

# **CHAPTER - 5**

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## **EFFECTIVE CORPORATE TAX RATES IN INDIA - CONCEPT, TREND AND DETERMINANTS**

## **5.1. INTRODUCTION:**

Most companies are involved in tax planning broadly with the intention of reducing their income taxes as the higher income tax burden will trim down their post-tax profits. In fact, companies likely opt to take on a tax instrument with an intention of minimising the taxes they are required to pay. At the outset, tax planning is approved within the tax laws as it is considered as an officially authorized tax avoiding scheme. However, not all companies have the same motive to carry out tax planning. As a result only some companies are involved to a great extent in tax management via tax planning while others are involved in lawful tax avoidance via tax planning. Both are possible due to the capabilities of the companies to employ various fiscal incentive schemes and to undertake tax planning activities. According to Bernardi and Frascini [2005] despite of a prominent diminution in corporate tax rates in India in the nineties widening of corporate tax base was not sounding well because of a line of tax holidays and lofty depreciation offered to a variety of blocks engaged in diverse business activities. That is why the tax planning gives birth to large discrepancy between the amounts of taxes ought to pay and amounts of taxes actually paid. It is actually, the expertise with which the tax planners focus on fiscal incentives and plan activities accordingly that the amount of tax payable varies. The array of fiscal incentives, if wisely and legally used can make substantial differences in tax actually paid and tax calculated at the marginal rates on pre-tax profits. Therefore there arise differences in the statutory tax rates and effective tax rates. These issues are dealt in details in the discussion that follow.

## **5.2. CONCEPT OF ETRs AND STRs:**

Every year the Finance Minister, in the Union Budget, recommends tax rates for all types of assesseees for the forthcoming assessment year to be approved by the Government. Tax rate approved by the Union Government in the Union Budget is expressed as Statutory Tax Rate or Nominal Tax Rate [STR]. At the same time various incentives, exemptions, tax holidays are introduced every year in the Finance Bill, only to be rescheduled, restructured or deleted at some later date, to encourage tax savings by way of trimming down the effective tax liability. These incentives, deductions, exclusions, allowances, tax credits along with tax evasions erode the tax base and thereby reduce effective tax liability. As a result tax payable by the assessee or the effective tax liability varies from the statutory tax liability of the assessee. The ratio between tax liability of an assessee in a financial year and profit before tax in the same financial year is termed as the Effective Tax Rate [ETR]. If fiscal incentives are prudently used Effective Tax Rate will usually be lower than the Statutory Tax Rate. Regarding the process of calculating ETR former researchers and academia opine in different ways. Wilkie [1988] has pointed out that tax preference must be included to determine ETR. ETR provides a basic summary statistic of Effective Tax Rate which describes the amount of taxes paid by a company relative to its gross profit (Harris & Feeny, 2000). Guha [2007] computed ETR as tax liability divided by taxable income where taxable income has been calculated by total profit as deducted by the sum total of depreciation and other deductions as provided in the Indian Income Tax Act.

The use of the word effective as an adjective before the phrase tax rate signifies what amount of tax has actually been paid out of profit before taxes. The lower the share of taxes which is pulled out of the profits before taxes, the more effective is the company in planning and managing taxes. The actual tax liability is calculated on the basis of statutory or marginal tax rates (plus surcharge and cess) applied to the taxable income calculated on the basis of Income Tax Act. Since this actual tax liability is paid or provisioned to be paid from Profit Before Taxes (PBT) therefore ETR can be calculated as follows:

$$\text{ETR} = \frac{\text{Tax liability for a financial year}}{\text{PBT for the same financial year}}$$

Lall [1983] demonstrated that through proper tax planning and by using different tax incentives effectively corporate houses could reduce their effective tax rate. Large corporate house with high capital intensity could be able to invest a large portion of their capital in fixed assets with higher depreciation rates which ultimately assist corporate houses to claim more depreciation allowance to reduce its Effective Tax Rates.

### **5.3. EFFECTIVE TAX RATES [ETRs] AND INDIAN CORPORATE SECTOR:**

Due to the effect of globalisation, corporate tax in India has undergone several changes to cope up with the after-effects of opening up of the Indian economy to world. One of the finest examples of that is the effort of the Government for lowering down the corporate tax rates. The rationale behind that effort is to make the corporate tax rates at par gradually with the rest of the world. At the beginning of 1990 the corporate tax rate was around 54% having marginal

tax rate of 50% and surcharge of 8%. In the Assessment Year 1991-92 the corporate tax rate was 46% with marginal tax rate of 40% and 15% surcharge. But in the next year the corporate tax rate was raised to 51.75% (marginal tax rate-45% and surcharge 15%) and continued up to the Assessment Year 1994-95. In the Assessment Year 1995-96 and 1996-97 the rate was 46% with 40% marginal tax rate and 15% surcharge but in the Assessment Year 1997-98 the surcharge reduced to 7.5% though marginal tax rate was the same having an effect on the STR and it was 43% at that time. It was the Assessment Year 1998-99 when the Government could be able to reduce the marginal tax rate below 40%. The marginal tax rate was at that time 35% with no surcharge. But as a result of implementing the surcharge and education cess the total statutory tax rate has increased from the year 2000-01.

For the purpose of analysing the difference between Statutory Tax Rates and Effective Tax Rates, it is essential to have data regarding the two rates for a period of time. While Statutory Tax Rates could be collected from budget documents of various years starting from the Assessment Year 1998-99 to 2012-13, Effective Tax Rates were calculated from data of 1000 companies collected from annual reports, websites and Capitaline database [as mentioned in Chapter-2] for the above stated period. The ETR for a particular company for a particular year was determined by using the formula given in the previous page and ETR for a particular year was ascertained by computing the average ETR for those 1000 companies for a particular year. The average ETRs for different years have been computed and compared with the STRs. As mentioned in Chapter-2, all these 1000 companies were listed companies. The sample companies were belonging to

different industries. The Assessment Year 1998-99 was chosen as the initial year for the span of study as because from this particular year the effect of MAT could be calculated after its introduction.

The Statutory Tax Rates, Effective Tax Rates and the gap between these two in different years are shown in the following table.

**Table 5.1**  
**Statutory Tax Rates (with its break-up) and Effective Tax Rates**  
**for Corporate Assesses (Rates are in %)**

Assessment Year	STR					ETR	Gap between STR and ETR
	Marginal Tax Rate	Surcharge	Education cess	Higher Education Cess	Total STR		
1998-99	35	0	0	0	35	21.47	13.53
1999-2000	35	0	0	0	35	17.57	17.43
2000-01	35	10	0	0	38.50	16.37	22.13
2001-02	35	13	0	0	39.55	17.77	21.78
2002-03	35	2	0	0	35.70	15.60	20.10
2003-04	35	2	0	0	35.70	18.27	17.43
2004-05	35	2.5	0	0	35.875	17.74	18.135
2005-06	35	2.5	2	0	36.5925	18.07	18.5225
2006-07	30	10	2	0	33.66	18.72	14.94
2007-08	30	10	2.5	0	33.825	20.09	13.735
2008-09	30	10	2.5	1	34.16325	22.34	11.82325
2009-10	30	10	2.5	1	34.16325	21.56	12.60325
2010-11	30	10	2.5	1	34.16325	22.64	11.52325
2011-12	30	7.5	2.5	1	33.37875	22.87	10.50875
2012-13	30	5	2	1	32.445	22.93	9.515

*Source: Budget documents of different years, Annual Reports of different companies for different years, Capitaline Database and Company websites*

*Note: Nos. of companies (N) = 1000 for calculation of ETR*

The table is self explanatory. However what has been observed that the actual tax payments by the companies or the ETR were far below the nominal rates of taxes. Lowering of ETR is possible due to the various allowances, reductions, rebates and relieves available in the tax laws. At the same time it has

been studied that as a consequence of these diverse deductions, exemptions, allowances large corporate giants like Reliance Industries, TISCO, Ashok Layland, SAIL etc. had managed to pay no corporate taxes at all for a period of four to five years in the advent of 1990s. In addition to this, companies operating in Export Processing Zones (EPZs) and 100% Export Oriented Units (EOUs) as well as companies engaged in infrastructure development enjoyed complete tax holidays in these periods. To increase the actual tax payments of the corporate world the Government introduced MAT from the assessment year 1997-98 followed by some changes in later years. Minimum Alternate Tax often restricts companies to reduce their effective tax liability to zero, therefore diluting the use of all fiscal incentives that can be used by them. MAT rates have been subject to changes in different Finance Acts, combined with withdrawal and reintroduction of MAT credit.

The system of Minimum Alternate Tax (MAT) applicable to Indian corporate sector, its consequences and system of MAT credit under section 115JAA are discussed in the following table:

**Table 5.2**  
**Trend of MAT in India**

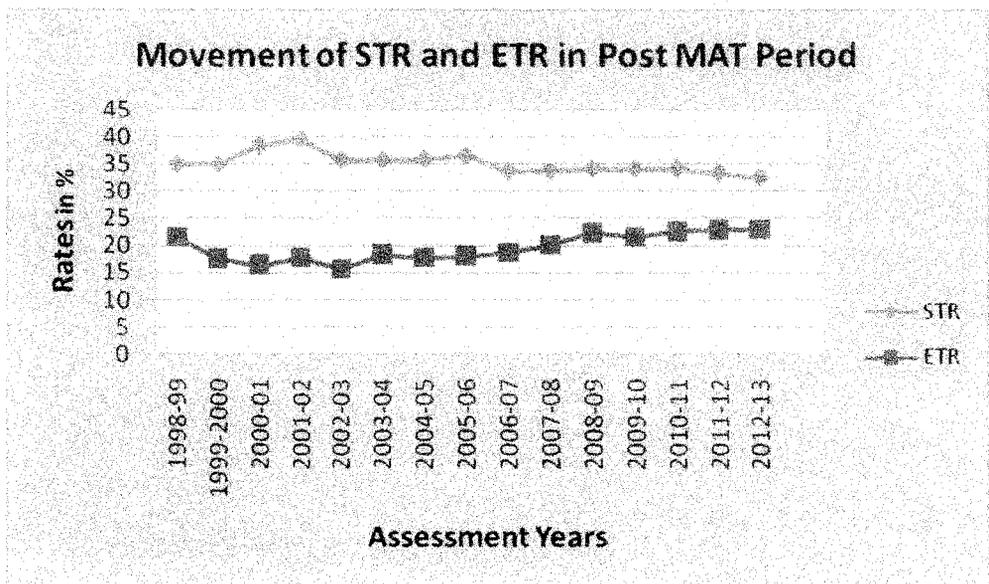
Assessment Year	Section under which MAT applicable	Applicability and Consequences of MAT	Time Limit for Carry Forward of MAT Credit under section 115JAA
1997-98	115JA	If total taxable income is less than 30% of "Book Profit", latter is treated as tax base and Statutory Tax Rate was applicable on that.	5 Years
1998-99	115JA	"Do"	5 Years
1999-2000	115JA	"Do"	5 Years
2000-01	115JA	"Do"	5 Years
2001-02	115JB	If tax liability under normal provisions is lower than 7.5% [+SC+EC+SHEC] of book profit then MAT is applicable @ 7.5% [+SC+EC+SHEC] of book profit.	No Carry Forward
2002-03	115JB	"Do"	10 Years
2003-04	115JB	"Do"	10 Years
2004-05	115JB	"Do"	10 Years
2005-06	115JB	"Do"	10 Years
2006-07	115JB	"Do"	10 Years
2007-08	115JB	If tax liability under normal provisions is lower than 10% [+SC+EC+SHEC] of book profit then MAT is applicable @ 10% [+SC+EC+SHEC] of book profit.	10 Years
2008-09	115JB	"Do"	10 Years
2009-10	115JB	"Do"	10 Years
2010-11	115JB	If tax liability under normal provisions is lower than 15% [+SC+EC+SHEC] of book profit then MAT is applicable @ 15% [+SC+EC+SHEC] of book profit.	10 Years
2011-12	115JB	If tax liability under normal provisions is lower than 18% [+SC+EC+SHEC] of book profit then MAT is applicable @ 18% [+SC+EC+SHEC] of book profit.	10 Years
2012-13	115JB	If tax liability under normal provisions is lower than 18.5% [+SC+EC+SHEC] of book profit then MAT is applicable @ 18.5% [+SC+EC+SHEC] of book profit.	10 Years
2013-14	115JB	"Do"	10 Years

Source: Budget Documents of different years

But since the implementation of MAT, despite of all the changes in MAT structure still a large gap has been observed between STR and ETR. In the late nineties Government's intention to encourage Special Economic Zone (SEZ) and for that to allow several deductions, exemptions and tax holidays have some

negative effect on ETRs. To increase ETR the Government also introduced Dividend Distribution Tax in the hands of company as an addition to corporate tax from the Assessment Year 1997-98 with a break for one year in 2002-03 and as a result of that ETR has been touched ever lowest level in the Assessment Year 2002-03. To raise the level of ETR Government introduced Fringe Benefit Tax (FBT) in the Assessment Year 2004-05 and Banking Cash Transaction Tax (BCTT) in the Assessment Year 2005-06 as an additional tax. Table – 5.1 also exhibits an increasing trend of ETR from the Assessment Year 2004-05 with an exception in the Assessment Year 2009-10. In the Assessment Year 2009-10 FBT has been withdrawn bearing some effects on ETR. In spite of all such changes in the corporate tax structure how STRs and ETRs move in post MAT period that can be observed from the following figure.

**Figure 5.1**



*Source: Table-5.1 showing STRs and ETR s for corporate assesseees*

Though it has been observed that average ETRs are lower than STRs, the fact that remains to be analysed is whether all companies demonstrate the same phenomenon. For delving into this aspect, the average year wise ETRs has

been decomposed into several categories. This distribution is shown in the following table.

**Table 5.3**  
**Distribution of Sample Companies**  
**on the Basis of ETRs in Different Years [N= 1000]**

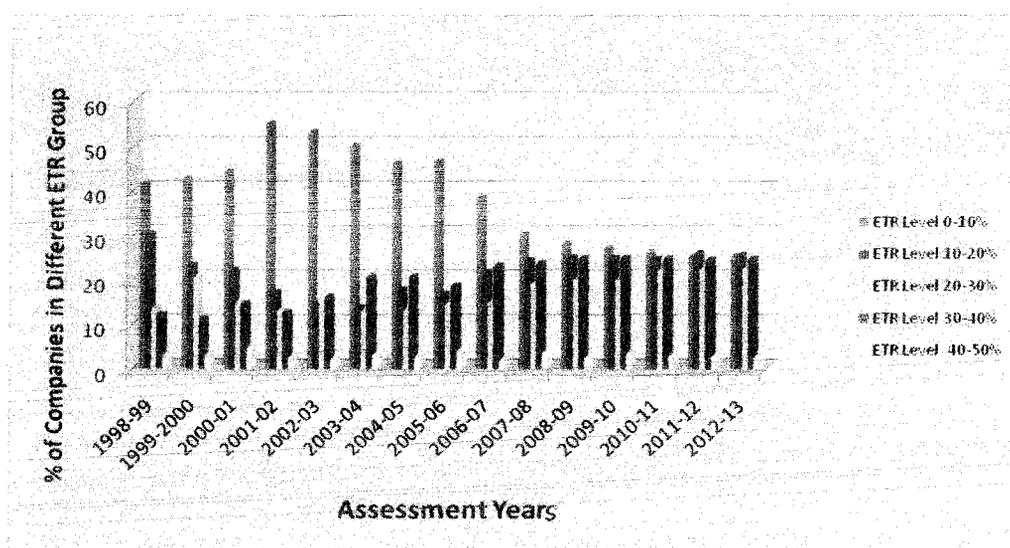
Assessment Year	ETR				
	0-10%	10-20%	20-30%	30-40%	40-50%
1998-99	41.5	30	13.5	12	3
1999-2000	42.5	23	20.5	11	3
2000-01	44	22	15	14.5	4.5
2001-02	55	17	13	12.5	2.5
2002-03	53	14	15	16	2
2003-04	50	13.5	13	20.5	3
2004-05	46	17.5	13	20.5	2.5
2005-06	46.5	16.5	14.5	18.5	4
2006-07	38.5	21.5	15	23	2
2007-08	30	24	19	23.5	3.5
2008-09	28	24.8	20	24.7	2.5
2009-10	27	24.7	20	24.8	3.5
2010-11	26	24.5	22	24.6	2.9
2011-12	25	25.8	22.3	24.3	2.6

*Note: figures in the cell shows the percentage [%] of companies in the sample*

It is evident from the above table that in the advent of the span of study the deviation in the concentration of companies in various ETR level was quite a large – only 3% of companies were in 40-50% group where as 41.5% were in 0-10% group in the Assessment Year 1998-99. The table has shown that concentration of companies in 0-10% group was maximum in the Assessment Year 1998-99 and the concentration of companies in this group has been reduced gradually as the time has progressed. The portion of sample companies in 10-20% ETR level has also revealed a decreasing trend as the time passes. Again, number of companies in the 20-30% level and 30-40% level has increased with the time. But the percentage of companies in 40-50% group was almost remaining the same

throughout the study period. Another interesting fact that has been disclosed from the above table is that in 1998-99 maximum numbers of companies were belonged to 0 - 20% level [71.5%] and above that only 28.5% of total companies were belonged [of this 28.5% only 3% were belonged in 40 - 50% group]. But at the end of study period numbers of companies in 0 - 20% group and 20 - 40% group were almost same. This reflects the consequences of MAT to restrict companies to reduce their Effective Tax Rates to a bare minimum even to zero by diluting the effect of various fiscal incentives. This reflection can be better understood with the help of the following figure:

**Figure 5.2**  
**Year-wise Distribution of Companies for Different ETR Levels**



Source: Table- 5.4

Notes: **Numbers** of sample companies are 1000. [Companies belong to different industries. The Sample was collected through random sampling.]

The above figure exhibits the fact that ETRs of different companies increase with the passage of time from no tax or minimum tax to a certain level as a result of imposition of Minimum Alternate Tax and imposition of additional tax and in the last phase of study period as a consequence of withdrawal of certain

exemptions and tax holidays. Though, it has been observed that average ETRs vary with the passage of times, the fact that remains to be analysed whether ETRs vary across industries. For delving with this aspect the study has made an effort to analyse the industry wise average ETR for the total study span. Here average ETR for a particular industry is calculated as follows:

- First, ETR for a particular company for a particular year has been calculated.
- Then average ETR for a particular industry for a particular year has been calculated on the basis of data collected from sampled companies.
- Next, overall average ETR for a particular industry for the entire study period has been calculated on the basis of data collected from sampled companies.

The industry wise comparison of ETRs for different financial years is shown in the following table:

**Table 5.4**  
**Comparison between ETR among Different Industries in Different Financial Years [from 1998 – 2012]**

Industry	YEAR														
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Electrical /Electronics [N= 115]	24.2	18.4	16.3	14.6	15.0	17.2	15.7	15.8	15.6	21.7	22.2	15.0	18.6	17.8	16.4
Pharma-Drug- Biotech [N=105]	12.9	15.2	16.1	17.3	16.4	17.8	18.1	13.7	12.9	16.1	12.9	16.4	15.6	15.4	15.8
Chemical and fertilizer [N=45]	14.7	14.6	12.3	7.7	13.4	14.4	16.5	18.2	20.8	17.6	15.7	13.4	14.6	14.3	14.7
Telecom services [N=20]	23.3	15.2	24.0	9.3	18.1	18.8	16.1	15.4	9.5	17.4	13.3	18.1	16.5	17.2	17.5
Automobile- ancillaries [N= 45]	18.8	18.3	18.6	12.4	21.4	16.9	16.2	22.5	20.9	17.2	18.8	21.4	19.8	20.3	20.5
Textile-leather [N= 55]	7.4	8.9	10.9	7.2	10.4	16.2	9.4	12.4	11.2	15.1	13.4	10.4	12.5	12.2	11.4
Petro Chemical [N= 8]	10.8	12.8	9.7	9.1	11.9	16.4	19.1	16.7	15.1	17.8	20.8	11.9	14.7	13.3	14.6
Agro-food-beverage [N= 55]	16.8	19.1	23.8	21.6	16.6	20.4	19.7	22.1	23.8	17.8	22.8	16.6	17.5	18.6	18.3
Power- energy [N= 12]	16.8	13.7	19.8	21.1	19.4	22.1	17.4	20.7	21.9	23.5	23.2	19.4	23.5	22.7	21.9
Fast-moving consumer goods [N= 80]	19.1	19.9	24.7	19.2	19.9	23.7	21.2	21.5	19.8	22.5	24.1	19.9	20.7	21.3	21.7
Construction [N= 65]	19.8	16.9	17.5	20.6	16.9	12.1	13.7	13.1	15.6	27.8	29.8	16.9	14.7	14.9	14.4

Engineering manufacturing [N=70]	28.4	26.0	28.1	22.7	26.2	31.7	32.5	33.1	29.6	34.3	38.4	26.2	27.4	25.6	25.8
Transport-hotel-communication-storage [N= 65]	18.3	24.7	23.7	22.4	22.5	25.4	24.4	27.2	19.9	17.3	22.3	22.5	21.6	21.4	22.2
InfoTech [N= 75]	8.9	6.9	14.2	7.1	7.4	8.7	7.1	8.3	9.9	10.7	13.9	7.4	9.8	7.9	8.2
Minerals-metals [N= 10]	30.3	32.2	34.7	31.0	27.7	28.4	30.1	28.8	26.4	30.9	32.3	27.7	26.5	27.8	27.3
Steel [N= 8]	17.4	22.5	8.2	10.7	9.8	6.7	17.1	3.8	7.1	6.6	11.2	9.8	9.3	9.7	10.7
Trading-retail [N= 92]	7.1	10.1	13.0	10.7	6.8	5.7	7.1	7.2	9.7	5.1	7.1	6.8	7.2	8.5	9.2
Media-entertainment [N=25]	16.3	16.9	20.8	22.4	21.8	29.1	17.1	17.8	17.2	38.9	26.3	21.8	21.3	22.5	22.1
Diversified [N= 50]	23.2	14.4	26.3	16.5	18.6	17.8	11.8	14.7	14.2	12.7	13.2	18.6	15.4	15.7	15.2

Source: Annual Reports of different companies for different years, Capitaline Database, Company websites

Note: First ETR is calculated for a particular company as "tax paid/PAT"

Then average ETR is calculated for a particular industry.

So far as the comparison in the Table- 5.3 is concerned, ETRs in different industries fluctuates in different years. This fluctuation might be the consequences of different sun-rise and sun-set clauses regarding various fiscal incentives or the modifications in different fiscal incentive schemes or imposition of additional taxes or withdrawal of some of its parts i.e. in one word, changes in tax policies.

Despite the fact that ETRs vary across industries and time, the fact that needs to be investigated is whether average ETRs are same in all the industries and for that Analysis of Variance (ANOVA) has been used in this study to compare the average ETRs in different industries. For this purpose the following null hypothesis has been formulated.

*H<sub>0</sub>: The average ETRs do not differ between industries*

*H<sub>1</sub>: The average ETRs are different for the industries*

From the data related to different industries one-way ANOVA has been prepared and the following results have been obtained:

**Table 5.5**  
**Result of ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6337.585	18	352.088	24.744	.000
Within Groups	13958.649	981	14.229		
Total	20296.234	999			

*Note: df denotes degree of freedom*

From the above table it can be observed that  $F(18, 981) = 24.744$ ,  $p < 0.001$ . Therefore, the null hypothesis has been rejected which entails the fact that average ETRs are not same across different industries and vary industry-wise.

Though it has been observed that average ETRs are not same in all the industries, the fact that remains to be analysed is whether ETRs are different for small sized companies or for medium sized companies or for large companies i.e. whether ETRs vary across companies with different asset size. For delving with this matter the study has made an effort to analyze the behaviour of ETRs of different companies having different asset size and for that Analysis of Variance (ANOVA) has been used in this study to compare the average ETRs in different companies having different asset size. For this purpose all the sample companies are distributed among three groups. First group comprise with companies with asset size less than Rs. 500 crores. The second group comprise with companies with asset size higher than Rs. 500 crores but less than 1000 crores while the third group comprise with companies with asset size higher than Rs. 1000 crores. Number of companies in Group-1 are 384, Group-2 are 371 and in Group- 3 number of companies are 245. To analyze the same the following null hypothesis has been formulated:

***H<sub>0</sub>: The ETRs do not vary according to the size of companies***

***H<sub>1</sub>: The ETRs vary according to the size of companies***

From the data related to companies with different asset size one-way ANOVA has been prepared and the following results have been obtained:

**Table 5.6**  
**Result of ANOVA**

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.062	2	.031	3.444	.019
Within Groups	9.018	997	.009		
Total	9.080	999			

From the above table it can be observed that  $F(2, 997) = 3.444$ ,  $0.05 > p > 0.001$ . Therefore, we cannot reject the null hypothesis and conclude that the ETRs do not vary according to the size of companies. Acceptance of null hypothesis also indicates the fact that asset size does not have an effect on ETR of companies.

For being surer about the depiction of Table- 5.6 regarding the behaviour of ETR for changes in asset size of companies, a regression analysis has been done in a bivariate context with Asset Size as independent variable and Effective Tax Rates as dependent variable.

The regression equation for this purpose has been obtained as follows:

$$\text{ETR} = 0.218 - 0.00001 \text{ AS}$$

(-1.291)

$$R^2 = 0.002$$

$$F(1, 998) = 3.907, 0.05 > p > 0.001$$

*Note: Figure in bracket denotes corresponding t-value*

From the regression equation it can be observed that there has been no noteworthy association between the asset size of company and its Effective Tax Rates.

Despite the fact that the ANOVA as per table 5.6 and the above regression analysis entail that Effective Tax Rates of companies have no significant relationship with the asset size of companies, it can be observed from the table 5.5 that Effective Tax Rates of companies differ among different industries. Probably this variation has been due to various incentives, additional taxes, company size, its leverage, taxable profits, fluctuation in statutory tax rates, Minimum Alternative Tax Schemes etc. In a nutshell, it could be said that Effective Tax Rates have depended on the changes in the tax provisions made by the Government.

Changes in tax provisions are directed at two major focus areas, first to induce social and production oriented activities and second, to generate more revenue from corporate taxes. It has to be examined whether the ETRs being lower than the STRs have any effect on the second point i.e. generation of revenue. A substantial gap between the STR and ETR has been found throughout the span of study. This indicates that the corporates are able to reduce their effective tax liability significantly by using various fiscal incentives. Lower tax paid means lower revenue generation for the Government or in other words larger gap between STR and ETR means lower revenue collection from corporate tax. Whether this phenomenon is valid in the Indian context can be empirically tested by finding out the relationship between corporate tax collections and the gap between Effective Tax Rates (ETRs) and Statutory Tax Rates (STRs).

The hypothesis framed for examining the relationship is as follows:

***H<sub>0</sub>: Corporate tax collection does not depend upon the gap between STR & ETR***

***H<sub>1</sub>: Corporate tax collection depends upon the gap between STR & ETR***

For testing the above hypothesis a regression analysis has been done in a multivariate context with revenue collection from corporate tax as dependent variable and the tax gap (gap between STR and ETR) and number of corporate assesses in different assessment years as independent variables. Number of corporate assesses have been considered here as an independent variable because when number of assesses increase, the revenue collection from corporate tax is automatically increased. For this purpose we have considered revenue collection from corporate tax for fifteen years [from the Assessment Year 1998-99 to Assessment Year 2012-13] as shown Table- 1.1 and the gap between STRs and ETRs in those years as shown in Table-5.1. Numbers of corporate assesses in different years are compiled from Comptroller and Auditor General's Reports on Compliance Audit on Direct Taxes for different years [as shown in Annexure-6]. From the regression analysis the following result has been obtained.

$$CT = 127.5 - 15.636 TG + 64.005 NA$$

(-3.725)

(2.727)

**R<sup>2</sup> = 0.817**

**F(1,13) = 26.863, p < 0.001**

**D.W. = 1.296**

CT= Revenue Collection from Corporate Tax

TG= Gap between STR and ETR

NA= Number of Corporate Assesseees

*Note: Figures in brackets denote corresponding t-values*

From the above table it can be observed that  $F(1, 13) = 26.863, p < 0.001$ .

Therefore, the null hypothesis has been rejected indicating the dependence of revenue collection from corporate tax and gap between STR and ETR. The regression analysis revealed that when the gap between Effective Tax Rates and Statutory Tax Rates (STRs) are higher, revenue collection from corporate tax will be lower. Again the result has pointed out that as the number of corporate assesses increase revenue collection from corporate tax increases.

#### **5.4. EFFECTIVE TAX RATES – THE MAJOR DETERMINANTS:**

The discussions made in the previous sections show that ETRs vary across industries and time. The reasons extend beyond the array of fiscal incentives introduced and withdrawn. Certain factors like size of the company in terms of asset, or payment of dividend tax affect company ETRs to a substantial extent. Moreover when there is a change in the marginal tax rates and / or surcharge and education cess, the ETRs of companies change accordingly.

In the discussion that follow, the variables that can determine the amount of tax payable and the ETRs are identified and used for regression analysis to find out the variability of ETR with these independent variables.

Earlier research studies provide light to the present study to recognize diverse variables and to construct hypothesis for the present study.

**(a) Statutory Tax Rates :**

According to Chandra [1971) escalating tax rates can result in higher tax burdens. Raise in the Statutory Tax Rates increase the collection of tax revenues and thereby increase the amount of taxes paid by the company. Bisht [1984] established that high Statutory Tax Rates gear up the tax burden. If scheduled tax rates are increased companies have to pay higher taxes which increase the effective tax liability of the company and thereby enrich the Government's exchequer. Guha [2007] used scheduled tax rate as a proxy for time specific effects and had found a positive association between ETRs and STRs. Though STR does not vary company wise but it changes over time as a result of change made in Finance Acts every year. As per the earlier studies, the present study anticipates a positive relation between Statutory Tax Rates and Effective Tax Rates. Therefore the null hypothesis will be:

**Hypothesis-1**

*H<sub>0</sub>: Company ETRs are not related to Statutory Tax Rates (STRs)*  
*H<sub>1</sub>: Company ETRs are related to Statutory Tax Rates (STRs)*

**(b) Size of The Company :**

According to the study of Stickney and McGee[1982] company size has no effect on its ETR. The study of Porcano [1986] revealed that company size and its Effective Tax Rates are negatively related. Zimmerman (1983) suggested that larger companies will, because of their larger political visibility, have fewer tax preferences available to them than smaller firms. He expected a positive effect of company size on ETRs. An interesting alternative rationale for such an effect is that suggested by Scholes

and Wolfson (1992). They expect that large mature firms may find it difficult to aggressively pursue tax planning, because that may interfere with other tax impacted contracts. However, his findings were opposed by Porcano (1986) who found a negative effect on ETRs of company size. Wilkie and Limberg (1990) subsequently reconciled these different findings by pointing out relevant differences in the research designs of Zimmerman (1983) and Porcano (1986). Differences were found in the definitions of ETRs as given by them. We will return to this point below. In a contemporaneous paper, Omer, Molloy and Ziebart (1990) made a similar methodological contribution. In a later paper, Shevlin and Porter (1992), after taking into account Wilkie and Limberg's (1990) remarks, reported the findings of progressive company income taxes, albeit in a univariate framework. Holland (1998) found a positive effect of asset size on company ETRs for the UK for a number of years in his twenty six year period. However, he also found a few years with negative size effects. According to Gupta and Newberry [1997] in the period 1982-85 ETR was positively related with company size and for the period of 1987-90 the relationship was negative. The study of Holland [1998] has also determined a negative effect between company size and ETRs for a few years in the span of research. The study of Guha [2007] has disclosed that a negative relationship exists between the company size and the effective tax rate. Larger companies have more assets and more assets cater larger exemption for depreciation allowance and thereby reduce the total tax liabilities and influence the ETR. As all the previous research studies have revealed some relationship between company size and ETR but opinions relating to the effect of company size on its ETR are not

unidirectional, so we set the hypothesis without defining any direction. Asset size is measured by net assets i.e. total assets reduced by depreciation.

### Hypothesis - 2

*H<sub>0</sub>: Company ETRs are not related to company size*  
*H<sub>1</sub>: Company ETRs are related to company size*  
*[Company size is measured by its Net Assets]*

### (c) Profitability :

Most of the earlier studies argue on the association between ETRs and different company characteristics but not specifically with profitability. Derashid and Zhang (2003), Adhikari, Derashid and Zhang (2006) and Rohaya, Nor'Azam and Bardai (2008) found a negative relationship between ETR and ROA. It indicated that highly profitable companies bear lower income tax burdens since they utilized tax incentives and other tax provisions to reduce their taxable income which would result in a lower ETR. As profits before taxes act as the main factor for determining the taxable income, there must be some relationship between ETRs and profit before taxes (PBT), but the direction of association has not been defined due to lack of earlier literatures. Here, Profit Before Tax (PBT) measured the profitability in total.

### Hypothesis - 3

*H<sub>0</sub>: Company ETRs are not related to Profitability*  
*H<sub>1</sub>: Company ETRs are related to Profitability*  
*[Profitability is measured by PBT]*

**(d) Capital Structure or Leverage :**

According to the study of Stickney and McGee [1982] capital structure of the company or leverage influence the Effective Tax Rate in an inverse way. Researchers generally found a negative relationship between ETR and leverage (Gupta & Newberry, 1997; Buijink & Janssen, 2000; Adhikari, Derashid and Zhang, 2006; and Richardson & Lanis, 2007). This means that companies with higher leverage, i.e. with more debts, have lower ETR because interest expenditure is tax-deductible which results lower taxable income. Regarding the association between ETR and capital structure, most studies found that the ETR is negatively associated with capital intensity. Guha [2007] has revealed a negative association between leverage and ETRs. According to the direction of the earlier studies we expect an inverse association between Debt Equity Ratio and ETRs.

$$\text{Here, Leverage} = \frac{\text{Total Debt}}{\text{Total Equity}}$$

**Hypothesis - 4**

***H<sub>0</sub>: Company ETRs are not related to Capital Structure or Leverage***

***H<sub>1</sub>: Company ETRs are related to Capital Structure or Leverage***

*[ Leverage means Debt-Equity Ratio]*

**(e) Depreciation Allowance :**

According to the study of Lall [1983] large corporate house having larger asset size can reduce its Effective Tax Rate by availing more tax incentives in terms

of depreciation allowance. According to Jha and Mittal [1990], different tax incentives available to corporates have inversely affected ETRs. Bernardi and Fraschini [2005], in their study, revealed an inverse relationship between depreciation and ETRs. With the drawings of the earlier studies the present study expects an inverse relationship between depreciation allowance and ETRs.

#### **Hypothesis - 5**

*H<sub>0</sub>: Company ETRs are not related to Quantum of Depreciation Allowance*  
*H<sub>1</sub>: Company ETRs are related to Quantum of Depreciation Allowance*

#### **(f) Capital Intensity :**

According to the study of Stickney and McGee [1982] capital intensity influence the Effective Tax Rate in an inverse way. According to the study of Lall [1983] there has been an inverse association between capital intensity and ETRs as corporate house with high capital intensity can reduce its effective tax rate by availing various tax incentives. The study of Gupta and Newberry [1997] revealed a negative association between capital intensity and ETR. According to them, companies with larger proportion of fixed assets have tended to have lower ETR because of provisions of depreciation allowance. Due to this depreciation allowance a tax preference can be noticed for investments in fixed assets and as a result a negative association can be expected between capital intensity and ETR. Capital intensity measures the share of fixed assets in total assets or the fixed asset intensity.

### Hypothesis - 6

*H<sub>0</sub>: Company ETRs are not related to Capital Intensity*

*H<sub>1</sub>: Company ETRs are related to Capital Intensity*

*[Capital Intensity = Fixed Assets / Total Assets]*

#### (g) Dividend Distribution Tax :

Tax on payment of dividend as an additional tax has also been introduced with a hope to increase the ETR. As dividend is exempted or excluded fully or partially from tax net in the hands of share holders and taxable in the hands of the distributing company, Dividend Distribution Tax can increase ETR of a company through increased corporate tax. So, it is expected that as an additional tax Dividend Distribution Tax should influence the ETR of a company in a positive fashion.

### Hypothesis - 7

*H<sub>0</sub>: Company ETRs are not related to Dividend Distribution Tax*

*H<sub>1</sub>: Company ETRs are related to Dividend Distribution Tax*

#### (h) Minimum Alternate Tax (MAT) :

In the present study, MAT has been treated as dummy variable to measure the effect of this particular provision on company ETR. In a particular year if company is under MAT then it is denoted by 1 otherwise 0. As not much earlier studies are consulted we build the hypothesis without any sign. But the study of Guha [2007] found a positive relation between ETR and MAT. As MAT converts zero tax

companies to taxable one, the study has presumed a positive relation between these two.

### Hypothesis - 8

*H<sub>0</sub>: Company ETRs are not related to Minimum Alternate Tax (MAT)*

*H<sub>1</sub>: Company ETRs are related to Minimum Alternate Tax (MAT)*

On the basis of the above discussions we can build the regression equation as follows:

The regression equation is formulated with the ETR as independent variable and the above mentioned eight factors as dependent variables.

$$ETR = B_1 + B_2AS + B_3CI + B_4DDTR + B_5DEP + B_6DE + B_7PBT + B_8STR + B_9MAT$$

Where, ETR = Effective Tax Rates

AS = Asset Size

CI = Capital Intensity

DDTR = Dividend Distribution Tax Rates

DEP = Total depreciation

DE = Debt- Equity Ratio or leverage

PBT = Net Profit Before Tax

STR = Statutory Tax Rates

MAT = Minimum Alternate tax

### **5.5. RESULTS AND CONCLUSIONS:**

On the basis of the above equation and the available data of 1000 companies for a time span started with the Assessment Year 1998-99 to the Assessment Year 2012-13, the regression equation has been crafted as follows:

$$\text{ETR} = 23.57 - 0.0001 \text{ AS} - 19.32 \text{ CI} + 0.055 \text{ DDTR} - 0.15 \text{ DEP} - 1.03 \text{ DE} + 0.025 \text{ PBT} + 0.224 \text{ STR} + 0.279 \text{ MAT}$$

(-0.966)    (-0.551)    (0.933)    (-0.858)    (-0.806)    (0.368)    (0.317)    (0.638)

$$R^2 = 0.688$$

$$D.W = 1.98$$

$$F(8,7) = 3.312, 0.05 < p$$

*Note: Figures in brackets denote corresponding t-values*

The above regression equation is self explanatory. All the above null hypotheses are rejected as  $F(8, 7) = 3.312, 0.05 < p$ . Therefore it can be concluded from the above regression equation that there exists no noteworthy relationship between ETR and asset size. But depreciation allowance as a fiscal incentive is negatively related to Effective Tax Rates. It indicates that larger companies reduce their income tax burdens by utilizing more tax incentives in terms of depreciation. As asset size of companies is not significantly associated with ETRs, larger companies build up their asset mix in such a way that they can enjoy more depreciation allowance and can reduce their effective tax liabilities. ETR and capital intensity of a company is negatively related indicating the fact that company with high capital intensity can reduce its Effective Tax Rate by availing various tax incentives. It is also revealed from the analysis that ETR and Dividend Distribution Tax is positively related and make it clear that as an additional tax Dividend Distribution Tax increases ETR of a company. There exists negative relationship between ETR and Debt-Equity Ratio of a company which means companies with higher leverage, i.e. with more debts, are able to reduce their ETR because interest expenditure is tax-deductible and results in a lower taxable income. Profitability of a company and its Statutory Tax

Rate is positively related to the company ETR. This indicates that if profits of a company increase the taxable income increases and which in turn increases the company ETR and if Statutory Tax Rates are increased, corporates pay higher taxes which ultimately increase the effective tax liability of the company. ETR and Minimum Alternate Tax are positively related. This relationship entails that as a result of MAT companies pay a bare minimum sum to the Government exchequer and the tendency of trimming down the effective tax is wiped out which positively influence the ETR of those corporate houses.

The above regression analysis is done for the entire sample size in aggregate. But whether the same relationship exists between those variables in different industries can be understood through industry - wise regression analysis. For the same all the variables as used earlier are taken into consideration. The results are given below:

**Table- 5.7**  
**Result of Industry-wise Regression Analysis**

Coefficients Industry	AS		CI		DDTR		DEP		DE		PBT		STR		MAT		R <sup>2</sup>	F	D.W.
	B	t	B	t	B	t	B	t	B	t	B	t	B	t	B	t			
Electrical /Electronics [N= 115]	(-) 0.003	(-) 1.006	(-) 8.415	(-) 2.569			(-) 0.080	(-) 0.798	(-) 7.257	(-) 1.713							0.706	25.251	1.52
Pharma-Drug- Biotech [N=105]	(-) 0.001	(-) 1.437	(-) 0.571	(-) 0.032			(-) 0.068	(-) 0.829	(-) 3.045	(-) 0.377							0.683	24.766	1.94
Chemical and fertilizer [N=45]	(-) 0.001	(-) 1.13	(-) 8.07	(-) 2.03			(-) 0.090	(-) 0.113	(-) 1.996	(-) 0.208							0.667	14.499	1.91
Telecom services [N=20]	(-) 0.001	(-) 5.218	(-) 1.960	(-) 1.319			(-) 0.072	(-) 0.610	(-) 0.847	(-) 3.96							0.489	11.634	1.97
Automobile- ancillaries [N= 45]	(-) 0.001	(-) 0.661	(-) 0.140	(-) 0.005			(-) 0.163	(-) 1.409	(-) 4.383	(-) 0.310							0.717	25.444	1.93
Textile-leather [N=55]	(-) 0.000	(-) 1.316	(-) 4.498	(-) 1.369			(-) 0.194	(-) 1.431	(-) 5.576	(-) 3.387							0.615	19.750	1.86
Petro Chemical [N= 8]	(-) 0.001	(-) 0.003	(-) 5.829	(-) 0.963			(-) 0.262	(-) 1.622	(-) 3.614	(-) 4.613							0.735	16.32	1.92
Agro-food- beverage [N= 55]	(-) 0.001	(-) 0.946	(-) 5.07	(-) 2.666			(-) 0.166	(-) 3.839	(-) 8.845	(-) 1.631							0.864	12.156	1.56

Power- energy [N= 12]	(-) 0.000	(-) 0.708	(-) 1.809	(-) 1.672	0.330	3.956	(-) 0.056	(-) 1.44	(-) 3.448	(-) 1.440	0.010	0.236	0.525	1.448	1.426	2.313	0.769	17.586	1.721
Fast-moving consumer goods [N= 80]	(-) 0.002	(-) 0.964	(-) 3.778	(-) 0.119	0.267	0.761	(-) 0.058	(-) 0.942	(-) 4.526	(-) 0.559	0.010	0.105	1.225	1.619	1.577	1.761	0.528	19.271	1.648
Construction [N= 65]	(-) 0.001	(-) 0.660	(-) 7.144	(-) 0.208	0.065	0.068	(-) 0.051	(-) 0.284	(-) 8.25	(-) 0.143	0.011	0.191	2.477	1.267	7.886	1.390	0.81	18.272	1.51
Engineering manufacturing [N= 70]	(-) 0.002	(-) 2.810	(-) 5.79	(-) 0.858	1.183	1.775	(-) 0.356	(-) 3.07	(-) 2.47	(-) 1.529	0.065	2.639	5.595	3.904	4.217	3.420	0.64	10.64	1.93
Transport-hotel- communication- storage [N= 65]	(-) 0.001	(-) 2.221	(-) 8.525	(-) 0.332	0.681	2.403	(-) 0.109	(-) 2.222	(-) 4.707	(-) 2.253	0.011	1.049	1.744	2.861	7.208	4.078	0.549	21.310	1.656
InfoTech [N= 75]	(-) 0.001	(-) 0.332	(-) 2.628	(-) 0.816	0.086	0.310	(-) 0.073	(-) 0.767	(-) 2.844	(-) 0.243	0.030	0.285	1.174	1.957	4.188	2.407	0.71	18.179	1.713
Minerals-metals [N= 10]	(-) 0.000	(-) 0.432	(-) 1.239	(-) 0.552	0.351	0.591	(-) 0.041	(-) 0.608	(-) 1.848	(-) 0.482	0.080	1.478	1.149	1.828	1.150	1.074	0.63	14.453	1.83
Steel [N= 8]	(-) 0.002	(-) 0.524	(-) 3.603	(-) 2.913	0.654	4.176	(-) 0.217	(-) 2.974	(-) 5.890	(-) 3.512	0.012	2.480	2.063	3.035	0.967	0.836	0.579	14.271	1.732
Trading-retail [N= 92]	(-) 0.003	(-) 2.359	(-) 2.505	(-) 2.846	0.349	1.556	(-) 0.170	(-) 0.522	(-) 2.931	(-) 1.059	0.031	2.019	0.391	3.485	0.564	1.828	0.670	18.419	1.97
Media- entertainment [N=25]	(-) 0.000	(-) 0.003	(-) 5.829	(-) 0.963	0.492	2.238	(-) 0.262	(-) 1.622	(-) 3.614	(-) 1.768	0.020	0.256	2.606	1.776	0.971	0.583	0.72	16.32	1.92
Diversified [N= 50]	(-) 0.002	(-) 0.430	(-) 1.829	(-) 0.632	0.353	1.698	(-) 0.125	(-) 1.895	(-) 2.852	(-) 1.002	0.048	1.029	0.455	0.783	1.126	1.627	0.677	4.673	1.94

The above table is self explanatory for regression analysis that has been done industry wise for all the 1000 sampled companies. Numbers of companies in each industry has been shown in the Table-5.7. From the analysis it has been revealed that there exists no notable relationship between ETR and asset size. ETR and capital intensity of a company is negatively related. A positive relationship has been established between rates of Dividend Distribution Tax and ETR of a company and between STR and ETR. ETR of a company and depreciation allowance is negatively related to each other. There exists negative relationship between ETR and Debt-Equity Ratio of a company. Profitability of a company is positively related to the company ETR and it is also positively related with Minimum Alternate Tax. These relationships entail the fact that despite of insignificant relationship between “Asset Size” of a company and its “Effective Tax Rates”, depreciation and Effective Tax Rates are negatively related in almost all the industries. This illustrates the fact that companies reduce their tax liabilities by availing larger amount of depreciation allowance as fiscal incentive and availing of larger amount of depreciation is possible by designing proper asset mix. Thus it can be concluded that Effective Tax Rate of a company is related with its “Asset Mix”, not significantly with the “Asset Size”. Being tax deductible interest expenditure help a company to reduce its taxable income and companies with more debts or higher leverage enjoy more tax deductible interest expenditure. Thus, companies with higher leverage are able to reduce their ETR. Again, by raising the taxable income of a company, profits (Profit Before Tax or PBT) of a company increase the ETR. Moreover, it can be said that as a consequence of MAT corporate houses pay some tax to the Government exchequer

and thereby the scope of lowering down the effective tax liability is worn out which positively affect the ETR of those corporates.

In a nutshell it can be said that the regression analysis in aggregate or industry-wise has pointed towards asset mix (not the asset size), depreciation allowance, capital intensity, debt equity ratio, statutory tax rates, dividend tax, Minimum Alternate Tax and profitability as the main attributes that influence the Effective Tax Rate (ETR) of a company. Almost all the inferences drawn from the above eight hypotheses go in line with the earlier studies except hypothesis-2. Our study points towards the practice of companies to build up the asset mix in such a fashion which caters maximum benefit regarding depreciation allowance and reduce the Effective Tax Rates of a company.

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