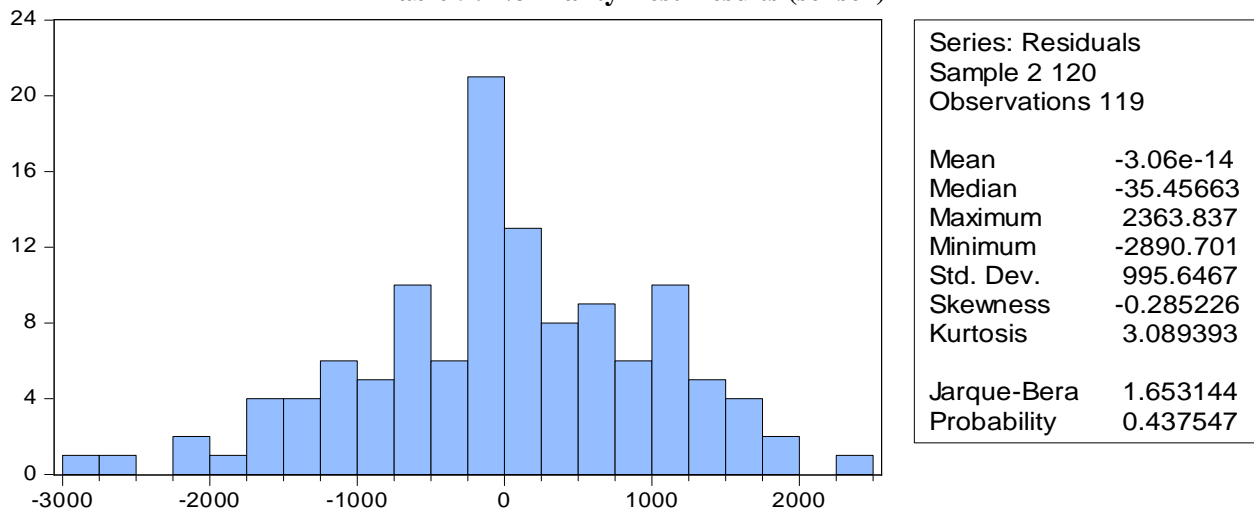
Table-8: Normality Test Results (Nifty)

Series: Residuals	
Sample 2 120	
Observations 119	
Mean	5.430847
Median	-201.6021
Maximum	3030.639
Minimum	-2815.748
Std. Dev.	1389.954
Skewness	0.506651
Kurtosis	2.678273
Jarque-Bera	5.604359
Probability	0.060678
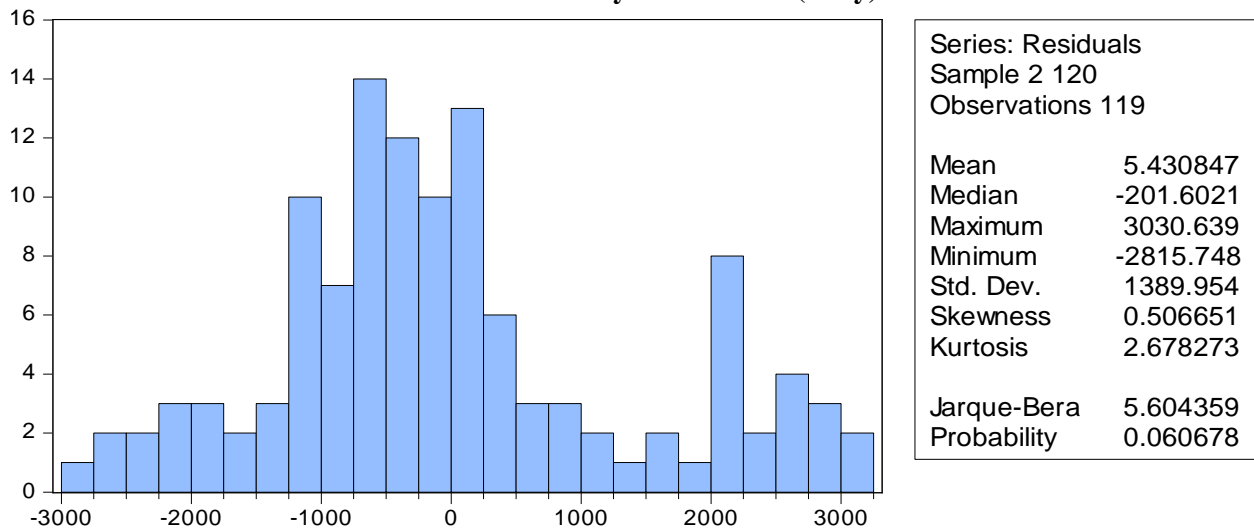
H0: Residuals are normally distributed

Interpretation Residuals are normally distributes so we will not reject the null hypothesis because jarque-bera value (5.604359) is >.05 and even P value (0.06) is .05 that shows that's residuals are normally distributed.

Table-9: Normality Test Results (sensex)

Series: Residuals	
Sample 2 120	
Observations 119	
Mean	-3.06e-14
Median	-35.45663
Maximum	2363.837
Minimum	-2890.701
Std. Dev.	995.6467
Skewness	-0.285226
Kurtosis	3.089393
Jarque-Bera	1.653144
Probability	0.437547

H0: Residuals are normally distributed

Interpretation: Null hypothesis cannot be rejected because Jarque-Bera value (1.653144) is above 0.05 and p value (0.437547) is >0.05 that shows that residuals are normally distributed.

4.4 Heteroskedasticity

Heterodiscelasticity is a difficult word to pronounce, but it does not necessarily have to be a difficult concept to understand. In short, heteroskedasticity (also called heteroscedasticity) refers to the circumstance in which the variability of a variable is not equal in the range of values of a second variable that predicts it.

H0: There is no heteroskedasticity

Table 10:   Heteroskedasticity (Nifty)

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.504788	Prob. F(5,113)	0.7721
Obs*R-squared	2.599882	Prob. Chi-Square(5)	0.7614
Scaled explained SS	2.902522	Prob. Chi-Square(5)	0.7150

Table-11: Heteroskedasticity (Sensex)

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.301779	Prob. F(5,113)	0.9109
Obs*R-squared	1.568076	Prob. Chi-Square(5)	0.9051
Scaled explained SS	1.477135	Prob. Chi-Square(5)	0.9157

Interpretation: Null hypothesis cannot be rejected because P value is >.05 so it indicates that there is no problem of heteroskedasticity.

4.5 Multiple Regression

H1: There is a significant impact of selected macroeconomic variables on stock prices at the NSE.

Table-12: Multiple Regression with NSE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	59265.94	6462.463	9.170798	0.0000
DISPOSABLE_INCOME	0.001072	7.13E-05	15.04965	0.0000
GOVT_POLICIES	-490.2396	86.39349	-5.674497	0.0000
INFLATION_RATE	-84.05487	26.75732	-3.141378	0.0021
EXCHANGE_RATE	-137.6792	19.35593	-7.113025	0.0000
INTEREST_RATE	-4730.986	556.6209	-8.499476	0.0000
R-squared	0.880722	Mean dependent var		5540.394
Adjusted R-squared	0.875491	S.D. dependent var		1532.885
S.E. of regression	540.8914	Akaike info criterion		15.47302
Sum squared resid	33352243	Schwarz criterion		15.61240
Log likelihood	-922.3813	Hannan-Quinn criter.		15.52962
F-statistic	168.3507	Durbin-Watson stat		0.688879
Prob(F-statistic)	0.000000			

+

Interpretation

The hypothesis has been accepted because (p <0.05, 0.000) in this study there is the selected macroeconomic variables (disposable income. Govt policies, exchange rate, interest rate and inflation rate have influence on the on the stock prices at the NSE.

H2: There is a significant impact of selected macroeconomic variables on stock prices at the BSE.

Table-13: Multiple Regression with BSE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	192014.9	22196.17	8.650812	0.0000
DISPOSABLE_INCOME	0.003457	0.000245	14.12423	0.0000
GOVT_POLICIES	-1578.917	296.7297	-5.321061	0.0000
INFLATION_NEW	-322.8496	91.90153	-3.512995	0.0006
INTEREST_RATE	-15289.62	1911.787	-7.997552	0.0000
EXCHANGE_RATE	-445.3126	66.48047	-6.698398	0.0000
R-squared	0.868786	Mean dependent var		18482.34
Adjusted R-squared	0.863031	S.D. dependent var		5019.722
S.E. of regression	1857.762	Akaike info criterion		17.94084
Sum squared resid	3.93E+08	Schwarz criterion		18.08021
Log likelihood	-1070.450	Hannan-Quinn criter.		17.99744
F-statistic	150.9625	Durbin-Watson stat		0.625191
Prob(F-statistic)	0.000000			

Interpretation

The hypothesis has been accepted because (p <0.05, 0.000) in this study there is the selected macroeconomic variables (disposable income. Govt policies, exchange rate, interest rate and inflation rate have influence on the on the stock prices at the BSE.

4.6 Granger Causality Analysis

Table-14: Granger Causality Analysis (Nifty)

Null Hypothesis	Obs	F-Statistic	Prob	Result
Disposable Income does not Granger Cause stock prices.	119	5.87452	0.0169	Rejected
Stock prices do not Granger Cause Disposable Income.		0.26585	0.6071	Not Rejected
Govt Policies do not Granger Cause stock prices.	119	2.74670	0.1002	Not Rejected
Stock prices do not Granger Cause Govt Policies.		2.34549	0.1284	Not Rejected
Interest Rate does not Granger Cause stock prices.	119	0.22952	0.6328	Not Rejected
Stock prices do not Granger Cause Interest Rate.		1.17742	0.2801	Not Rejected
Inflation rate does not Granger Cause stock prices.	119	8 .74563	0.0038	Rejected
Stock prices do not Granger Cause Inflation rate.		1.18007	0.2796	Not Rejected
Exchange Rate does not Granger Cause stock prices.	119	6.14832	0.0146	Rejected
Stock prices do not Granger Cause Exchange rate.		0.75683	0.3861	Not Rejected

The null hypothesis shows that the stock prices (Nifty) do not generate macroeconomic variables and none of the hypotheses that the macroeconomic variable does not cause Granger to cause the stock prices (Nifty), except disposable income, inflation and exchange rate of stock prices due to the significant F-statistic ratio.

Therefore, the results of the Granger causality test are described below, a change in macroeconomic variables with the exception of disposable income, inflation and the exchange rate have had a statistically insignificant impact on changes in the prices of shares, while stock prices seem to be an insignificant factor that explains part of the movements in macroeconomic variables. This suggests that there is a unidirectional causality of disposable income, of the inflation rate and of the exchange rate at the price of the shares.

Table-15: Granger Causality Analysis (Sensex)

Null Hypothesis	Obs	F-Statistic	Prob	Result
Disposable Income does not Granger Cause stock prices.	119	5.31104	0.0230	Rejected
Stock prices do not Granger Cause Disposable Income.		0.36943	0.5445	Not Rejected
Govt Policies do not Granger Cause stock prices.	119	2.64596	0.1065	Not Rejected
Stock prices do not Granger Cause Govt Policies.		1.96291	0.1639	Not Rejected
Interest Rate does not Granger Cause stock prices.	119	0.18811	0.6653	Not Rejected
Stock prices do not Granger Cause Interest Rate.		1.11437	0.2933	Not Rejected
Inflation rate does not Granger Cause stock prices.	119	9.50555	0.0026	Rejected
Stock prices do not Granger Cause Inflation rate.		1.27836	0.2605	Not Rejected
Exchange Rate does not Granger Cause stock prices.	119	5.96915	0.0161	Rejected
Stock prices do not Granger Cause Exchange rate.		0.55883	0.4562	Not Rejected

The null hypothesis shows that the prices of non-Granger shares (Sensex) cause macroeconomic variables and that the hypothesis that the non-Granger macroeconomic variable causes stock prices (Sensex), except for disposable income, inflation and the exchange rate of share prices due to the significant F-statistic ratio.

Therefore, the results of the Granger Causality test are described below, a change in the macroeconomic variables with the exception of disposable income, inflation and the rate of exchange rates have had a statistically insignificant impact on the changes in stock prices, while changes in stock prices also seem to be an insignificant factor that explains part of the movements in macroeconomic variables. This suggests that there is a unidirectional causality of disposable income, the rate of inflation and the exchange rate of share prices.

FINDINGS

All variables are stationary in the first difference. The residues are distributed normally and there is no problem of multicollenerity, heteroskedasticity and serial correlation. The hypothesis was accepted because (p <0.05, 0.000) in this study there are selected macroeconomic variables (disposable income) Government policies, the exchange rate, the interest rate and the inflation rate have an influence on the prices of shares for The NSE, the hypothesis was accepted because (p <0.05, 0.000) in this study there are selected macroeconomic variables (disposable income.) Government policies, the exchange rate, the interest rate and the inflation rate influence the prices of the BSE shares, the hypothesis shows that the stock prices (Nifty) do not generate macroeconomic variables and neither does the hypothesis that the macroeconomic variable does not cause Granger to cause the prices of the shares (Nifty) and (Sensex) except the income available, inflation and the exchange rate of share prices due to the significant statistical relationship F: a change in the macroeconomic variables n the exception of disposable income Inflation and exchange rates have been statistically affected by changes in share prices,

while changes in stock prices also seem to be an insignificant factor that explains part of the movements in the stock market. the macroeconomic variables. This suggests that there is a unidirectional causality of disposable income, of the inflation rate and of the exchange rate at the price of the shares.

CONCLUSION

The main objective of the research is to analyze the relationship between the macroeconomic variables and the stock prices of the stock markets of India. For the justification of the objective the monthly data of disposable income, Govt. Policies, inflation rate, interest rate and were collected. The results show that the variables are stationary in the first difference. The residues are distributed normally and there is no problem of multicollenerity and heteroskedasticity and serial correlation. In addition, to verify the impact of selected macroeconomic variables on the prices of Indian equities, the multiple regression that shows these variables (disposable income, interest rate and inflation rate) influences both the NSE and the prices of the actions. than BSE. The null hypothesis shows that the stock prices (Nifty) do not generate macroeconomic variables and neither does the hypothesis that the macroeconomic variable Granger does not cause the prices of shares (Nifty) and (Sensex), except income available, inflation and the exchange rate of stock prices due to the significant F-statistics ratio. In addition, the research implies that an alteration in the net macroeconomic variables of disposable income, inflation and the exchange rate have had a statistically insignificant impact on changes in share prices, while the alteration of the prices of the shares seems to be an insignificant factor that explains part of the movements in the variable macroeconomic framework. The research paper recommends that there is a unidirectional causality of disposable income, the rate of inflation and the exchange rate to share prices.

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LEVERAGING CULTURAL DIVERSITY FOR IMPROVING EMPLOYEE PERFORMANCE: AN ANALYTICAL STUDY OF SELECTED IT COMPANIES IN INDIA

Shalu Solanki[1] and Dr. Ummed Singh[2]

Research Scholar[1], University of Kota

Former Associate Professor[2], Govt. Commerce College, Kota

ABSTRACT

The IT companies in India are growing at a very fast pace and they are focusing on acquiring competitive edge in the global market. There are various factors which are contributing to the growth and success of the IT companies in India like huge pool of talented young force who are well trained in IT skills, favorable government policies, excellent infrastructure etc. The IT companies are trying to prepare the workforce to be more globally competent. Apart from many factors the IT companies are trying to leverage the cultural diversity to improve the performance of the employees. IT companies have started realizing the advantages of having diverse work force at work place. The multi-culture organizations have diverse work force and it has been observed that the employees in these organizations are very productive and very competent. The present study focus on the advantage of having diverse workforce. The study aims at finding impact of cross culture on employee's performance at the workplace in multi-culture organization. The IT companies in India showcase the best example of diverse workforce as most of the IT companies deal with national and international employees and try to bring them all together on a same platform to work harmoniously. Cultural diversity provide opportunity to employees to share and exchange ideas and interact with different culture background employees. Cross-culture environment improves inter-personal relations and help in building trust among employees, which ultimately helps in more productivity and improved performance.

Keywords: Cultural-diversity, employee performance, productivity, leveraging cross-culture, global competitiveness, IT industry.

INTODUCTION

In the present time cultural diversity is much noticed in the business world where the success of cross-national trade rests upon the smooth synchronization of cross-culture, people from cross-borders, different values and belief, viewpoints and business practices. Globalization has arose the need for the companies to spread all around the world and the economies in the world are rising and falling and being evolved globally continuously. The organizations are preparing their leaders and employees to fully understand their culturally diverse work atmosphere and work effectively with people from different cultural backgrounds. (Society of Human Resource Management, 2008). The organizations needs to take note of these differences in culture and benefit from it. Managing the diverse culture in an organization plays an essential role in achieving competitive edge in its market (Kundu, 2001).

The survival of the organization depends on how well it absorbs the benefits from cultural diversity to increase the wealth of the organization. The multinational companies need to seek leverage of cultural difference by learn from them and accepting them for achieving business goal rather than ignoring them or allowing them to create problem (Adler, 1997). Cross culture brings together people from vivid culture, religions, regions, languages, customs, traditions, food, ideology, behavior etc. The employees from diverse culture brings with them their vivid culture which is then shared with other employees at work place. This develops the culture of learning, sharing, trust and caring at work place, making the work place a favorable place to work of employees. Thus multi-culture environment provide greater opportunity to employees to develop their skills and to be more productive.

Cultural Diversity

As mentioned by Kroeber and Kluckhohn (1952), the cross-culture brings together people from different culture, religions, regions, languages, customs, traditions, food, ideology, behavior etc. Cultural diversity is a form of accepting the differences in individuals. The difference can be based on gender, age, sexual orientation, and social status. Companies have realized the importance of acquiring a diverse workforce. Cultural diversity also known as multiculturalism, is a group of diverse individuals from different cultures or societies. Usually, cultural diversity takes into account language, religion, race, sexual orientation, gender, age and ethnicity. Companies have started seeing the advantages that cultural diversity could bring and how a well-managed cultural diversity could help in achieving competitive edge in the market. To excel the performance of the organization, there is a need for combination of globalization of trade and culture along with expansion of diverse workforce.

Cross-cultural management

After having clear insight of concept of cultural diversity, it is important to know how the cross-cultural management to be done. While dealing with diverse culture workforce, an effective management techniques are required to manage cross-culture. As per the definitions of Taylor and Fayol, it is the process of achieving organizational goals through planning, organizing, directing, coordinating, and controlling of the organizational resources in an environment. Cross-cultural management plays important role in multi-national companies to train and retain the diverse work force. A well-managed diverse work force can give better business results and in present era of global competition it is very important. To manage diverse work force effectively, the role of international human resource is very crucial.

Advantages of Cultural Diversity at work place

It has been observed that the expansions and intense globalization requires countries as well as organization's capability to be more open and accommodative to a heterogamous working environment. According to Adler, it is to be noticed that regardless of whether it is international or domestic, cultural diversity does influence how organization performs. In the present times it has become need for the companies to hire employees from various backgrounds, race, culture, gender, age or religion, to be more globally competent and innovative. A diverse workforce benefits companies in many ways. Multi-cultural environment can contribute to the organization's efficiency and give it a competitive edge. The following advantages of cultural diversity can be counted towards improving the employee performance in the organization-

- Having culturally diverse work force provides a platform to the employees to improve inter personal relationships.

- It gives opportunity to employees to learn new skills and share views which give them a recognition. It boosts employee's morale.

- Employees get an exposure to varying viewpoints and ideas which allow them to brain storming and look at the problems and solution from different and wider perspective.

- Cultural-diversity has global impact which helps in giving competitive edge to the employees.

- Cultural-diversity helps in better team building and new avenues of leadership.

- It helps in building trust among the diverse work force and builds personal bonds. Trust among the team members is very important to achieve business goals in IT companies.

- Culturally diverse teams are more productive as they learn different skills and they drive innovation in the organization.

- In the multi-culture organization employees gets the opportunity for the personal and professional growth.

REVIEW OF LITERATURE

Kroeber and Kluckhohn (1952), explain culture as a set of ideas, concepts or notions, especially values shared by the members of a culture. These ideas are transferred from one generation to another through symbols. Culture is learned and it molds the behavior and changes one's perception of the world. Culture exists from the past actions of members of a group.

According to Taylor (2005), culture can be defined as how we live, how we are expected to behave and how we do things every day. Cultures are developed over a time when people in the same community spend time together and are tied to common beliefs, goals, routines, ideas and values.

Adler (1997), has focused on leveraging the cultural differences by learning from them and accepting them for achieving business goals rather than ignoring them or allowing them to create problem. The survival of the organization depends on how well it embrace diversity and takes benefits from cultural diversity.

Adler (2008), has defined cross-cultural management as the behavior of the people in the organization that reflects how people or employees with different cultural backgrounds work in an organization.

According to Taylor (1911), Simon (1960), Fayol (1998), the cross cultural management is a process of achieving organizational goals through planning, organizing, coordinating and controlling the organizational resources in the cross cultural environment. The approaches of management differs in different environment, thus for the cross-cultural management the managers are expected to have clear understanding of home and host country culture to achieve organizational goal.

NEED OF THE STUDY
In the present era of globalizations, multi-national companies have to deal with culturally diverse workforce. In such situations they have been facing many challenges related to cross-culture. The IT companies have been facing this problem, in this study the focus has been on how the diverse culture workforce can be managed effectively such that the cultural diversity can be an advantage to the IT companies. The study aims at leveraging cross-culture for improving employee performance in IT companies in India.

STATEMENT OF THE PROBLEM
The statement of the problem is that to find the impact of cross-culture on employee performance and the focus is on improving employee performance in multi-cultural environment.

OBJECTIVE OF THE STUDY
The following are the objectives of the present study-
- To find the impact of cross-culture on employee performance.

- To find the advantages of working in multi-cultural environment.

- To find how the cross-culture can be leveraged to improve employee performance.

- To find the impact of cross-culture on improving inter-personal relations among employees.

- To find the impact of cross-culture on harmonious working relationship among diverse work force.

- To find the impact of cross-culture on effective team building in multi-culture environment.

SCOPE OF THE STUDY
The scope of the study is confined to IT companies in India, the study will focus on the advantages of having diverse workforce at work place. The study will help in leveraging cultural diversity at work place to improve employee performance by developing global competencies of employees.

RESEARCH DESIGN
The research design is a blueprint for conducting research and obtaining information needed to solve the research problem. The present study is explorative in nature. The study further includes surveys and fact findings and inquiries from different groups that are employed in IT companies in India. For the purpose of this study, a survey has been conducted based on a structured questionnaire.

SOURCES AND TYPE OF DATA COLLECTION
The collection of data is done through primary and secondary sources. Primary data collection is done through a survey conducted based on a structured survey. The secondary data collection is done through various books, journal and published electronic sources.

Sample technique- Convenient sampling technique is used.

Sample size- 60 respondents are surveyed.

Sample area- Delhi/NCR.

TOOLS FOR DATA COLLECTION
The data collection for this study is done through a structured questionnaire and was distributed online for survey to the employees in selected IT companies.

STATISTICAL TOOLS FOR ANALYSIS
For the analysis of data Chi square test method is used.

HYPOTHESIS OF THE STUDY
H1- Cultural diversity has significant impact on employee performance.

ANALYSIS AND INYTERPRETATION

1. **What is the effect noticed over employee's performance while working in diverse culture environment?**

Table-1		
Options	**Frequency**	**Percent**
Increase	38	63.3
Remains the same	16	26.8

Can't say	4	7.4
Decrease	2	2.5
Total	60	100

Source: Primary data
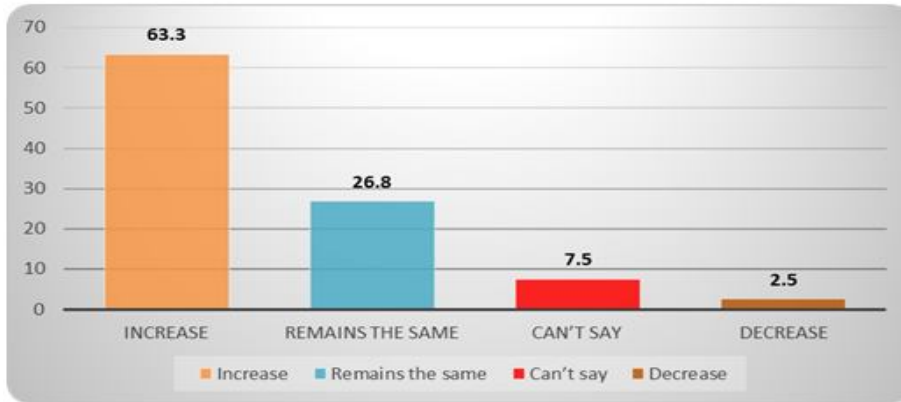
Source: Primary data

Table 1.1					
Scale	f%	O	E	$O_{ij}-E_{ij}$	$(O_{ij}-E_{ij})^2$	$(O_{ij}-E_{ij})^2/E_{ij}$
Increase	63.3	38	15	23	529	35.27
Remains the same	26.8	16	15	1	1	0.07
Can't say	7.4	4	15	-11	121	8.07
Decrease	2.5	2	15	-13	169	11.27
					Chi value	54.68

Source: Primary data

Interpretation- As per the above table 63.3% respondents says that their performance increases while working in multi-cultural environment, 26.8% has the opinion that it remains the same. As per the calculated part, we found that the calculated value of X^2 (54.68) at 5% level of significance is greater than the tabular value of 7.81. This states that the difference is more significant.

2. **Does multi-cultural organizations provide you a platform for innovation to increase productivity and helps improve global competencies?**

Table-2		
Options	Frequency	Percent
Strongly agree	14	23.9
Agree	30	49.6
Neutral	16	26.5
Disagree	0	0
Strongly Disagree	0	0
Total	60	100

Source: Primary data
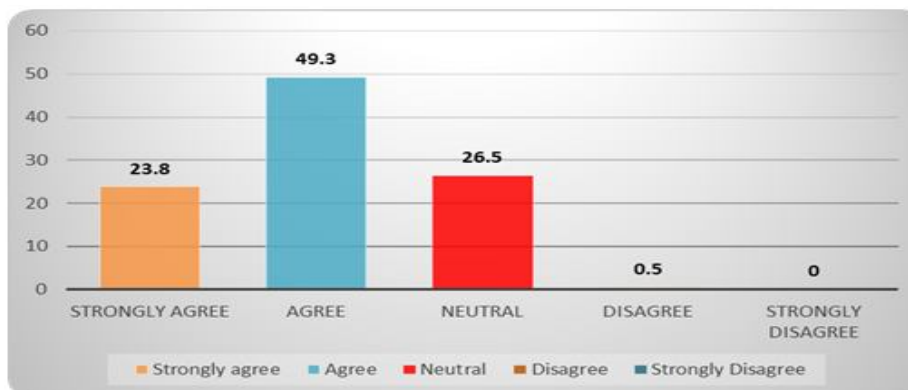
Source: Primary data

Table 2.1					
Scale	**f%**	**O**	**E**	**O$_{ij}$-E$_{ij}$**	**(O$_{ij}$-E$_{ij}$)^2**	**(O$_{ij}$-E$_{ij}$)^2/E$_{ij}$**
Strongly agree	23.9	14	12	2	4	0.33
Agree	49.6	30	12	18	324	27
Neutral	26.5	16	12	4	16	1.33
Disagree	0	0	12	-12	144	12
Strongly Disagree	0	0	12	-12	144	12
					Chi value	52.66

Source: Primary data

Interpretation- As per the above table 23.9% respondents strongly agrees and 49.6% agrees that multi-cultural organizations provide platform for innovation and develop global competencies of employees. As per the calculated part, we found that the calculated value of X^2 (52.66) at 5% level of significance is greater than the tabular value of 9.49. This states that the difference is more significant.

FINDINGS

- The present study shows that though the multi-cultural environment is a complex system but it has other advantages in the organization.

- It has been found in this study that cross-culture infuse new ideas and innovation in the organization.

- The study explains that cultural diversity along with some challenges have many advantages too.

- The respondents agrees that working in multi-culture environment helps them to achieve global competencies.

- The study shows that if the organizations embrace diversity, it can leverage cultural diversity to improve employee performances as the employees realize that such environment give them opportunity to learn new things from global perspective.

- The study shows that multi-cultural environment helps in better understanding to manage inter-personal relationship at work place.

- Employees as per this study agrees that their performance increases while working in the multi-culture organizations, as they try to be competent to face the global challenges and try to perform their best at work place.

- It has been found through this study that employees by learning to interact in new environment develop their competitive edge.

- It has been found that multi-cultural environment creates effective learning and sharing of views which contributes to achieving organizational goals.

SUGGESTIONS

- The organization needs to provide a platform for the employees to learn and adopt new skills from multi-culture, so that employees can be more competent.

- The organization must motivate employees to work in collaboration with diverse work culture.

- Employees should have collective approach and improve communication among them.

- The organizations should focus on team building foe better co-ordination among employees of diverse culture.

- The organizations should provide a platform to the employees to share and exchange their thoughts to solve common problems.

- The organization should set up an effective feedback mechanism to resolve multi-cultural differences and build effective interactive environment among employees.

- Trust is an important factor in any multi-cultural environment, employees should trust and respect the diversity to build an effective work environment.

LIMITATIONS

- Sampling unit was small, it was restricted to sixty respondents only.

- The information obtained is based on the questionnaire only which was assumed to be factual.

- The respondents were reluctant to answering to survey.

- The study has restriction of time and area of research.

CONCLUSION

The present study concludes that having culturally-diverse work force is no more a challenging and complex system for the organization, if the organization can embrace diversity effectively and leverage it for improving the performance of employees and increasing organizational effectiveness. The present study shows that diverse work force creates an environment of learning and developing in a holistic way. For the organizations to grow and expand globally, they must think inclusively and globally and to do so the organizations must embrace diversity to be competitive on an international level. To infuse creativeness and innovation in the organization, diversity and inclusion is must. Many companies have taken various measures for diversity and inclusion, and they reaping the benefits too. Cultural-diversity provides global exposure of learning and sharing ideas to employees which make them globally competitive and improves their productivity and performance.

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LIMITED LIABILITY PARTNERSHIP ACT, 2008: BREAKING THE STEREOTYPES

Shashi Nanda[1] and Renu Yadav[2]
Assistant Professor[1], PGDAV College, (University of Delhi)
Research Scholar[2], Amity University, Noida

INTRODUCTION

Limited liability partnership, a new form of doing business is in existence for a few years now, all round the world. This legal form of doing business was introduced in India only after parliament passed it and the president approved it on 7th January 2009. The LLP Act, 2008 was notified in the official gazette on 9th January 2009 and the provisions of the Act came into force on 31st March 2009. The Limited Liability Partnership Rules, 2009(LLP Rules) with respect to registration and the operational aspects was notified by the Government of India on 1st April 2009.

A new corporate form of doing business enables professional and entrepreneurial expertise that combines, organizes and operates in a flexible and innovative manner, providing benefits of limited liability to its members and at the same time allowing the flexibility of organizing their internal structure as a partnership. Mutual agency, unlimited liability, lack of perpetual succession is some of features of a partnership firm that have discouraged many of the entrepreneurs in adopting 'partnership' as their first choice. A 'corporate entity' on the other hand is coupled with high capital requirement, enormous compliance, administrative and managerial difficulties making it less attractive as a chosen option. This is a reason that makes LLP a hybrid entity between a company and a partnership firm, like a hot cake with a cherry on it, preferred by most of the Indian entrepreneurs at the time of starting new business.

This alternative corporate business vehicle has helped the professional and technical manpower to grow rapidly in the domestic and international markets. The framework is mostly suited to small and medium enterprises and service providers.

STRUCTURE OF LLP

LLP shall be a body corporate formed and registered under the LLP Act, with a separate legal entity and a perpetual succession with a minimum number of two partners with no limit on the maximum number of partners. The partners may comprise of any individual or a body corporate. Every LLP shall have at least two individuals as 'designated partners' of whom at least one shall be a resident of India. In case of a body corporate acting as one or more of the partners of a LLP, the nominees of such body corporates shall act as designated partners.

The designated partner is obligatory to comply with the provisions of LLP Act in form of acquiring incorporation certificate, maintaining annual accounts and filing annual returns. If at any time there is no partner designated as such or there is only one 2designated partner, each and every partner shall be deemed to be a designated partner and shall be liable for the compliance of the LLP provisions.

INCORPORATION OF LLP

Every LLP shall file necessary documents which consist of the 'Incorporation document' and 'subscriber's statement' in Form 2, with the Registrar of Companies (ROC) for the purpose of acquiring the incorporation certificate, which once issued cannot be revoked. The registrar shall also assign an LLP Identification Number (LLPIN) to the LLP. The name of every LLP shall end with the words 'limited Liability Partnership' or the acronym 'LLP'. All invoices, official correspondence and publications of LLP shall bear its name, address of registered office, registration number and a statement of evidence of its registration.

PARTNERS AND THEIR RELATIONSHIP

The mutual rights and liabilities of partners shall be governed by an agreement between the partners. This includes both, an agreement between partners of LLP inter se and an agreement between the LLP and its partners. In the absence of any such agreement, the mutual rights and duties of the partners shall be governed by 'the first schedule' of the LLP Act.

For the purpose of conducting business, every partner of the LLP shall be an agent of LLP, but not of other partners. The liability of the partners of LLP shall be limited to the extent of their agreed share of contribution in the LLP. However, the partners shall be personally liable for their own wrongful act or omission. Where the intention of the partners is to defraud creditors or they are found to have acted for a fraudulent purpose, such partners shall bear an unlimited liability.

PARTNERS CONTRIBUTION
The Capital of LLP, contributed by its partners, as per LLP agreement, may consist of tangibles, intangibles, money, promissory notes, and contracts for services. The monetary value of each partner's contribution shall be accounted for in such a manner as prescribed by the LLP rules. A practicing Chartered Accountant or a Cost Accountant or a valuer approved by Central Government shall be considered for the purpose. The contribution stands disclosed in the books of accounts of LLP as per the rules during financial disclosures.

The sum total of the capital contributed by the partners forms the cushion of safety and security for the creditors of the LLP. In the absence of LLP agreement, all partners are entitled to share equally, the capital, profits and losses, in carrying out the business.

FINANCIAL DISCLOSURES
Every LLP shall maintain 'Statement of Account and Solvency' that shall depict true and fair view of its state of affairs. These are maintained on cash or accrual basis, following the double entry system of book keeping. Statement of Solvency, being Part A consist of sincere declaration by the designated partners about their opinion about its solvency and an affirmation that the LLP shall be able to pay its debts in full in the normal course of business or not. Statement of Account, being Part B presents the detailed summary of the financial position of the LLP and consists of Statement of Assets and Liabilities and Statement of Income and Expenditure.

It is mandatory to report the figures of two financial years, the current financial year and the year immediately preceding the current financial year. LLP shall file these documents with the ROC within the prescribed time laid down under the Act, within 30 days from the end of 6 months from the closure of the financial year in Form 8.

'Annual Return' is another crucial document that shall be filed within 60 days from the closure of financial year in Form 11. For the purpose implementing the provisions of the Act, the registrar shall have power to obtain such necessary information and shall have the power to summon any designated partner, partner or employee of the LLP. On payment of prescribed fees to the registrar, such documents are available for public inspection.

The Act contains provisions that allow LLPs to file the relevant documents after their due dates on payment of additional fees, not exceeding 300 days. In case of further delay, such LLPs are liable for prosecution.

Any LLP that fails to comply with the filing of the documents shall be punishable with fine ranging between twenty five thousand and five lakh rupees. The designated partners of such limited liability partnership shall be punishable with fine ranging between ten thousand and one lakh rupees.

AUDIT
Rule 24(8) of the LLP Rules, 2009 contains the provisions regarding the auditing of accounts of LLP, by a Chartered Accountant in practice. In a financial year, LLP whose turnover does not exceed forty lakh rupees (Turnover limit has been raised from forty lakhs to sixty lakhs by the Finance Act, 2010) and capital contribution does not exceed twenty five lakh rupees, shall not be required to get the accounts audited. However, if partners decide to get the LLP accounts audited, it shall be done in accordance with LLP Rules, 2009.

Besides a Chartered Accountant in practice, a LLP of Chartered Accountants may also be appointed as an auditor. For such limited purpose, these LLPs are not treated as 'body corporate', a body corporate being disqualified from appointment as auditors.

CONVERSIONS
In order to avail the various benefits offered by LLP form of organization, the traditional partnership firm, the private company and the unlisted public company, would be able to convert themselves into Limited Liability Partnership, by following the provisions of the Act. Provisions of clause 58 and schedule II of the LLP Act must be complied with, for any such conversion from partnership firm to LLP, along with filing form 17 and form 2 for such conversions. Provisions of clause 58 and schedule III and schedule IV of the LLP Act, must be complied with, for any such conversion from private company or existing unlisted public company to LLP, along with filing form 18 and form 2 for such conversions. The effect of such conversions is that the identity of the firm or company cease to exist and the property, assets, interests, rights, privileges, liabilities, obligations of the existing concern gets transferred to the limited liability partnership as a going concern. An undertaking by the firm, private company or unlisted public company is mandatory, to be submitted to LLP.

The firm or company, so converted is under an obligation to inform the concerned Registrar of Firms or Registrar of Companies within which it was registered under the provisions of Indian Partnership Act, 1932 or The Companies Act, 1956, as the case may be, within fifteen days from the date of registration of the LLP.

FDI IN LLPS
The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, issues the yearly FDI Circular, stating, that FDI in LLP are subject to certain conditions and restrictions. Any Foreign Direct Investment in a LLP shall have to acquire prior permission from government/ Foreign Investment Promotion Board (FIPB), regardless of the way of capital contribution or tran8sfer of profit share. This shall be allowed only in those LLPs where 100% FDI is allowed, these sectors include manufacturing, mining, power, roads and highways, drugs and pharmaceuticals. In addition the restrictions imposed by DIPP regarding the sectors where FDI is not allowed include plantation and agriculture, print media or real estate. The absence of FDI –linked performance conditions is an important factor that shall enable LLP to be allowed by the government to acquire FDI for their operations. Such LLPs are restricted from any downstream investments.

WHISTLE BLOWER
Any kind of suspected dishonesty or unethical practices in form of embezzlement of cash, misappropriation of accounts or fraud of any other type which cannot be contained in any kind of exhaustive definitions calls for a little responsibility and transparency on part of partners and employees. To prevent any kind of harm, the whistle blower calls for public attention towards the wrong doing. The courage to blow the whistle causes an ethical dilemma of loyalty v/s livelihood war in his mind as he may anticipate suffering a serious personal consequence while raising concern about the misconduct, corruption or irregularity and reporting the same to the authority. By virtue of Section 31 of the LLP Act, such individuals are provided with adequate protection and shall not be threatened, suspended, demoted or harassed for providing such useful information that may cause serious danger. The guilty must be punished and he, who endangers himself, shall be protected.

TAXATION POLICY
The Income Tax Act has been amended by The Finance Act, 2009, which regards LLP as a 'body corporate' for general purposes and as a 'partnership firm' for tax purposes. Where LLP carries on any legal trade, profession or business with a view to earn profit, it is treated as business carried on by its partners and not by LLP. The property of the LLP is also treated as held by its members. The income of the firm is taxed at 30% + surcharge + cess. One of the advantages of LLP is that profits can be freely distributed to its partners, as there is no applicability to pay Dividend Distribution Tax. There is no MAT, instead applicability of Alternate Minimum Tax @18.5% exists for LLPs. The scope of provisions of AMT is much narrower than MAT. Unlike MAT, the calculation of book profits for AMT exempts the Long Term Capital Gains.

WINDING UP
To dispose of the assets of the business in order to meet the liabilities, and in case of surplus to be distributed among the partners, is a way towards winding up. The two modes, prescribed under the Act are Voluntary winding up and Compulsory winding up. One of the simplest ways of winding up is when all the partners voluntarily consent towards winding up. An application, with the consent of all partners, along with the supporting documents has to be filed with the Registrar of Companies for closing down the business of LLP and declaring it as defunct, so that its name can be removed from the register of LLPs. On lapse of one month, the Registrar shall notify the dissolution of LLP in the Official Gazette and through this publication, the LLP shall stand dissolved.

In the case of Tribunal taking up the winding up process, compulsory winding up is initiated, on the ground of number of partners falling below two for a period of more than six months, partner's inability to pay debts, to work against the interests of country's sovereignty and integrity, failure to file the Statement of Accounts and Solvency or Annual Return with the registrar for five consecutive financial years or any other ground that the Tribunal opines to be just and equitable.

Closing down LLP is an easier task, when declared it as defunct as compared to winding up which involves high formalities, complicated procedure and is more time consuming. The liabilities and obligations of the LLP shall be discharged from the assets of the firm even after the date of order of its removal from the register of LLPs. The liability of designated partners continues towards the legal dues to its creditors even after its dissolution.

CONCLUSION
Indian professionals are generally exposed to excessive liability, which has discouraged them to potentially participate in the international business community. With the introduction of LLP, the newest form of modern business, that offers numerous benefits have encouraged entrepreneurs to participate freely in the international markets without being subject to extreme liability on their part. Over the years the number of registered LLPs in India has grown exponentially. It has gained worldwide popularity allowing the rapid growth of the professional and technical manpower in both the domestic and international markets.

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PERFORMANCE EVALUATION OF SELECTED INDIAN BANKS: PRE AND POST MERGER & AND ACQUISITION

Dr. Renuka Bakshi
Associate Professor, Amity University

INTRODUCTION
The banks play vital role in
The banking operations in India have changed a lot after the new economic policy. And mergers have a greater impact on the banks. The commencement of banking operations in India in the year 1770 led to After the Independence, many mergers were done especially from 1960 onwards. This was the period of pre-nationalization. On an average, 40 banks were merged in the pre-nationalization period and the nationalization of banks was done in 1969. The remaining banks merged after the nationalization. The merger included merger between private banks, merger of private and public banks, merger of a private bank and a non-banking financial company.

Why mergers and acquisitions took place?
- There were many banks which were making losses and these weak banks reduced the economic growth of banking industry.

- The small banks were not able to compete with the large financially strong banks therefore the merger was needed.

- Mergers helped in the growth of many banks by making effective framework and policies which improved the ability of banks in generating credit and to improve their financial structure.

- They helped in achieving the Economies of scale.

Mergers of some banks after the liberalization

Acquirer Bank	Merged Bank	Year of Merger
HDFC Bank ltd	Centurion Bank of Punjab	2008
ICICI Bank ltd	Bank of Madura	2001
State Bank of India	Kashinath State Bank	1995
Punjab National Bank	New Bank Of India	1993
Oriental Bank of Commerce	Global Trust Bank	2004
Kotak Mahindra Bank	INGVysya bank	2015
ICICI bank ltd	Bank of Rajasthan	2010

Objectives of the Research
The objective is to find out the effect of merger on the HDFC bank and ICICI bank by doing comparative analysis of banks and to evaluate the efficiency of the banks. The other objective was to find out the significant changes taking place after the statistical analysis and to come to the conclusion.

Purpose of the research
The topic of Causes of merger and acquisition of Indian banks explains that how the banks regulated their operations and compete with their rival banks to survive and this encouraged a researcher to conduct his study on knowing about banking sector of the country. It has been done to compare the pre and post merger effect on banks and how banks made themselves financially strong by analyzing their financial statements and using statistical tools.

Importance of the Research
The study on this topic reflects many aspects of the banking industry. We are able to know about the banking conditions before and after the merger through our research work. It reflects on the innovative ideas used by banks to strengthen the condition of weaker banks by developing framework. The study highlights the policies and framework used by banks to improve the productivity and this will give the user a deep insight of changes taking place in the Indian banking sector.

REVIEW OF LITERATURE

Name of the Author	Year	Name of the Journal	Title of the paper	Abstract	Methodology adopted	Major arguments highlighted in the paper	Major findings/conclusion drawn in the paper
Mantravadi & Reddy	**2007**	Abhinav International Monthly Refereed Journal of Research in Management & Technology	Performance of companies after Merger	He studied the performance of public companies after mergers and came to the point that there was deterioration in progress & return on investment through the merger of same group of 162obilizat because these mergers were done to increase asset base instead of efficiency level.	Financial Ratios used for comparison	Less focus was given on efficiency improvements of public companies.	1) Banking and finance industry had slightly positive impact of profitability on sectors such as pharmaceutical, electrical & textile. 2) Inefficient functioning among same group of companies and deterioration in performance and return on investment.
Anand Manoj & Singh Jagandeep	**2008**	International Journal of Marketing, Financial services & Management Research	Impact of merger on shareholder bank	He studied the impact of merger of 5 banks on 162obilizatio's wealth.	Content analysis	Nil	Positive effect through the merger and increase in shareholder's wealth.
Uppal, R.K	**2009**	Abhinav International Monthly Refereed Journal of Research in Management & Technology	Challenges faced by Public sector banks	He stated that there was a transformation in all banks after mergers except public banks. He observed that progress of public banks was lower in comparison with private and foreign banks.	Content analysis	More focus should be given on public banks's improvement.	Performance of Public banks was comparatively poor. He suggested measures for improving condition of public banks. He defined labour productivity, branch productivity and also 162obilization162 ratio of public and private banks.
Sharma M.C. and Rai Mahima	**2012**	International Journal of Advanced research in management & Social sciences	Objective of merger and acquisition	Analysis of financial performance of merged banks was done through the model of EVA.	Content analysis through EVA model.	The results obtained gradually. There is a need to show fast results.	It had positive effect through merger and acquisition.
Khan	**2011**	Abhinav International Monthly Refereed Journal of Research in Management & Technology	Comparative analysis of pre and post merger of banks through statistical tools	He explained certain facts in the post period of mergers and acquisition of banks. He compared the performance in pre-merger and post-merger period. He did ratio analysis by calculating G/P margin, N/P	Statistical tools such as T test have been used to test the hypotheses and ratio analysis was done for comparison.	Nil	Banks have been positively influenced. Increase in performance was noticed in post-merger period. It is concluded that banks can generate higher profit margins and can benefit its shareholders.

				margin, ROCE, OPM, Debt equity ratio etc. he used research methods such as t-test to test the statistical significance.			
Bhan Akhil	2009	International Journal of Advanced research in Management and Social sciences.	Motive behind merger in Indian banking industry	He studied 8 Indian banks merger deals during the period 1999 to 2006.	Content analysis	The time taken to obtain results was slow. There is a need to show results little faster.	He found out that mergers were beneficial for Indian banks.
Soni & Jain	2013	Abhinav International Monthly Refereed Journal of Research in Management & Technology	Analysis of pre and post merger of banks	Soni & jain compared pre and post merger progress of banks using statistical tools such as gross profit ratio, net profit ratio, Debt equity ratio etc.	Ratio analysis was done and T-test method used to test the statistical significance.	Nil	Positive effect on banks was noticed.
Gupta Himani	2013	International Journal of Advanced research in Management and Social sciences.	Impact of Merger and acquisition on Financial efficiency of banks	Pre and Post merger results were compared to check the financial efficiency. Gross profit margin, profit after tax, net assets of some selected banks were taken for comparison.	Ratio analysis	Nil	Improvement in financial productivity was noticed.
Kurikose Sony & Gireesh kumar G.S	2010	International Journal of recent research in Commerce Economics and Management	Relatedness among merged banks	He evaluated the financial similarities of merged Indian banks and used relevant financial tools to assess their similarity.	Content analysis	Merger was not suitable for many banks especially in public sector.	Only private banks were ready for the voluntary merger in the Indian banking sector.
Saluja Rajni, Sharma Sheetal, Dr. Lal Roshan	2012	International Journal of Advanced research in Management and Social sciences.	Impact of merger on the financial performance of HDFC bank	They evaluated the impact of merger on performance of HDFC bank using CAMEL model. The model includes capital adequacy, asset quality, management capability, earning quality and liquidity.	Parameters in CAMEL model were used to analyse the content.	The focus was only on HDFC banks but not on other major banks.	The financial performance of HDFC bank was improved in the post merger period.
Bhattacharyya	1997	Indian Journal of Commerce & Management Studies	Productive efficiency of commercial banks.	He analysed the productive efficiency of some selected 70 commercial banks during the	Content analysis		He concluded that public sector banks were more efficient than private and foreign banks and also found out that

				period of 1986 to 1991.			there was a slight decline in the performance of public sector banks.
Vashisht	1987	Abhinav International Monthly Refereed Journal of Research In Management and Technology	Performance of Public sector banks	He evaluated the performance with the help of six indicators i.e. Branch Expansion, credit, priority Sector Advances, DRI advances, deposit and net profit over the period 1971-83.	He used composite weighted growth index to give rank to banks whether they are good, poor, or excellent.		He suggested developing marketing strategies for profit and depositing 164obilization and also swotting analysis.

RESEARCH METHODOLOGY

1) Sample for the Research study
I took the first case of Merger of HDFC bank and Centurion Bank of Punjab and the   second case of ICICI and its merger with Bank of Rajasthan for the statistical analysis.

2) Collection of Data for study
I collected the data from secondary sources and used financial statements and annual reports of the banks. I also used some research papers to do the analysis. The financial variables taken for the analysis are gross profit, net profit, debt-equity ratio, etc.

3) Data analysis and interpretation
SPSS has been used to implement statistical tool for calculating regression analysis and ANOVA to know the significant relationship of various factors which will be the causes of merger & acquisition. The factors have been assessed by studying financial statement analysis of 5 years for banks.

4) Design of the Study
The Quantitative research method is used. The data is on secondary basis.

5) Number of years taken for the study
I used 5 years' pre and post merger data of HDFC bank and 5 years' pre and 4 years' post-merger data of ICICI bank for my study.

DATA ANALYSIS & INTERPRETATION

HDFC BANK LTD
The HDFC bank started its operations in 1994 and its registered office is situated in Mumbai, India. The bank covers 88253 permanent employees. The first merger took place when HDFC acquired Times bank in 2000. This was the first merger under private sector banks. Thereafter the second merger was done when HDFC acquired Centurion bank of Punjab in 2008.

So HDFC bank is compared with CBOP for analyzing pre and post merger performance of it

Table-1
(A) The following table shows the last 5 years' financial variables of HDFC bank in the pre-merger period

Profitability Ratios	**HDFC bank limited**				
	2003	**2004**	**2005**	**2006**	**2007**
Gross profit margin	78.49	76.42	74.17	71.12	69.94
Net profit Margin	25.74	23.35	21.52	19.46	16.57
Operating profit margin	52.18	55.35	53.12	46.01	47.93
Return on Capital employed	1.34	1.42	1.29	1.19	1.25
Return on Equity	98.79	158.64	214.78	278.08	357.38
Debt Equity Ratio	68.17	95.54	134.39	192.75	222.65

(B) The following table shows last 3 years' pre-merger financial variables of Centurion bank of Punjab in the pre-merger

Ratios	2005	2006	2007
Gross profit margin	55.85	53.41	69.57
Net profit Margin	8.711	15.249	9.568
Operating profit margin	37.233	22.431	37.608
Return on Capital employed	0.653	1.081	0.6567
Return on Equity	29.75	86.97	77.46
Debt Equity Ratio	35.27	67.110	100.80

Table-2

The following table shows the next 5 years' financial variables of HDFC bank in the post-merger period

Ratios (in Percentage)	HDFC bank limited				
	2009	2010	2011	2012	2013
Gross profit margin	74.762	74.664	76.29	78.74	80.56
Net profit Margin	13.745	18.23	19.702	21.64	23.72
Operating profit margin	54.614	51.121	54.538	52.27	55.19
Return on Capital employed	1.22	1.32	1.42	1.52	1.63
Return on Equity	527.75	644.184	843.96	908.64	998.34
Debt Equity Ratio	342.04	393.93	479.29	567.65	652.72

Table-3

The following table shows the calculated values of mean, standard deviation, t-value and p-value of Pre and Post merger data of HDFC bank

Profitability ratios		Mean	Standard Deviation	t-value	p-value
Gross profit %	Pre	74.05	3.58	75.066	0.000
	Post	77.00	2.58		
Net profit %	Pre	21.33	3.53	15.815	0.000
	Post	19.41	3.78		
Operating profit %	Pre	50.92	3.84	54.473	0.000
	Post	53.55	1.76		
Return on Capital employed	Pre	1.30	0.09	0.919	0.382
	Post	1.43	0.16		
Return on equity	Pre	221.53	100.89	4.805	0.001
	Post	784.58	193.83		
Debt to Equity Ratio	Pre	142.70	64.70	4.853	0.001
	Post	487.13	126.19		

ANALYSIS AND INTERPRETATION

- The mean value of Gross profit margin was increased after merger. The t-value of 75.066 shows the improvement in gross profit margin. The p-value is less than 0.05 which shows that the gross profit is statistically significant in the merger and acquisition of banks. It gives a significant difference in the pre and post merger.

- The mean value of net profit margin was declined. Its t-value is 15.815 which shows a significant change in the performance of bank in post merger going from 21.33% to 19.41%. The p-value <0.05 which shows that net profit factor is statistically significant in merger and acquisition of banks and it is strongly attached to the study.

- The mean value of operating profit margin is increased and p-value is less than 0.05 which shows that operating profit ratio is statistically significant. There is a significant change in the factor after merger.

- Return on capital employed with p-value 0.382 (p-value > 0.05) shows that there is null hypothesis and it shows no significant change in the pre and post merger. It is not statistically significant.

- Return on Equity and Debt-equity ratio shows p-value <0.05 therefore, they are statistically significant and are the good evidences in analyzing the study.
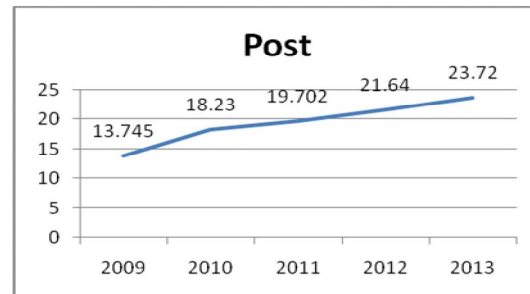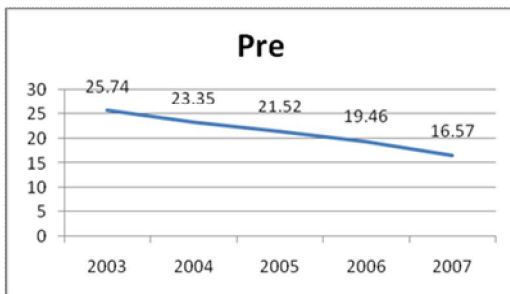
COMPARISON BETWEEN FINANCIAL VARIABLES OF HDFC BANK BEFORE AND AFTER MERGER

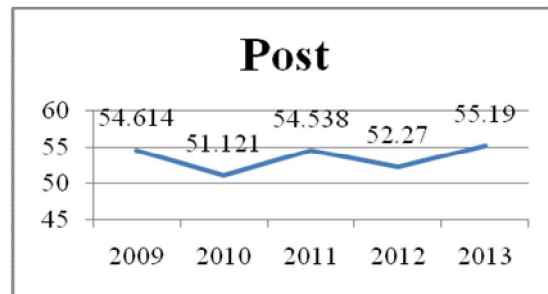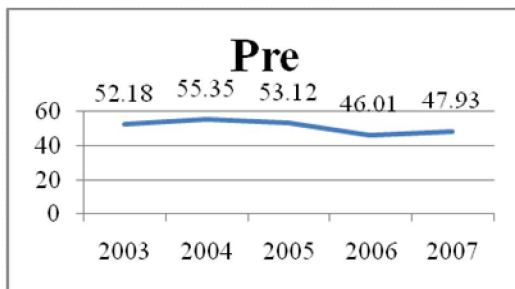### GROSS PROFIT RATIO BEFORE AND AFTER MERGER
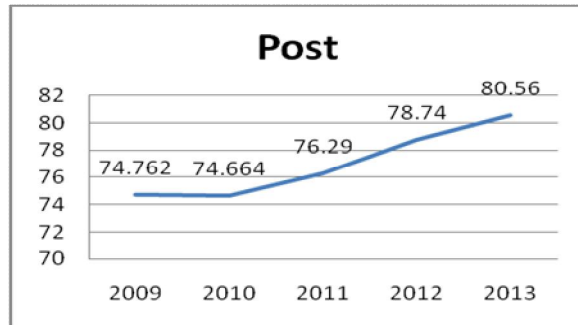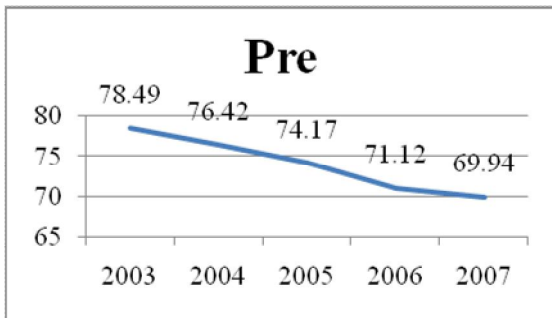
The pre merger data of Gross profit of HDFC bank was declining gradually and after merger we saw it rising at an increasing rate.
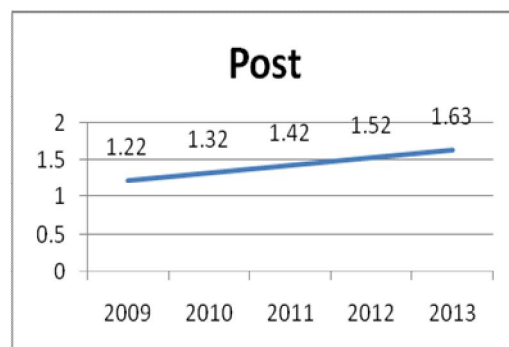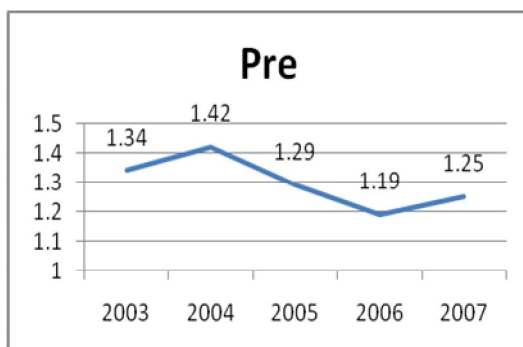
NET PROFIT BEFORE AND AFTER MERGER

The pre merger data of Net profit declined straightly which led to lower growth of the HDFC bank. Even After merger, it kept declining till 2009 and thereafter it started rising.

OPERATING PROFIT BEFORE AND AFTER MERGER

The pre merger data of operating profit was at a consistent rate and after merger it showed mixed trend, started fluctuating. On an average, merger had a positive effect on operating profit.

ROCE BEFORE AND AFTER MERGER

The return on capital employed of HDFC bank in the pre- merger was declining for the last 3 years. After the merger with CBOP, it started rising at a constant rate moving upward.

RETURN ON EQUITY BEFORE AND AFTER MERGER
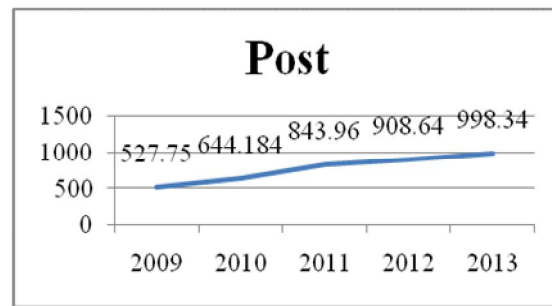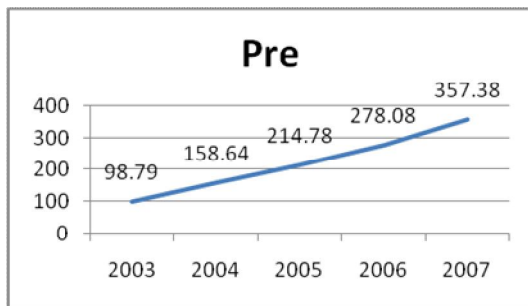
Return on the equity in the pre-merger increased at a high rate with a straight line moving upward. After the merger, it showed some improvement in growth and was still increasing gradually.

DEBT-EQUITY RATIO BEFORE AND AFTER MERGER
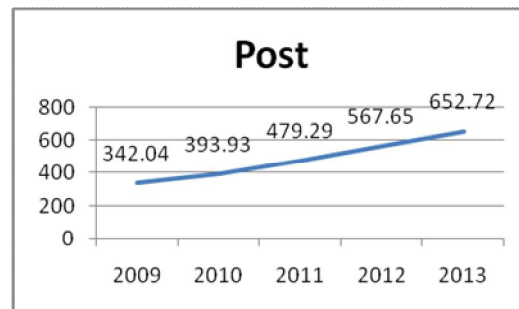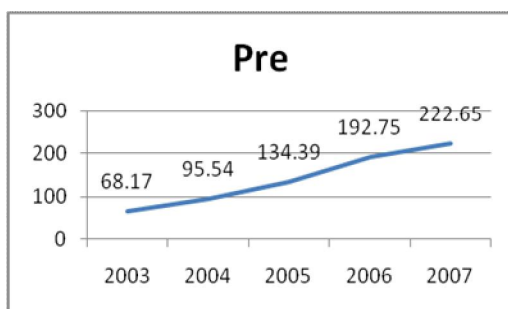
Before merger, debt to equity ratio of HDFC bank grew at a high rate sloping upward. In the post-merger, it still showed the growth in performance.

ICICI BANK

ICICI bank ltd is an Indian banking and financial services company which is headquartered in Mumbai and its registered office is in Vadodara, Gujarat. ICICI was established on June, 1994 and is the second largest bank in India. The bank has a network of 4867 branches and 14367 ATMs allover India and is present in 17 countries including India.

The ICICI bank is compared with Bank of Rajasthan for analyzing its pre and post merger performance.

Table-4

The following table shows the last 5 years' financial variables of ICICI bank in the pre-merger period

Profitability and Efficiency Ratios	ICICI bank limited				
	As on 31st March, 2007	As on 31st March, 2008	As on 31st March, 2009	As on 31st March, 2010	As on 31st March, 2011
Gross profit %	92.270	92.744	92.590	91.428	89.201
Net profit %	10.810	10.510	9.740	12.170	15.790
Operating profit %	53.783	57.486	57.871	51.664	63.725
Return on Capital employed	0.902	1.040	0.991	1.108	1.268
Debt Equity Ratio	11.425	6.623	5.727	5.740	6.084
Deposit/Employee	6.918	6.008	6.311	7.215	3.960
Business/Branch	564.736	372.462	307.723	191.611	174.760
Credit/Employee	5.878	5.543	6.310	6.472	3.798

Table-5

The following table shows next 4 years' financial variables of ICICI bank in the post-merger period

Profitability and Efficiency Ratios	ICICI bank limited			
	As on 31st March, 2012	As on 31st March, 2013	As on 31st March, 2014	As on 31st March, 2015
Gross profit %	90.249	91.180	91.196	100.00
Net profit %	15.750	17.190	17.960	18.240
Operating profit %	66.845	68.690	67.861	100.00

Return on Capital employed	1.322	1.551	1.650	1.730
Debt Equity Ratio	6.550	6.565	6.647	6.639
Deposit/employee	4.384	4.715	4.595	4.389
Business/ branch	185.039	188.020	178.688	184.959
Credit/ employee	4.354	4.677	4.689	4.704

Table-6

**The following table shows the calculated values of mean, standard deviation, t-value and p-value of Pre and Post merger data of ICICI bank**

Profitability ratios		Mean	Standard Deviation	t-value	p-value
Gross profit %	Pre	91.646	1.458	-0.704	0.504
	Post	93.156	4.583		
Net profit %	Pre	11.8040	2.395	-4.185	0.004
	Post	17.285	1.115		
Operating profit %	Pre	56.905	4.609	-2.54	0.039
	Post	75.849	16.118		
Return on Capital employed	Pre	1.061	0.137	-4.808	0.002
	Post	1.563	0.176		
Debt to Equity Ratio	Pre	7.119	2.433	0.42	0.68
	Post	6.600	0.049		
Deposit/employee	Pre	6.082	1.278	2.393	0.048
	Post	4.520	0.162		
Credit/employee	Pre	5.600	1.071	1.813	0.11
	Post	4.605	0.168		
Business/ branch	Pre	322.258	158.391	1.949	0.123
	Post	184.176	3.926		

ANALYSIS AND INTERPRETATION

- The gross profit mean value is increased in the post merger period. The t-value of -0.704 and p-value of 0.504 shows that p-value > 0.05 therefore the factor is not statistically significant in the study. It shows no significant change in the pre and post merger data.

- The net profit mean value is increased after the merger. Having t-value of -4.185 and p-value of 0.004 which is less than the 5% therefore, net profit factor is statistically significant and it does not accept the null hypothesis. It shows the significant change in the pre and post merger data of ICICI bank.

- The p-values of other factors including operating profit and ROCE are less than 0.05 which shows that they are strongly significant in the study of causes of merger and acquisition and they show the significance change in pre and post merger data.

- The Deposit per employee mean value is decreased in the post merger period of ICICI bank. P-value of 0.048 shows that p-value < 0.05, therefore the factor has affected the pre and post merger data significantly and shows the significant change.

- The credit per employee mean value is decreased after the merger and its p-value of 0.11 is more than the 0.05 so this factor is not statistically significant in the study. It does not show any strong significant change in the pre and post merger data.

- The Business per branch mean value is decreased after the merger. Having p-value of 0.123 (which is more than 0.05) shows that the variable is not statistically significant in the study of pre and post merger data.
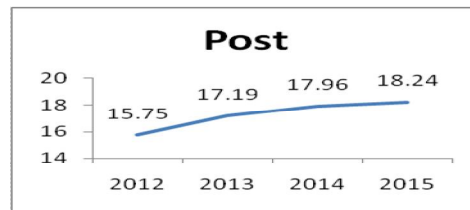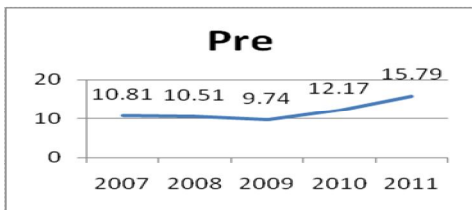
COMPARISON BETWEEN FINANCIAL VARIABLES OF ICICI BANK BEFORE AND AFTER MERGER
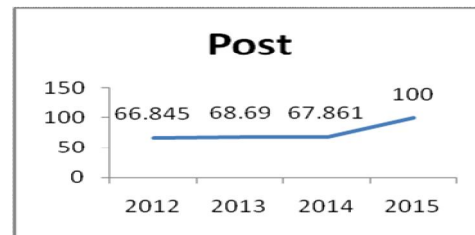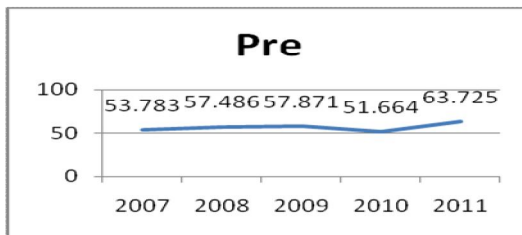
GROSS PROFIT BEFORE AND AFTER MERGER
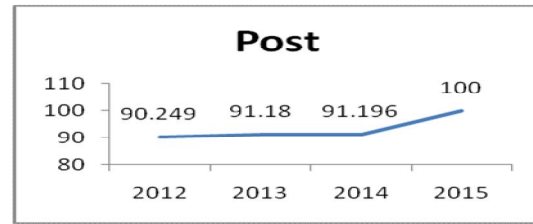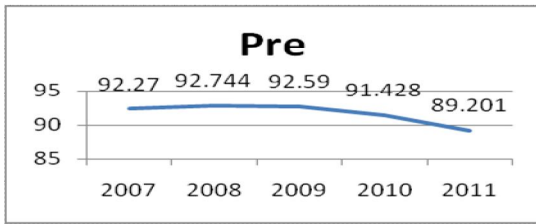
The pre merger data of gross profit was constant and after merger it was still constant till 2014. After that it started increasing.
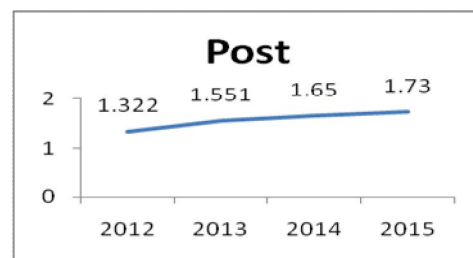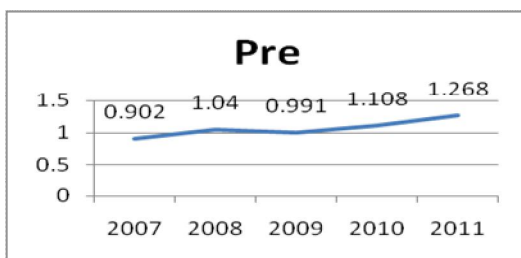
NET PROFIT BEFORE AND AFTER MERGER

The pre merger data of net profit started rising from the year 2010 onwards. It declined in 2012 but again started rising afterwards.

### OPERATING PROFIT BEFORE AND AFTER MERGER

The pre merger data of operating profit was constant and after merger till 2014, then it started rising.

ROCE BEFORE AND AFTER MERGER

The Return on capital employed of ICICI bank before the merger was rising at a slower rate and after merger it started rising at a little faster rate.

DEBT-EQUITY RATIO BEFORE AND AFTER MERGER
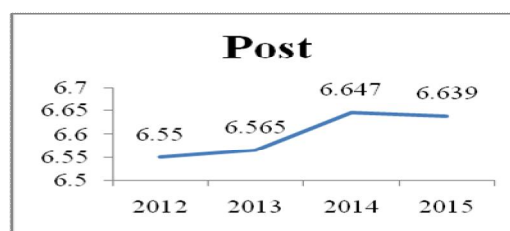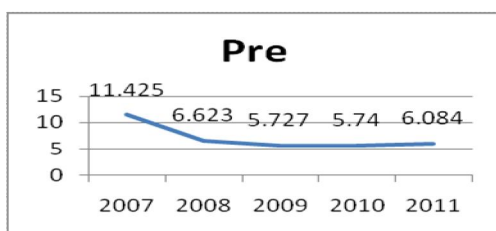
The pre merger data of Debt to equity ratio was at a constant rate. Thereafter, it started rising from 2012 onwards. The ratio was improved after the merger.

FINDINGS AND LIMITATIONS OF THE STUDY

Findings

➢ It is observed that in the post liberalization "between" 1991 to 2017, there has been total of 22 mergers seen in the Indian banking system.

➢ The parameters in case of HDFC bank and ICICI bank showed some improvement and significant changes.

➢ Most of the parameters showed increasing trend after the merger.

Limitations

➢ The data used here is secondary therefore, there are some areas missed due to lack of available information.

➢ The study was not very progressive as the data was easily available on the sites which made the researcher to use less effort.

➢ It was difficult to find the accuracy and correctness especially in case of quantitative data due to secondary information therefore estimates are to be taken instead of exact figures.

CONCLUSION

This paper examined merger of HDFC bank with CBOP and ICICI bank with Bank of Rajasthan. It is observed in case of HDFC bank all financial variables showed significant change in the study of pre and post merger data except for Return on capital employed. This factor was not affected through the merger. In case of ICICI bank, the net profit, operating profit, ROCE, Deposit per employee etc. showed the significant change in the pre and post merger data. The ratio analysis of the banks in pre and post merger was also done to compare the progress. The study shows that mergers had the positive effect on the growth of Indian banks. During post liberalization "between" 1991 to 2017, there has been total of 22 mergers seen in the Indian banking system. The parameters in case of HDFC bank and ICICI bank showed some improvement and significant changes. Most of the parameters showed increasing trend after the merger. This made the Indian banks strong enough to compete globally.

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Annexure-1

Financial performance of HDFC bank before merger

(In Crores)

	March 31, 2007	March 31, 2006
Deposits and other borrowings	71,113.3	58,655.3
Advances	46,944.8	35,061.3
Total income	8,405.3	5,599.3
Profit before depreciation and tax	1,858.4	1,432.1
Net profit	1,141.5	870.8
Profit brought forward	1,455.0	602.3
Transfer from Investment Fluctuation Reserve	-	484.2
Total profit available for appropriation	2,596.5	1,957.3
Appropriations:		
Transfer to statutory reserve	285.4	217.7
Transfer to general reserve	114.1	87.1
Transfer to capital reserve	0.0	1.1
Transfer to investment reserve account	3.0	-
Proposed dividend	223.6	172.2
Tax including surcharge and education cess on dividend	38.0	24.2
Dividend paid for prior year	0.4	-
Balance carried over to Balance Sheet	1,932.0	1,455.0

Annexure-2

Financial performance of HDFC bank after merger

(In Crores)

	March 31, 2010	March 31, 2009
Deposits and Other Borrowings	180,320.1	151,975.2*
Advances	125,830.6	98,883.0
Total Income	19,980.5	19,622.9
Profit before Depreciation and Income Tax	4,683.5	3,659.2
Net Profit	2,948.7	2,245.0
Profit brought forward	3,455.6	2,574.6
Total Profit available for Appropriation	6,404.3	4,819.6
Appropriations		
Transfer to Statutory Reserve	737.2	561.2
Transfer to General Reserve	294.9	224.5
Transfer to Capital Reserve	199.5	93.9
Transfer from Investment Fluctuation Reserve	(1.5)	(13.9)
Proposed Dividend	549.3	425.4
Tax Including Surcharge and Education Cess on Dividend	91.2	72.3
Dividend (including tax/cess thereon) pertaining to previous year paid during the year	0.9	0.6
Balance carried over to Balance Sheet	4,532.8	3,455.6

ROLE OF PERSONALITY ON FINANCIAL BEHAVIOR AND FINANCIAL SATISFACTION OF EMPLOYEES OF EDUCATIONAL INSTITUTIONS: *WITH SPECIAL REFERENCE TO AMITY UNIVERSITY, NOIDA*

Simrat Kaur[1] and Dr. Kumar Saurabh[2]
Student[1] and Assistant Professor[2], Amity University Uttar Pradesh, Noida

ABSTRACT

Purpose- Personality traits are fundamental characteristics of individuals as it affect all other traits in hierarchy and financial behavior along with financial satisfaction are one of them. The purpose of this paper is to analyze the influence of personality traits on financial satisfaction with financial behavior as a mediating variable.

Design/methodology/approach- Mediation regression analysis was used on sample of 153 employees of a leading private university of India, Amity University, Uttar Pradesh. Sample comprises both teaching and non-teaching employees.

Research implications- This article provides new insight into how personality can affect the financial behavior of employees of an education institution which further affect their financial satisfaction.

Keywords: Personality traits, Financial behavior, Financial satisfaction, Educational institutions, Mediated regression

1. INTRODUCTION
India is witnessing immense growth from the past years.

India is having 121 billionaires becoming 3rd largest group of richest people, 87% households are having monthly income less than ₹ 5000. Poor people are not able to afford education and health, farmers are committing suicide. Quality services are received by rich people whereas poor people are struggling to get basic facilities. By achieving 6th rank in GDP ranking though India is not able to make its people happy until economists rethinks about the growing inequality in the country which is a barrier in country's progress (The Week, 2019).

According to Diener & Oishi, in press, life satisfaction and happiness is extremely important as it is believed that happiness is important than money. According to King & Napa (1998), happy people have more worthwhile life than unhappy people (Diener et al, 1999).

World happiness includes life expectancy, social support, GDP per capita, generosity, perception of corruption etc. As per World happiness Index 2018, India dropped to 136th rank out of 156 countries as compared to 122nd in 2017 and 118th in 2016 which shows that India is not a happy country. Moreover, India ranks lower than Pakistan and Myanmar (The Week, 2019).

According to Michalos (2008), quality of life can be examined by making contributions of domain satisfactions of life which includes financial satisfaction (Xiao et al, 2014).

In 1934, American economist Simon Kuznets warned not to use GDP as well-being measurement as it can be witnessed as Finland, the happiest country ranks 42nd in GDP ranking whereas America place 1st rank in GDP ranking but at 18th position in World Happiness Index which shows people are not happy because of huge wealth and a rich country (The Week, 2019).

As per Sirgy et al. (2006), Job performance, marital status, physical and mental health and interpersonal relationships are positive related to quality of life (Xiao et al, 2014).

Understanding financial personality helps in understanding decisions of a person, person's reaction to uncertainty in investing etc. (Chitra & Sreedevi, 2011).

There are various studies on financial satisfaction but only few are carried out about financial satisfaction having mediated effect by financial behavior (Saurabh and Nandan, 2018).

Personality
Every person is different from one another. Work behaviors can be predicted and explained by these differences; personality is indirectly measured through behaviors as it is a hypothetical concept. Gravity is compared by personality as everyone knows it exists but cannot be seen (Taggar & Parkinson, 2007).

According to Baron et al (1998), every individual possesses unique nature which helps him in behaving differently. According to Zimbardo and Ruch (2000), addition of the individual's unique psychological processes is known as personality which influences behavior patterns in different situations in constant way (Mathews, 2013).

According to Columbia Encyclopedia (2008), emotions, behavior and thoughts make a combination of personality. Interaction in different environment is influenced by this combination (Krishnan & Beena, 2009).

Financial Behavior
According to Loix et al. (2005), how a person handles his financial matters like his income and financial situation every day is known as financial behavior (Saurabh and Nandan, 2018).

Financial behavior is divided as massive and minor behavior. Questions which are dealt under minor financial behavior are: do emotions affect the behavior of investors or they behave rationally? According to Eslami Bidgoli (2009), questions like: how much percent the financial markets can be explain by hypothesis or how market deficiencies can be explain? are dealt under massive financial behavior (Sadi et. al, 2011).

According to Barnewall (1987), investors can also be classified as active and passive. Control of investments is maintained by active investors. Active investors are one's who risk his own capital and earn wealth on it and have a high risk tolerance as said by Barnewall. Whereas passive investors are those who risk other's capital instead of their own, have inherited wealth etc. (Filbeck et al, 2005).

Financial Satisfaction
Financial satisfaction is defined as a satisfying feeling with position and financial situation of a person. People have health problems or get into depression when they are unable to reach their financial goals (Sahi, 2017).

Evaluation of people's lives is known as subjective well-being. Both effective evaluations of emotions and moods and subjective judgments of life satisfaction are evaluated. A person is said to be highly subjective well-being when he is satisfied with his life and having frequent satisfying affect and infrequent unsatisfying affect (Diener and Lucas, 1999).

According to George (1992) and Davis & Helmick (1985), subjective well-being measures and life satisfaction has been predicted by models containing financial satisfaction. According to Andrew & Withey (1976), when adequacy and satisfactory level of financial resources are evaluated it is known as financial satisfaction (Hira and Mugenda, 1998).

2. LITERATURE REVIEW
PERSONALITY
It is important to understand personality of an individual to understand person's behaviors in workplace area. The most used personality types are:-

- Myers-Briggs Type Indicator (MBTI), Jungian psychology based.
- The Five Factor Model (FFM), also known as "Big Five".
- Type A and Type B (Taggar & Parkinson 2007).

Myers-Briggs type indicator (MBTI)
16 personality types are identified in Myers-Briggs type indicator (MBTI) which is classified into four domains:-

Perceiving (P) and Judging (J). J-type people focuses on forming judgment rather than collecting more data whereas P-type people didn.t make judgment too fast as they gather more information.

Intuition (N) and Sensing (S). Actuality is concerned by S-type people basically what they have witnessed through their senses whereas N-type people are concerned with intuitive perceptions.

Feeling (F) and Thinking (T). Logical process is preferred by T-type people whereas personal involvement is preferred by F-type.

Introvert (I) and Extrovert (E). I-type people prefer to make judgments after collecting data to an "inner world" whereas E-type people make judgments after collecting data to outer world (Smith, 1999).

Five Factor Model (FFM)
According to Roberts (2006), personality traits are the patterns of feelings, thoughts and behaviors which reflect in different ways in different situations which affect the outcome. Personality traits are measured from a very long time and the most widely used are The Big Five or also known as Five Factor Model (Becker et. al, 2012).

According to McCrae and Costa (1997), Openness means one's interest for new ideas. Conscientiousness means individual's analytical ability while taking decisions. Extraversion includes extroverts and introverts which can be identified as per the behavior of person towards others. Extroverts go with the people and introverts prefer to stay alone. Agreeability is the way a person responds when some information is received by him. Neuroticism also known as Emotional Stability differentiates the individual as emotional or rational. Rational person make decisions on the basis of facts and emotional person on the basis of emotions he feels (Nandan and Saurabh, 2016).

According to Costa & McCrae (1992) and Salgado (1997):-

High score in Openness shows intellectual curiosity, active imagination and variety preference.

High score in Conscientiousness shows determination, punctuality, organization and reliability.

High score in Extraversion shows optimism, sociability, assertiveness and energetic.

High score in Agreeableness shows helpfulness, personal warmth and sympathy for others.

High score in Neuroticism shows anxiety, tenseness, and insecurity (Mayfield, 2008).

Personality type A and B
According to Jenkins et al (1979), type A and type B can be identified by Jenkins Activity Survey (JAS). Time urgent, rigid, perfectionists are the individuals belong to type A whereas relaxed kind of people belong to type B (Swope et al, 2008).

As per Jenkins et al. (1978), behavior of a person having type A personality shows traits of impatience, achievement, restlessness, competitiveness, hyper-alertness and under the pressure of time feeling (Taggar & Parkinson, 2007).

FINANCIAL BEHAVIOR
According to money advice service, in the publication "What drives financial behavior?" UK and Cambridge University classified financial capability under three heads that is ability, mindset and connection. Money concepts, financial product's knowledge is known as ability. How to access money, engagement of money, transactions related to money refers to connection and mindset is all about person's attitude towards money like saving, financial situation of the household, understanding the value of money (Economic Times, 2018).

Financial behavior is individual's ability to manage his finances to be successful in his life. According to Xiao and J.J (2008), practices related to credit, savings, cash, all are related to financial behavior (Falheti et al, 2012).

According to Robb and Woodyard (2011), some of the practices are positive financial behavior like saving for both short-term and long-term, making budget for expenses (Saurabh and Nandan, 2018). As per Kim and Nofsinger (2008), financial behavior shows the behavior of investors and how financial market might affect by their behavior (Sadi et. al, 2011).

According to Britt et al. (2012), financial management techniques adopted by individual shows his financial behavior. Financial management comprises planning for both short and long-term objectives. At the time of financial crises how finances are managed also covers under financial management (Saurabh and Nandan, 2018).

FINANCIAL SATISFACTION
Individual's financial satisfaction is measured as financial well-being (Saurabh and Nandan, 2018). According to Vera-Toscano et al. (2006), Subjective well-being is related to financial status and its subjective evaluation is considered as financial satisfaction (Xiao et al, 2009).

According to Zimmerman (1995), a state of being happy, healthy and no worries is what financial satisfaction involves. There are numerous ways to measure financial satisfaction (Joo and Grable, 2004).

According to Keith (1985), perception of future and past, of income adequacy included in subjective measures and as per Hira et al. (1993), savings, debt and income are included in satisfaction with economic condition (Hira and Mugenda, 1998). Both single-item measures and multiple-item measures are included in financial satisfaction's subjective measures. No consent on the ideal way for financial satisfaction measurement been reached by researchers (Sahi, 2017).

RELATIONSHIP BETWEEN PERSONALITY TYPE, FINANCIAL BEHAVIOR AND FINANCIAL SATISFACTION

- **Relationship between Personality Traits and Financial Behavior**

Personality traits have an important role in establishing person's investment behavior. Emotional stability (Neuroticism trait) has an impact on the financial decision making. One should know how to control emotions while taking investment decisions to avoid losses (Nandan and Saurabh, 2016).

According to Macgoun (1992), factors such as emotion, ideology, religion and culture plays crucial role on individual's behavior in making financial decisions (Sadi et al, 2011).

Through the study on sample of 94 investors, it was found that there exists a strong relationship between investment methods and personality traits of investors (Chitra and Sreedevi, 2011).

According to Durand, Newby and Sanghani (2008) Investment choices and outcomes are linked with the personality of investors. Features like temper and intellect, point of view etc. affects the financial decisions (Durand et al, 2013).

According to Krishnan and Beena (2009), Mayfield et al. (2008) and Smith (1999), it is founded that financial decision making like investment management, spending etc. is influenced by personality traits of a person. It will help the financial advisors to understand the needs of their clients by creating link between financial decision making and personality traits (Nga & Yien, 2013).

Investors can be encouraged to observe their investment strategies through programs created by advisors by profiling investors on the basis of their personality, gender etc. (Pompian & Longo, 2004).

- **Relationship between Personality Traits and Financial Satisfaction**

Personality traits influence SWB. Financial satisfaction leads to life satisfaction where cheerfulness aspect of extraversion and depression aspect of neuroticism are the strongest predictors (Schimmack et al, 2004).

Life satisfaction is influenced by extraversion and neuroticism traits of personality. According to Watson & Clark (1992) and Seidlitz (1993), SWB has a very weak relationship with conscientiousness, agreeableness and openness because they are formed due to the environment and not biologically (Diener and Lucas, 1999).

As per Costa and McCrae (1980), more happiness is experienced in extraversion whereas less happiness is experienced in neuroticism. A neurotic person is more dissatisfied than extraverted person in compare of his job, income and social relations (Schimmack, Diener and Oishi, 2002).

Costa and McCrae (1980) founded that Extraversion is related to satisfying affect and neuroticism is related to unsatisfying affect. A person who constantly experiences satisfaction and is happy in all the terms like health, income etc. is said to have high life satisfaction (Diener and Lucas, 1999).

- **Relationship between financial behavior and financial satisfaction**

According to Godwin (1994); Godwin & Carroll (1986); Joo (1998); Mugenda et al. (1990), financial satisfaction can be affected by financial behavior. Financial behavior determines financial satisfaction by both directly and indirectly (Joo and Grable, 2004). A person's level of financial satisfaction would impact by his financial decisions (Sahi, 2017).

According to Britt et al. (2012), fulfillment of long and short term goals like investing for future, automobile and other needs can be done by planning for it under financial management. Both long and short term goals are required for fulfilling financial satisfaction (Nandan and Saurabh, 2016).

How a person manages his money is crucial to be successful in life (Falheti et al 2012). According to Mugenda et al. (1990), money management is influenced by decisions related to net worth, debt payments, savings etc. and are the determinants of a person's satisfaction (Joo and Grable, 2004).Financial behaviors like saving spending, borrowing etc. shows a person's financial ability. Higher the ability, positive will be the behavior (Xiao et al, 2014).

According to Dowling et al. (2009), financial satisfaction is influenced positively by positive behavior of a person (Saurabh and Nandan, 2018). Positive behavior like full payment of credit card bills every month is related to financial behavior positively (Joo and Grable, 2004). Previous researches reveal that those who use more positive behavior experiences high level of satisfaction (Saurabh and Nandan, 2018).

3. RESEARCH METHODOLOGY

For testing of mediation hypotheses, mediated linear regression analysis been used. Three conditions were suggested by Baron and Kenny (1986) for testing of mediation relationship. Condition 1: Independent variable influences the dependent variable. Condition 2: Independent variable influences the mediator. Condition 3: Mediator influences the dependent variable along with the independent variable.

In this study, three separate sets of analyses were performed by taking personality traits as independent variable, financial satisfaction as dependent variable and financial behavior as a mediating variable.

The first: to examine the impact of extroversion trait (independent variable) on financial satisfaction (dependent variable) with the mediation effect of financial behavior (mediators) on their relationship.

In the second analysis, the impact of neuroticism trait (independent variable) on financial satisfaction with the mediation effect of financial behavior (mediators) on their relationship.

In the third analysis, the impact of agreeableness trait (independent variable) on financial satisfaction (dependent variable) with the mediation effect of financial behavior (mediators) on the relationship. The results of all the three analyses are presented in Table I.

3.1 Measuring instruments

The questionnaire contains 9 demographic variables and 44 psychographic variables. The psychographic variables pertained constructs of personality traits (Five factor model), financial behavior and financial satisfaction. Five-point Likert type scale ranging from 1(strongly disagree) to 5(strongly agree) for each statement was used to sought the responses.

4.1.1. Personality traits: For this research paper, Mayfield's (2008) scales are adopted to measure personality trait of an individual. Sample items are "I keep my belongings neat and clean" and "I often feel inferior to others".

4.1.2. Financial behavior: Four-point scale has been adopted from Joo and Grable (2004) with suitable modifications to measure financial behavior. Sample items are "I had to cut living expenses" and "I set money aside for savings".

4.1.3. Financial Satisfaction: Five-point scale has been adopted from Hira and Mugenda (1998) with suitable modifications to measure financial satisfaction. A sample item is "ability to meet financial emergencies".
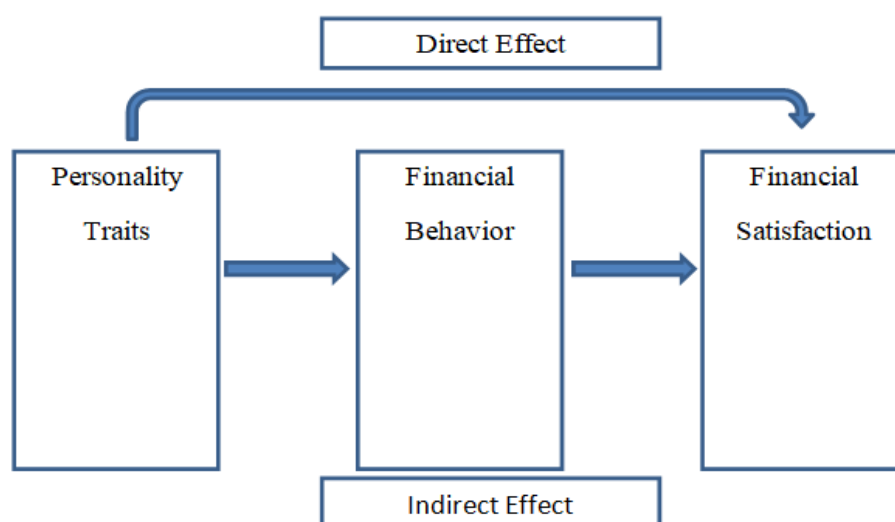
3.2 Research model

Fig-1: Research model

3.3 Sample

Sample was collected from Amity University Uttar Pradesh, Noida. The respondents were employees of Amity University. For the study, data was collected through questionnaire. Respondents were briefed about the questionnaire and sufficient time was provided to them to fill the questionnaire.

Approximately 200 questionnaires were distributed to the employees for the survey. Responses were gathered from 170 respondents. Out of 170 responses, 13 were omitted and 4 were not considered because of missing values. Therefore, 153 data was found usable for further analysis.

4. DATA ANALYSIS

4.1 Data Collection

About 55.6 percent of respondents were female (n=85) whereas 44.4 percent were male (n=68).Approximately 9.2 percent respondents are below 25 age group (n=14), 38.6 percent are of 25-35 age group (n=59), 35.9 percent are of 35-45 age group (n=55), 13.1 percent are of 45-55 age group (n=20) and 3.3 percent are of above 55 age group (n=5). About 76.5 percent respondents are married (n=117) whereas 23.5 percent are unmarried (n=36). Approximately 2 percent of respondents have qualification of below graduation (n=3), 15.7 percent respondents are graduate (n=24), 27.5 percent are post graduates (n=42) and 54.9 percent are PhD holders (n=84). About 68 percent of respondents belongs to teaching staff (n=104) whereas 32 percent belongs to non-teaching staff (n=49). About 61.4 respondents have their own accommodation (n=94) whereas 38.6 have accommodation on rent (n=59). Approximately 14.4 respondents have their annual household income below 5 lacs (n=22), 36.6 percent have between 5-10 lacs (n=56), 21.6 percent have between 10-15 lacs (n=33), 11.1 percent have between 15-20 lacs (n=17) and 16.3 percent have above 20 lacs (n=25). About 17.6 percent respondents have none dependents (n=27), 32.7 percent have one dependent (n=50), 24.8 percent have two dependents (n=38), 14.4 percent have three dependents (n=22) and 10.5 percent have more than three dependents (n=16). Approximately 39.2 percent respondents save their annual income below 20% (n=60), 40.5 percent save between 20-30% (n=62), 13.1 percent save between 30-40% (n=20) and 6.5 percent save above 40% (n=10).

4.2 Reliability

Reliability of results was analyzed by calculating Cronbach's α for all the variables. Cronbach's α for financial satisfaction is 0.93 and for neuroticism trait of personality is 0.77. Value of Cronbach's α for extraversion trait of personality is 0.73 after dropping one variable i.e., E2. All these are satisfying the criteria of exceeding 0.7 (Nunnally, 1978). Cronbach's α for financial behavior is 0.626 after dropping 5 variables i.e. FB1, FB2, FB3, FB7, FB9 and cronbach's α for agreeableness trait of personality is 0.63 after dropping one variable i.e., A4.These both values are below the threshold value of 0.7. According to Gliem and Gliem (2003), researcher can proceed with the value having Cronbach's α below 0.7 as behavioral nature of research allows it.

Cronbach's α value of personality trait conscientiousness and openness is relatively low which is 0.28 and 0.23 respectively i.e. we are dropping these two traits from the analysis due to relatively low Cronbach's α value.

4.3 Hypothesis

The hypothesis for this paper is stated below:-

H_1: Extraversion trait influences the financial behavior of an individual.

H_2: Neuroticism trait influences the financial behavior of an individual.

H_3: Agreeableness trait influences the financial behavior of an individual.

H_4: Extraversion trait influences the financial satisfaction of an individual.

H_5: Neuroticism trait influences the financial satisfaction of an individual.

H_6: Agreeableness trait influences the financial satisfaction of an individual.

H_7: Financial behavior influences the financial satisfaction of an individual being a mediator of personality traits.

4.4 Regression analysis

The method of Baron and Kenny (1986) for mediated regression is used to test the mediated relationship.

Dependent Variable	Independent Variable	Durbin-Watson	β	R^2	Sig.
Financial behavior as mediator in relationship between extraversion trait of personality and financial satisfaction.					
Financial behavior	extraversion	1.944	0.266	0.071	0.001
Financial satisfaction	extraversion	1.961	0.290	0.084	0.000
Financial satisfaction	extraversion	1.873	0.220	0.148	0.006
	Financial behavior (mediator)		0.262		0.001
Financial behavior as mediator in relationship between neuroticism trait of personality and financial satisfaction.					
Financial behavior	neuroticism	2.105	-0.449	0.201	0.000

Financial satisfaction	neuroticism	1.927	-0.113	0.013	0.162
Financial satisfaction	neuroticism	1.816	0.038	0.104	0.659
	Financial behavior (mediator)		0.338		0.000
Financial behavior as mediator in relationship between agreeableness trait of personality and financial satisfaction.					
Financial behavior	agreeableness	2.149	-0.269	0.072	0.001
Financial satisfaction	agreeableness	1.936	0.030	0.001	0.711
Financial satisfaction	agreeableness	1.832	0.125	0.118	0.117
	Financial behavior (mediator)		0.355		0.000

Table-I: Financial behavior as mediator

In first analysis, there exists a significant relationship between extraversion trait and financial satisfaction (β=0.290, p<0.05) which explains only 8.4 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.1.961. This satisfies the first condition of mediated regression. There exists a significant and positive relationship between extraversion trait and financial behavior (β=0.266, p<0.05) which explains only 7.1 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.1.944. This satisfies the second condition of mediated regression. There exists a significant relationship between extraversion trait and financial satisfaction with financial behavior as a mediator (β=0.220, 0.262; p<0.05) which explains 14.8 percent variation and have Durbin-Watson value which is between 1-3 i.e.1.873. This satisfies the third condition of mediated regression also.

In second analysis, there is no relationship between neuroticism trait and financial satisfaction (β=0.290, p>0.05) which explains only 1.3 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.1.927. This doesn't satisfy the first condition of mediated regression. There exists a significant and negative relationship between neuroticism trait and financial behavior (β= -0.449, p<0.05) which explains 20.1 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.2.105. This satisfies the second condition of mediated regression though. There is no relationship between neuroticism trait and financial satisfaction with financial behavior as a mediator (β=0.038, 0.338; p>0.05) which explains 10.4 percent variation and have Durbin-Watson value which is between 1-3 i.e.1.816. This doesn't satisfy the third condition of mediated regression also. Neuroticism trait has influence on financial behavior but didn't influence financial satisfaction with financial behavior as a mediator.

In third analysis, there is no relationship between agreeableness trait and financial satisfaction (β=0.030, p>0.05) which explains only 1 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.1.936. This doesn't satisfy the first condition of mediated regression. There exists a significant and negative relationship between agreeableness trait and financial behavior (β= -0.269, p<0.05) which explains only 7.2 percent of the variation and have Durbin-Watson value which is between 1-3 i.e.2.149.This satisfies the second condition of mediated regression though. There is no relationship between agreeableness trait and financial satisfaction with financial behavior as a mediator (β=0.125, 0.355; p>0.05) which explains 11.8 percent variation and have Durbin-Watson value which is between 1-3 i.e.1.832. This doesn't satisfy the third condition of mediated regression also. Agreeableness trait has influence on financial behavior but didn't influence financial satisfaction with financial behavior as a mediator.

5. DISCUSSIONS AND FINDINGS
Through the study on sample of 94 investors, it was found that there exists a strong relationship between investment methods and personality traits of investors (Chitra and Sreedevi, 2011). It can be seen that all the three traits have a significant and positive or negative relationship with financial behavior.

It was found that current researchers focus on aspects of Extraversion and Neuroticism as these traits are more likely to contribute to the understanding of personality on life satisfaction (Schimmack, Diener and Oishi, 2002).

From the analysis we found that only extraversion trait of personality have influence on financial satisfaction with financial behavior as a mediating variable as it is satisfying all the three conditions of Baron and Kenny (1986). Whereas neuroticism and agreeableness traits of personality have negative influence on financial behavior but do not have any influence on financial satisfaction which means these two traits doesn't satisfy the very first condition of Baron and Kenny (1986).

6. IMPLICATIONS

It has significant implications for university authorities as it provides new insight into how personality trait extraversion can affect the financial behavior of employees of an education institution which further affect their financial satisfaction.

This research can also be implemented by financial planners. Financial planners can strengthen the financial behavior of their clients. It will eventually lead to increase in client's financial satisfaction. Changes in financial behavior can be facilitated by financial planners.

7. CONCLUSION

The purpose of this paper was to analyze the influence of personality traits on financial satisfaction with financial behavior as a mediating variable.

Financial satisfaction leads to life satisfaction where life satisfaction is influenced by E and N personality traits and have a weak relationship with A, C and O personality traits. From the various researches on relationship of personality and life satisfaction it is concluded that the people who are more extroverted and adjusted are happier (Costa and McCrae, 1980).

A person's level of financial satisfaction would impact by his financial decisions (Sahi, 2017). Personality is not the only factor that influences financial satisfaction as it explains only 8.4% variation but when financial behavior acts as a mediating variable between extraversion and financial satisfaction, explained variation increases to 14.8% which means extroversion trait has better influence on financial satisfaction with financial behavior as mediator rather than direct influence on financial satisfaction.

At the end from the research and analysis results, it is concluded that only extraversion trait of personality influences financial satisfaction with financial behavior as a mediating variable.

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PASSENGER FLOW ANALYSIS: A PRECURSOR TO UDAN

Dr. Nidhi Sharma Sahore[1] and Disha Mamgain[2]
Assistant Professor[1], Bhavan's Usha & Lakshmi Mittal Institute of Management, New Delhi

ABSTRACT

Passenger flow management at airports both domestic and international is an integral component of airport operations. India has the potential to become the second largest aviation market by year 2020 (Airports International Council, 2017.) Out of the 131 million passengers it transported in 2016 a good 100 million were domestic passengers. Hence regional connectivity is of significant importance in Indian civil aviation. In order to improve the passenger experience airports around the world whether international or regional wish to develop a sound understanding of passenger flow. Airports more often measure passenger flow to decide on the routes for example, to maintain, add or delete routes and also use such data to forecast the passenger flow in the times to come. The main purpose of this paper is to study the passenger flow at the domestic and international airports of Airport Authority of India (AAI). This passenger flow study helps in understanding how the passenger flow has increased or decreased over more than a decade's time and seeks to link the outcomes with the regional connectivity scheme "UDAN" (Ude Desh Ka Aam Nagrik) of Government of India. The study approached the rationale of National Civil Aviation Policy (NCAP), 2016 and further justification of Regional Connectivity Scheme: UDAN from the point of view of claims of increased passenger flow. The study found that there is significant increase in International, Domestic and Total passenger flow in the last decade therefore it is the right time to harp on this opportunity to strengthen regional connectivity through development of newer routes and airport infrastructure. The study has implications for the varied stakeholders of aviation industry and economy as a whole because of output and employment aviation multipliers.

Keywords: Passenger Flow, Regional Connectivity, Aviation Multipliers, Regional Growth.

1. INTRODUCTION

Passenger flow management at Airports both domestic and international is an integral component of Airport operations. In order to improve the passenger experience airports around the world whether international or regional wish to develop a sound understanding of passenger flow. Even before one thinks of passenger flow management the issue of passenger flow measurement comes to one's mind. The data on passenger flow can be then studied to meet the objectives of passenger flow management. A critical analysis of passenger flow data can help airports in not just efficiently managing the airport operations but it can have implications for policy makers to deploy of resources that meet the set purposes (Leidos, 2018.)

Passenger flow studies add to the airport operations in not just improving the passenger experience but also in cost control and revenue projections (Lotz, 2013.) The key objectives of measuring passenger flow at Airports are; to increase operational efficiency, maximize retail revenues, improve passenger experience and increase security effectiveness. Measuring passenger flow at Airports is integral to achieve these objectives. Airports more often measure passenger flow to decide on the routes for example, to maintain, add or delete routes and also use such data to forecast the passenger flow in the times to come. Such forecasting on one hand helps the Airports in increasing their operational efficiencies and effectiveness, while on the other hand, helps to improve overall customer experience. Apart from the benefits of passenger flow measurement to the airports there are benefits to the regulators and policy makers also wherein keeping in view the passenger flow they may decide to come up with regulatory requirements or schemes to cater to the forecasted data (Aviation White Paper, 2018.)

In a combined press release by TIACA (The International Air Cargo Association) and ACI (Airports Council International), 2018, Angela Gittens, the director General of ACI world mentions about the economic multiplier effect of aviation and how it acts as an enabler for growth. She further mentioned about the surge in cargo volumes and passenger numbers to be an evidence of increased business and improved consumer confidence. In the same article Vladimir Zubkov, Secretary General, TIACA mentioned about the role of disruptive innovations and new technologies in reshaping the airports as we see them today (TIACA, 2018.) As per the preliminary rankings of world's busiest airports based on total passengers, international passengers, total air cargo, international air freight and air craft movements; the total passenger enplanement at New Delhi, India airport, has increased by 14.1 percent which has led to upward movement of its rank from 22 in 2016 to 16 in 2017 (ACI, 2018.)

The main purpose of this paper is to study the passenger flow at the domestic and international airports of Airport Authority of India. This passenger flow study helps in understanding how the passenger flow has

increased or decreased over more than a decade's time and seeks to link the outcomes with the regional connectivity scheme "UDAN" (Ude Desh ka Aam Nagrik) of Government of India.

2. BACKGROUND OF STUDY

India has the potential to become the second largest aviation market by year 2020 (Airports International Council, 2017.) Out of the 131 million passengers it transported in 2016 a good 100 million were domestic passengers. Hence regional connectivity is of significant importance in Indian civil aviation. Apart from transporting passengers civil aviation also facilitates trade and commerce, domestic and foreign investments, transfer of technology, creation of infrastructure, domestic and international tourism, and generation of employment. The development and management of airports is taken care of by the Airport Authority of India. It was founded with this purpose on 1st April 1995 and is headquartered in New Delhi. It currently manages a total of 125 Airports, including 18 International Airports, 7 Customs Airports, 78 Domestic Airports and 26 civil enclaves at Military Airfields. However, two of its most profitable airports i.e. Delhi and Mumbai were privatized by the Ministry of Civil Aviation (MoCA) and were handed over for modernization to private to private companies GMR and GVK in 2006 respectively (www.aai.aero.)

In the year 2016 Government of India came up with a comprehensive National Civil Aviation Policy (NACP) encompassing airlines, airports and cargo etc, for their holistic development. To make flying affordable for the masses was another important aspect of the policy both from the point of view of domestic ticketing or international ticketing. All of this was mooted considering the significant growth in the air passenger traffic both domestic and international in last ten years (Padhee, 2019.) In view of the observation by Padhee, Joint Secretary, Ministry of Civil Aviation, 2019, counting backward from here the decade under observation becomes 2008 to 2018. The current study tries to test this claim by analyzing and statistically finding the said increase in passenger flow which may be a precursor to Regional Connectivity Scheme: UDAN in 2016 and subsequently in its versions 1.0. 2.0 and 3.0 by the year 2018.

2.1 Regional Connectivity Scheme: UDAN

Ministry of Civil Aviation (MoCA) Government of India is the notifying authority for RCS: UDAN and Airport Authority of India is the Implementation agency on its behalf. As per the final document of RCS version 3.0, 2018, RCS is in line with the National Civil Aviation Policy (NCAP) of 2016 which intends to "enhance regional connectivity through fiscal support and infrastructure development." NCAP, 2016, looks forward to significant growth in economy through civil aviation by promoting tourism, increased employment and balanced regional growth. RCS is the key element of NCAP, 2016 which in turn aims to push the growth of entire civil aviation in India.

This scheme intends to harp on the spillover of growth of metro cities to hinterlands because of costly factors of production (land, labour, etc.) in densely populated metros. Air connectivity with regional growth centers, be it towns or cities can lead to accelerated economic growth. The output and employment multipliers of aviation are 3.25 and 6.10. which implies that a hundred rupee spend in air transport leads to 325 rupees worth of benefits and every 100 direct jobs in air transport result in 610 jobs in economy as a whole.

The main focus of RCS/the scheme is to provide air connectivity where it doesn't exist. The operations under the scheme are based on a demand driven mechanism in a competitive environment. The participating operators are free to lead the regional connectivity by assessing demand and nature of supply required for a particular route. As the market dynamics are subjected to change the MoCA shall review the scheme every three years to ensure efficacy in achievement of its objectives.

The sustainability of scheme would be ensured through Regional Connectivity Fund (RCF) which is a levy on scheduled flights operated within India or through any other sources; however the allocation of the RCF would be done region-wise to promote balanced growth. Moreover Viability Gap Funding (VGF) from this fund would be provided to selected airline operators for operation of RCS flight(s). Here, RCS Flight means "a domestic flight using a fixed wing aircraft operated by Selected Airline Operators (SAO) and RCS route means a non stop air service connection between identified pair of origin and destination airports."

As sustainability of operations is key element of this scheme, the SAOs shall enjoy Exclusivity Period under certain routes where market risk on account of possible competition from other airline operators in early stages of route development may lead to demand uncertainty. However such exclusivity shall not be available for air transport services/flights on tourism routes.

MoCA on earlier counts have come up with two versions of the scheme, "version 1.0" on December, 5, 2016 and "version 2.0" on April, 18, 2017 (RCS Scheme Updated _Final-Clean.pdf, 2018) The third round of bidding

under "version 3.0" was initiated in October 2018 and the declaration of Selected Airline Operators (SAO) with a letter of intent was scheduled on January 7, 2019 (RCS Notice-of-Commencement UDAN-3.0.pdf, 2018.) Following is a compendium of RCS routes which were made available for bidders to network under the scheme (See Table 1)

Table-1: Compilation of information from different documents related to Regional Connectivity Scheme (RCS): UDAN, released since 2016

S.no.	Phase	No. of routes available	Remarks
		RCS UDAN Phases and Routes Available for bidders to Network	
1.	UDAN 1.0	777	With 145 exclusive routes (Stage length for UDAN 1)
2.	UDAN 2.0	2577	With 264 exclusive routes (Stage length for UDAN 2)
3.	UDAN 3.0	33	Routes which were awarded in UDAN 1.0 but cancelled were made available in 3.0 with five routes where only 20 seater planes are sought (corrigendum for UDAN 3.0, 2018)
4.	UDAN 3.0	63	Kept as exclusive routes due to technical reasons (corrigendum for UDAN 3.0, 2018)
5.	UDAN 3.0	35	Status changed to non exclusive (corrigendum for UDAN 3.0, 2018)
6.	UDAN Tourism	71	As listed by Ministry of Tourism (Stage length for UDAN - Tourism)

(Source: www.aai.aero)

3. REVIEW OF LITERATURE

Ken and Ghobrial (1994) studied regional air travel and linked the demand for regional air travel with economic variables such as manufacturing shipments, tourism expenditures, statewide departures and passenger enplanement. The study found inelastic demand for manufacturing shipments, tourism expenditures; statewide departures However states witnessed higher passenger enplanements which were close to major connecting hubs.

The Gensler's report, 2016, tries to explore what can be expected from the airports in the near future. After surveying white papers, surveys and studies in the field it identified three key areas of interest for future airport terminals. These areas were "passenger experience, changing revenue models, and sustainability." These key areas taken care of by evolved aircraft fleet, satellite based air traffic control systems, innovations in biometric and self service technology has lead to changed airport infrastructure, passenger flow and baggage processing.

Yao and Yang, 2008, in their paper studied how airport development can lead to regional economic growth. The objective of the study was to guide policy makers on the decision to construct or expand airports in different parts of China. The study identified key factors that influence airport production. The underlying dependent variables for airport production studied were passenger volume and air cargo volume. The study had wider implications for regional airport development in China because of its findings. It found that airport development was positively associated with economic growth, industrial structure, population density, and openness however it was negatively associated with ground transportation due to substitution effect. As air transport, highway, railway and waterway can either be competitive or supplementary modes of transportation depending upon the ground conditions, freight and time involved with a particular mode of transportation. Another important factor for demand for air transport was the openness to international trade of a particular region. The acceleration in air traffic in China since 2001 further implied that apart from economic growth and structural changes, the institutional reforms and regulatory policies had much more effects on airport development.

Here we can argue that with significant effect of policy on air passenger volume, policy and the current regulatory and policy trust for regional connectivity in India can help the participating operators in RCS: UDAN to leverage upon the passenger volumes once the regional airports are developed and regional connectivity is augmented. However for such a premise there has to be an evidence of demand for air transport in order to sustain the policy objectives. The current study attempts to create such evidence. With the increased levels of

passenger flow in the airports of Airport Authority of India (AAI) in the last decade, the time and conditions are conducive for the successful accomplishment of the RCS scheme which is in line with National Civil Aviation Policy (NCAP) 2016.

Based on the above argument, the background of the study done in the context of NCAP, 2016 and the RCS: UDAN scheme in the Indian Context and the literature review done from elsewhere in the world, the current study hypothesizes that increased passenger flow in the last decade is a precursor to the RCS: UDAN introduced by Ministry of Civil Aviation (MoCA), Government of India under its NCAP, 2016 policy push for the development of aviation sector in India. Following is the passenger flow percentage data of the last decade for International Passenger Flow (IPF), Domestic Passenger Flow (DPF) and Total Passenger Flow (TPF) at the airports of Airport Authority of India (AAI) (see table 2)

Table-2: Percentage Passenger Flow at airports of AAI

Time Period	IPF	DPF	TPF
Last year	10.4%	18.3%	16.5%
Last two years	9.4%	19.9%	17.4%
Last three years	8.8%	20.4%	17.5%
Last four years	8.9%	18.8%	16.3%
Last five years	8.8%	15.9%	14.1%
Last ten years	8.2%	10.8%	10.2%

(Source: Airport Authority of India (AAI))

4. RESEARCH METHODOLOGY

The research design of the study is exploratory in the sense that it is trying to draw insights by way of connecting the passenger flow data with the recent policy measures adopted by Ministry of Civil Aviation, Government of India with implications for the successful achievement of the objectives of the Regional Connectivity Scheme, RCS: UDAN.

4.1 Data Collection and Source

The basic argument of the study is partly supported by background study of the current aviation policy and the RCS scheme. Further it is developed from information shared by the government on the websites of MoCA, AAI, published articles in government journals, etc. and further strengthened by journal publications citing similar analogies directly or remotely. However empirical testing of the hypothesis has been done through sourcing passenger flow data from Airport Authority of India. The data is secondary in nature and is for a period of 23 years starting from 1995 till 2018. For this study passenger flow at the airports of AAI for this period is studied for significant increase since 2007 with three dimensions i.e., Total Passenger Flow, International Passenger Flow and Domestic Passenger Flow.

4.2 Statistical Tool

Since the objective of analyzing the data is to find the statistical evidence of increase in passenger flow in the last decade therefore it was important to divide the data into two periods. The statistical tool identified to analyze the data for the two different periods from the same continuous dependent variable is independent samples t test. The t test helps to find if the difference between the two independent samples is significant or it's by a chance. The t test compares the averages (means) of the two samples and identifies if they significantly differ from each other or not. However, in order to proceed for t test the normality of the distribution needs to be ensured. Since the size of the sample is small i.e. less than 30 there can be issues if the distribution is not normal. Therefore before proceeding with the test, the test of normality of distribution is important.

5. DATA ANALYSIS AND INTERPRETATION

The data sourced from Airport Authority of India (AAI) was available by way of International Passenger Flow (IPF), Domestic Passenger Flow (DPF) and Total Passenger Flow (TPF) for a period of 23 years starting from 1995 till 2018. Each of the three distributions were first checked for normality and had to be normalized by mean. However, in order to statistically establish normality the distributions were checked for significance by using Shapiro-Wilk test in SPSS. Generally, for smaller samples Kolmogorov-Smirnov (KS) test is not looked at because of low results. The Shapiro-Wilk test was not significant for any of the distributions, ie, IPF, DPF and TPF; therefore, these distributions could be used for proceeding with t test. The SPSS output under normality test for the three distributions can be found below (see tables 3, 4 and 5):

Table-3: Tests of Normality for International Passenger Flow (IPF) Distribution

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
IPF	.160	23	.133	.950	23	.287

a. Lilliefors Significance Correction

Table-4: Tests of Normality for Domestic Passenger Flow (DPF) Distribution

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
DPF	.171	23	.080	.933	23	.125

a. Lilliefors Significance Correction

Table-5: Tests of Normality for Total Passenger Flow (TPF) Distribution

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TPF	.169	23	.087	.942	23	.196

a. Lilliefors Significance Correction

5.1 Analysis based on t test

In order to analyze the data for significant increase in passenger flow in the last decade the distributions of passenger flow pertaining to International Passenger Flow (IPF), Domestic Passenger Flow (DPF) and Total Passenger Flow (TPF) have been were divided into groups. The Group 1 represents passenger flow between 1995 till 2007 (13 years in all) and the Group 2 represents passenger flow in the last decade, i.e., between 2008 till 2018 (10 years in all) across the three distributions. The group statistics and Levene's test of equality of variances for the three distributions, i.e., IPF, DPF and TPF can be found in tables 6, 7, 8, 9, 10 and 11 respectively. Independent Samples test has been applied to test the following hypotheses:

H_0: The difference in mean values of IPF is not significant between the Groups 1 & 2

H_1: The difference in mean values of IPF is significant between the Groups 1 & 2

H_0: The difference in mean values of DPF is not significant between the Groups 1 & 2

H_2: The difference in mean values of DPF is significant between the Groups 1 & 2

H_0: The difference in mean values of TPF is not significant between the Groups 1 & 2

H_3: The difference in mean values of TPF is significant between the Groups 1 & 2

Table-6: Group Statistics of IPF

	Group	N	Mean	Std. Deviation	Std. Error Mean
IPF	1	13	1.46E+07	1.13E+07	3.14E+06
	2	10	4.65E+07	1.10E+07	3.49E+06

Table-7: Independent Samples Test of IPF

		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
IPF	Equal variances assumed	0.584	0.453	-6.764	21	0.000	-3.19E+07	4.71E+06	-4.17E+07	-2.21E+07
	Equal variances not assumed			-6.788	19.762	0.000	-3.19E+07	4.70E+06	-4.17E+07	-2.21E+07

Table-8: Group Statistics of DPF

	Group	N	Mean	Std. Deviation	Std. Error Mean
DPF	1	13	3.12E+07	3.29E+07	9.12E+06
	2	10	1.39E+08	5.24E+07	1.66E+07

Table-9: Independent Samples Test of DPF

		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
DPF	Equal variances assumed	3.186	0.089	-6.047	21	0.000	-1.08E+08	1.78E+07		-1.45E+08	-7.07E+07
	Equal variances not assumed			-5.697	14.293	0.000	-1.08E+08	1.89E+07		-1.48E+08	-6.73E+07

Table 10: Group Statistics of TPF

	Group	N	Mean	Std. Deviation	Std. Error Mean
TPF	1	13	4.58E+07	4.41E+07	1.22E+07
	2	10	1.85E+08	6.32E+07	2.00E+07

Table 11: Independent Samples Test of TPF

		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
TPF	Equal variances assumed	2.503	0.129	-6.249	21	0.000	-1.40E+08	2.24E+07		-1.86E+08	-9.32E+07
	Equal variances not assumed			-5.96	15.386	0.000	-1.40E+08	2.34E+07		-1.89E+08	-8.98E+07

The F statistic of the three distributions is not significant for any of the three distributions, therefore equality of variances is assumed under Levene's test of equality of variances. Assuming equality of variances the t statistic is significant with p value < .05 for each of the three distributions IPF, DPF and TPF i.e. ".000" (see tables 7, 9 and 11 respectively.) This leads to the rejection of the null hypotheses across the three distributions and acceptance of H_1, H_2 and H_3. Hence, the difference in the mean values of IPF, DPF and TPF in groups 1 and 2 varies with statistical significance. This explicitly implies that 'passenger flow' be it international, domestic or total has significantly increased in the Group 2 i.e., in the last decade.

6. CONCLUSION AND IMPLICATIONS

The study approached the rationale of NCAP, 2016 and further justification of Regional Connectivity Scheme: UDAN from the point of view of claims of increased passenger flow in the last decade by the Joint Secretary, Ministry of Civil Aviation, Government of India in 2019. The study found that there is significant increase in International, Domestic and Total passenger flow in the last decade therefore it is the right time to harp on this opportunity to strengthen regional connectivity through development of newer routes and airport infrastructure. In order to take care of the risk of demand uncertainty of certain routes the Selected Airline Operators (SAOs) would enjoy the 'exclusivity period' on such routes however excluding the tourism routes. With support of Viability Gap Funding (VGF) through Regional Connectivity Fund (RCF) the sustainably of the scheme is very much expected. The completion of three rounds of bidding i.e., UDAN 1.0, 2.0 and 3.0 in a span of three years shows that the response of the airline operators to the scheme has been passable. This is adequate enough to push airport accessibility and air travel accessibility to larger population of the country at competitive pricing. Therefore, it can be rightly argued that increased passenger flow in the last decade followed by the vision of the

NCAP, 2016 to push balanced regional growth through enhanced regional connectivity is a prudent move in the right direction. The study has implications for the varied stakeholders of aviation industry, viz., airline operators, airline passengers, airport infrastructure development participants both private and public, Airport Authority of India (AAI) being the implementing authority, Ministry of Civil Aviation (MoCA), Government of India and economy as a whole because of output and employment aviation multipliers.

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US STOCK MARKET AND US PRESIDENT ELECTIONS: A RELATIONSHIP OR MYTH?

Dr. Renuka Bakshi
Assistant Professor[1], Amity College of Commerce and Finance, Amity University Uttar Pradesh

ABSTRACT
There is a strong believe among investors that the elections effect the stock market of the country. According to investors, if a party to whom majority of the people does not support wins then the stock market behaves bearish. During election period only the investor sentiments and results will decide the movement of stock market but investors overlook the macroeconomic variables affecting the stock market. This empirical study focuses on whether the stock prices really fluctuate due to election results or macroeconomic factors play a major role.

INTRODUCTION
Stock market is a regulated channel which contributes in economic growth. It channelizes the money and maintains circular flow of income. Nowadays, country's economic condition is not only measured on GDP or national income but also on stock market size and volatility. Stock market portrays the economic condition of the country. If an economy will grow, industrial output will increase which means higher profits for the firms. If firms will earn higher profits, they will declare higher dividends which increase the price of the particular stock. If there is a recession in the economy, stock market will definitely fall. This happens because recession will bring down outputs which lead to fewer profits and dividends thus stock price will fall and investor will suffer losses. At this time due to uncertainty, investors will start investing in fixed income securities like bonds, debentures or fixed deposits.

United States of America President's elections are one of the most influential elections of the world. They have direct impact on other developing and developed economies. During President Elections, US stock market behaves according to the intuitions of the investors. Other factors can be the candidates representing Republicans and Democrats. According to an article published in

Business Insider, Republicans are better for markets because of their business oriented policies. There is an election cycle of four years, from the elections to oath ceremony; stock market becomes volatile during this period. In recent US elections between Donald Trump and Hillary Clinton, there was a market perception that if Trump wins market will fall by approximately 7- 8% and if Clinton wins stock market will rise by 4-6%. But all this argument does not have any strong base to prove itself. All this are market and investor sentiments which tend to make market bullish or bearish. There are other major macroeconomic factors which contribute towards the movement of stock market.

Macroeconomic factors can be oil and gas prices, gross domestic product (GDP), index of industrial production (IIP), exchange rate, interest rate, cash reserve ratio (CRR), gold prices etc.., these factors have a direct or indirect relationship with the stock market and different intensity by which they affect. These factors also played a vital role in 2007-2008 global recessions. Poor monetary policy, global imbalances, weak financial regulations were some of the factors of Great Depression.

LITERATURE REVIEW
Francisco Jareno and Loredana Negrut (2016) in their research found a positive relationship between Dow Jones and S&P 500 and macroeconomic variables – GDP and IPI and negative relationship between Dow Jones and S&P 500 and unemployment and interest rate. There's an uncertain relationship with CPI. Alan S. Blinder and Mark W. Watson (2014) in their empirical research prove that the stock market of US behaved better under the rule of Democrats compared to Republicans. Democrats had better foreign policy and better oil shocks. Bob Bryan and Elena Holodny (2016) in Business Insider write that new foreign policy can bring global crisis once again. According to new foreign policy of Trump imposed 5% tariff on imports and 45% tariff on Chinese goods which can reduce GDP by 0.5% in 2017-2018.

DATA COLLECTION PLAN
In this empirical study, five banks - Goldman Sachs, J.P Morgan & Chase, Bank of America, Wells Fargo & Co. monthly stock price movements from 2007 to 2016 are compared to seven macroeconomic variables – IIP, Real Traded US Dollar (Broad), US Monetary Base, US Real GDP, Trade Deficit, CPI and Inflation of same data range. The research is done on secondary data. Data of banks is derived from www.finance.yahoo.com and data of variables is derived from www.ycharts.com.

RESEARCH METHODOLOGY

Data collected for this research is analyzed with the help of MINITAB 16. Graphical summary of each taken factor was derived to check whether the data is normal or non – normal with the help of P – Value and times series analysis was done to check the cardio of the data. After conducting this, descriptive statistics was applied to check the statistical value of the variables. Then each bank share price movement was compared to all seven macroeconomic variables with the help of Regression and Pearson's Correlation.

Graph
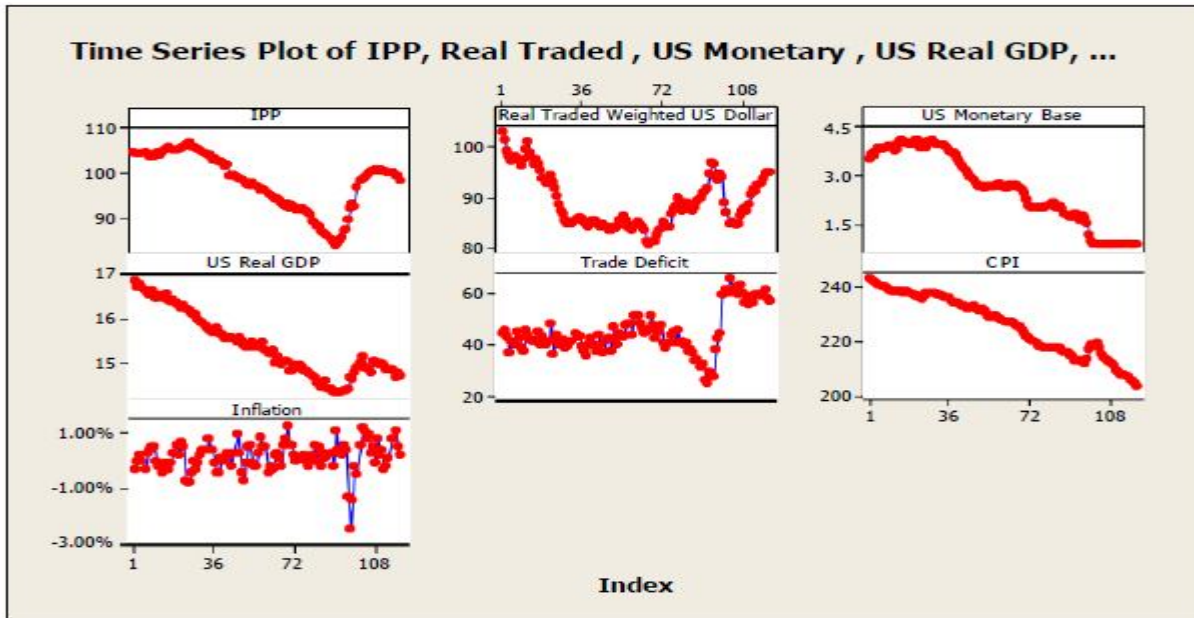
In the above graph, US real GDP, CPI and US monetary base are downwards sloping and portrays a negative trend whereas real traded weighted US dollar, trade deficit and IIP displays a negative trend in initial years, then became constant and finally hold an upward trend. Inflation shows a volatile cardio and keeps fluctuating in a straight line. All the above factors and graphical representation shows a negative image of US economy.

STATISTICAL ANALYSIS

Regression Analysis

To investigate the selected macroeconomic variables on selected companies, the multiple regression models have been applied.

Goldman Sachs

The required model is

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$ where,

Y = Company a = constant

β = beta coefficient of X_1 to X_7

X_1 = IIP, X_2 = Real traded weighted US dollar, X_3 = US monetary base, X_4 = US real GDP, X_5 = Trade deficit, X_6 = CPI and X_7 = Inflation.

The regression equation is

Goldman Sachs = 408 + 2.76 IIP - 1.26 Real Traded Weighted US Dollar

+ 10.4 US Monetary Base + 63.5 US Real GDP - 0.969 Trade Deficit

- 6.08 CPI + 1408 Inflation

Table-1

Predictor	Coef	SE Coef	T	P
Constant	407.7	162.9	2.50	0.014
IIP	2.765	1.144	2.42	0.017
Real Traded Weighted US Dollar	-1.2591	0.7947	-1.58	0.116

US Monetary Base	10.379	8.728	1.19	0.237
US Real GDP	63.55	20.02	3.17	0.002
Trade Deficit	-0.9689	0.5373	-1.80	0.074
CPI	-6.081	1.191	-5.11	0.000
Inflation	1408.1	435.0	3.24	0.002

S = 23.9325   R-Sq = 57.2%   R-Sq(adj) = 54.5%

As shown in table 1, r^2 = 0.572. It implies that variables account 57.2% variation when compared to Goldman Sachs. In regression model, r^2 is very reliable factor or indicator for explaining

dependent variance. In this model adjusted R – square is 0.545 which displays 54.4% variance in Goldman Sachs explained by all seven macroeconomic variables. Therefore, stock price movement of Goldman Sachs is sensitive to macroeconomic variables.

Analysis of Variance

Table-2

| Source	DF	SS	MS	F	P
Regression Residual Error	7	84819	12117	21.16	
Total	118	148396	573		0.000

Table 2 presents the ANOVA. In lieu with thumb rule, F – value is not very high at 21.16 and its significance value is lowest with 0.000 at 5% level of significance.

Table-3

		Goldman Sachs				
2	104	219.29	156.67	8.67	62.62	2.81R
85	87	168.84	116.38	5.00	52.46	2.24R
88	86	184.35	126.38	5.10	57.97	2.48R
90	85	163.30	116.72	5.99	46.58	2.01R
95	87	91.08	144.46	9.86	-53.38	-2.45R
96	88	80.73	144.07	6.43	-63.34	-2.75R
98	92	78.99	115.98	11.94	-36.99	-1.78 X
99	93	92.50	92.66	11.85	-0.16	-0.01 X

Table 3, coefficient indicates the direction of relationship between the dependent variables and independent variables. It also explains the degree of each predictor. The change in value of IIP will change the value of Goldman Sachs share price by 2.81.

Graph-1
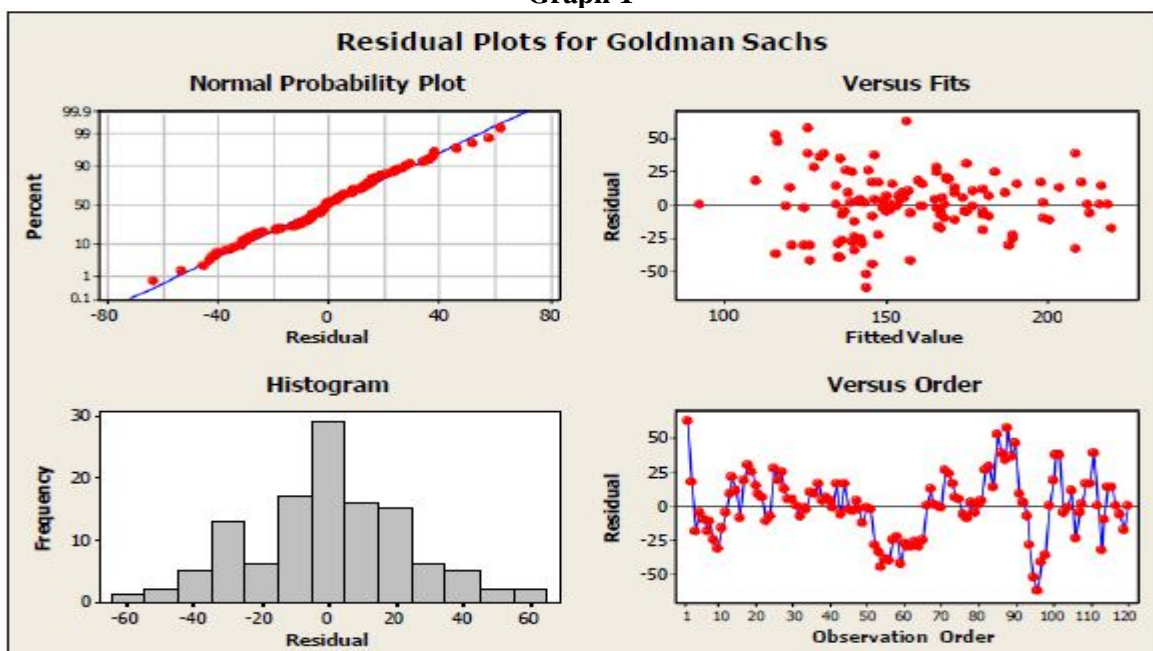
In graph 1, normal probability plot follows a straight line which interprets that the residuals are normally distributed. Versus fits determine whether the residuals are unbiased and have a constant variance. In versus fits, there is fanning graphical representation of the fits which implies that it has a non constant variance. Histogram doesn't represent a symmetric pattern thus implying that there is a fluctuation in the fit. Finally, versus order shows lots of noise from the base line, thus actual fits are not accurate compared to observed values.

Correlation

Pearson correlation of Goldman Sachs and IIP = 0.474 P-Value = 0.000

Pearson's correlation coefficient is 0.474 which is very high at P – value 0.000. It represents a strong relationship between the dependent variable i.e.., Goldman Sachs and independent variable i.e.., IIP.

Pearson correlation of Goldman Sachs and Real Traded Weighted US Dollar = 0.299 P-Value = 0.001

Pearson's correlation coefficient is 0.299 which lies between -1 and +1 thus representing high value of correlation at a P – value of 0.001. This implies that there is a strong relationship between Goldman Sachs stock price and Real Traded Weighted US Dollar.

Pearson correlation of Goldman Sachs and US Monetary Base = 0.007 P-Value = 0.942

Pearson's correlation coefficient is 0.007 which represents a weak correlation between the dependent variable and independent variable at a P – value of 0.924 which is more than 0.05 thus the correlation is not statistically significant.

Pearson correlation of Goldman Sachs and US Real GDP = 0.256 P-Value = 0.005

Pearson's correlation coefficient is 0.256 which interprets a moderate correlation at a P – value of 0.005. This indicates that the risk of concluding a correlation when no such correlation exists.

Pearson correlation of Goldman Sachs and Trade Deficit = 0.279 P-Value = 0.002

Pearson's correlation coefficient is 0.279 which interprets a weak positive correlation at a P – value of 0.002. Therefore, Trade deficit will not affect Goldman Sachs share price on a very large scale and will have very minute affect.

Pearson correlation of Goldman Sachs and CPI = -0.011

P-Value = 0.901

Pearson's correlation coefficient is -0.011 which interprets a weak negative correlation at a P – value of 0.901. This P - value indicates the risk of concluding a correlation when no such correlation exists.

Pearson correlation of Goldman Sachs and Inflation = 0.253 P-Value = 0.006

Pearson's correlation coefficient is 0.253 at a P – value of 0.006. This indicates a moderate correlation between Goldman Sachs share price and Inflation as value of correlation is slightly above the zero.

J.P. Morgan and Chase

The required model is

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$ where,

Y = Company a = constant

β = beta coefficient of X_1 to X_7

X_1 = IIP, X_2 = Real traded weighted US dollar, X_3 = US monetary base, X_4 = US real GDP, X_5 = Trade deficit, X_6 = CPI and X_7 = Inflation.

The regression equation is

J.P Morgan and Chase = - 88.3 + 0.578 IIP + 0.328 Real Traded Weighted US Dollar

+ 3.98 US Monetary Base + 8.87 US Real GDP

+ 0.003 Trade Deficit - 0.429 CPI + 225 Inflation

Table-4

Predictor	Coef	SE Coef	T	P
Constant	-88.25	36.49	-2.42	0.017
IIP	0.5782	0.2564	2.26	0.026
Real Traded Weighted US Dollar	0.3285	0.1780	1.85	0.068
US Monetary Base	3.980	1.955	2.04	0.044
US Real GDP	8.873	4.484	1.98	0.050
Trade Deficit	0.0027	0.1204	0.02	0.982
CPI	-0.4289	0.2668	-1.61	0.111
Inflation	225.34	97.45	2.31	0.023

S = 5.36122   R-Sq = 78.8%   R-Sq(adj) = 77.5%

As shown in table 4, r^2 = 0.788. It implies that variables account 78.8% variation when compared to J.P Morgan & Chase. In regression model, r^2 is very reliable factor or indicator for explaining dependent variance. In this model adjusted R – square is 0.775 which displays 77.5% variance in

J.P. Morgan & Chase explained by all seven macroeconomic variables. Therefore, stock price movement of J.P. Morgan & Chase is highly sensitive to macroeconomic variables.

Analysis of Variance

Table-5

| Source	DF	SS	MS	F	P
Regression	7	11865.1	1695.0	58.97	0.000
Residual Error	111	3190.4	28.7		
Total	118	15055.5			

Table 5 presents the ANOVA. In lieu with thumb rule, F – value is high at 58.97 and its significance value is lowest with 0.000 at 5% level of significance.

Table-6

Obs	IIP	J.P Morgan and Chase	Fit	SE Fit	Residual	St Resid
2	104	80.170	65.063	1.942	15.107	3.02R
56	97	33.150	44.790	0.886	-11.640	-2.20R
62	95	30.970	41.970	1.055	-11.000	-2.09R
64	94	30.120	40.673	1.014	-10.553	-2.00R
95	87	22.850	37.796	2.209	-14.94	-3.06R
96	88	25.510	37.913	1.440	-12.43	-2.40R
98	92	31.660	35.145	2.675	-3.485	-0.75 X
99	93	41.250	34.913	2.655	6.337	1.36 X
100	93	46.700	35.211	1.947	11.489	2.30R

Table-6: coefficient indicates the direction of relationship between the dependent variables and independent variables. It also explains the degree of each predictor. The change in value of IIP will change the value of J.P. Morgan & Chase share price by 3.02

Graph-2
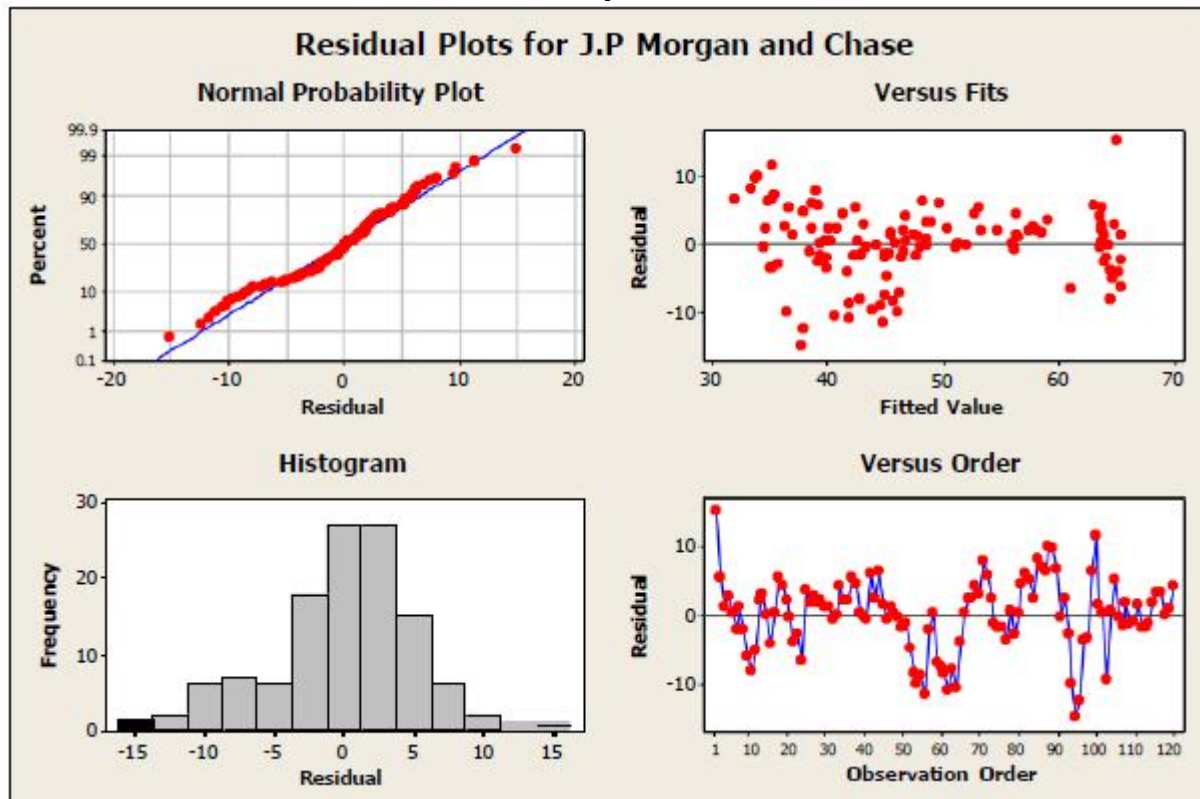
In graph 2, normal probability plot follows a straight line which interprets that the residuals are normally distributed as they are very close to 45° line. Versus fits determine whether the residuals are unbiased and have a constant variance. In versus fits, there is fanning graphical representation of the fits which implies that it has a non constant variance. Histogram doesn't represent a symmetric pattern thus implying that there is a fluctuation in the fit. Finally, versus order shows lots of noise from the base line, thus actual fits are not accurate compared to observed values.

Correlation

Pearson correlation of J.P Morgan and Chase and IIP = 0.786 P-Value = 0.000

Pearson's correlation coefficient is 0.786 which represents very high value of correlation at a P – value of 0.000. This implies that there is a very strong relationship between J.P Morgan & Chase stock price and IIP.

Pearson correlation of J.P Morgan and Chase and Real Traded Weighted US Dollar = 0.476 P-Value = 0.000

Pearson's correlation coefficient 0.476 which lies between -1 and +1 thus representing high value of correlation at a P – value of 0.000. This implies that there is a strong relationship between J.P Morgan & Chase stock price and Real Traded Weighted US Dollar.

Pearson correlation of J.P Morgan and Chase and US Monetary Base = 0.664 P-Value = 0.000

Pearson's correlation coefficient is 0.664 which represents high value of correlation at a P – value of 0.000. This implies that there is a very strong relationship between J.P Morgan & Chase stock price and US Monetary Base.

Pearson correlation of J.P Morgan and Chase and US Real GDP = 0.847 P-Value = 0.000

Pearson's correlation coefficient is 0.847 representing extremely high value of correlation at a P

– value of 0.000. This implies that there is a strong relationship between J.P. Morgan & Chase stock price and US Real GDP.

Pearson correlation of J.P Morgan and Chase and Trade Deficit = -0.055 P-Value = 0.554

Pearson's correlation coefficient is -0.055 which interprets a negative correlation between J.P Morgan & Chase stock price and Trade Deficit at a P – value of 0.554. This P - value indicates the risk of concluding a correlation when no such correlation exists.

Pearson correlation of J.P Morgan and Chase and CPI = 0.678 P-Value = 0.000

Pearson's correlation coefficient is 0.6788, thus representing very strong correlation at a P – value of 0.000. This implies that there is a strong relationship between J.P. Morgan & Chase stock price CPI.

Pearson correlation of J.P Morgan and Chase and Inflation = -0.026 P-Value = 0.776

Pearson's correlation coefficient is -0.026 which interprets a negative correlation at a P – value of 0776. This P - value indicates the risk of concluding a correlation when no such correlation exists. Therefore, when inflation increases, value of stock comes down and when inflation decreases, value of stock increases.

Bank of America

The required model is

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$ where,

Y = Company a = constant

β = beta coefficient of X_1 to X_7

X_1 = IIP, X_2 = Real traded weighted US dollar, X_3 = US monetary base, X_4 = US real GDP, X_5 = Trade deficit, X_6 = CPI and X_7 = Inflation.

The regression equation is

Bank of America = 58.5 + 1.58 IIP + 0.190 Real Traded Weighted US Dollar

- 2.86 US Monetary Base + 3.05 US Real GDP

+ 0.0605 Trade Deficit - 1.12 CPI + 118 Inflation

Table-7

Predictor	Coef	SE Coef	T	P
Constant	58.48	27.85	2.10	0.038
IIP	1.5776	0.1957	8.06	0.000
Real Traded Weighted US Dollar	0.1904	0.1359	1.40	0.164
US Monetary Base	-2.865	1.492	-1.92	0.057
US Real GDP	3.047	3.422	0.89	0.375
Trade Deficit	0.06052	0.09186	0.66	0.511
CPI	-1.1240	0.2036	-5.52	0.000
Inflation	118.18	74.38	1.59	0.115

S = 4.09205   R-Sq = 89.6%   R-Sq(adj) = 89.0%

As shown in table 7, r^2 = 0.896. It implies that variables account 89.6% variation when compared to Bank of America. In regression model, r^2 is very reliable factor or indicator for explaining dependent variance. In this model adjusted R – square is 0.89 which displays 89.0% variance in Bank of America explained by all seven macroeconomic variables. Therefore, stock price movement of J.P. Morgan & Chase is highly sensitive to macroeconomic variables.

Analysis of Variance

Table-8

| Source Regression Residual Error	DF 7	SS 16094.8	MS 2299.3	F 137.31	P
	111	1858.7	16.7		0.000
Total	118	17953.5			

Table 8 presents the ANOVA. In lieu with thumb rule, F – value is very high at 137.31 and its significance value is lowest with 0.000 at 5% level of significance.

Table-9

		Bank of America	Fit			
2	104	21.120	13.284	1.483	7.836	2.05R
89	85	17.590	9.336	1.017	8.254	2.08R
95	87	3.950	16.522	1.686	-12.572	-3.37R
96	88	6.580	17.922	1.099	-11.342	-2.88R
98	92	16.250	22.402	2.042	-6.152	-1.73 X
99	93	24.170	22.940	2.026	1.230	0.35 X
100	93	35.000	21.094	1.486	13.906	3.65R
103	99	23.870	34.419	1.320	-10.549	-2.72R

Table 9, coefficient indicates the direction of relationship between the dependent variables and independent variables. It also explains the degree of each predictor. The change in value of IIP will change the value of Bank of America share price by 2.05.

Graph-3
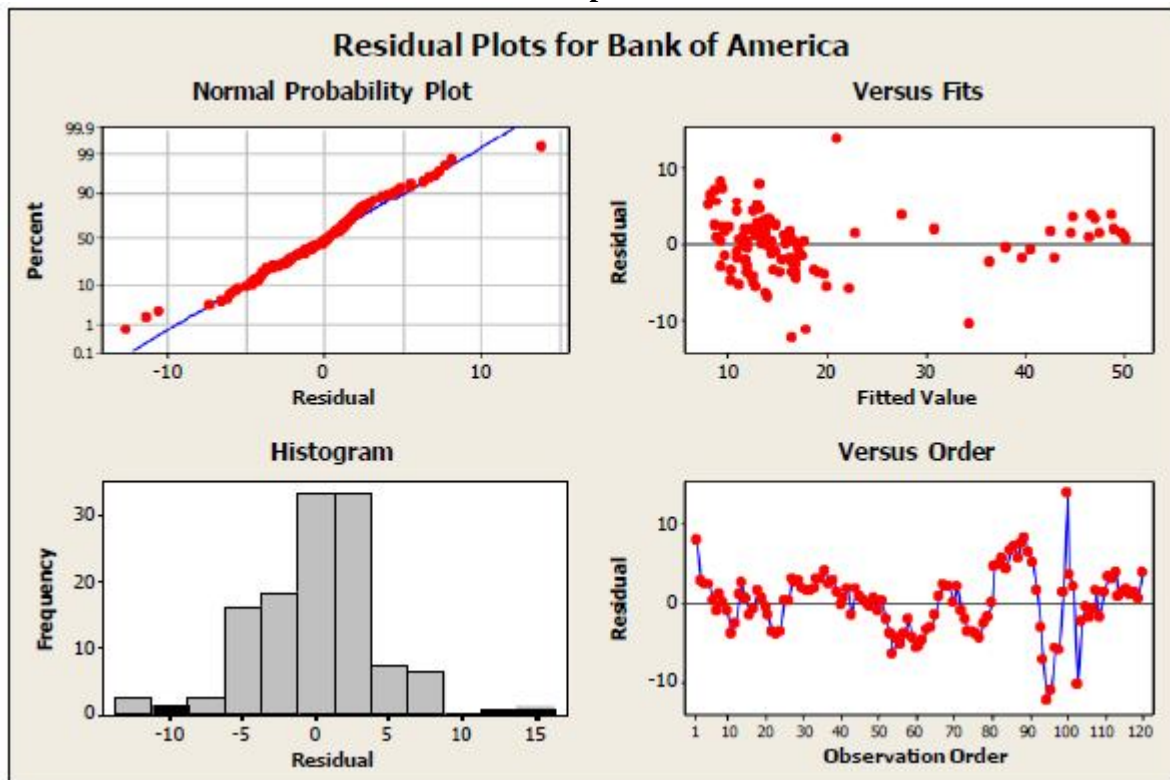
In graph 3, normal probability plot follows a straight line which interprets that the residuals are normally distributed as they are very close to 45° line. Versus fits determine whether the residuals are unbiased and have a constant variance. In versus fits, there is fanning graphical representation of the fits which implies that it has a non constant variance. Histogram doesn't represent a symmetric pattern thus implying that there is a fluctuation in the fit. Finally, versus order shows lots of noise from the base line specifically from observation order 90 to 110, thus actual fits are not accurate compared to observed values.

Correlation

Pearson correlation of Bank of America and IIP = 0.203 P-Value = 0.026

Pearson's correlation coefficient is 0.203 representing weak value of correlation at a P – value of

0.026. This implies that there is a weak relationship between Bank of America stock price and IIP.

Pearson correlation of Bank of America and Real Traded Weighted US Dollar = 0.186 P-Value = 0.042

Pearson's correlation coefficient is 0.186 representing weak value of correlation at a P – value of

0.042. This implies that there is a weak relationship between Bank of America stock price and Real Traded Weighted US Dollar.

Pearson correlation of Bank of America and US Monetary Base = -0.588 P-Value = 0.000

Pearson's correlation coefficient is -0.588 representing a weak and negative value of correlation at a P – value of 0.000. This implies that there is a strong but negative relationship between Bank of America stock price and US Monetary Base.

Pearson correlation of Bank of America and US Real GDP = -0.217 P-Value = 0.018

Pearson's correlation coefficient is - 0.217 representing strong and negative value of correlation at a P – value of 0.018. This implies that there is a strong and negative relationship between Bank of America stock price and US Real GDP.

Pearson correlation of Bank of America and Trade Deficit = 0.729 P-Value = 0.000

Pearson's correlation coefficient is 0.729 representing a very strong value of correlation at a P – value of 0.000.

Pearson correlation of Bank of America and CPI = -0.559 P-Value = 0.000

Pearson's correlation coefficient is - 0.559 representing weak value of correlation at a P – value of 0.000. This implies that there is an inverse relationship between Bank of America and CPI

Pearson correlation of Bank of America and Inflation = 0.163 P-Value = 0.077

Pearson's correlation coefficient is 0.163 representing moderate value of correlation at a P – value of 0.077.

WELLS FARGO & Co.

The required model is

$Y = a + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + \beta7X7$ where,

Y = Company a = constant

β = beta coefficient of X1 to X7

X1 = IIP, X2 = Real traded weighted US dollar, X3 = US monetary base, X4 = US real GDP, X5 = Trade deficit, X6 = CPI and X7 = Inflation.

The regression equation is

Wells Fargo & Co = - 48.4 + 1.02 IIP + 0.308 Real Traded Weighted US Dollar

+ 6.33 US Monetary Base + 0.19 US Real GDP

+ 0.0397 Trade Deficit - 0.279 CPI - 44.6 Inflation

Table-10

Predictor	Coef	SE Coef	T	P
Constant	-48.42	25.59	-1.89	0.061
IIP	1.0224	0.1798	5.69	0.000
Real Traded Weighted US Dollar	0.3075	0.1248	2.46	0.015
US Monetary Base	6.325	1.371	4.61	0.000
US Real GDP	0.193	3.144	0.06	0.951
Trade Deficit	0.03973	0.08440	0.47	0.639
CPI	-0.2787	0.1871	-1.49	0.139
Inflation	-44.60	68.33	-0.65	0.515

S = 3.75943   R-Sq = 88.5%   R-Sq(adj) = 87.8%

As shown in table 10, r^2 = 0.885. It implies that variables account 88.5% variation when compared to Wellls Fargo & Co. In regression model, r^2 is very reliable factor or indicator for

explaining dependent variance. In this model adjusted R – square is 0.878 which displays 87.8% variance in Wells Fargo & Co. explained by all seven macroeconomic variables. Therefore, stock price movement of Wells Fargo & Co. is highly sensitive to macroeconomic variables.

Analysis of Variance

Table-11

| Source	DF	SS	MS	F	P
Regression Residual Error	7	12110.9	1730.1	122.42	0.000
Total	118	13679.7			

Table 11 presents the ANOVA. In lieu with thumb rule, F – value is very high at 122.42 and its significance value is lowest with 0.000 at 5% level of significance.

Table-12

		Wells Fargo & Co	Fit			
64	94	24.120	31.797	0.711	-7.677	-2.08R
94	86	14.240	24.040	1.314	-9.800	-2.78R
95	87	12.100	24.535	1.549	-12.435	-3.63R
98	92	28.890	30.529	1.876	-1.639	-0.50 X
99	93	34.050	28.399	1.862	5.651	1.73 X
100	93	37.530	23.713	1.365	13.817	3.94R

Table 12, coefficient indicates the direction of relationship between the dependent variables and independent variables. It also explains the degree of each predictor. The change in value of IIP will change the value of Wells Fargo & Co. share price by -2.08.

Graph-4
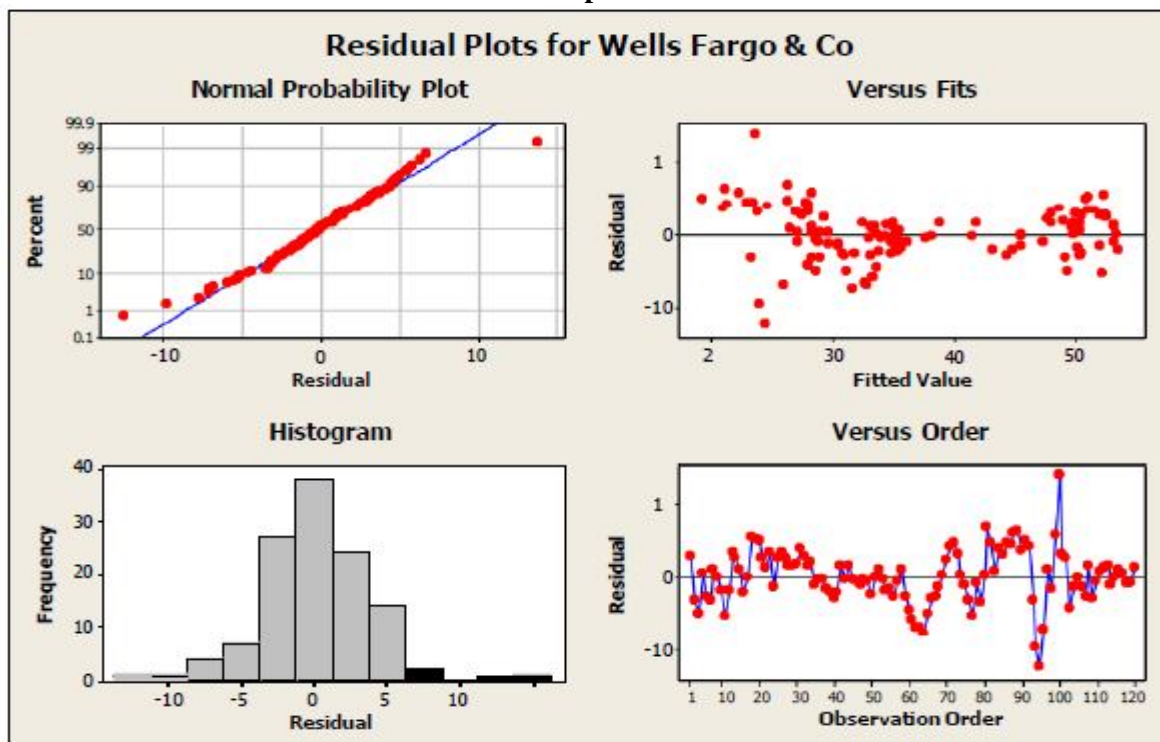
In graph 4, normal probability plot follows a straight line which interprets that the residuals are normally distributed as they are very close to 45o line. Versus fits determine whether the residuals are unbiased and have a constant variance. In versus fits, there is fanning graphical representation of the fits which implies that it has a non constant variance. Histogram doesn't represent a symmetric pattern thus implying that there is a fluctuation in the fit. Finally, versus order shows lots of noise from the base line specifically from observation order 95 to 105, thus actual fits are not accurate compared to observed values.

Correlation

Pearson correlation of Wells Fargo & Co and IIP = 0.865 P-Value = 0.000

Pearson's correlation coefficient is 0.865 representing a very strong value of correlation at a P – value of 0.000. This implies that there is a very strong relationship between Wells Fargo & Co. stock price and IIP.

Pearson correlation of Wells Fargo & Co and Real Traded Weighted US Dollar = 0.390 P-Value = 0.000

Pearson's correlation coefficient is 0.390 representing moderate value of correlation at a P – value of 0.000. This implies that there is a moderate relationship between Wells Fargo & Co. stock price and Real Traded Weighted US Dollar.

Pearson correlation of Wells Fargo & Co and US Monetary Base = 0.768 P-Value = 0.000

Pearson's correlation coefficient is 0.768 representing very strong value of correlation at a P – value of 0.000. This implies that there is a very strong relationship between Wells Fargo & Co. stock price and US Monetary Base.

Pearson correlation of Wells Fargo & Co and US Real GDP = 0.889 P-Value = 0.000

Pearson's correlation coefficient is 0.889 representing very strong value of correlation at a P – value of 0.000. This implies that there is a very strong relationship between Wells Fargo & Co. stock price and US Real GDP.

Pearson correlation of Wells Fargo & Co and Trade Deficit = -0.079 P-Value = 0.390

Pearson's correlation coefficient is - 0.079 representing very strong and negative value of correlation at a P – value of 0.0390. This implies that there is a very strong and negative relationship between Wells Fargo & Co. stock price and Trade Deficit.

Pearson correlation of Wells Fargo & Co and CPI = 0.759 P-Value = 0.000

Pearson's correlation coefficient is 0.759 representing high value of correlation at a P – value of

1.1. This implies that there is a strong and negative relationship between Wells Fargo & Co. stock price and CPI

Pearson correlation of Wells Fargo & Co and Inflation = -0.163 P-Value = 0.076

Pearson's correlation coefficient is - 0.163 representing strong and negative value of correlation at a P – value of 0.076. This implies that there is a strong and negative relationship between Wells Fargo & Co. stock price and Inflation.

CONCLUSION AND INTERPRETATION

The aim of the paper is to find a relationship between US stock market and US President Elections. NYSE was used as an exchange and monthly share price movement from 2007-2016 of four companies i.e.., Goldman Sachs, J.P. Morgan and Chase, Bank of America and Wells Fargo & Co. was monitored. There was a baseless perception among the investors that President Election was the driving factor in New York Stock Exchange movement. According to some journalist and economists, the main reason for so much volatility in the prices of selected shares was due to large investment by Russia in the recent U.S. President Elections. In order to see and decide whether these reports have any strong argument, an empirical study was done with seven macroeconomic factors in mind i.e.., IIP, Real Traded Weighted US Dollar, US Monetary Base, US Real GDP, CPI, Inflation and Trade Deficit. These variables were tested against regression model, variance model and Pearson's correlation. The result derived from the study cleared that elections didn't have a major impact on stock market. Goldman Sachs regression value came out to be 57.2% whereas all the other three remaining banks J.P Morgan and Chase, Bank of America and Wells Fargo & Co. had regression value of 78.8%, 89.6% and 88.5% respectively. Pearson's correlation also portrayed a strong relationship between the stock prices of selected banks and macroeconomic variables. Only few variables had negative correlation on the selected banks, others had a positive correlation.

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RELATIONSHIP BETWEEN GDP GROWTH, CENTRAL GOVERNMENT PUBLIC DEBT AND CENTRAL GOVERNMENT CAPITAL SPENDING: AN INDIAN PERSPECTIVE

Vaibhav Aggarwal and Adesh Doifode

Assistant Professor, Pune Institute of Business Management

ABSTRACT

The purpose of this research is to understand the interdependence between Indian GDP at constant prices (value terms), External Debt and Government Spending. The timeframe used for the study is between Jan 2010 to December 2018. Econometric technique used in the study are Structural Vector Auto Regressive Correlation Model (SVAR) and Granger Causality Test. The test results indicate that higher / increase in public debt does not have any major impact on economic growth / Indian GDP, but higher / increased economic growth (increase in GDP) has a positive and significant relation with public debt.

Keywords: India GDP, External Debt, Government Spending, Unit root test, Co-integration, VAR, VECM, Granger Causality

INTRODUCTION

India is one of the fastest growing economies in the world today and also the seventh largest economy in the world (World Bank, 2018). The Indian economy has now more than 3% share in the world economy and is around INR 167.7 lakh crore. But, due to a constant fiscal deficit over the past few decades, the government has to keep on relying on public debt to fund its expenditure. This consistent increase in public debt results in increase in interest costs for the Indian government and thus resulting in lower government final consumption expenditure in development activities, which affects the economic growth negatively. The current level of central government public debt has shot to INR 82.3 lakh crore. But, if look at the historical trend of the central government public debt to GDP ratio, it has been under control in the long term.
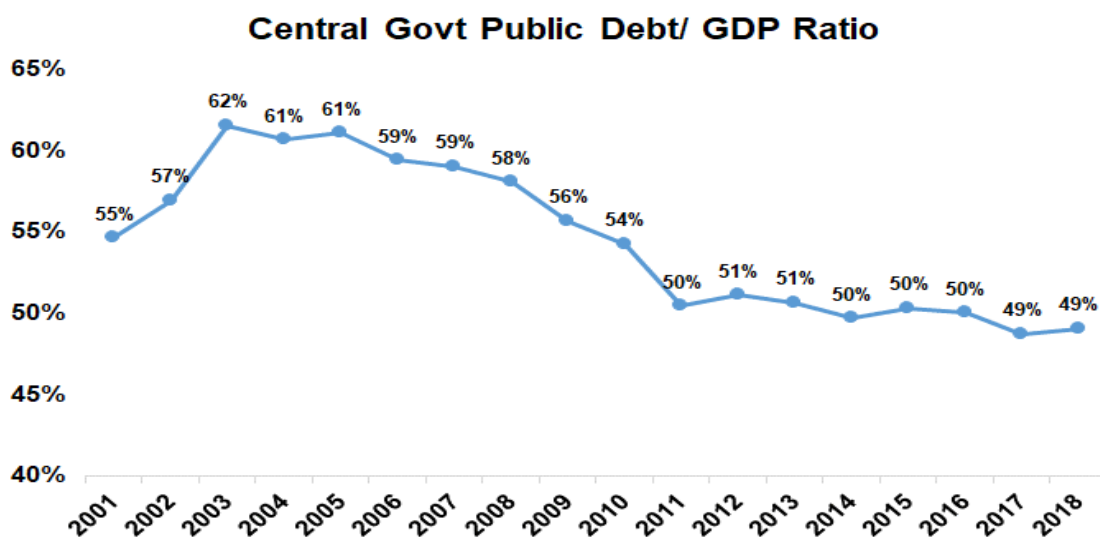
Hence, it is important to emperically test this mutual relationship between Real GDP, External Debt and Government Spending to help the policymakers frame better policies for the overall economic growth of the country.

LITERATURE REVIEW

The use of higher public debt and higher fiscal deficits and its impact on economic growth has been a topic of interest to academicians across the world. In this section, we are trying to illustrate the earlier studies done in this area in context of India.

Kannan, R and Singh, Bhupal (2007) argued that high fiscal deficits in India and high external debt can have a negative impact on the level of interest rates, national output, inflation and trade gap and concluded that adjustments in fiscal deficits and shift in the expenditure composition results in the investment growth in the Indian Economy

Bal, D.P. & Rath (2018) in their study on the relationship between public debt and economic growth in India argued that public debt has a positive impact on the economic growth in the shorter run, but the impact reverses

in the longer duration and hence the government should allocate the public debt on productivity opportunities and take borrowings till it results in capital formation. But, **Mohanty R.K. (2018)** using the Autoregressive Distributed Lag (ADRL) approach found that fiscal deficit results in adverse impact on the economic growth even in the short run and also the implementation of FRBM act has resulted in a less significant relationship between economic growth and fiscal deficits. The Indian government should try and make sure that the fiscal deficit target set by the FRBM committee is adhered to, so that the economic growth is not affected.

B Kaur & A Mukherjee (2012) stated that there is a negative impact on economic growth due to high level of debt and the upper limit for Government Debt to GDP ratio stands at 61%. Hence, it is important for the government to have prudent fiscal consolidation policy framework in place.**Bhattacharjee, S., & Das, D. (2017)** have also in their study said that the ever-increasing level of public debt in India can result in negative impacts on the overall Indian economy

Pradhan, K. (2014) found that the level of public debt is sustainable in India primarily because of the high level of economic growth and the reduces costs of borrowings with longer maturity.**Bhanumurthy, N.R., Bose, S. &Chakravartti, (2018)** advocated the use of higher levels of government capital expenditure and lower government transfers to increase the economic growth with a controllable level of fiscal deficits.

In a comparative study, **K Shafi, L Hua, Z Idrees and A Nazeer (2015)** found that public debt has contributed more significantly to the economic growth in India as compared to Pakistan.In an interesting argument that the government should also take care of providing jobs to the for the ever increasing workforce in India and not just get fixated to a specfic level of fiscal defict was given by **Islam, I. Ind. J. Labour Econ. (2018).**

In a study conducted by **Arčabić, V., Tica, J., Lee, J., et al. (2018)**, quite different results from earlier studies were found that inter temporal impact of public debt on economic growth is weak including for countries which have public debt to GDP ratio of above 90%., but the impact of economic growth on public debt is significant.

Hence, looking at the contradicory results it becomes imperative to once again have a look at this important macroeconomic relationship.

RESEARCH QUESTION

The research question is to investigate in the Indian context, the relation between Gross Domestic Product (GDP) at market prices, Central Government Public Debt and Central GovernmentCapital Spending.

DATA USED

Annual data has been taken for the period for 2000-01 to 2017-18 for India. The three datapoints are: Central Government Public Debt from India Budget website, Real GDP at constant prices (INR crore) and Central Government Capital Expenditure from RBI website

Logarithmic transformation has been performed to arrive at the three variables which are LCGD, LGDP and LCGCE respectively. The summary statistics is as shown below:

Table-1:
(Summary Statistics)

	LGDP	LCGD	LCGCE
Mean	12.0096	11.3741	10.2650
Median	12.1268	11.4335	11.7568
Maximum	18.3700	15.1558	54.1815
Minimum	7.3817	7.6599	-53.5188
Std. Dev.	2.7549	2.1319	24.7243
Skewness	0.3658	0.0071	-0.8076
Kurtosis	3.0513	2.2846	4.1338
Jarque-Bera	0.3811	0.3626	2.7590
Probability	0.8264	0.8341	0.2517
Sum	204.1642	193.3602	174.5059
Sum Sq. Dev.	121.4373	72.7214	9780.6550
Observations	17	17	17

ADF test (unit root-stationarity test) was performed on the complete data taken for research. Twoout of three variables (log values)werefound stationery, as the P value was below 0.05 for LCGD and LCGCE, but not for LGDP variable.Hence, further testing the log values of all three variables at their first difference (first difference of log values) i.e. dLGDP, dLCGCE and dLCGD, all variables do not have unit root and are stationary at their first difference. The final results are given in the tablebelow:

Table-2

UNIT ROOT TEST RESULTS TABLE (ADF)
Null Hypothesis: the variable has a unit root

At Level		LGDP	LCGCE	LCGD
With Constant	t-Statistic	-2.3705	-4.7112	-3.8594
	Prob.	*0.1644*	*0.0025*	*0.0112*
		n0	***	**
With Constant & Trend	t-Statistic	-2.2508	-4.5208	-5.5189
	Prob.	*0.4336*	*0.0142*	*0.0023*
		n0	**	***
Without Constant & Trend	t-Statistic	-0.2984	-3.5790	-1.0688
	Prob.	*0.5622*	*0.0015*	*0.2444*
		n0	***	n0
At First Difference		d(LGDP)	d(LCGCE)	d(LCGD)
With Constant	t-Statistic	-3.8521	-6.5375	-8.1669
	Prob.	*0.0131*	*0.0001*	*0.0000*
		**	***	***
With Constant & Trend	t-Statistic	-5.2600	-6.4321	-7.7694
	Prob.	*0.0049*	*0.0008*	*0.0001*
		***	***	***
Without Constant & Trend	t-Statistic	-4.0491	-6.7680	-8.2129
	Prob.	*0.0006*	*0.0000*	*0.0000*
		***	***	***

RESEARCH METHODOLOGY
As used in some of the previous research papers in this topic, we have used the Structural Vector Autoregressive Model (SVAR) for our analysis. The results are as follows:

Table-3

Vector Autoregression Estimates
Sample (adjusted): 4/01/2003 - 4/01/2017
Standard errors in ( ) & t-statistics in [ ]

	DLGDP	LCGD	LCGCE
DLGDP(-1)	-0.099433	0.051225	-0.065769
	(0.30456)	(0.02343)	(0.39458)
	[-0.32648]	**[2.18606]**	[-0.16668]
LCGD(-1)	1.894164	0.063598	0.975811
	(2.72793)	(0.20989)	(3.53425)
	[0.69436]	[0.30301]	[0.27610]
LCGCE(-1)	-0.249902	-0.050715	-0.151083
	(0.25603)	(0.01970)	(0.33171)
	[-0.97606]	**[-2.57450]**	[-0.45547]
C	-17.20345	10.78734	-0.806382
	(31.1818)	(2.39912)	(40.3986)

	[-0.55171]	[4.49638]	[-0.01996]
R-squared	0.138099	0.432835	0.033048
Adj. R-squared	-0.096964	0.278153	-0.230666
Sum sq. resids	5442.001	32.21499	9134.555
S.E. equation	22.24247	1.711326	28.81691
F-statistic	0.587498	2.798232	0.125318
Log likelihood	-65.48797	-27.01694	-69.37235
Akaike AIC	9.265062	4.135592	9.782980
Schwarz SC	9.453876	4.324405	9.971793
Mean dependent	1.678791	11.08275	8.665545
S.D. dependent	21.23668	2.014235	25.97630

Determinant resid covariance (dof adj.)	966794.1
Determinant resid covariance	381275.0
Log likelihood	-160.2368
Akaike information criterion	22.96491
Schwarz criterion	23.53135
Number of coefficients	12

LCGD has significant impact on DLGDP and LCGCE at 5% significant level, which indicates that movement in Central Government Public Debt impacts movement of Real GDP at constant prices (INR crores) as well as Central Government Capital Expenditure.

Further, diagnostic testswere performed for the data and we found that the variableshave no autocorrelation, while normality of residuals and homoscedastic was present which makes our model specification robust.

Table-4

VAR Residual Serial Correlation LM Tests

Sample: 4/01/2000 4/01/2017

Included observations: 15

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	10.35706	9	0.3224	1.251882	(9, 14.8)	**0.3375**
2	13.82223	9	0.1288	1.856290	(9, 14.8)	**0.1404**

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	10.35706	9	0.3224	1.251882	(9, 14.8)	**0.3375**
2	22.59587	18	0.2066	1.388754	(18, 9.0)	**0.3152**

*Edgeworth expansion corrected likelihood ratio statistic.

Table-5

VAR Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
Null Hypothesis: Residuals are multivariate normal
Sample: 4/01/2000 4/01/2017
Included observations: 15

Component	Skewness	Chi-sq	df	Prob.*
1	0.208691	0.108880	1	0.7414
2	0.335589	0.281550	1	0.5957
3	-0.457403	0.523043	1	0.4695
Joint		0.913473	3	0.8222

Component	Kurtosis	Chi-sq	df	Prob.
1	2.832768	0.017479	1	0.8948
2	2.142223	0.459864	1	0.4977
3	3.324024	0.065620	1	0.7978
Joint		0.542962	3	0.9094

Component	Jarque-Bera	df	Prob.
1	0.126359	2	**0.9388**
2	0.741414	2	**0.6902**
3	0.588663	2	**0.7450**
Joint	1.456435	6	**0.9623**

*Approximate p-values do not account for coefficient estimation

Table-6

VAR Residual Heteroskedasticity Tests (Levels and Squares)
Sample: 4/01/2000 4/01/2017
Included observations: 15

Joint test:

Chi-sq	df	Prob.
41.53957	36	0.2420

Individual components:

Dependent	R-squared	F(6,8)	Prob.	Chi-sq(6)	Prob.
res1*res1	0.342161	0.693505	0.6628	5.132417	**0.5269**
res2*res2	0.671681	2.727755	0.0953	10.07521	**0.1215**
res3*res3	0.479341	1.227522	0.3832	7.190110	**0.3036**

res2*res1	0.152863	0.240595	0.9503	2.292938	**0.8909**
res3*res1	0.299334	0.569618	0.7455	4.490010	**0.6107**
res3*res2	0.378005	0.810306	0.5899	5.670071	**0.4611**

DATA ANALYSIS AND INTERPRETATION[i]

The results in table 3 state that the economic growth is not affected significantly by both government capital spending and government public debt. But surprisingly government public debt is positively impacted by GDP growth as also in the study of **Arčabić, V., Tica, J., Lee, J., et al. (2018).** We also find that there is a negative relationship with government capital expenditure. Also, the economic growth does not have any significant impact on government capital expenditure.

CONCLUSION

The results of our study shows that the increased public debt by the Indian government is not contributing to the overall economic growth of the country and hence it will be prudent for the policymakers to make sure that government targets for fiscal deficits are met without increasing the public debt.

LIMITATIONS OF THE STUDY

The data for state and union territories capital expenditure can also be included in the analysis and also other macro-economic variables like exchange rate, gold, oil price etc. can be part of future analysis. It may also be prudent to include the total debt for state government and union territories.

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