Business Analyst, ISSN 0973-211X, 38(1), 80-113, ©SRCC

RATES OF EQUITY RETURN – A DISAGGREGATIVE ANALYSIS: EMPIRICAL EVIDENCE FROM INDIA

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Abstract

Flexibility in investments helps an investor optimize his investment portfolio to suit his return-risk profile, which keeps changing with time. The motivation for this study arose from a significant research gap. There have been scant studies on the dis-aggregative aspects affecting investments. This paper assesses Indian equity returns (from the investors' point of view) factoring both sources of income – viz., dividends and capital gains. Further, the objective of this paper was to enrich the flexibility of the reader/investor, on equity investments, by analyzing dis-aggregative parameters like age, size, ownership structure and underlying sector/industry affiliation and their impact (if any) on returns. This would provide the investor with the much desired flexibility in designing his/her portfolio.

The sample for the study comprises of the NSE 500 companies and the period, under study, is spread over the past 15 years (2001-2014). The chosen sample (NSE 500 companies) represent 96.76 per cent of the free-float market capitalization and 97.01 per cent of the traded value of the stocks listed on the NSE as on December 31, 2013.

According to the findings, the returns vary along with the various segregates, providing the investors diversification opportunities, based on the same. A negative correlation appears between the age of companies and returns. Further, small and medium sized companies yield higher returns compared to their large counterparts. The apparent 'age' and 'size' anomalies are also indicative of the status of market efficiency.

Keywords: Age, Capital gains, Flexibility, Indian equity market, Indian equity returns,

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Ownership structure, Underlying sector/industry affiliation, Size.

1. Introduction

The motivation for this study arose from a significant research gap. There have been scant studies on the dis-aggregative aspects affecting investments. This paper assesses Indian equity returns (from the investors' point of view) factoring both sources of income – viz., dividends and capital gains. Further, the objective of this paper was to enrich the flexibility of the reader/investor, on equity investments, by analyzing dis-aggregative parameters like age, size, ownership structure and underlying sector/industry affiliation and their impact (if any) on returns. For better exposition, this paper has been organized into five sections. Section I contains the introduction, highlighting the parameters being considered; Section II enumerates briefly, the literature review focusing on dis-aggregative analysis. Section III contains the methodology used in the analysis. The presentation of returns based on the age, size, ownership structure and underlying sector/industry affiliation of the sample companies and their interpretations form the subject matter of Section IV. The summary is presented in Section V.

The sample comprising of the NSE 500 companies is segregated on the basis of age, size, ownership structure and the underlying sector/industry affiliation. This section provides a brief overview of the modus-operandi in which each aspect has been considered.

Age: The constituent companies are divided into 3 categories based on their age, namely, 'young', 'middle-aged' and 'old'. The quartile values of age form the basis for the segregation. All companies that fall within the first quartile are classified as 'young', the companies that fall between the first and third quartile are classified as 'middle-aged' and those lying above the quartile 3 are referred to as 'old'. As a result of this classification, 133 companies fall in the 'young' category, 245 companies in the 'middle-aged' category and 122 companies in the 'old' category (Figure 1).

Size: For the purpose of analysis, the constituent companies have been divided into 3 categories based on their size, namely, 'small', 'medium' and 'large'. The quartile values of the company's market capitalization, for each year, form the basis for the segregation. All companies within the first quartile have been classified as 'small', companies; between the first and third quartiles have been designated as 'medium' and those lying above the quartile 3 as 'large'.

Ownership Structure: The ownership structure of the sample companies is primarily based on whether these companies are family owned companies or non-family owned

companies. A family owned company is one in which the decision making is influenced by more than one member of the same family who have a close association with the company, through leadership and/or ownership (Entrepreneur website, 2015). The family owns a significant portion of the stock, though not necessarily a majority (Harvard Business Review, 2012). From the non-family owned companies, a further segregation on the basis of whether these companies are public sector undertakings (PSUs) or not, has been made. Thus, the segregation of the sample companies on the basis of ownership structure is 'family owned', 'PSUs' and 'Non-PSU/Non-Family'.

On analysis of the ownership structure, it has been observed that more than two-third (70.20 per cent) of the NSE 500 companies are family-owned businesses. The remaining less than one-third (29.80 per cent) of the non-family owned businesses have more than one-fourth (26.17 per cent) of the constituent companies being central/state government owned PSUs. In terms of numbers, there are 351 (70.20 per cent) family-owned businesses, 39 (7.80 per cent) PSUs and 110 (22 per cent) non-family/non-PSU companies in the sample. As a result, more than three-fourth(78 per cent) of the NSE 500 companies are either family owned or government owned businesses and less than one-fourth are non-family corporates (Figure 2). From these statistics, it is apparent that the family owned business enterprises constitute the major segment of the Indian corporate sector, warranting effective corporate governance. Witness in this context the following: the Indian economy is dominated by large entities with majority shareholding in the hands of a few (Singh et al., 2013; Varma, 1998).

Economically, this may not be a desirable situation for any country, more so for a socialist economy, like India. The objective of a socialist economy is to ensure that the wealth created in the economy does not lie under the control of a few families or organizations, but is rather, equitably distributed amongst the population. It is imperative that the Indian government put in systems to encourage entrepreneurial development in the country so that more and more non-family/government owned businesses may contribute towards wealth creation and distribution.

Underlying Sector/Industry Affiliation: For the purpose of the dis-aggregative analysis, the 500 companies were regrouped into constituent sectors to reduce the number of sectors to 10 from 73, primarily with intent to have an adequate/good number of companies in each sector for better statistical analysis.

2. Review of Literature

Few studies have been conducted to analyze the characteristics of companies and their

impact (if any) on their risk and/or returns. It was demonstrated by Fisher (1959) that a firm's size and financial leverage were important determinants of equity risk. However, the study of individual firms' risk as related to their underlying characteristics began with the seminal work of Beaver et al. (1970); their study examined the relationship of certain accounting ratios (payout, liquidity, earning variability, etc.) to the firm's systematic risk (beta), and reported a strong and significant association between them.

Logue and Merville (1972) employed a multiple regression technique to relate financial variables and estimated beta. Assets size, return on assets and financial leverage were reported to be significant. Hamada (1972) as well as Galai and Masulis (1976) linked the firm's equity beta with factors like level of financial leverage, debt maturity, variation in income, cyclicality, operating leverage, dividends and growth. Ben-Zion and Shalit (1975) investigated the major determinants of equity risk through the analysis of the firm's underlying characteristics, specifically, the firm's size, its financial leverage, and its dividend record.

Banz (1981) examined the empirical relationship between the returns and the total market value of New York Stock Exchange (NYSE) common stocks. It was observed that smaller firms (by and large) had higher risk adjusted returns than larger firms. Wong et al. (1990) provided evidence on the relationship between stock returns and the effects of firm size and earnings to price ratio (E/P). It was concluded that stock returns were significantly related to both size and E/P.

Fletcher (1997) examined the conditional relationship between beta and returns in the UK for a time span of 20 years, 1975-1994. His result supported the findings of Fama and French (1992) as well as of Strong and Xu (1994) as there was no evidence of a significant risk premium on beta when the unconditional relationship between beta and return was examined. He also did not observe any significant relationship between size and returns. Lau et al. (2002) assessed the relationship between stock returns and beta, size, the earnings to price (E/P) ratio, the cash flow-to-price ratio, the book-to-market equity ratio, and sales growth (SG) by analyzing the data of the Singapore and Malaysian stock markets for the period 1988–1996. The analysis revealed a negative relationship between size and stock returns as well as between weighted average annual sales growth and stock returns for the Singapore stock market. For the Malaysian stock market, they noted a negative size effect and a positive E/P effect on stock returns.

Ho et al. (2006) examined the pricing effects of beta, firm size, and book-to-market value

(BV/MV), but conditional on market situations, i.e., whether the market was bullish or bearish, using Hong Kong equity stock data. Manjunatha and Mallikarjunappa (2012) examined the validity of the five parameter model (the combination of five variables, viz., beta (β), size, E/P, BV/MV and market risk premium (R_m-R_f) on the Indian stock returns using cross sectional regression. The results indicated that the combination of β, size, E/P, BV/MV and (R_m-R_f) variables explained the variation in security returns.

The analysis undertaken in this paper is a modest attempt to present a dis-aggregative analysis focusing on the parameters of age, size, ownership structure and underlying sector/industry affiliation, with respect to returns, of the sample companies from the Indian stock market.

3. Research Methodology

The research methodology adopted in this paper to conduct the dis-aggregative analysis by dividing the sample companies on the basis of age, size, ownership structure and underlying sector/industry affiliation, has been delineated in this section.

Scope: The sample comprises of the top 500 companies listed on the NSE based on their market capitalization, and are part of the NSE 500 index. The NSE 500 index represented about 96.76 per cent of the free float market capitalization and 97.01 per cent of the total traded value at NSE (Source: National Stock Exchange (NSE) website. http://www.nseindia.com/products/content/equities/indices/cnx_500.htm). Hence, virtually, the chosen sample presents a census on equity market returns in India. The date of sample selection was March 11, 2013 studied over the period of 2001-2014. This universe has been chosen as it is most likely to be an accurate representation of the Indian stock market (given the above facts).

NSE 500 Index Background: Introduced by the company Standard & Poor's (S&P), the index has traditionally been market-value weighted, that is, movements in the prices of stocks with higher market capitalizations (the share price times the number of shares outstanding) have a greater effect on the index than companies with smaller market capitalizations. However, the index is now float weighted (Source: Wikipedia website. http://en.wikipedia.org/wiki/S%26P_CNX_500). Its Indian counterpart, the CNX 500 (hereby referred to as NSE 500) is India's first broad based benchmark of the Indian capital market. The NSE 500 companies were disaggregated into 72 industry indices (as

on the date of sample selection). Industry weightages in the index reflect the industry weightages in the market. For example, if the housing sector has a 5 per cent weightage in the universe of stocks traded on NSE, housing stocks in the index would also have a representation of 5 per cent in the index (Source: National Stock Exchange (NSE) website. http://www.nseindia.com/products/content/equities/indices/cnx_500.htm).

Secondary Data and Analysis

Individual Companies and Disaggregated Portfolios: The basic computation of returns is for individual companies. The disaggregated portfolio returns have been built up from individual company returns. This method requires more effort and time but has the advantage of not only ensuring greater accuracy but also of providing better insights. However, the presentation emphasizes the entire disaggregated portfolio's returns. The rationale is that it provides a benchmark as well as credible statistics of equity returns. Such analysis is likely to be more useful as most of the professional equity investors, including individuals as well as institutions, have diversified portfolios based on varying parameters.

Share Prices: The share prices used in the computations are the average of the respective year's high and low prices. It is useful to mention here that the use of the year's 'average' price, however derived, had important advantages over the alternatives of using share prices at some fixed date, say, the year-end. As a large proportion of the listed shares in India are the shares of small and medium-sized companies and are not traded daily, the use of the share prices on a fixed date would have resulted in the exclusion of such shares from the study. Also, the prices at any particular point of time are liable to be affected by chance factors. Tests conducted by Gupta (1981) have shown that the average of the high and low prices quite closely approximate the average based on more frequently collected price quotations, such as the daily, weekly or monthly prices.

Definition of Returns: The returns represent total returns, including both capital appreciation and dividends. They have been measured by deploying the method of internal rate of return (IRR).

The IRR is the discount rate "r" in the following equation:

$$\textit{Initial Purchase Price} = [D_1/(1+r)^1] + [D_2/(1+r)^2] + \ldots\ldots [D_n + S_n/(1+r)^n] \qquad (1)$$

Where,
r is the discount rate;
$D_1, D_2 \ldots D_n$ are the year-to-year cash dividends; and,
Sn is the terminal price on the sale of investment at the end of *n* years.

Bonus and Rights Issue Adjustments: Share prices and dividend data, used for computing the returns, have been adjusted for the bonus and rights issues made during the period of the study. For bonus issues, the adjustment is straight forward. For example, if a company issues 1:1 bonus, the pre-bonus price and dividend of one share should be compared with the post-bonus price and dividend on two shares combined. Hence, the post-bonus share prices and dividend rate in all subsequent years is multiplied by a 'bonus adjustment factor' (which is derived as the ratio of the number of shares after the bonus issue to the number of shares before the bonus issue). The bonus adjustment factor will be 2/1 in the case of 1:1 bonus issue and 3/1 in the case of 2:1 bonus issue. The adjustment factor is recalculated after every bonus issue.

In the case of a rights issue, the adjustment is relatively more difficult. The adjustment method is designed to keep the shareholder's investment after the rights issue unchanged, i.e. exactly the same as before the rights issue. Most rights issues are often made significantly below the prevailing market price. Every shareholder has the option either to subscribe to the rights issue or to sell his/her right to someone else. The rights are traded in the market in the same way as shares. If the investor subscribes to the right, he/she will be making an additional investment which has been ruled out for the present purpose. If he/she sells his/her right, the price realized by him/her has the effect of reducing his/her investment, even though he/she continues to hold the same number of shares as before the rights issue. The reduction occurs because the ex-rights price is invariably lower than the cum-rights price. As mentioned earlier, it is assumed that the investor keeps his/her investment unchanged throughout the holding period. The 'rights adjustment factor' is intended to ensure this. It is derived by assuming that the shareholder first sells his 'right' and then immediately re-invests the sale proceeds by buying more shares of the company at the ex-right price. The assumption is that fractional shares can also be bought. The result of this is that the number of shares held by him/her will increase such that the value of his/her holding at the ex-right price will be the same as the value of his/her earlier holding at the cum-right price.

Weights for Computing Portfolio Returns: The returns over a year were first computed

for each individual company and then weights were attached to each, based on the market capitalization of each company at the beginning of each year. Hence, the relative weights of the individual companies in the portfolio would vary from period to period. Even if the companies remain the same, the relative prices of their shares and, therefore, the relative weights, could change from one period to another.

Dividends: Cash dividends are taken into account in the respective years and are not assumed to be reinvested.

Transaction Costs and Taxes: Brokerage, other transaction costs and personal income taxes have not been factored in the computation of returns. While the reason for excluding brokerage and other transaction costs is logistic convenience, the reason for income tax is that the personal income tax rates vary from investor to investor.

Data Sources and Analysis

The relevant data (secondary) were collected from the Bloomberg®and AceEquity® databases, for fourteen years (2001-2014). Descriptive statistical values/positional values, i.e., mean, standard deviation, variance, coefficient of variation, minimum, maximum, skewness, kurtosis and quartile values have been computed for each holding period. The entire set of data has been analyzed using Microsoft Excel® spreadsheets and the statistics software SPSS®, namely, Statistical Package for Social Sciences.

Age: Table 1 presents the mean, minimum, maximum, standard deviation, coefficient of variation, skewness, kurtosis, median and quartile values related to age of sample companies. The age was calculated with reference to the year of the incorporation of the company**.**

The constituent companies have been divided into 3 categories based on their age – 'young', 'middle-aged' and 'old'. All companies that fall within the first quartile have been classified as 'young', companies that fall between the first and third quartile are classified as 'middle-aged' and those lying above the quartile 3 as 'old'. As a result of this classification, 122 companies fall in the 'old' category, 245 companies in the 'middle-aged' category and 133 companies in the 'young' category.

Table 1: Mean, Minimum, Maximum, Standard Deviation, Coefficient of Variation, Skewness, Kurtosis, Median and Quartile Values Related to Age of Sample Companies *(Figures are in years)*

Mean	41.04
Minimum	4
Maximum	151
Standard Deviation	26.69
Coefficient of Variation	65.03
Skewness	1.25
Kurtosis	1.29
Median	30.50
Quartile 1	22
Quartile 3	56

As per the table, the average age of the sample companies is around four decades. However, the median of 30.50 years indicates that around half of companies in the sample were incorporated around the time of the liberalization of the Indian economy in 1991 (more than two decades ago) and the subsequent emphasis placed on private (company) participation in the economy.

Size: Table 2 presents the mean, minimum, maximum, standard deviation, coefficient of variation, skewness, kurtosis, median and quartile values related to size of sample companies. The market capitalization from 2001-2014, of each company, was taken to be the basis for the calculations.

The constituent companies have been divided into 3 categories based on their size – 'small', 'medium' and 'large'. All companies that fall within the first quartile have been classified as 'small', companies between the first and third quartile range have been classified as 'medium' and those lying above the quartile 3 as 'large'.

Table 2: Mean, Minimum, Maximum, Standard Deviation, Coefficient of Variation, Skewness, Kurtosis, Median and Quartile Values Related to Size of Sample Companies *(Figures are in INR crores)*

Mean	92,993.30
Minimum	663.67
Maximum	26,22,377.78
Standard Deviation	2,47,119.11
Coefficient of Variation	265.74
Skewness	5.96
Kurtosis	44.61
Median	20,917.75
Quartile 1	9,843.24
Quartile 3	58,529.66

As per the table, the average size of the sample companies (in terms of market capitalization) is around INR one lakh crores. However, the much lower median of INR 20,917.75 crores indicates that around half of companies in the sample are significantly smaller. The same is also corroborated by the high skewness and higher kurtosis that indicates that the sample is dominated a small number of very large companies. For example, Reliance Industries is the largest company in the sample, with an average market capitalization over 2001-2014 of INR 26,22,377.78 crores, more than 26 times the average!

Ownership Structure: The ownership structure of the sample companies has been determined as follows: family owned companies and non-family owned companies. From the non-family owned companies, a further segregation on the basis of whether these companies are public sector undertakings (PSUs) or not, has been made. Therefore, the segregation of the sample companies on the basis of ownership structure is 'family owned', 'PSUs' and 'Non-PSU/Non-Family'.

In terms of numbers, there are 351 (70.20 per cent) family-owned businesses, 39 (7.80 per cent) PSUs and 110 (22 per cent) non-family/non-PSU companies in the sample. As a result, more than three-fourth (78 per cent) of the NSE 500 companies are either family owned or government owned businesses and less than one-fourth are non-family

corporates.

Underlying Sector/Industry Affiliation: For the purpose of the dis-aggregative analysis, the 500 companies were regrouped into constituent sectors to reduce the number of sectors to 10 from 73, primarily for the sake of providing an adequate/good number of companies in each sector and for the sake of better statistical analysis. The detailed segregation is provided in Table 3.

Table 3: Sector-wise Re-Classification of Sample Companies

Sectors	Number of Companies	Percentage of Companies
Commodity (Metal, Metal Products, Mining, Oil and Gas)	**53**	**10.60**
Aluminium	2	
Castings/forgings	2	
Gas	6	
Metals	1	
Mining	8	
Oil exploration/production	6	
Refineries	7	
Refractories	1	
Steel and steel products	19	
Sector not available	1	
Consumer Goods	**40**	**8.00**
Air conditioners	1	
Brew/distilleries	3	
Cigarettes	3	
Consumer durables	4	
Gems jewelry and watches	4	
Leather and leather products	1	
Retail	1	
Personal care	7	
Plastic and plastic products	8	
Sugar	5	
Tea and coffee	3	

Finance	**76**	**15.20**
Banks	36	
Finance	31	
Finance – housing	4	
Financial institution	4	
Stock broking/Trading	1	
Healthcare	**36**	**7.20**
Hospitals	3	
Pharmaceuticals	33	
ICT (Internet, Communications and Technology)	**42**	**8.40**
Computers – hardware	1	
Computers – software	29	
Telecommunication - equipment	2	
Telecommunication - services	7	
Transmission towers	3	
Infrastructure	**59**	**11.80**
Cement and cement products	12	
Construction	47	
Power& Electricals	**51**	**10.20**
Cables – power	1	
Compressors / pumps	4	
Electrical equipment	12	
Electrodes	3	
Electronics - industrial	2	
Electrical engineering	8	
Fasteners	1	
Power generation	19	
Electricity trading	1	
Transport	**52**	**10.40**
Auto ancillaries	14	
Automobiles - 2 and 3 wheelers	3	
Automobiles - 4 wheelers	6	
Bearings	2	

Cycles	1	
Diesel engines	3	
Shipping	8	
Travel and transport	10	
Tyres	5	
Textile and Chemicals	**50**	**10.00**
Abrasives	1	
Chemicals – inorganic	6	
Chemicals – organic	2	
Chemicals – specialty	4	
Dyes and pigments	1	
Fertilizers	5	
Paints	4	
Pesticides and agrochemicals	4	
Petrochemicals	3	
Solvent extraction	3	
Textile machinery	1	
Textile products	10	
Textiles – cotton	1	
Textiles – synthetic	5	
Miscellaneous	**41**	**8.20**
Sanitary ware	1	
Diversified	2	
Food and food processing	9	
Hotels	4	
Entertainment	9	
Education	1	
Packaging	6	
Roses	1	
Apparel	1	
Paper and paper products	3	
Printing and publishing	3	
Total	**500**	**100**

4. Returns Based on the age, size, ownership structure and underlying sector/industry affiliation of sample companies

This section presents the disaggregated returns of the sample companies on the basis of their age, size, ownership structure and underlying sector/industry affiliation.

Age

As has already been mentioned, the companies have been segregated into young, middle-aged and old. Table 4 presents the weighted annual average returns from 2001-2014 for the different classifications of age and the statistics of mean, standard deviation, variance, coefficient of variation, minimum, maximum, skewness, kurtosis, quartile values of returns.

Table 4: Weighted Annual Average Returns and Statistics of Mean, Standard Deviation, Variation, Coefficient of Variation, Skewness, Kurtosis and Quartile Values of Returns on the Basis of Age of Sample Companies, 2001-2014

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Young											
2001	-21.68	-6.34	20.19	407.63	-318.45	-91.44	8.30	-3.09	8.71	0.00	0.00
2002	15.59	8.39	58.77	3454.19	700.48	-62.86	560.33	8.35	77.34	0.00	0.00
2003	-3.84	-1.48	11.61	134.74	-784.46	-81.01	42.31	-3.24	23.76	0.00	0.00
2004	233.79	38.20	97.50	9506.97	255.24	-14.56	546.91	3.19	10.99	0.00	1.14
2005	116.32	62.48	400.79	160630.33	641.47	-17.45	459.45	9.80	98.64	0.00	6.73
2006	53.94	23.03	50.07	2506.83	217.41	-20.01	257.76	2.64	7.54	0.00	25.57

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2007	37.38	11.04	34.58	1195.82	313.22	-68.81	211.11	2.51	11.06	0.00	15.06
2008	24.54	20.15	50.47	2547.12	250.47	-62.55	269.16	2.04	6.57	0.00	37.55
2009	-35.25	-35.32	28.92	836.19	-81.88	-85.67	9.71	0.01	-1.35	-59.61	0.00
2010	125.71	125.14	118.42	14023.94	94.63	-5.03	525.56	1.09	0.89	29.51	189.71
2011	14.84	2.46	38.99	1520.25	1584.96	-73.98	195.63	1.70	5.30	-24.84	18.53
2012	1.06	-7.45	32.11	1031.29	-431.01	-77.25	111.35	0.67	1.32	-25.74	9.30
2013	18.58	2.09	40.49	1639.07	1937.32	-70.25	213.50	2.04	7.97	-19.70	18.30
2014	25.61	15.36	39.86	1588.94	259.51	-55.37	188.47	1.50	3.88	-6.41	29.69
Average	***43.33***	***18.41***	***73.06***	***14358.81***	***331.35***	***-56.16***	***257.11***	***2.09***	***18.76***	***-7.63***	***25.11***
Middle-aged											
2001	-18.13	-10.41	55.48	3078.22	253.68	-89.01	530.09	5.33	45.95	-37.81	0.00
2002	15.10	19.04	48.30	2333.09	490.47	-67.63	339.26	2.37	10.10	-2.15	33.01
2003	1.01	8.08	39.63	1570.78	123.47	-82.81	223.58	1.91	6.95	-6.15	14.75
2004	142.05	108.55	134.03	17965.33	346.29	0.00	732.43	2.12	5.58	3.32	158.98
2005	61.67	85.14	294.83	86924.38	126.48	-31.53	708.55	12.18	163.72	0.60	89.38
2006	75.49	75.19	95.10	9044.22	738.89	-34.31	747.58	2.63	12.47	1.45	106.00
2007	43.65	17.95	132.63	17590.04	263.12	-67.34	802.61	10.03	114.93	-15.09	14.18
2008	44.12	28.85	75.91	5762.32	-68.32	-55.95	636.77	3.73	22.54	-10.25	49.63
2009	-27.05	-40.84	27.90	778.55	67.56	-87.03	54.01	0.64	0.04	-63.76	-19.93
2010	105.74	156.05	105.43	11115.43	362.49	-46.03	642.00	1.23	3.10	82.81	213.95
2011	7.13	11.33	41.07	1686.73	-1247.47	-63.38	229.38	1.44	4.28	-15.62	30.34

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2012	-7.19	-2.57	32.06	1027.74	-1886.47	-73.49	160.91	1.35	4.15	-24.82	14.39
2013	5.13	-1.70	32.07	1028.19	181.57	-75.80	96.56	0.50	0.29	-26.08	17.23
2014	23.42	26.05	47.30	2237.73	253.68	-90.47	237.21	1.18	2.88	-1.63	51.22
Average	***33.72***	***34.34***	***82.98***	***11581.63***	***-55.80***	***-61.77***	***438.64***	***3.33***	***28.36***	***-8.23***	***55.22***
Old											
2001	-32.45	-6.79	33.10	1095.62	-487.48	-89.22	120.18	0.47	1.71	-26.26	9.27
2002	24.04	20.90	37.23	1386.03	178.13	-28.57	161.18	1.70	2.82	0.00	29.57
2003	-3.80	12.83	34.78	1209.48	271.08	-55.00	203.50	1.78	7.68	-5.07	32.75
2004	124.35	123.72	108.53	11777.96	87.72	0.00	485.21	1.00	0.75	32.53	185.00
2005	54.40	65.00	87.25	7613.18	134.23	-36.97	467.47	1.89	4.32	3.97	99.94
2006	72.92	73.26	76.89	5911.48	104.95	-23.41	382.93	1.43	2.69	9.62	115.93
2007	8.28	-4.26	26.52	703.28	-622.54	-61.16	89.59	1.02	1.63	-20.96	3.33
2008	37.15	24.37	39.13	1531.20	160.57	-73.84	153.61	0.80	1.42	0.32	45.25
2009	-16.39	-34.10	26.99	728.44	-79.15	-84.24	30.01	0.31	-0.69	-56.28	-14.05
2010	110.67	150.43	106.49	11341.03	70.79	0.00	635.95	1.81	5.49	82.61	188.94
2011	26.17	20.31	43.91	1928.42	216.20	-69.13	259.32	1.94	8.77	-3.18	40.49
2012	3.24	-2.86	31.18	972.50	-1090.21	-62.88	129.51	1.18	2.83	-22.94	12.73
2013	7.38	-3.62	27.43	752.27	-757.73	-48.53	83.91	0.80	0.58	-24.43	12.03
2014	19.42	13.33	33.90	1148.94	254.31	-39.47	160.79	1.34	3.28	-8.27	27.31
Average	***31.10***	***32.32***	***50.95***	***3435.70***	***-111.37***	***-48.03***	***240.23***	***1.25***	***3.09***	***-2.74***	***56.32***

On the basis of age, the 'young' companies with mean returns of 43.33 per cent fare far better than their 'middle-aged' and 'old' counterparts with mean returns of 33.72 and 31.10 per cent respectively. This is perhaps to be expected, as the companies in this segment have been observed to be affiliated with emerging and important sectors for India, like power and infrastructure. Additionally, being new, these companies are equipped with new technologies, new production processes and perhaps also with skilled labor force. There appears to be a negative correlation between age and returns. The old companies seem to be saddled with 'old' technologies, old machines, more labor force (and that too relatively less skilled) and so on. Nevertheless, the returns for all 3 segments are commendable. Further, it is worth noting that the returns for all-age companies are subject to very high volatility reflected in the high standard deviation and coefficient of variation. The high kurtosis figure in each segment is an indication of a small number of companies recording very high returns.

In terms of stability of returns though, the 'old' companies, with an upper quartile value of 56.32 per cent appear safer. The negative returns in 2001 for all classifications of age may be attributed to the global economic slowdown in the wake of the 9/11 terrorist attack in the USA. The returns were negative in 2009 as a result of the recession emanating out of the financial crisis in the USA in 2008; however, all 3 segregations recovered admirably in 2010, with returns exceeding 100 per cent. According to the Organization for Economic Cooperation and Development (OECD), India's growth rate languished below 5 per cent in 2011 and 2012, due to high interest rates, high inflation and weak investment (OECD India Brochure, 2012). The same perhaps is reflected in the significant lowering of returns in 2011 and 2012. However, returns appear to have recovered, 2013 onwards.

In 2014, amongst the 'young' companies, BF Utilities has recorded high returns whilst Unity Infra projects has recorded low returns. Ironically, both companies belong to the 'infrastructure' sector, perhaps an indication of the volatility available within the sector. Amongst the 'middle-aged' and 'old' companies, Aurobindo Pharma and Monsanto India recorded high returns, respectively.

Size

This sub-section presents the analysis of returns on the basis of size through Table 5.

Table 5: Weighted Annual Average Returns and Statistics of Mean, Standard Deviation, Variation, Coefficient of Variation, Skewness, Kurtosis and Quartile Values of Returns on the Basis of Size of Sample Companies, 2001-2014

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Small											
2001	-19.55	-8.97	23.53	553.81	-262.32	-91.44	42.84	-1.24	1.57	-21.66	0.00
2002	41.03	10.58	56.11	3148.71	530.34	-50.06	560.33	7.84	75.28	0.00	8.52
2003	15.67	8.15	29.39	864.04	360.61	-54.72	148.00	2.12	7.67	0.00	10.19
2004	87.95	51.59	99.75	9949.35	193.35	-14.56	660.08	3.21	13.17	0.00	66.09
2005	99.94	47.05	93.13	8672.96	197.94	-43.79	629.20	3.67	18.02	0.00	70.41
2006	75.75	39.57	71.22	5072.17	179.98	-40.69	344.48	2.17	4.86	0.00	67.98
2007	8.6	-0.08	36.72	1348.45	-45900.00	-77.70	240.79	2.67	14.65	-20.70	1.73
2008	26.16	12.81	51.93	2696.37	405.39	-76.38	252.94	2.32	7.47	-7.64	20.07
2009	-43.23	-39.03	27.81	773.24	-71.25	-82.49	14.68	0.34	-1.25	-62.30	-12.84
2010	165.86	137.86	130.27	16969.38	94.49	0.00	642.00	1.32	2.19	33.57	191.39
2011	14.92	6.08	41.89	1754.60	688.98	-55.88	229.38	1.94	6.91	-20.21	23.03
2012	1.51	0.01	34.88	1216.88	348800.00	-53.03	150.24	1.65	4.55	-22.36	14.73
2013	22.69	12.69	47.58	2264.11	374.94	-59.14	200.31	1.96	4.54	-16.22	25.71
2014	66.23	45.73	78.79	6208.09	172.29	-53.23	513.24	3.04	13.85	-1.03	73.33
Average	***40.25***	***23.15***	***58.79***	***4392.30***	***21840.34***	***-53.79***	***330.61***	***2.36***	***12.39***	***-9.90***	***40.02***
Medium											
2001	-20.04	-1.51	65.93	4346.65	-4366.23	-85.93	616.14	6.96	62.92	-20.12	0.00
2002	32.07	16.49	39.11	1529.95	237.17	-52.44	176.17	1.80	3.54	0.00	27.25
2003	12.28	7.82	35.98	1294.60	460.10	-81.46	203.50	2.43	11.27	0.00	12.69
2004	165.86	106.96	147.35	21710.57	137.76	0.00	732.43	1.99	4.59	0.00	155.68
2005	75.57	49.05	74.77	5590.14	152.44	-25.93	312.90	1.81	2.92	0.00	83.99
2006	84.89	61.73	88.76	7877.99	143.79	-22.49	435.43	1.76	3.42	0.00	100.36

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2007	15.8	19.50	150.36	22609.51	771.08	-68.81	1639.70	10.19	110.11	-6.58	10.26
2008	40.71	26.52	55.42	3070.87	208.97	-55.95	385.93	3.30	16.46	0.00	41.87
2009	-41.82	-37.00	27.80	773.08	-75.14	-85.83	30.01	0.09	-1.01	-63.27	-12.95
2010	156.74	136.59	100.34	10068.80	73.46	-1.39	493.06	0.74	0.49	66.33	198.63
2011	11.31	11.57	42.49	1805.07	367.24	-73.98	195.63	1.17	2.73	-17.74	32.60
2012	3.39	-2.29	36.99	1368.33	-1615.28	-73.49	160.91	1.25	2.90	-27.51	14.56
2013	8.04	-4.36	36.21	1311.40	-830.50	-75.80	142.88	0.95	2.21	-28.15	15.24
2014	27.75	18.13	49.74	2474.21	274.35	-55.37	237.21	1.71	4.42	-11.86	40.21
Average	***40.90***	***29.23***	***67.95***	***6130.80***	***-290.06***	***-54.21***	***411.56***	***2.58***	***16.21***	***-7.78***	***51.46***
Large											
2001	-23.67	-7.99	33.00	1089.19	-413.02	-89.22	143.00	0.96	5.50	-24.51	0.00
2002	27.95	20.25	43.26	1871.03	213.63	-45.35	161.93	1.74	2.45	0.00	27.61
2003	-0.96	4.30	28.65	820.99	666.28	-61.65	121.42	1.45	4.10	-6.24	9.23
2004	141.92	116.28	125.60	15775.06	108.02	0.00	671.38	1.57	3.49	0.00	180.83
2005	36.87	67.46	364.41	132793.12	540.19	-36.97	4068.89	10.55	116.04	0.00	46.32
2006	70.34	63.82	84.23	7094.36	131.98	-23.41	747.58	4.43	33.22	0.25	95.35
2007	29.38	14.36	77.33	5979.26	538.51	-45.36	802.61	8.64	86.10	-10.32	20.07
2008	35.67	31.87	53.39	2850.74	167.52	-68.62	335.53	2.00	7.80	0.00	60.99
2009	-25.52	-29.28	27.66	765.08	-94.47	-87.03	54.01	0.26	-0.23	-52.43	-6.21
2010	100.76	121.27	88.26	7789.87	72.78	-46.03	412.63	1.02	1.39	64.42	168.65
2011	12.22	11.59	31.79	1010.83	274.29	-45.85	149.37	1.04	2.97	-10.68	29.63
2012	-3.63	-3.77	23.51	552.73	-623.61	-53.55	83.41	0.40	0.47	-20.81	12.70
2013	11.22	5.11	38.40	1474.53	751.47	-74.66	235.22	2.89	15.36	-16.03	19.21
2014	20.77	14.75	30.07	904.21	203.86	-75.21	125.94	0.55	2.56	-0.22	27.26
Average	***30.95***	***30.72***	***74.97***	***12912.21***	***181.25***	***-53.78***	***579.49***	***2.68***	***20.09***	***-5.47***	***49.40***

The 'small' and 'medium' size companies fare better (at robust returns of 40 per cent) than their 'large' counterparts by 10 percentage points. In other words, the small and

medium capitalization (cap) companies lead the returns compared to large cap companies. This may be attributed to the aspect that they are growth companies with increasing market share, whilst the large companies are mature companies with low further growth or expansion opportunities. As is perhaps expected, volatility remains evident in these segments as well. The findings are similar to the findings of Banz (1981), Wong et al. (1990), Lau et al. (2002) and Manjunatha and Mallikarjunappa (2012). These apparent 'age' and 'size' anomalies are also indicative of the status of market efficiency. Tata Elxsi recorded high returns in the 'small' segment whilst Aurobindo Pharma recorded high returns in the 'medium' size segment, as well. Amongst the 'large' companies, Reliance Communications recorded high returns.

Ownership Structure

This sub-section presents the analysis of returns on the basis of ownership structure through Table 6.

Table 6: Weighted Annual Average Returns and Statistics of Mean, Standard Deviation, Variation, Coefficient of Variation, Skewness, Kurtosis and Quartile Values of Returns on the Basis of Ownership Structure of Sample Companies, 2001-2014

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Family owned											
2001	-23.36	-10.67	36.93	1362.79	-346.11	-89.01	225.78	1.90	11.88	-27.96	0.00
2002	17.71	12.59	39.97	1597.31	317.47	-67.63	339.26	3.02	17.14	0.00	18.32
2003	-7.50	5.60	34.10	1162.60	608.93	-82.81	223.58	2.28	10.68	-0.67	9.53
2004	158.50	90.75	131.15	17199.70	144.52	-14.56	732.43	2.20	5.72	0.00	124.80
2005	61.75	72.36	255.30	65179.29	352.82	-	708.55	13.55	210.13	0.00	85.61

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
						31.53					
2006	79.56	61.96	84.48	7136.83	136.35	-34.31	747.58	2.80	15.55	0.00	97.82
2007	41.88	15.57	113.94	12981.82	731.79	-68.61	802.61	11.37	151.61	-11.83	14.83
2008	39.96	25.66	69.40	4816.92	270.46	-68.62	636.77	3.77	24.30	-6.01	40.64
2009	-34.96	-41.12	28.20	795.49	-68.58	-87.03	54.01	0.54	-0.39	-63.85	-20.93
2010	129.25	154.85	116.36	13538.50	75.14	-46.03	642.00	1.30	2.75	75.51	205.42
2011	13.43	9.14	45.02	2026.38	492.56	-73.98	259.32	1.79	6.04	-18.38	29.00
2012	-0.88	-4.12	32.82	1077.43	-796.60	-77.25	130.25	0.79	1.35	-26.73	13.33
2013	12.84	-0.42	35.52	1261.96	-8457.14	-73.23	213.50	1.24	4.56	-26.93	19.80
2014	28.72	21.89	44.98	2023.05	205.48	-90.47	237.21	1.34	3.46	-5.30	42.00
Average	***36.92***	***29.57***	***76.30***	***9440.01***	***-452.35***	***-64.65***	***425.20***	***3.42***	***33.20***	***-8.01***	***48.58***
PSU											
2001	8.83	5.61	28.14	791.89	501.60	-47.52	120.18	1.81	7.08	-5.36	15.44
2002	72.65	44.37	53.50	2862.51	120.58	-15.04	161.93	0.93	-0.45	0.00	80.97
2003	15.61	15.79	43.28	1873.22	274.10	-44.46	203.50	2.58	9.21	-3.53	19.59
2004	160.77	129.94	104.89	10855.50	80.72	0.00	386.44	0.50	-0.21	18.45	194.31

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2005	15.07	26.60	47.65	2270.33	179.14	-36.97	196.61	1.75	3.56	0.00	38.05
2006	56.37	35.00	59.53	3543.34	170.09	-23.41	280.30	2.59	7.95	0.03	47.25
2007	3.74	-2.99	17.65	311.47	-590.30	-45.36	40.18	0.16	0.75	-16.23	4.19
2008	42.09	29.71	35.63	1269.51	119.93	-27.07	139.47	1.00	1.01	1.22	54.16
2009	-17.10	-21.55	19.72	388.73	-91.51	-66.78	7.51	-0.42	-0.59	-37.62	-6.06
2010	71.74	100.67	75.73	5734.32	75.23	0.00	327.40	0.83	0.99	42.17	149.17
2011	8.46	12.43	27.39	750.20	220.35	-34.15	62.98	0.11	-0.96	-11.40	34.28
2012	-11.88	-17.00	15.34	235.40	-90.24	-44.65	17.79	0.48	0.12	-28.16	-9.58
2013	-0.73	-13.23	18.35	336.59	-138.70	-75.80	19.09	-0.93	2.23	-27.41	1.33
2014	2.70	-1.30	25.96	674.04	-1996.92	-43.20	91.17	1.32	3.36	-20.56	9.49
Average	***30.59***	**24.58**	**40.91**	**2278.36**	**-83.28**	**-36.03**	**146.75**	**0.91**	**2.43**	**-6.31**	**45.19**
Non-family/non-PSU											
2001	-42.48	-7.13	63.15	3987.38	-885.69	-91.44	530.09	6.83	58.56	-29.64	0.00
2002	1.98	19.58	66.09	4368.02	337.54	-31.78	560.33	6.39	50.16	-1.64	27.34
2003	-5.20	7.49	27.38	749.39	365.55	-55.19	79.10	0.49	0.42	-1.71	18.51
2004	80.50	92.71	104.06	10828.20	112.24	0.00	433.08	1.30	1.41	3.36	145.01

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2005	43.28	54.65	76.56	5861.82	140.09	-13.71	467.47	2.58	9.31	1.52	73.44
2006	79.02	71.26	89.44	7999.62	125.51	-15.43	388.19	1.72	2.99	0.67	107.30
2007	14.95	-1.03	27.80	772.90	-2699.03	-58.50	95.34	0.93	1.46	-21.79	10.08
2008	24.58	22.12	47.10	2218.35	212.93	-73.84	248.22	1.95	6.88	0.00	43.12
2009	-26.43	-32.81	27.64	763.92	-84.24	-83.77	37.96	0.28	-0.77	-55.67	-10.68
2010	115.74	138.43	96.34	9281.81	69.59	0.00	455.87	0.73	0.35	68.73	190.25
2011	19.80	16.93	34.88	1216.89	206.02	-51.77	149.54	0.85	1.59	-4.15	40.43
2012	3.64	1.14	32.57	1060.64	2857.02	-54.05	160.91	1.94	7.35	-18.94	17.49
2013	14.87	1.61	31.09	966.83	1931.06	-58.19	131.75	1.20	3.06	-17.86	15.45
2014	22.20	24.17	38.98	1519.15	161.27	-52.36	160.79	1.14	2.05	1.81	45.51
Average	***24.75***	***29.22***	***54.51***	***3685.35***	***203.56***	***-45.72***	***278.47***	***2.02***	***10.34***	***-5.38***	***51.66***

As stated earlier, the ownership structure of the Indian corporates is dominated by 'family owned' businesses and their mean returns at 36.92 per cent are also the highest amongst the three segments. Amongst the PSUs, the high kurtosis figures indicate that the returns are high for only a small number of PSUs. The 'non-PSU/non-family' segment has the lowest returns. Therefore, they appear unattractive, as an investment choice. The 'family-owned' and 'PSU' segments thus, not surprisingly, continue to be popular choices for equity investors.

Aurobindo Pharma, with a majority shareholding of the Reddy family, recorded high returns whilst Bharat Earth Movers Limited (BEML), a PSU, recorded high returns. Monsanto India recorded high returns in the non-PSU/non-family segment.

Underlying Sector/Industry Affiliation

This sub-section presents the analysis of returns on the basis of underlying sector/industry affiliation through Table 7.

Table 7: Weighted Annual Average Returns and Statistics of Mean, Standard Deviation, Variation, Coefficient of Variation, Skewness, Kurtosis and Quartile Values of Returns on the Basis of Underlying Sector of Sample Companies, 2001-2014

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Commodities											
2001	8.82	10.83	58.13	3379.36	536.75	-67.05	225.78	2.59	7.51	-13.91	12.17
2002	70.19	22.99	44.92	2018.14	195.39	-67.63	182.78	1.35	2.70	0.00	54.17
2003	12.69	22.05	53.38	2849.76	242.09	-54.67	223.58	1.93	4.32	0.00	22.05
2004	3.33	97.83	122.02	14887.71	124.73	0.00	549.40	1.65	3.40	1.08	173.63
2005	72.74	152.39	620.14	384574.40	406.94	-36.97	554.41	6.29	40.48	0.00	88.12
2006	39.31	34.97	59.10	3493.06	169.00	-34.31	291.81	2.45	8.17	0.00	51.56
2007	2.96	4.33	38.19	1458.83	881.99	-48.91	178.18	2.57	9.60	-17.90	18.04
2008	52.12	83.36	120.83	14599.28	144.95	-38.57	636.77	2.75	9.88	12.72	108.02
2009	-29.29	-44.28	26.68	711.90	-60.25	-85.83	6.96	0.47	-1.08	-65.36	-18.51
2010	120.71	174.82	123.68	15295.57	70.75	0.00	493.06	0.66	0.11	84.53	251.70
2011	4.06	-4.05	26.43	698.51	-652.59	-62.41	55.73	-0.11	-0.33	-24.27	14.54
2012	-10.55	-17.16	23.18	537.41	-135.08	-54.05	35.66	0.56	-0.45	-34.63	-4.49
2013	-2.06	-20.94	20.03	401.21	-95.65	-61.60	19.09	-0.01	-0.62	-35.35	-5.79

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2014	12.19	13.62	35.50	1259.93	260.65	-56.46	107.98	0.57	0.68	-8.19	25.72
Average	***25.52***	***37.91***	***98.02***	***31868.93***	***149.26***	***-47.75***	***254.37***	***1.69***	***6.03***	***-7.23***	***56.50***
Consumer goods											
2001	-2.35	-14.80	30.21	912.38	-204.12	-78.60	58.36	-0.47	0.36	-32.06	2.66
2002	-6.75	5.99	27.87	776.73	465.28	-45.35	109.82	1.77	5.04	-6.21	8.84
2003	-6.73	1.18	28.01	784.39	2373.73	-55.00	74.52	0.49	0.41	-16.91	14.49
2004	84.14	84.39	93.23	8692.21	110.48	0.00	485.21	2.54	9.45	4.47	118.02
2005	55.51	104.57	141.66	20067.52	135.47	0.00	708.55	2.64	9.00	4.98	136.57
2006	118.45	102.21	81.66	6668.22	79.89	0.00	259.15	0.26	-1.05	22.79	163.69
2007	9.61	35.01	280.73	78810.60	801.86	-68.81	67.58	5.82	34.18	-27.47	3.86
2008	51.17	31.70	69.38	4813.99	218.86	-30.31	385.93	4.17	20.72	0.00	40.37
2009	-17.06	-32.33	29.22	853.77	-90.38	-83.07	23.45	-0.03	-1.14	-58.89	-7.50
2010	98.21	180.30	153.00	23409.07	84.86	0.00	635.95	1.99	3.68	93.46	181.43
2011	37.87	36.87	64.89	4210.17	176.00	-45.89	259.32	1.69	3.22	-0.71	53.27
2012	20.39	5.94	42.47	1803.74	714.98	-53.47	129.51	0.76	0.91	-25.56	30.72
2013	40.78	15.81	49.93	2493.06	315.81	-45.09	213.50	1.96	6.16	-17.32	31.00
2014	17.28	13.71	34.71	1204.74	253.17	-90.47	98.26	-0.15	1.83	-7.56	27.78
Average	***35.75***	***40.75***	***80.50***	***11107.19***	***388.28***	***-42.58***	***250.65***	***1.67***	***6.63***	***-4.79***	***57.51***
Finance											
2001	3.92	2.55	26.96	726.76	1057.25	-64.09	136.50	1.61	8.37	-1.27	6.39
2002	29.90	25.48	42.87	1838.08	168.25	-23.52	149.40	1.60	1.74	0.00	34.77
2003	18.83	15.86	33.24	1105.14	209.58	-14.89	203.50	3.23	14.18	0.00	15.21
2004	141.14	86.85	92.25	8509.78	106.22	0.00	357.56	1.06	0.71	0.00	138.07
2005	32.58	31.11	52.12	2716.36	167.53	-25.93	247.93	2.49	6.70	0.00	36.90

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2006	50.75	25.94	49.16	2417.09	189.51	-40.69	215.89	1.91	3.65	0.00	39.28
2007	19.66	13.16	37.08	1374.90	281.76	-46.49	211.11	2.66	10.95	-3.95	27.09
2008	35.72	31.56	42.66	1819.86	135.17	-68.62	189.47	1.45	3.96	0.56	27.09
2009	-33.79	-34.60	24.74	612.26	-71.50	-84.45	9.52	0.01	-0.85	-53.29	-15.03
2010	129.71	128.18	93.26	8697.01	72.76	0.00	412.63	1.09	1.25	78.42	174.03
2011	28.36	26.59	34.36	1180.74	129.22	-37.59	149.37	0.94	2.03	2.16	43.07
2012	-7.45	-8.77	23.47	550.61	-267.62	-77.25	57.68	0.06	1.62	-22.19	7.37
2013	11.15	6.07	24.87	618.49	409.72	-47.50	70.45	0.20	-0.38	-13.49	23.83
2014	9.01	4.41	29.17	851.14	661.45	-57.24	121.06	1.10	3.24	-13.93	16.35
Average	***33.54***	***25.31***	***43.30***	***2358.44***	***232.09***	***-42.02***	***180.86***	***1.39***	***4.08***	***-1.93***	***41.03***
Healthcare											
2001	-11.11	-14.36	34.96	1222.31	-243.45	-75.14	79.58	0.46	0.71	-42.41	0.83
2002	4.47	11.95	41.14	1692.55	344.27	-62.86	119.60	1.11	1.15	-8.91	26.14
2003	-14.77	-1.15	45.28	2050.14	-3937.39	-81.01	190.29	2.87	11.73	-20.59	0.00
2004	179.33	170.49	170.87	29196.40	100.22	0.00	701.22	1.37	2.17	28.11	268.21
2005	33.83	38.78	74.39	5533.81	191.83	-31.53	295.68	2.52	6.75	0.00	45.34
2006	84.31	60.92	46.08	2123.68	75.64	0.00	172.84	0.69	0.09	25.37	90.30
2007	11.71	9.29	39.42	1553.78	424.33	-33.85	112.16	1.37	1.11	-15.58	15.50
2008	13.28	-2.07	36.04	1298.65	-1741.06	-55.95	106.65	1.22	1.99	-24.29	10.53
2009	-8.96	-18.65	31.19	972.79	-167.24	-69.56	42.12	0.16	-0.85	-42.13	8.60
2010	127.52	155.56	118.03	13931.17	75.87	44.64	525.56	1.69	2.63	73.88	189.16
2011	17.50	12.57	31.11	968.06	247.49	-50.88	92.34	0.21	1.40	0.71	28.84
2012	13.12	1.70	29.10	847.06	1711.76	-53.31	69.14	0.23	0.24	-25.02	14.42
2013	25.15	11.63	35.66	1271.41	306.62	-70.25	58.70	-1.07	0.70	-1.78	32.92

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2014	41.45	32.75	49.01	2402.30	149.65	-55.37	237.21	2.48	10.71	2.34	48.87
Average	***36.92***	***33.53***	***55.88***	***4647.44***	***-175.82***	***-42.51***	***200.22***	***1.09***	***2.90***	***-3.59***	***55.69***
ICT											
2001	-62.10	-31.32	36.48	1330.84	-116.48	91.44	0.00	-0.53	-1.50	-69.97	0.00
2002	10.19	27.48	116.83	13649.70	425.15	-63.70	560.33	3.76	14.98	-3.84	0.55
2003	-12.17	-8.94	26.25	688.83	-293.62	-82.81	62.41	-0.57	2.28	-23.06	0.00
2004	141.11	86.99	181.57	32967.62	208.73	-14.56	32.43	2.72	7.02	0.00	80.12
2005	37.85	50.69	99.66	9931.39	196.61	-17.45	516.34	3.49	14.97	0.00	81.41
2006	61.94	46.17	71.71	5142.38	155.32	-1.93	301.52	2.07	4.47	0.00	71.00
2007	36.44	20.56	34.90	1218.08	169.75	-23.00	37.05	1.58	2.66	0.00	36.35
2008	-4.75	-7.56	41.68	1736.99	-551.32	-62.55	127.03	1.25	2.35	-42.90	8.34
2009	-25.85	-42.67	24.43	596.91	-57.25	-83.41	5.46	0.51	-0.73	-62.60	-23.63
2010	122.01	155.20	106.89	11424.73	68.87	-46.03	36.84	-0.15	-1.10	59.02	245.19
2011	23.86	7.78	49.20	2420.76	632.39	-48.88	195.63	2.06	5.75	-22.47	26.05
2012	0.05	-5.30	31.29	979.10	-590.38	-73.49	75.48	0.27	0.77	-21.39	9.30
2013	16.63	9.91	42.12	1774.39	425.03	-73.23	42.88	1.05	2.17	-14.99	36.37
2014	31.81	38.52	47.39	2245.72	123.03	-47.20	177.93	0.88	1.55	8.05	71.93
Average	***26.93***	***24.82***	***65.03***	***6150.53***	***56.84***	***-39.06***	***155.10***	***1.31***	***3.97***	***-13.87***	***45.93***
Infrastructure											
2001	-16.67	-6.94	17.28	298.73	-248.99	-61.70	11.76	-2.10	3.63	-6.77	0.00
2002	21.94	5.48	16.04	257.37	292.70	-37.85	59.70	1.59	4.95	0.00	4.98
2003	-2.05	1.58	14.33	205.29	906.96	-38.42	43.63	0.29	3.76	0.00	2.50
2004	169.06	58.54	118.85	14124.45	203.02	0.00	482.75	2.41	5.20	0.00	85.42
2005	67.17	72.21	124.25	15437.33	172.07	0.00	467.47	1.81	2.60	0.00	136.12
2006	128.62	75.57	133.06	17704.79	176.08	0.00	747.58	3.11	12.86	0.00	115.69

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2007	115.77	14.03	115.63	13371.03	824.16	-47.41	802.61	6.73	46.71	-0.84	2.98
2008	32.73	28.48	48.39	2341.89	169.91	-40.73	212.87	1.70	3.43	0.00	44.13
2009	-53.44	-51.92	29.25	855.36	-56.34	-87.03	0.00	0.71	-0.83	-76.52	-34.78
2010	115.17	146.51	117.47	13799.23	80.18	0.00	642.00	1.61	5.39	68.19	201.28
2011	-11.65	-15.86	31.77	1009.06	-200.32	-73.98	115.28	1.40	4.89	-37.99	0.23
2012	-0.48	-10.54	27.65	764.66	-262.33	-62.88	57.81	0.35	-0.40	-30.45	12.05
2013	3.43	-11.71	27.10	734.50	-231.43	-70.90	63.96	0.29	0.04	-32.15	6.71
2014	3.99	-2.77	39.78	1582.13	-1436.10	-47.52	188.47	2.88	11.75	-29.55	8.82
Average	***40.97***	***21.62***	***61.49***	***5891.84***	***27.83***	***-40.60***	***278.28***	***1.63***	***7.43***	***-10.43***	***41.87***
Power& Electricals											
2001	14.24	-9.69	24.73	611.58	-255.21	-75.00	53.26	-0.32	0.80	-28.16	0.00
2002	6.13	19.76	47.37	2243.80	239.73	-62.86	161.93	1.75	2.98	0.00	22.14
2003	2.33	9.59	32.67	1067.47	340.67	-81.01	145.95	1.38	6.83	0.00	20.47
2004	139.27	107.43	117.26	13750.75	109.15	0.00	558.06	1.34	2.99	0.00	190.68
2005	14.76	46.85	69.63	4847.80	148.62	-29.71	326.50	2.01	4.94	0.00	73.04
2006	88.82	76.87	92.12	8486.01	119.84	-12.10	330.93	1.23	0.72	0.00	139.15
2007	31.42	9.93	37.00	1369.00	372.61	-45.36	157.07	1.83	4.87	-10.69	24.50
2008	57.30	33.59	49.72	2471.85	148.02	-46.49	153.61	0.77	-0.19	0.00	65.92
2009	-28.64	-37.41	23.97	574.48	-64.07	-84.93	1.01	0.23	-1.00	-56.65	-17.99
2010	69.18	134.58	111.61	12457.28	82.93	-5.03	525.56	1.04	1.64	49.20	221.26
2011	-7.07	-10.27	24.42	596.38	-237.78	-46.55	95.00	1.78	6.32	-25.95	0.83
2012	-18.77	-15.07	19.72	388.82	-130.86	-48.39	52.77	0.90	1.84	-28.91	-6.64
2013	-5.83	-16.70	21.98	482.99	-131.62	-75.80	49.50	0.21	1.20	-30.80	0.12
2014	22.83	28.47	39.93	1594.44	140.25	-45.47	125.94	0.57	-0.04	-5.03	54.22

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Average	***27.57***	***27.00***	***50.87***	***3638.76***	***63.02***	***-47.05***	***195.51***	***1.05***	***2.42***	***-9.79***	***56.26***
Transport											
2001	-11.40	-0.93	86.60	7499.74	-9311.83	-65.00	530.09	5.50	33.74	-35.76	0.00
2002	85.77	26.98	45.85	2102.26	169.94	-28.57	176.17	1.55	2.04	0.00	54.03
2003	4.48	7.68	28.95	837.97	376.95	-55.19	78.71	0.39	0.49	0.00	22.77
2004	161.82	95.06	102.77	10562.35	108.11	0.00	370.76	0.86	-0.22	1.33	163.34
2005	14.49	36.95	55.45	3074.57	150.07	-23.53	206.33	1.43	1.46	0.00	68.97
2006	91.29	58.04	56.35	3175.60	97.09	-3.63	186.11	0.59	-0.71	1.12	101.26
2007	2.49	1.28	23.84	568.53	1862.50	-56.17	64.11	0.31	1.48	-9.66	11.51
2008	3.58	5.77	40.97	1678.40	710.05	-73.84	187.74	2.15	8.27	-11.21	15.24
2009	-16.64	-38.78	27.99	783.53	-72.18	-85.62	54.01	0.96	1.20	-61.08	-15.90
2010	160.41	169.47	115.48	13336.14	68.14	0.00	455.87	0.65	-0.15	81.24	239.16
2011	26.27	16.39	35.25	1242.78	215.07	-49.46	104.36	0.29	-0.54	-8.68	47.55
2012	11.29	9.10	40.57	1646.22	445.82	-50.65	160.91	1.52	3.77	-15.45	26.13
2013	4.65	-3.25	26.71	713.38	-821.85	-51.28	88.30	1.18	2.17	-20.86	9.76
2014	44.04	48.01	52.92	2800.46	110.23	-52.36	205.35	1.12	1.51	16.54	76.49
Average	***41.61***	***30.84***	***52.84***	***3573.00***	***-420.85***	***-42.52***	***204.92***	***1.32***	***3.89***	***-4.46***	***58.59***
Textiles& Chemicals											
2001	-20.35	-20.33	30.69	941.91	-150.96	-85.93	80.88	0.62	2.10	-41.51	0.00
2002	22.60	21.34	34.74	1207.13	162.79	-52.05	128.60	0.88	1.79	-0.96	34.16
2003	16.61	13.63	29.62	877.52	217.31	-53.27	70.69	-0.11	-0.01	0.00	31.26
2004	118.07	114.53	108.03	11670.45	94.32	0.00	421.24	1.20	1.15	31.96	202.47
2005	58.25	65.01	64.08	4105.76	98.57	-18.40	223.51	1.04	0.36	14.76	88.59
2006	113.35	91.30	103.81	10777.36	113.70	-17.12	435.43	1.90	3.55	18.54	110.71

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
2007	4.67	-7.93	26.05	678.61	-328.50	-67.34	61.66	0.25	0.70	-24.32	5.39
2008	31.04	15.75	33.27	1106.63	211.24	-49.48	82.93	-0.08	-0.75	-9.17	44.03
2009	-30.56	-32.42	28.17	793.53	-86.89	-76.69	37.96	0.25	-0.33	-59.80	-11.57
2010	145.26	135.40	72.08	5195.05	53.23	0.00	337.98	0.56	0.31	81.82	190.39
2011	34.92	30.69	37.66	1418.49	122.71	-33.16	149.54	0.87	1.72	2.97	49.62
2012	16.22	5.05	25.09	629.49	496.83	-35.82	68.03	0.44	-0.31	-13.26	26.54
2013	26.40	3.14	34.14	1165.43	1087.26	-58.19	83.91	0.60	-0.23	-25.82	26.95
2014	18.69	24.32	41.14	1692.14	169.16	-38.65	160.79	1.40	2.18	-1.77	43.64
Average	***39.66***	***32.82***	***47.76***	***3018.54***	***161.49***	***-41.86***	***167.37***	***0.70***	***0.87***	***-1.90***	***60.16***
Miscellaneous											
2001	-75.71	-13.08	32.63	1064.46	-249.46	-89.22	48.22	-1.04	0.57	-18.02	0.15
2002	7.96	0.41	23.54	553.94	5741.46	-50.06	83.53	1.03	4.31	0.00	4.88
2003	-31.33	-7.46	20.57	423.24	-275.74	-61.65	32.66	-0.91	0.84	-19.45	0.00
2004	31.89	72.03	110.87	12291.54	153.92	0.00	458.19	2.02	3.87	0.00	95.43
2005	18.61	43.25	68.62	4709.34	158.66	-11.28	270.93	1.88	3.18	0.00	53.96
2006	94.04	45.78	52.85	2793.35	115.44	0.00	203.00	0.98	0.54	0.00	89.75
2007	8.93	14.15	63.77	4067.11	450.67	-38.00	251.00	3.07	9.48	-18.25	5.07
2008	28.47	11.57	49.92	2492.29	431.46	-48.39	185.60	2.29	6.20	-15.63	20.36
2009	-16.36	-31.18	26.99	728.22	-86.56	-69.67	20.50	0.32	-1.38	-53.33	0.00
2010	107.27	95.04	76.00	5776.00	79.97	0.00	244.02	0.21	-1.01	12.85	154.57
2011	20.97	10.67	29.97	898.12	280.88	-53.81	68.04	-0.09	-0.09	-5.10	29.55
2012	13.03	5.66	42.71	1824.55	754.59	-70.72	130.25	1.11	1.70	-21.62	26.67
2013	16.25	6.86	34.58	1195.63	504.08	-39.76	131.75	1.56	4.11	-11.00	17.96
2014	29.26	16.27	31.60	998.63	194.22	-35.28	86.43	0.72	-0.31	-7.91	33.18

Year	*Weighted Average Annual Returns*	*Mean Returns*	*Standard Deviation*	*Variance*	*Coefficient of Variation*	*Minimum Returns*	*Maximum Returns*	*Skewness*	*Kurtosis*	*Lower Quartile*	*Upper Quartile*
Average	***18.09***	***19.28***	***47.47***	***2844.03***	***589.54***	***-40.56***	***158.15***	***0.94***	***2.29***	***-11.25***	***37.97***

Amongst the underlying sectors, the 'transport' and 'infrastructure' sectors recorded high returns of more than 40 per cent. There is evidence of high volatility (standard deviation, variance and coefficient of variation) amongst the sectors. However, relatively low skewness figures indicate a near normal distribution of returns, within the sectors.

Bharat Forge in the 'commodities' sector, Finolex in the 'consumer goods' sector, Indiabulls Securities in the 'finance' sector, Aurobindo Pharma in the 'healthcare' sector, Tata Elxsi in the 'ICT' sector, BF Utilities in the 'infrastructure' sector, Kajaria Ceramics in the 'miscellaneous' sector, Finolex Cables in the 'power sector', TVS Motor Company in the 'transport' sector and Monsanto India in the 'textiles' sector, recorded high returns.

5. SUMMARY

This paper presents a dis-aggregative analysis of the returns of the sample companies on the basis of age, size, ownership structure and underlying sector. The objective of this paper was to enrich the flexibility of the reader/investor, on equity investments, by analyzing dis-aggregative parameters like age, size, ownership structure and underlying sector/industry affiliation and their impact (if any) on returns. This would provide the investor with the much desired flexibility in designing his/her portfolio.

The overall returns emanating from all of the segregates have been commendable. However, high volatility (risk) is evident in the returns at the segregated levels, as well.

Overall, the returns vary along with the various segregates, providing the investors diversification opportunities, based on the same. A negative correlation appears between the age of companies and returns. Further, small and medium sized companies yield higher returns compared to their large counterparts. The findings are similar to the findings of Banz (1981), Wong et al. (1990), Lau et al. (2002) and Manjunatha and

Mallikarjunappa (2012). The apparent 'age' and 'size' anomalies are also indicative of the status of market efficiency.

Companies like Aurobindo Pharma, Monsanto India, BF Utilities, Tata Elxsi, Reliance Communications and BEML appear attractive investment choices for equity investors. However, considering the substantial volatility present in all segregates, investors would do well to analyze each company both fundamentally and technically, for possible risk considerations, before investing.

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