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RESULTS & DISCUSSION

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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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A STUDY ON RISK-RETURN RELATIONSHIP OF TOP 10 COMPANIES FROM FAST MOVING CONSUMER GOODS (FMCG) AND PHARMACEUTICALS SECTOR LISTED AT NSE INDIA

K RAJATH
ASST. PROFESSOR
DEPARTMENT OF COMMERCE & MANAGEMENT
AMRITA SCHOOL OF ARTS & SCIENCES
AMRITA VISWA VIDHYAPEETHAM UNIVERSITY
KOCHI

PREETHIMOL GOPI
STUDENT
AMRITA SCHOOL OF ARTS & SCIENCES
AMRITA VISWA VIDHYAPEETHAM UNIVERSITY
KOCHI

ABSTRACT
Fast Moving Consumer Goods and Pharmaceutical industry are coming under the category of defensive sectors. FMCG is one of the fastest developing sectors and which is the 4th largest sector in India. Household care, Personal care, Food &Beverages are the main subdivisions of FMCG sectors. Pharmaceutical sector is dominated in the market by branded generics and it also fragmented in organised & unorganised segments. As we know stock market investment is characterised by Risk and returns. FMCG &Pharmaceutical Sector provides the stable rate of return as it is the defensive category. The top 10 companies from both these sectors listed at NSE also selected for the risk return analysis. This paper gives the descriptive analysis of risk-returns of these companies. Thus the paper attempts to help the long term investors to take a suitable decision before investing in the stock market. This paper studies the risk- return relationship of top ten selected companies from FMCG and Pharmaceutical Industry and trying to prove that the returns and risks are related.

KEYWORDS
return, risk, alpha, beta, capital yield, CAPM.

INTRODUCTION
Investors expect returns from their investment. Especially stock market investors have a bad notion of getting abnormal return and they think that stock market works on the basis of speculation. Most of them are expecting more than average return without taking risk. But actual scenario is entirely difficult from their illusions. Risk-Return analysis gives the investors a clear view of their returns and risk underlying the investments.

Returns are the gains or the losses from a security or a stock for a period usually in percentage. Risk is the deviations of actual return from their expectations of returns. The return is in the form of capital yield. But the realised return shows the deviations. Risk comprises of two components systematic and unsystematic. Systematic risk is caused by external factors to the particular company and uncontrollable by the company. It affects the whole market where as unsystematic risk is particular to company which the factors are specific to that company.

The risk-return analysis show the detailed analysis of returns from the past six financial years' top NSE listed companies in FMCG and Pharmaceutical sector based on the past historical data.

REVIEW OF LITERATURE
Dr. Prasanth B, Ashurkar, Abdhuleah Mahmood A, Abazi (2015) conducted study on 'An Evaluation and Analysis of the Risk/Return profile of selected Banks'. The study was to analyse the economic condition of Indian Banks and to find out the credit exposure that the top five Banks in the country have in the market. They studied the NPA level as against the total assets of the bank. It found that there is a need to manage the risk and maximise the return in all five Banks.

Dr. S Krishnaprabha Mr. M Vijayakumar (2015) had conducted 'a study on risk return analysis of selected stocks in India'. The study conducted to analyse the risk and return of investing in various companies like banking, IT, FMCG, Automobiles, pharmaceuticals etc. The results of the study states that there is less fluctuations in the shares when compared to the market as well as prices. The long term investors are able to predict the about the variations in the share prices. Majority of IT, FMCG, pharmaceutical sectors gives more return compared to banking and automobiles.

Bedanta Bora, Anindita Adhikary (2015) has conducted a study on' Risk and Return Relationship – an Empirical Study of BSE Sensex Companies in India'. The basic framework of the study was analysis of relationship between risk and returns on the basis of beta of 30 companies listed at BSE Sensex. It concluded that 99% of variation in the Sensex is explained by variation in scripts.

IMPORTANCE OF THE STUDY
The stock market is an investment platform for making money as returns. As it provides higher returns in comparison with other investment avenues, the risk is also high. So it is important to study the risk and return from securities before making an investment.

STATEMENT OF PROBLEM
Investor believes that stock market investment gives them unexpected high rate of return from their investment. But actually it is a bad notion and people end up their investments with unlimited loss. They also think that its works on the basis of speculation. But actual scenario is quite different. As we know it is risky to invest in stock market. The study aims to identify the risk- return relationship.

OBJECTIVES OF THE STUDY
- To find out the returns of investing in FMCG and Pharmaceutical companies over the last five- six years based on the historical data
- To find out the expected return and to see the variations with actual return as Alpha.
- To calculate the risk of investing in each of these companies and relationship with returns.

RESEARCH METHODOLOGY
To address the objectives laid down, FMCG and Pharmaceutical Industry was taken as the universe and a sample of 20 NSE listed companies from both the sectors (10 each) were selected purposefully based on the top 10 ranking in terms of Market capitalization. The study was based on the historical data from moneycontrol.com. Stock prices from 1-April 2010 to 31-March 2016 were taken as the secondary data for analysis.

METHODOLOGIES USED

1. Return from stock

Capital Yield = (closing Price – Opening Price)/Opening Price*100

2. Return from nifty

Return = (closing Price – Opening Price)/Opening Price*100

3. Average return

Average Return= Total return for 6 years/6

4. Beta

$$\beta_i = \frac{\operatorname{cov}(r_i, r_m)}{\operatorname{var}(r_m)}$$

Ri = Return from stock

Rm = Return from market index (nifty)

Cov = Covariance between Nifty and stock

Var = Variance of Nifty

5. Alpha (α)

Alpha = Actual Return – Expected Return

Expected Return (CAPM Return) = R f +β (R m-R f)

R f= Risk Free Rate (10 Year Bond Rate)

β = Beta of the stock for 6 years

R m = Return from Market (Average Return for 6 years) = 7.37

Actual Return = Return from stock (average Return for 6 years)

6. Coefficient of variance = Standard Deviation/ Expected Return

7. Covariance (nifty, stock)

$$\operatorname{cov}(r_i, r_m) = \frac{\sum_{t-1}^{n} (r_{it} - \overline{r_t})(r_{mt} - \overline{r_m})}{n-1}$$

$r_{it} - \overline{r}$ = Actual Return from Stock- Average Return from Stock

$r_{mt} - \overline{r_m}$ = Actual Return from Nifty- Average Return from Nifty

8. Variance(nifty) and stock

$$\sigma_m^2 = \frac{\sum_{t=1}^{n} (r_{mt} - \overline{r_m})^2}{n-1}$$

9. Standard deviation

σ = Square Root (Variance)

10. Correlation

$$\rho_{i,m} = \frac{\operatorname{cov}(r_i, r_m)}{\sigma_{m_i} \sigma_i}$$

RESULTS AND DISCUSSIONS

The top 10 companies taken for Analysis are as follows

FMCG INDUSTRY PHARMACEUTICAL INDUSTRY

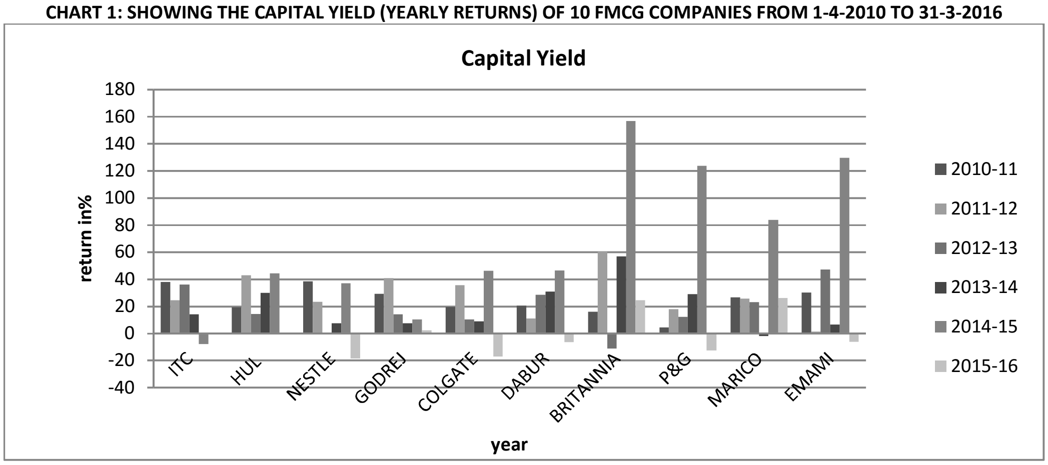
• Indian Tobacco Company Limited	Sun Pharmaceutical Industries Limited
• Hindustan Unilever Limited	Dr. Reddy's Laboratories
• Nestle India	Cadila Healthcare Limited
• Godrej Industries	Cipla Limited
• Colgate Palmolive	Lupin Limited
• Dabur India	Glenmark Pharmaceuticals
• Procter and Gamble	Glaxosmithkline Pharmaceuticals Limited
• Britannia Industries	Aurobindo Pharma limited
• Marico limited	Torrent pharmaceuticals
• Emami Limited	Divis Laboratories

TABLE 1: SHOWING THE CAPITAL YIELD (YEARLY RETURNS) OF 10 FMCG COMPANIES FROM 1-4-2010 TO 31-3-2016

COMPANY	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
ITC LTD	37.95	24.64	36.08	14.19	-7.82	0.74
HUL LTD	19.4	43	14.39	29.95	44.39	-0.46
NESTLE INDIA	38.67	23.55	-0.47	7.57	37.06	-18.35
GODREJ INDUSTRIES	29.3	40.73	14.06	7.71	10.31	2.39
COLGATE PALM-OLIVE	19.73	35.69	10.47	8.94	46.5	-17.06
DABUR INDIA	20.65	11.04	28.59	31.13	46.71	-6.23
BRITANNIA INDUSTRIES	16.04	60.49	-11.03	56.79	156.85	24.63
PROCTER &GAMBLE	4.64	17.85	12.26	29.1	123.76	-12.51
MARICO LTD	26.9	25.7	23.21	-1.92	83.7	26.09
EMAMI LTD	30.17	1.57	47.21	6.68	129.61	-6.11

Source: Historical Stock Prices and own calculations

CHART 1: SHOWING THE CAPITAL YIELD (YEARLY RETURNS) OF 10 FMCG COMPANIES FROM 1-4-2010 TO 31-3-2016



Source: Table 1

Interpretation

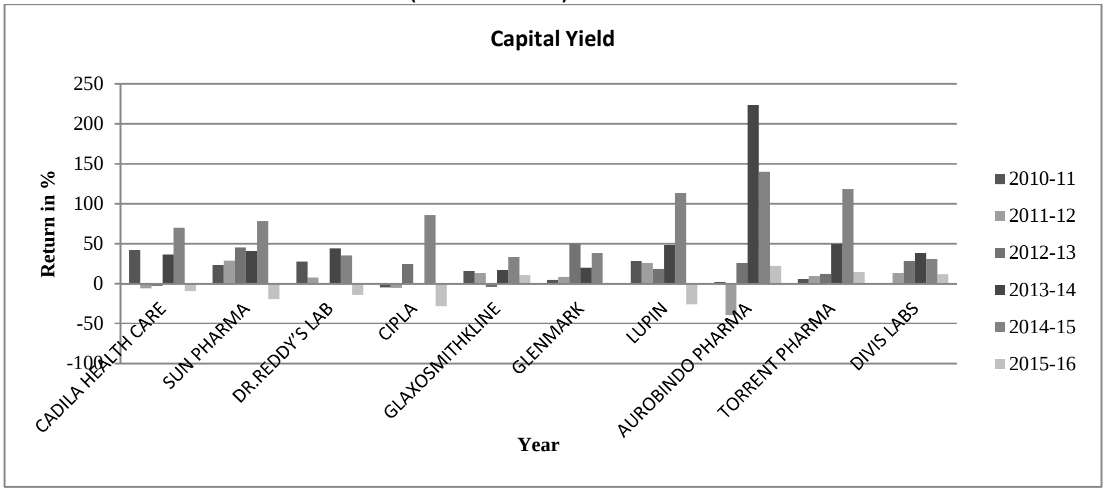
Table 1 represents that the return from 10 FMCG companies is showing fluctuations. In the year 2015- 16, return from most of the companies have come down which was result of reduction in the share price and they are showing a negative return. But average return for five years is indicating that long term investors will get a good return from the investment.

TABLE 2: SHOWING THE CAPITAL YIELD (YEARLY RETURNS) OF 10 FMCG COMPANIES FROM 1-4-2010 TO 31-3-2016

Company	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
CADILA HEALTH CARE	41.89	-6.02	-2.77	36.3	70.1	-9.72
SUN PHARMA	23.26	28.86	44.92	40.86	78.07	-19.9
DR.REDDY'S LAB	27.75	7.34	-0.42	44.12	35.17	-14.28
CIPLA	-5.12	-5.51	24.51	-0.25	85.68	-28.3
GLAXOSMITHKLINE	15.7	13	-4.2	16.7	33.03	10.57
GLENMARK	4.9	8.71	49.81	19.75	38.05	0.65
LUPIN	28.01	25.49	18.15	48.35	113.71	-26.33
AUROBINDO PHARMA	2.06	-39.59	25.83	223.73	140	22.62
TORRENT PHARMA	5.54	9.35	12.01	49.77	118.5	14.17
DIVIS LABS	-1.29	12.99	28.58	38.11	30.71	11.55

Source: Historical Stock Prices and own calculations

CHART 2: SHOWING THE CAPITAL YIELD (YEARLY RETURNS) OF 10 FMCG COMPANIES FROM 1-4-2010 TO 31-3-2016



Source: Table2

Interpretation

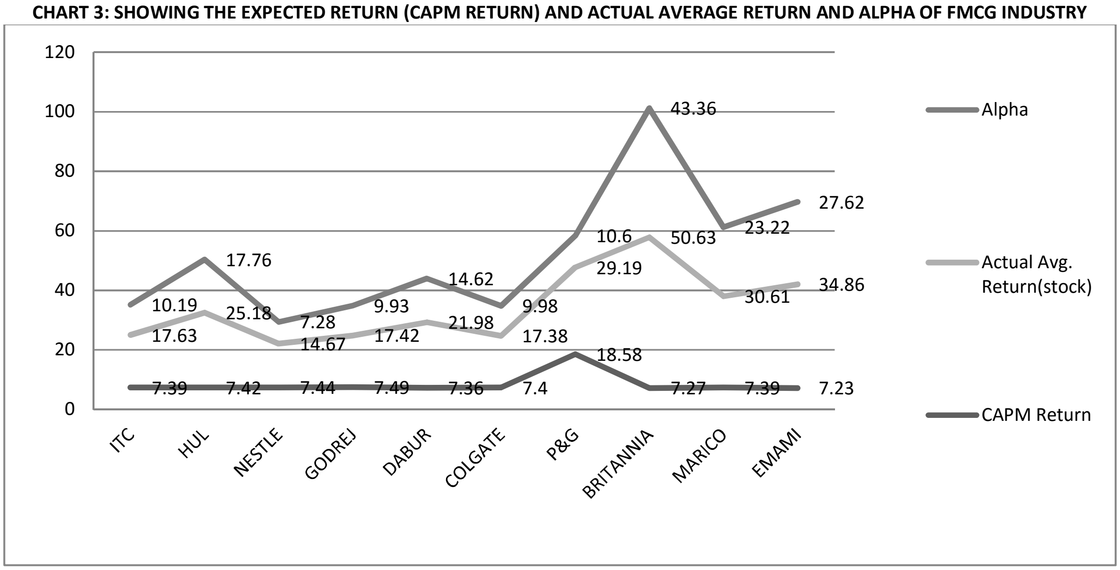
Table 2 represents that the returns from 10 pharmaceutical companies are showing high fluctuations. The higher return earned in one year is not permanent but at the same time shows highest loss in next year. It shows the risk of investing. In the year 2015- 16, return from most of the companies have come down which was result of reduction in the share price and they are showing a negative return. But average return for five years is indicating that long term investors will get a good return from the investment.

TABLE 3: SHOWING THE CAPM RETURN AND ACTUAL AVERAGE RETURN AND ALPHA FROM FMCG INDUSTRY

Name of Company	CAPM Return	Actual Avg. Return(stock)	Alpha
ITC Limited	7.39	17.63	10.19
HUL LTD	7.42	25.18	17.76
NESTLE INDIA	7.44	14.67	7.28
GODREJ INDUSTRIES	7.49	17.42	9.93
DABUR INDIA	7.36	21.98	14.62
COLGATE PALM-OLIVE	7.40	17.38	9.98
P&G	18.58	29.19	10.60
BRITANNIA	7.27	50.63	43.36
MARICO	7.39	30.61	23.22
EMAMI	7.23	34.86	27.62

Source: Historical Stock Prices and own calculations

CHART 3: SHOWING THE EXPECTED RETURN (CAPM RETURN) AND ACTUAL AVERAGE RETURN AND ALPHA OF FMCG INDUSTRY



Source: Table 3

Interpretation

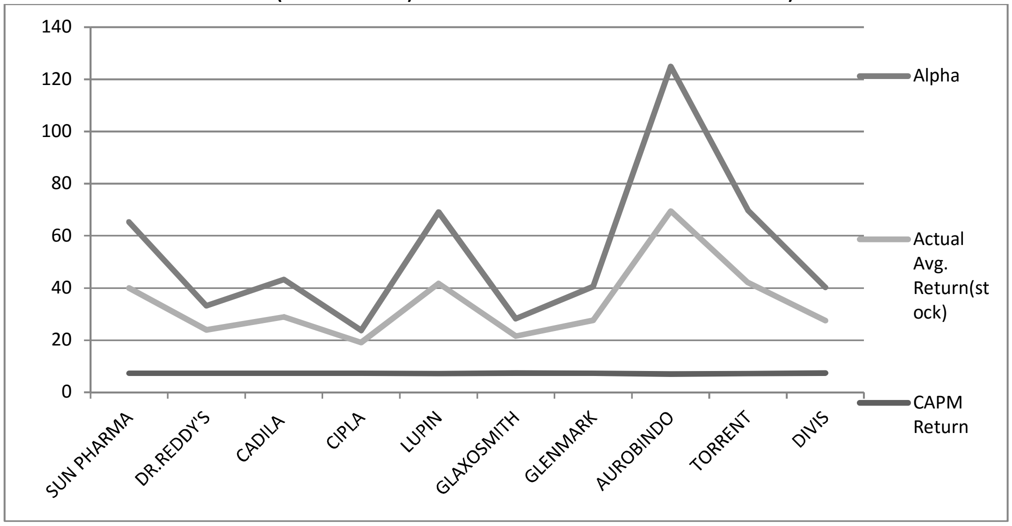
Expected return from FMCG sector based on the CAPM model shown in Table 3 indicates the companies expecting return on the basis of Beta and risk free rate. Actual average return is based on the averages of returns for last 6 years and Alpha shows the excess of actual return over he expected return. A positive Alpha of 1.0 means the stock is out performed its Nifty index by 1%. Therefore, above 10 companies are outperforming the benchmark i.e. Britannia Industries up by 43%.

TABLE 4: SHOWING THE EXPECTED RETURN (CAPM RETURN) AND ACTUAL AVERAGE RETURN AND ALPHA OF PHARMACEUTICAL INDUSTRY

Name of Company	CAPM Return	Actual Avg. Return (stock)	Alpha
SUN PHARMA	7.31	32.68	25.37
DR.REDDY'S	7.35	16.61	9.27
CADILA	7.28	21.63	14.35
CIPLA	7.28	11.84	4.56
LUPIN	7.23	34.56	27.34
GLAXOSMITHKLINE	7.42	14.13	6.71
GLENMARK	7.39	20.31	12.92
AUROBINDO	7.02	62.44	55.43
TORRENT	7.26	34.89	27.63
DIVIS	7.41	20.11	12.69

Source: Historical Stock Prices and own calculations

CHART 4: SHOWING EXPECTED RETURN (CAPM RETURN) AND ACTUAL AVERAGE RETURN AND ALPHA) OF PHARMACEUTICAL INDUSTRY



Source: Table 4

Interpretation

In table 4 CAPM return or the expected return is very less compared with the actual return from stock. Alpha shows the percentage excess return over the CAPM return. As it shows more than 1% in all the years, top ten companies are outperforming the market (CNX Nifty).

TABLE 5: SHOWING THE STANDARD DEVIATION, VARIANCE AND AVERAGE RETURN FROM CNX NIFTY

Standard Deviation	14.22
Variance	202.21
Average Return	7.37

Source: Historical Stock Prices and own calculations

Interpretation

As per table 5 CNX Nifty shows Standard Deviation of 14.22, Variance of 202.21 and an average return of 7.37.

TABLE 6: SHOWING THE RISK MEASURES OF STOCKS IN FMCG INDUSTRY

Name of Company	Beta	Covariance (nifty, stock)	Variance (stock)	Standard Deviation (stock)	Correlation	Coefficient of Variance
ITC	-.28	-56.49	349.53	18.70	-0.21	3.04
HUL	.50	100.28	305.90	17.49	0.40	2.36
NESTLE	.82	165.05	505.20	22.48	0.52	2.51
GODREJ	-.33	-66.67	213.29	14.60	-0.32	1.95
DABUR	1.18	238.27	331.26	18.20	0.92	2.47
COLGATE	.71	144.40	498.75	22.33	0.45	3.02
P&G	2.52	509.68	2339.88	48.37	0.74	2.60
BRITANNIA	2.17	438.35	3418.16	58.47	0.53	8.03
MARICO	.80	160.87	797.91	28.25	0.40	3.82
EMAMI	2.66	537.58	2546.48	50.46	0.75	6.98

Source: Historical Stock Prices and own calculations

Interpretation

Beta: Beta shows the systematic risk of the stocks. ITC Limited and Godrej Industries are showing a negative beta of -0.28 and -0.33 respectively. HUL, Colgate and Marico are also showing a beta less than 1. So the companies with beta less than 1 are termed as defensive shares and these are less volatile than the market and may experiencing smaller than the average gains.

Covariance (stock, Nifty): Covariance shows the relation between variance of the stock and nifty index. It shows the risk relationship. Beta depends up on the Covariance.

Variance: shows that how the variance of market moves together with the returns.

Standard Deviations: standard deviation represents the total risk of investing in shares which comprises of systematic and unsystematic risk. Procter and Gamble, Britannia and Emami limited shows the high risk.

Correlation: correlation is negative for ITC Limited and Godrej Industries and these companies are perfectly negatively correlated and all other companies are showing a positive correlation.

TABLE 7: SHOWING THE RISK MEASURES OF STOCKS IN PHARMACEUTICAL INDUSTRY

Name of Company	**Beta**	**Covariance (nifty, stock)**	**Variance (stock)**	**Standard Deviation(stock)**	**Correlation**	**Coefficient of Variance**
SUN PHARMA	1.79	362.90	1029.29	32.08	0.80	4.39
DR.REDDY'S	1.31	265.76	511.17	22.61	0.83	3.08
CADILA	2.08	421.30	1063.35	32.61	0.91	4.48
CIPLA	2.11	427.19	1591.71	39.9	0.75	5.48
LUPIN	2.71	548.31	2111.26	45.95	0.84	6.36
GLAXOSMITHKLINE	.46	93.11	143.30	11.97	0.55	1.61
GLENMARK	.77	155.58	388.77	19.72	0.55	2.67
AUROBINDO	5.18	1046.88	9802.81	99.01	0.74	14.10
TORRENT	2.35	475.28	1936.49	44.01	0.76	6.06
DIVIS	.55	112.02	218.03	14.77	0.53	1.99

Source: Historical Stock Prices and own calculations

Interpretation

Beta: Beta shows the systematic risk of the stocks. All companies are showing beta greater than 0 which means positive. AurobindoPharma shows the high beta of 5.18. Sun pharmaceuticals, Dr. Reddy's lab, cadila healthcare, cipla, lupin, and torrent pharma shows the high beta greater than 1 means these stocks are aggressive stocks. Glenmark, divis labs and GlaxoSmithKline shows the beta less than 1 and these are defensive stocks.

Covariance (stock, Nifty): Covariance shows the relation between variance of the stock and nifty index. It shows the risk relationship. Beta depends up on the Covariance.

Variance: shows that how the variance of market moves together with the returns.

Standard Deviations: standard deviation represents the total risk of investing in shares which comprises of systematic and unsystematic risk. Aurobindo pharma shows the high risk.

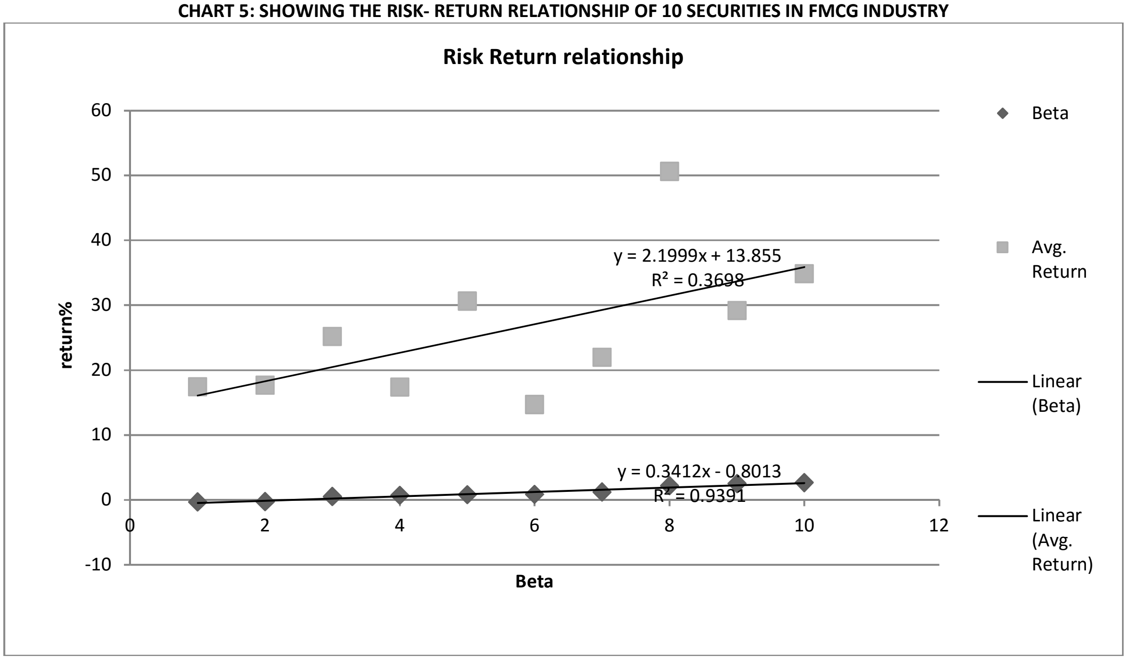
Correlation: all 10 Pharmaceutical companies are perfectly positively correlated.

TABLE 8: SHOWING THE RISK- RETURN RELATIONSHIP OF 10 SECURITIES IN FMCG INDUSTRY

Name of Company	Beta	Actual Avg. Return(stock)
GODREJ INDUSTRIES	-0.33	17.42
ITC LTD	-0.28	17.63
HUL LTD	0.5	25.18
COLGATE PALMOLIVE	0.71	17.38
MARICO LTD	0.8	30.61
NESTLE INDIA	0.82	14.67
DABUR INDIA	1.18	21.98
BRITANNIA INDUSTRIES	2.17	50.63
PROCTER AND GAMBLE	2.52	29.19
EMAMILIMITES	2.66	34.86

Source: Historical Stock Prices and own calculations

CHART 5: SHOWING THE RISK- RETURN RELATIONSHIP OF 10 SECURITIES IN FMCG INDUSTRY



Source: Table 8

Interpretation

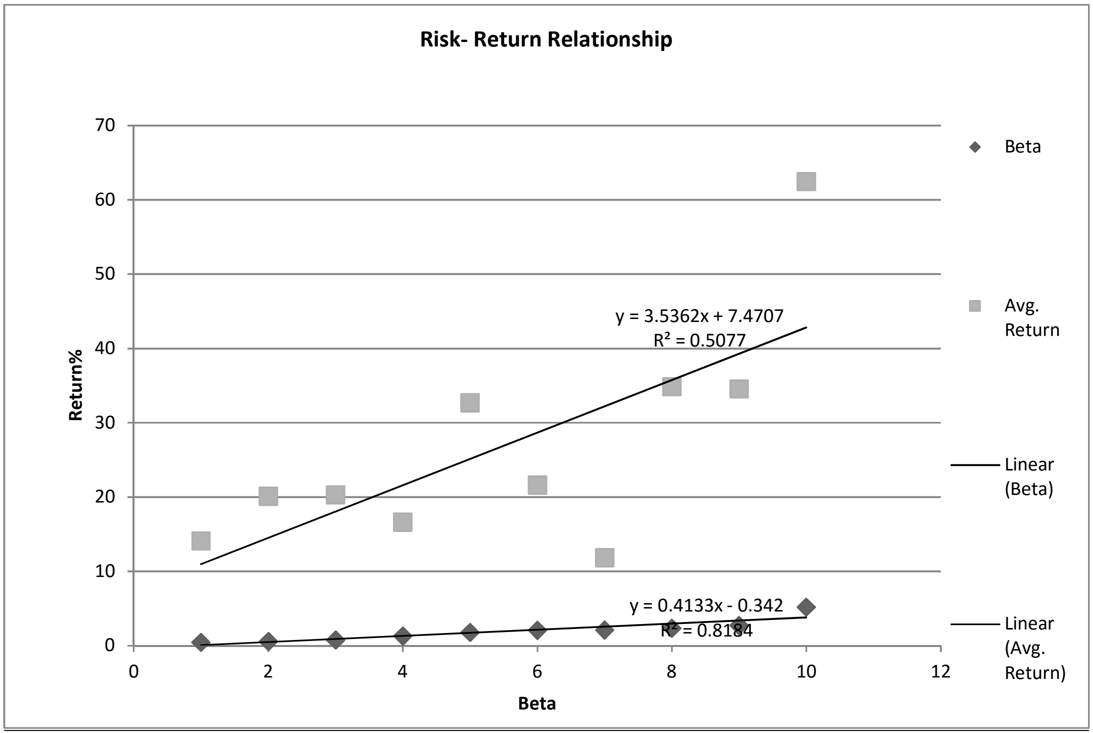
Table 8 presents the Beta and average return of 10 FMCG companies from 1-April 2010 to 31-March 2016. The companies with less beta value can be termed and less volatile. The returns from these stocks are less and these stocks are less responsive to the market upswings and down swings. Securities with high beta value exhibit high degree of market sensitivity. High beta shows the higher risk. ITC limited and Godrej industries is showing negative beta value indicates the low risk and return.

TABLE 9: SHOWING THE RISK- RETURN RELATIONSHIP OF 10 SECURITIES IN PHARMACEUTICAL INDUSTRY

Name of Company	Actual Avg. Return(stock)	Beta
GLAXOSMITHKLINE	14.13	.46
DIVIS LABS	20.11	.55
GLENMARK PHARMACEUTICALS	20.31	.77
DR.REDDY'S LABORATORIES	16.61	1.31
SUN PHARMACEUTICALS	32.68	1.79
CADILA HEALTHCARE	21.63	2.08
CIPLA LIMITED	11.84	2.11
TORRENT PHARMA	34.89	2.35
LUPIN LIMITED	34.56	2.71
AUROBINDO PHARMA	62.44	5.18

Source: Historical Stock Prices and own calculations

CHART 6: SHOWING THE RISK- RETURN RELATIONSHIP OF 10 SECURITIES IN PHARMACEUTICAL INDUSTRY



Source: Table 9

Interpretation

Table: 9 presents the Beta and average return of 10 Pharmaceutical companies from 1-April 2010 to 31-March 2016. The companies with less beta value can be termed and less volatile. The returns from GlaxoSmithKline, Divis labs are less and these stocks are less responsive to the market upswings and down swings. Securities with high beta value exhibit high degree of market sensitivity. High beta shows the higher risk. Aurobindo pharma shows the high beta of 5.18 and an average return of 62.44%.

FINDINGS

FMCG INDUSTRY

- FMCG industry returns are fluctuating year by year but the companies are trying to provide a stable return to the investors. The industry gives a lower average return of 14% and a higher average return of 50 %. Godrej industries, ITC, HUL, Colgate palm-olive, Marico, Nestle represents the beta value less than 1 showing that these stocks are less volatile and the returns are also related with beta value. Dabur India, Britannia, P&G, Emami represents the high beta values and hence shows the high returns and high volatility. So return from investment is related with the risk.

PHARMACEUTICAL INDUSTRY

- Pharmaceutical Industry comprises of high risky investments provides the better returns. The industry gives lower average return from cipla limited (11%) and higher average turn from Aurobindo pharma (62%). The stock with beta less than 1 are GlaxoSmithKline, Divis labs, Glenmark Pharmaceuticals. These are less volatile stocks. Stocks with beta value greater than 1 are Dr. Reddy's Laboratories, Sun Pharmaceuticals, Cadila Healthcare, Cipla, Torrent, Lupin and aurobindo pharma. These are categorised are volatile stocks. Aurobindo Pharma has a beta value of 5.18 with a return of 62%. Therefore, Risk and return are interrelated.

Fast Moving Consumer Goods and Pharmaceutical industry, Pharmaceutical Industry are defensive sectors. Based on the above analysis both these sectors are providing good return to the investors even though returns are fluctuating. Therefore, it has been found that Pharmaceutical industry is more volatile and riskier than the FMCG Industry.

SUGGESTIONS

- The investors should be aware about the return and risk of investing in security market as it is high risky.
- It's better to do a fundamental and technical analysis to see the position of the company.
- Risk- Return relationship analysis can help the investor to select a good company for investment.
- Researchers can study the risk and returns from many other industrial sectors.

CONCLUSION

The risk–return relationship analysis analysed the returns and risk values of the TOP 10 companies from FMCG and Pharmaceutical Industry in India. Both the sectors are providing good returns to the investors. It is found that the high risk gives higher returns. But the investors expect lower risk and higher returns. Risk and Return Analysis based on the historical stock prices helps them to assess the risk before investing. The study found that stock market is not place for speculative investments and returns from stock market depend upon the risk bearing capacity of the investor. It is proved that return and risk are interrelated.

LIMITATIONS

- The study has been conducted on the basis of long term returns. So the Short Term investors may not benefiting from this Analysis
- Sample size is restricted two industries in Indian Market which is also in the category of Defensive Sectors
- Data collected was from secondary sources
- Time period was restricted to 3 months

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