CHAPTER - 7

An Empirical Analysis of Working Capital Management and Profitability

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CHAPTER 7
AN EMPIRICAL ANALYSIS OF WORKING CAPITAL MANAGEMENT AND PROFITABILITY

Having examined the state of various ratios, time trends and the variations, if any, between industries, between companies and between the years, as a final stage of analysis, ***in this chapter***, an attempt is made to examine the determinants of working capital in terms of sales as well as the impact of working capital policy and management as measured by various ratios on the selected 5 measures of profitability. For the purpose of better presentation the chapter is divided into five sections.

In **Section – I**, the methodology adopted is discussed. From the literature review it emerges that the level of sales affects the level of net working capital and thus **Section – II** empirically examines the impact of Sales on Working Capital of the firms in the Non Financial Service Industry which is also done for firms based in industry wise classification. Working Capital Leverage is a measure of sensitivity of ROTA due to change in level of current asset investment and thus, in **Section – III** the impact of WCL on ROTA is examined. The literature review also indicates impact of WCM, LEV & Size on profitability and hence, in **Section – IV** an attempt is made to identify the WCM, Size and LEV indicators affecting the profitability of 79 sample firms in Non Financial Service Industry taken as a whole. In **Section – V** an attempt is made to identify the industry – wise WCM, LEV and Size indicators affecting the profitability as well as to examine the differences, if any, for the companies belonging to three major service industry groups – Hotels and Restaurant Industry, IT-ITeS Industry and Transport Services Industry.

In Section IV and V, the analysis for each industry is divided into two parts. In PART – I, Simple Linear Regressions of each selected measure of WCM, LEV and Size on each individual measure of profitability are conducted to examine the impact of these individual measures on profitability. In PART – II, Stepwise Regression is carried out to find out the best fit model and the indicators of WCM, Size and LEV which accounts for the highest variation in Profitability.

The average represented by Mean of selected ratios over a 15 year period of each company in each industry is taken for conducting simple linear regressions to examine the impact of sales on working capital; WCL on ROTA as well as WCM, LEV and Size on profitability of the Non Financial Service Industry as well as its constituent industries.

The sample of Indian Non Financial Service Industry for the present study is 79 companies representing 6 industry groups. For the purpose of firm level analysis based on industry-wise classification, 3 major industry groups having at least 15 member companies are selected as it is necessary to have at least ten data points for conducting regression analysis which is satisfied for only ***three industry groups*** as detailed below:

Sr. No.	Industry Classification	No. of Companies
1	Hotels & Restaurant Industry	25
2	IT Industry	20
3	Transport Services Industry	16

SECTION - I

7.1 Methodology Adopted

In order to examine the impact of Sales on Working Capital, the mean values of each company over a period of 15 years for each industry is taken. The Mean Working Capital was found to be negative for 6 companies in Hotels and Restaurant Industry and 2 companies each in IT Industry and Transport Services Industry. As Natural Log (Ln) of negative values cannot be computed, therefore the regression was carried out on the mean values of Sales and Working Capital of each company in the industry instead of the Ln of Sales and Working Capital. As both Sales and Working Capital are the absolute values in ₹ crores terms and as none of them were in ratio form, no difficulty was found in carrying out regression on the absolute values.

In order to examine the impact of Working Capital Leverage on ROTA, the mean WCL and ROTA of each company of the Non Financial Service Industry as well as belonging to each of the three industries over a period of 14 years are taken.

In the first stage of empirical analysis at firm level and based on industry-wise classification, in order to examine the impact of WCM, LEV & Size on profitability, simple linear regression of various measures of WCM, Size and LEV on each indicator of PROF is conducted. Further, the parameters of WCM are divided into 3 broad groups, *i.e.,* Ratios indicating *a)* Working Capital Policy, *b)* Liquidity and c) Efficiency in current assets management. The results will point out the ratios with the broad group which has significant impact on Profitability.

In the second stage it was considered appropriate to carry out Stepwise Regression to identify the variables which explain the highest variation in Profitability and at the same time eliminating the problem of multicollinearity as stepwise regression method eliminates those independent variables that are highly correlated considering the values of Variance Inflationary Factor (VIF) and Tolerance Limit.

SECTION - II

7.2 Impact of Sales on Working Capital

An attempt is made to examine the impact of sales on working capital. For this purpose, simple linear regression is carried out by taking working capital as dependent variable and sales as explanatory variable and the results of this regression is presented in Table 7.1 for the Non Financial Service Industry as well as selected three industries.

TABLE – 7.1

Results of Simple Linear Regression for Sales on Working Capital

Sr. No.	Name of Industry	R^2	Intercept	Slope	t-Statistic	p-value
A	Service Industry (All 79 Companies)	0.551	205.137	1.601	9.726*	4.83E-15
1	Hotels and Restaurant	0.774	-8.5E+07	0.365	8.883*	6.8E-09
2	ITes Industry	0.369	5.62E-08	0.214	3.244*	0.005
3	Transport Services	0.750	-1.1E+08	0.361	6.472*	1.47E-05

Critical Values of "t"

Sr. No.	DF	Probability (Alpha)	Table Value – t
A	77	0.01	2.390
1	23	0.01	2.807
2	18	0.01	2.878
3	14	0.01	2.977

*Indicating results significant at 1% level of significance

On examining the outcome of simple linear regression from the perusal of Table 7.1, it is observed that sales have a significant positive impact on working capital of Non Financial Service Industry. The explained variation is 55.1% in case of Non Financial Service Industry which indicates that the working capital requirements of the companies in the Service Industry in terms of net working capital are highly affected by the level of sales. However, when it is observed for the individual industries, in case of Hotels and Restaurant Industry 77.40% of variation in working capital is accounted by Sales. In the Transport Services Industry 75% of variation in working capital is accounted by Sales whereas in case of ITes Industry, 36.90% of variation in working capital is accounted by Sales.

This relationship supports the premise, "there is a direct relationship between a firm's growth and its working capital needs. As sales grow, the firm needs to invest more in inventories and debtors[1]". Thus, Sales is found to be an important determinant of working capital and supports the findings of Mallick & Sur[2].

SECTION - III

7.2 Impact of Working Capital Leverage on ROTA

In this section, the impact of WCL on the ROTA is examined for the Non Financial Service Industry as well as its 3 major industries by applying simple linear regression taking ROTA as dependent variable and WCL as explanatory variable and the results of this regression is presented in Table 7.2 for the Non Financial Service Industry as well as selected three industries.

TABLE – 7.2

Results of Linear Trend on Working Capital Leverage for ROTA

Sr. No.	Name of Industry	R^2	Intercept	Slope	t-Statistic	p-value
1	Service Industry (All 79 Companies)	0.168	5.237	13.296	3.939*	0.000
2	Hotels and Restaurant	0.196	6.172	13.000	2.369**	0.027
3	IT&A Industry	0.347	-3.178	29.684	3.092*	0.006
4	Transport Services	0.077	16.132	-9.280	-1.078	0.299

Critical Values of "t"

Sr. No.	DF	Probability (Alpha)	Table Value – t
1	77	0.01	2.390
2	23	0.05	2.069
3	18	0.01	2.878
4	14	0.01	2.977
		0.05	1.761

* Indicating results significant at 1% level of significance
** Indicating results significant at 5% level of significance

On examining the outcome of regression analysis from Table 7.2, it is observed that ROTA of the service industry is sensitive to change in current assets investment with 17% variation in ROTA being explained by WCL and hence it is concluded that WCL affects ROTA of the Indian Non Financial Service Industry.

Further, the results also confirms that ROTA of the Hotels and Restaurant *and* IT&A Industry are sensitive to change in CA investment with 20% and 35% variation respectively in ROTA being explained by WCL. *However*, no statistically significant impact of WCL on ROTA is observed for the Transport Services Industry.

As already discussed, WCL is the sensitivity of ROTA to change in the level of current asset investment. Thus, it measures the risk in the current asset investment policy. And from the above results, it can be concluded that firms in Non Financial Service Industry as well as Hotels and Restaurant *and* IT&A Industry are affected by the working capital risk whereas *vice-versa* is the case for Transport Services Industry.

SECTION - IV

In this section, an attempt is made to examine the impact of WCM, LEV and Size on Profitability of the Non Financial Service Industry. *2* measures each of *LEV* and *Size*, *5* measures of *Working Capital Policy*, *9* ratios of *Liquidity* and *7* indicators of *Current Asset Management Efficiency* (CAME) are taken as explanatory variables based on literature review as already discussed in Chapter 4 which is presented in Table 7.3. Five measures of profitability are taken as dependent variables of which 2 measures are based on each sales and total assets and 1 measure is based on Net Worth. Simple Linear Regressions are conducted first followed by Stepwise Regression.

TABLE – 7.3

DETAILS OF INDEPENDENT AND DEPENDENT VARIABLES USED IN STUDY

Broad Group	Variables	Abbreviation
Independent Variables – WCM, LEV and Size		
Size	Natural Logarithm of Sales	LnS
	Natural Logarithm of Total Assets	LnTA
Leverage	Long Term Debt/Total Assets	LTDTAR
	Total Debt/ Total Assets	TDTAR
Working Capital Policy	Current Liabilities/ Total Assets	CLTAR
	Current Assets/ Total Assets	CATAR
	Current Assets/ Net Fixed Assets	CANFAR
	Current Liabilities/ Current Assets	CLCAR
	Working Capital/ Current Assets	WCCAR
Liquidity	Inventory/Current Assets	ITCAR
	Receivables /Current Assets	RTCAR
	Cash and Bank Balances/ Current Assets	CBBTCAR
	Prepaid Expenses/ Current Assets	PETCAR
	Loans and Advances/ Current Assets	LATCAR
	Marketable Securities/ Current Assets	MSTCAR
	Current Assets/ Current Liabilities	CR
	Current Assets – Inventories/ Current Liabilities	QR
	Cash and Bank Balances + Marketable Securities/ Current Liabilities	ALR
Efficiency	Sales / Total Assets	TATR
	Sales/ Current Assets	CATR
	Sales/ Working Capital	WCTR
	Sales/ Inventory	ITR
	Inventory Holding Period	IHP
	Sales/ Receivables	RTR
	Average Collection Period	ACP
	Sales/ Cash and Bank Balances	CBBTR
	Sales/ Creditors	CTR
	Average Payment Period	APP
	Operating Cycle	OC
	Net Trade Cycle	NTC
Dependent Variable – Profitability		
Based on Sales	Earnings Before Interest and Taxes/ Sales	OPM
	Earnings After Taxes/ Sales	NPM
Based on Total Assets	Earnings Before Interest and Taxes/ Total Assets	ROTA
	Earnings After Taxes/ Total Assets	EAT/TA
Based on Net Worth	Earnings After Taxes/ Net Worth	RONW

7.4 Impact of WCM, LEV and Size on Profitability of Firms in Non Financial Service Industry (All 79 Companies)

The results of Simple Linear Regressions and Stepwise Regression for Non Financial Service Industry are presented and analyzed in this section. The results of Simple Linear Regressions for each measure of profitability are presented separately in Tables 7.4 to 7.8. Also the interpretation is made first for OPM followed by NPM, ROTA, EAT/TA and RONW. Thereafter the results of Stepwise Regressions are presented in Table 7.9. Also, a comparative summary of results of Simple and Stepwise Regressions is presented in Table 7.10 after discussing the result of Stepwise Regressions.

7.4.1 Results of Simple Linear Regressions on OPM, NPM, ROTA, EAT/TA and RONW

A. Simple Linear Regressions for OPM

From the perusal of Table 7.4 it is observed that of the 30 explanatory variables representing 5 broad groups, only 9 variables have significant impact on OPM of firms in Non Financial Service Industry.

Size measured in terms of LnTA has a positive impact on OPM indicating that as LnTA increases, OPM improves. Thus, it can be inferred that firms with higher investments in total assets in the industry are earning higher profits.

Leverage measured in terms of TDTAR has a negative influence on OPM indicating that with increase in utilization of total debt, OPM of firms in Non Financial Service Industry would decrease.

Working Capital Policy measured in terms of CLTAR is found to have a negative impact on OPM which indicates that as the proportion of CL to TA rises, the OPM falls. The greater use of CL to finance total assets is indicative of aggressive working capital financing policy. The results thus indicate a negative impact of aggressive working capital financing policy on OPM and that firms in the industry should try to reduce the CLTAR to the extent possible.

Liquidity measured in terms of RTCAR has a negative impact on OPM and indicates that as the investment in Receivables in proportion to Current Assets increase there is a decline in profitability.

CBBTCAR and ALR have positive impact on OPM and indicate that as the liquidity improves, the OPM is likely to improve. In addition, CBBTCAR explains 23.6% variation in OPM which is highest amongst the significant variables and hence is an important determinant of OPM. Thus firms in Non Financial Service Industry should maintain sufficient liquidity to increase their profitability.

TABLE – 7.4						
Results of Simple Linear Regression for OPM: Non Financial Service Industry						
Independent Variable	**Indicators**	**R^2**	**Intercept**	**Slope**	**t-Statistic**	**p-value**
Size	LnS	0.030	-8.973	1.386	1.548	0.126
	LnTA	**0.083**	-30.525	2.409	2.634**	0.010
Leverage	LTDTAR	0.003	19.599	-5.312	-0.471	0.639
	TDTAR	**0.066**	29.321	-24.104	-2.336**	0.022
Working Capital Policy	CLTAR	**0.055**	25.372	-25.566	-2.120**	0.037
	CATAR	0.003	20.449	-4.059	-0.448	0.655
	CANFAR	0.002	19.434	-0.458	-0.417	0.678
	CLCAR	0.001	19.264	-0.792	-0.200	0.842
	NWCCAR	0.000	18.477	0.760	0.193	0.848
Liquidity	ITCAR	0.029	21.254	-32.693	-1.527	0.131
	RTCAR	**0.156**	37.904	-38.729	-3.778*	0.000
	CBBTCAR	**0.236**	6.649	59.009	4.873*	0.000
	PETCAR	0.031	15.394	39.669	1.570	0.120
	LATCAR	0.001	18.314	4.377	0.209	0.835
	MSTCAR	0.000	18.576	1.380	0.066	0.947
	CR	0.004	16.994	0.745	0.534	0.595
	QR	0.033	13.881	2.274	1.613	0.111
	ALR	**0.174**	11.600	10.065	4.028*	0.000
Efficiency	TATR	**0.108**	26.733	-9.878	-3.047*	0.003
	CATR	0.029	21.872	-1.430	-1.510	0.135
	WCTR	0.001	18.605	0.020	0.216	0.829
	ITR	0.021	16.662	4.701E-5	1.229	0.223
	IHP	**0.056**	21.601	-0.192	-2.138**	0.036
	RTR	0.000	18.343	0.056	0.178	0.859
	CBTR	**0.070**	22.551	-0.177	-2.394**	0.019
	ACP	0.006	20.210	-0.012	-0.707	0.482
	CTR	0.009	18.379	0.005	0.822	0.414
	APP	0.023	20.384	-0.032	-1.352	0.180
	OC	0.013	20.894	-0.015	-0.997	0.322
	NTC	0.001	19.170	-0.005	-0.222	0.825

Critical Values of "t"		
Degrees of Freedom	**Probability (Alpha)**	**Table Value – t**
77	0.01	2.660
77	0.05	2.000

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Efficiency ratios TATR, CBTR and IHP are observed to have significant negative impact on OPM. The increase in TATR leads to decline in OPM which is an unusual finding. Further, rise in CBTR also leads to decline in OPM. However, low cash balances for a given level of sales would result to high CBTR and thus it is concluded

that higher liquidity leads to higher profitability and is in line with the results of CBBTCAR and ALR.

In addition a decline in IHP results to rise in OPM. Thus, the results point out towards the fact that the faster the conversion of inventories to sales, the lower is the investment required in the inventories and higher are the profits and therefore the firms in Non Financial Service Industry should make efforts to reduce IHP to earn more profits.

B. Simple Linear Regressions for NPM

From the perusal of Table 7.5, it is observed that only 10 variables of the selected 30 have significant impact on NPM of which results of 7 ratios *viz,* LnTA, TDTAR, RTCAR, CBBTCAR, ALR, IHP and CBTR are common with OPM and hence the explanation for these thereat holds good for NPM also.

Size measured in terms of LnS also has a significant positive impact on NPM indicating that as the total assets base of firms in Non Financial Service Industry increases, the NPM is likely to improve. ***Liquidity measured in terms of QR*** also has a positive impact on NPM and is an important determinant of NPM as it explains the highest variation amongst all the significant variables, *i.e.,* 27.6%. Further ***Efficiency measured in terms of APP*** has a negative impact on NPM indicating that as the length of APP increases NPM declines.

C. Simple Linear Regressions for ROTA

From the perusal of Table 7.6 it is observed that 13 ratios covering all the broad groups have a significant impact on ROTA. Both the ***indicators of firm size*** have positive impact on ROTA indicating that firms with higher investments in total assets as well as high turnover are earning higher return on total assets in the Non Financial Service Industry. Further, LnS explains the highest variation in ROTA, *i.e.,* 24.7% amongst all the significant ratios and thus is an important determinant of ROTA.

Both the indicators of Leverage have negative impact on indicating that as the utilization of debt increases ROTA decreases. ***Working Capital Policy measured in terms of CATAR*** has a positive impact on ROTA indicating that with increased investments in CA in proportion to total assets ROTA improves. Further, ***CLCAR*** has a negative impact on ROTA indicating that as the proportion of CL to CA increases, there is decline in ROTA. ***Further both, ITCAR*** and ***IHP*** have negative impact on ROTA indicating that as the investment in inventories increase and with increased holding of inventories, ROTA declines. ***CBBTCAR and QR*** have positive impact on ROTA indicating that with increase in liquidity, profitability improves. The negative impact of ***OC*** indicates that as the length of OC declines, ROTA improves. Further

CTR and ***TATR*** have positive impact on ROTA. The results indicate that with rise in TATR and CTR, ROTA is likely to increase. Thus with improved efficiency in total asset utilization as well as timely payments of dues, the firms in Non Financial Service Industry can improve their ROTA.

TABLE – 7.5

Results of Simple Linear Regression for NPM: Non Financial Service Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	**0.072**	-25.469	1.780	2.438**	0.017
	LnTA	**0.092**	-33.329	2.124	2.799*	0.006
Leverage	LTDTAR	0.025	12.339	-12.998	-1.396	0.167
	TDTAR	**0.213**	25.981	-36.038	-4.561*	0.000
Working Capital Policy	CLTAR	0.033	14.345	-16.400	-1.612	0.111
	CATAR	0.032	4.798	11.875	1.596	0.114
	CANFAR	0.014	8.428	0.950	1.044	0.300
	CLCAR	0.048	14.900	-6.353	-1.967	0.053
	NWCCAR	0.048	8.529	6.331	1.971	0.052
Liquidity	ITCAR	0.031	12.248	-27.831	-1.559	0.123
	RTCAR	**0.148**	25.648	-31.412	-3.655*	0.000
	CBBTCAR	**0.201**	0.785	45.465	4.402*	0.000
	PETCAR	0.010	8.521	18.439	0.865	0.390
	LATCAR	0.000	9.916	1.543	0.088	0.930
	MSTCAR	0.015	8.926	18.734	1.086	0.281
	CRS	0.022	6.645	1.519	1.316	0.192
	QR	**0.276**	2.630	10.564	5.412*	0.000
	ALR	**0.127**	2.187	3.736	3.344*	0.001
Efficiency	TATR	0.017	12.706	-3.264	-1.150	0.254
	CATR	0.022	12.407	-1.054	-1.330	0.187
	WCTR	0.001	9.986	0.019	0.249	0.804
	ITR	0.041	8.463	8.024E-5	1.735	0.087
	IHP	**0.067**	12.719	-0.175	-2.348**	0.021
	RTR	0.000	9.776	0.045	0.177	0.860
	ACP	0.010	11.625	-0.012	-0.868	0.388
	CBTR	**0.063**	13.090	-0.140	-2.255**	0.027
	CTR	0.024	9.653	0.007	1.369	0.175
	APP	**0.050**	12.162	-0.039	-2.024**	0.046
	OC	0.018	12.238	-0.015	-1.179	0.242
	NTC	0.000	9.765	0.003	0.142	0.887

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
77	0.01	2.660
77	0.05	2.000

* Results significant at 1% level of significance ** Results significant at 5% level of significance

TABLE – 7.6						
Results of Simple Linear Regression for ROTA: Non Financial Service Industry						
Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	**0.247**	-25.557	1.881	5.024*	0.000
	LnTA	**0.166**	-21.138	1.621	3.915*	0.000
Leverage	LTDTAR	**0.116**	14.797	-16.062	-3.184*	0.002
	TDTAR	**0.125**	18.923	-15.754	-3.324	0.001
Working Capital Policy	CLTAR	0.000	12.034	-0.308	-0.052	0.958
	CATAR	**0.102**	6.630	12.065	2.959*	0.004
	CANFAR	0.035	10.494	0.861	1.682	0.097
	CLCAR	**0.050**	14.774	-3.686	-2.007**	0.048
	NWCCAR	0.048	11.096	3.601	1.970	0.052
Liquidity	ITCAR	**0.053**	13.605	-20.801	-2.071**	0.042
	RTCAR	0.046	16.925	-10.004	-1.933	0.057
	CBBTCAR	**0.137**	7.605	21.364	3.497*	0.001
	PETCAR	0.003	11.471	5.865	0.482	0.631
	LATCAR	0.009	12.614	-8.392	-0.847	0.400
	MSTCAR	0.014	11.353	10.113	1.029	0.307
	CR	0.017	10.271	0.754	1.144	0.256
	QR	**0.103**	9.377	3.674	2.972*	0.004
	ALR	0.048	9.213	1.304	1.964	0.053
Efficiency	TATR	**0.072**	8.827	3.826	2.436**	0.017
	CATR	0.001	11.736	0.097	0.212	0.0832
	WCTR	0.004	12.022	-0.026	-0.582	0.562
	ITR	0.041	8.463	6.024E-5	1.735	0.087
	IHP	**0.108**	13.897	-0.127	-3.059*	0.003
	RTR	0.020	10.911	0.181	1.255	0.213
	ACP	0.033	13.621	-0.013	-1.622	0.109
	CBTR	0.030	13.175	-0.055	-1.539	0.128
	CTR	**0.141**	11.421	0.010	3.553*	0.001
	APP	0.022	12.751	-0.015	-1.314	0.193
	OC	**0.049**	14.036	-0.014	-1.992**	0.050
	NTC	0.041	13.904	-0.021	-1.824	0.072

Critical Values of "t"		
Degrees of Freedom	Probability (Alpha)	Table Value – t
77	0.01	2.660
77	0.05	2.000

* Results significant at 1% level of significance ** Results significant at 5% level of significance

D. Simple Linear Regressions for EAT/TA

From the perusal of Table 7.7 it is observed that only 7 variables significantly affect EAT/TA of which 4 ratios *viz,* LTDTAR, TDTAR, CATAR and CTR are common with ROTA and hence, the interpretations thereat holds good for EAT/TA too.

CANFAR representing working capital policy is also observed to positively affect EAT/TA indicating that by increasing the proportion of CA to Net fixed assets

EAT/TA improves. Further, ***RTCAR*** has a negative impact indicating that with decline in investment in receivables the EAT/TA is likely to improve. ***ITR*** has a positive impact on EAT/TA indicating that with increased efficiency in inventory management EAT/TA increases.

TABLE – 7.7

Results of Simple Linear Regression for EAT/TA: Non Financial Service Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.019	-2.032	0.429	0.666	0.512
	LnTA	0.000	4.930	0.065	0.095	0.925
Leverage	LTDTAR	**0.317**	9.830	-15.032	-3.268*	0.003
	TDTAR	**0.247**	12.834	-14.980	-2.746*	0.012
Working Capital Policy	CLTAR	0.053	3.955	11.413	1.130	0.270
	CATAR	**0.211**	2.484	12.211	2.478**	0.021
	CANFAR	**0.085**	5.655	1.227	2.671*	0.009
	CLCAR	0.021	7.514	-1.287	-0.706	0.488
	NWCCAR	0.021	6.227	1.287	0.706	0.488
Liquidity	ITCAR	0.000	6.382	-1.386	-0.099	0.922
	RTCAR	**0.332**	14.356	-17.556	-3.380*	0.003
	CBBTCAR	0.131	3.110	13.600	1.864	0.075
	PETCAR	0.023	5.277	12.068	0.732	0.472
	LATCAR	0.060	5.528	12.672	1.209	0.239
	MSTCAR	0.022	5.847	7.273	0.717	0.481
	CR	0.085	3.481	1.502	1.457	0.159
	QR	0.089	3.628	1.518	1.495	0.149
	ALR	0.142	4.459	2.565	1.954	0.063
Efficiency	TATR	0.032	5.217	1.940	0.878	0.389
	CATR	0.001	6.389	-0.050	-0.136	0.893
	WCTR	0.000	6.247	-0.002	-0.063	0.951
	ITR	**0.197**	7.045	8.183E-5	4.138*	0.000
	IHP	0.058	7.943	-0.112	-1.189	0.247
	RTR	0.015	5.690	0.080	0.596	0.557
	ACP	0.018	7.336	-0.009	-0.652	0.521
	CBTR	0.046	9.106	-0.063	-1.913	0.059
	CTR	0159	7.214	0.010	3.814*	0.000
	APP	0.019	8.419	-0.013	-1.223	0.225
	OC	0.022	9.022	-0.009	-1.318	0.192
	NTC	0.009	8.591	-0.009	-0.855	0.395

Critical Values of "t" and "F"

Degrees of Freedom	Probability (Alpha)	Table Value – t
77	0.01	2.660
77	0.05	2.000

* Results significant at 1% level of significance ** Results significant at 5% level of significance

E. Simple Linear Regressions for RONW

From the perusal of Table 7.8 it is observed that LEV, WCP and Liquidity have no significant impact on RONW. Of the 30 explanatory variables, only 4 are observed to significantly affect RONW and includes 2 variables related to size, *i.e.,* ***LnS, LnTA,*** and remaining 2 relate to inventory, *i.e.,* ***IHP and ITR*** which are common with ROTA and EAT/TA and hence the interpretations thereat holds good here also.

TABLE – 7.8

Results of Simple Linear Regression for RONW: Non Financial Service Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.100	-25.781	2.052	2.918*	0.005
	LnTA	0.070	-21.816	1.810	2.410**	0.018
Leverage	LTDTAR	0.040	17.996	-16.112	-1.783	0.078
	TDTAR	0.001	16.281	-2.570	-0.295	0.769
Working Capital Policy	CLTAR	0.000	15.211	-0.257	-0.025	0.980
	CATAR	0.018	11.354	8.589	1.172	0.245
	CANFAR	0.009	13.913	0.726	0.814	0.418
	CLCAR	0.082	13.355	2.338	0.725	0.471
	NWCCAR	0.007	15.709	-2.371	-0.739	0.462
Liquidity	ITCAR	-0.004	16.309	-14.675	-0.831	0.408
	RTCAR	0.001	16.058	-1.840	-0.202	0.840
	CBBTCAR	0.015	12.667	12.170	1.085	0.281
	PETCAR	0.001	14.657	5.917	0.283	0.778
	LATCAR	0.013	16.487	-17.068	-1.008	0.318
	MSTCAR	0.001	14.830	5.284	0.311	0.757
	CR	0.001	14.292	0.381	0.334	0.739
	QR	0.005	13.549	0.759	0.651	0.517
	ALR	0.010	13.762	1.970	0.883	0.380
Efficiency	TATR	0.040	11.129	4.911	1.790	0.077
	CATR	0.012	13.449	0.754	0.968	0.336
	WCTR	0.005	15.266	-0.046	-0.604	0.548
	ITR	0.057	14.073	8.304E-5	2.052**	0.044
	IHP	0.110	18.511	-0.220	-3.089*	0.003
	RTR	0.017	13.470	0.291	1.171	0.245
	ACP	0.024	17.604	-0.019	-1.386	0.170
	CBTR	0.000	15.455	-0.007	-0.109	0.914
	CTR	0.045	14.627	0.010	1.901	0.061
	APP	0.003	13.952	0.021	0.255	0.801
	OC	0.039	18.348	-0.022	-1.775	0.080
	NTC	0.054	18.882	-0.046	-1.141	0.265

Critical Values of "t" and "F"

Degrees of Freedom	Probability (Alpha)	Table Value – t
77	0.01	2.660
77	0.05	2.000

* Results significant at 1% level of significance ** Results significant at 5% level of significance

7.4.2 Results of Stepwise Regression

In para 7.4.1, an attempt was made to identify the independent variables affecting to various measures of profitability, when independent variables are taken individually. In this para an attempt is made to identify the group of variables jointly affecting the selected measures of profitability. For this purpose, the grouping could have been carried out one by one. However, to carry out the process in more systematic manner, the use of stepwise regression is made and the process is carried out through SPSS. For all the selected five measures of profitability *i.e.,* OPM, NPM, ROTA, EAT/TA and RONW, the results of regressions are presented in one single table, *i.e.,* Table 7.9 instead of five tables to have a clear and comparative view of results. Moreover, in this table only the final model which explained the highest variation in a particular measure of profitability is reported for preciseness and lucidity. The results of Stepwise Regressions are presented in Table 7.9 for all the profitability measures. The same is followed for the stepwise regression carried to examine the impact of WCM, LEV and Size on PROF for industry-wise classification.

From the perusal of Table 7.9, it is observed that ***CBBTCAR and TATR*** together explain 27.6% variation ***in*** **OPM**. However, in case of **NPM**, four variables *viz,* ***ALR, LnTA, IHP and RTCAR*** explain 40% variation. When, **ROTA** is taken as the measure of profitability, the explanatory variables change with 6 variables, *viz,* ***LnS, TDTAR, CTR, NTC and LATCAR*** explaining 44.9% variation. When EAT/TA is taken as the measure of profitability, the first three variables as in ROTA remains whereas the last two are replaced. Thus, ***LnS, TDTAR, CTR, TATR, ALR and NWCCAR*** jointly explain 53.9% variation in **EAT/TA.** In case of **RONW,** ***IHP and LnS*** explains 14.6% variation. Further, the VIF Statistics also indicates no multicollinearity amongst the independent variables.

Size measured in terms of LnTA positively influences NPM thereby indicating that with increased investments in Total assets which leads to expansion of organization the profitability of the firms in Non Financial Service Industry increases. It supports the premise that "large organizations enjoy the benefits of the economies of scale"[4]. Thus firms with large size in Non Financial Service Industry are more profitable which is consistent with the findings of Afza and Nazir[5], Vahid *et al*[6], Al-Mwalla[7], and Hayat and Bhatti[8], Nassirzadeh and Rostami[9] but inconsistent with the results of Falope and Ajilore[10] and Khan *et al*[11].

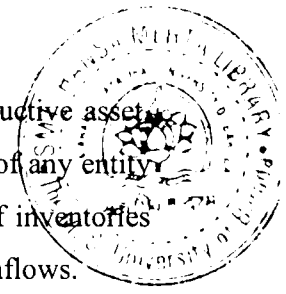
Size measured in terms of LnS positively influences three measures of profitability, i.e., ROTA, EAT/TA and RONW and indicates that with increase in sales turnover the

profitability of the firms in Non Financial Service Industry increases which is a very obvious phenomenon too which is consistent with the findings of Wang[12], Deloof[13], Padachi[14], Tereul and Solano[15], and many more[16-25] whereas inconsistent with the results of Enqvist *et al*[26].

It is observed that ***Leverage measured in terms of TDTAR has a significant negative impact on two measures of profitability i.e.,*** **ROTA and EAT/TA** which indicates that as the leverage in terms of Total Debt increases, ROTA and EAT/TA declines thereby supporting the Pecking Order Hypothesis of Myers and Majluf[27] and is consistent with the findings of Rajan and Zingales[28], Ogundipe[33], Pouraghajan and Emamgholipourarchi[34], Bagchi and Khamrui[35], Yucel and Kurt[36] and Bieniasz and Golas[37], and many more[5,6,8,9,13,16,18,19,20,22,23,24,26,29,30,31,32].

Working Capital Policy measured in terms of NWCCAR is observed to have significant negative impact on EAT/TA and indicates that with increase in NWCCAR, the EAT/TA would decline and *vice-versa.* A high NWCCAR is indicative of conservative working capital financing policy pursued by a firm and thus it can be concluded that there is a negative impact of conservative working capital financing policy on the post tax returns measured in terms of Total assets of firms in Non Financial Service Industry. The reason can be understood as "Long term interest rates normally exceeds short-term rates because of reduced flexibility of long term borrowing relative to short-term borrowing. In fact, the effective cost of long term debt may be higher than the cost of short-term debt, even when short-term interest rates are equal to or greater than long term rates[38]". Further, "the justification of higher cost of long-term financing can be found in the **liquidity preference theory** which says that since lenders are risk averse and risk generally increases with the length of lending time (because it is more difficult to forecast the more distant future), most lenders would prefer to make short-term loans. The only way to induce these lenders to lend for longer periods is to offer them higher rates of interest[39]". Thus the results indicate that pursuing an aggressive working capital financing policy which is a risky proposition is profitable for firms in Non Financial Service Industry and establishes the positive risk-return relationship in WCM of the Non Financial Service Industry. The negative influence of conservative working capital financing policy on profitability is inconsistent with the results of Afza and Nazir[5], Vahid *et al*[6], Al Mwalla[7] Azhar and Saad[30], Al Shubiri[40]and Al-Shubiri[41].

Liquidity represented by ***CBBTCAR has a positive impact on OPM*** which indicates that as cash balances increase there is increase in OPM which is not consistent with the



traditionally accepted norms as cash is considered to be the most unproductive asset. However, this result can be justified on the grounds that the ultimate aim of any entity is to convert inventories into sales and earn cashflows. The conversion of inventories into sales would lead to not only increase in profits but also increase in cashflows.

Liquidity represented by ***RTCAR has a negative impact on NPM*** which indicates that increased blockage of funds in receivables will lead to decline in NPM. It is justified as increased receivables do increase sales but simultaneously increases the probability of bad debts leading to increased credit risk and loss of revenue. Thus, increased investments in receivables indicate a liberal credit policy as well as blocked liquidity. Hence, the firms in Non Financial Service Industry can increase their operational earnings by reducing blockage of funds in receivables and pursuing a reasonable credit policy.

Liquidity represented by ***LATCAR has a negative impact on ROTA*** which indicates that as the proportion of loans and advances increase, it leads to decline in profitability. It is also very obvious as the money blocked in loans and advances is unproductive and which can be put to productive use by reducing blockage of funds in loans and advances and hence, the profitable firms in Non Financial Service Industry pursue a policy of maintaining lower level of loans and advances in the current assets structure.

Liquidity represented by ***ALR has a positive impact on NPM and EAT/TA.*** ALR is an indicator of absolute liquidity and its positive influence on profitability indicates that as the cash balances in proportion to CL increase the profitability also increases. This is a very logical phenomenon, *i.e.,* as the inventory and receivables gets converted into cash balances, the profitability is bound to increase. Further, the positive influence of liquidity on profitability indicates that efficient liquidity management results to increase in profitability and are consistent with the findings of Khan and Sajjad[42].

Efficiency represented by ***IHP has a negative impact on NPM and RONW*** and indicates that high IHP will result to lower profitability and *vice-versa.* Low IHP indicates lower investment in inventory, leading to higher liquidity and thus higher profitability. Thus it is concluded that by shortening the IHP the firms in Non Financial Service Industry can create value for their shareholders by increasing their post tax returns and supports the findings of Khan *et al*[11] and Quayyum[43].

Efficiency represented by ***NTC has a negative impact on ROTA*** which indicates that as the length of NTC increases it will have a declining effect on ROTA. Thus, firms in Non Financial Service Industry can enhance their ROTA by reducing the length of NTC and support the findings of Kaddumi and Ramadan[20].

TABLE – 7.9								
Results of Stepwise Regression for all Profitability Measures: Non Financial Service Industry								
Independent Variable	R^2	Adj. R^2	Intercept	Slope	t-Statistic	p-value	F-Statistic	VIF Statistics
Dependent Variable – OPM								
CBBTCAR	0.295	0.276	13.856	53.491	4.491*	0.000	15.879* (0.000)	1.035
TATR				-7.443	-2.522**	0.014		1.035
Dependent Variable – NPM								
ALR	0.431	0.400	-17.481	8.537	4.263*	0.000	13.999* (0.000)	1.287
LnTA				1.582	2.471**	0.016		1.090
IHP				-0.158	-2.510**	0.014		1.121
RTCAR				-16.795	-2.004**	0.049		1.369
Dependent Variable – ROTA								
LnS	0.484	0.449	-9.542	1.595	4.858*	0.000	13.718* (0.000)	1.066
TDTAR				-16.379	-4.165**	0.000		1.107
CTR				0.006	2.498**	0.015		1.086
NTC				-0.022	-2.522**	0.014		1.074
LATCAR				-16.210	-2.184**	0.032		1.022
Dependent Variable – EAT/TA								
LnS	0.574	0.539	-20.948	1.582	5.322*	0.000	16.181* (0.000)	1.229
TDTAR				-16.158	-3.699*	0.000		1.923
CTR				0.004	2.005**	0.049		1.150
TATR				3.448	3.160*	0.002		1.161
ALR				3.047	2.714*	0.008		1.916
NWCCAR				-3.709	-2.337**	0.022		1.857
Dependent Variable – RONW: Model – 1								
IHP	0.168	0.146	-14.344	-0.179	-2.504**	0.014	7.685* (0.001)	1.065
LnS				1.616	2.301**	0.024		1.065

Critical Values of "t"		
Degrees of Freedom	Probability (Alpha)	Table Value – t
60 to 120	0.01	2.358
60 to 120	0.05	1.658

Critical Values of "F"			
Degrees of Freedom	N	Probability (Alpha)	Table Value – F
1	77	0.01	7.08
2	76	0.01	4.98
3	75	0.01	4.13
4	74	0.01	3.65
5	73	0.01	3.34
6	72	0.01	3.12

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Efficiency represented by ***TATR has a negative impact on OPM whereas a positive impact on EAT/TA.*** The negative impact of TATR on OPM is a very unusual finding.

However its positive impact on EAT/TA indicates that as the total asset utilization efficiency improves the post tax returns on total assets of firms in Non Financial Service Industry also improves.

Efficiency represented by ***CTR is observed to influence two measures of profitability, i.e., ROTA and EAT/TA positively*** indicating that higher the CTR, higher the profitability and *vice-versa.* High CTR indicates that the payables of the firms in Non Financial Service Industry are settled frequently and as the frequency increases the profitability increases. The possible reason for the same can be that as the company pays off their payables regularly and timely, the reputation of the firm is maintained in the market and ensures timely and uninterrupted supplies which further helps in the process of uninterrupted provision of services to the customers. Thus from these results it can be inferred that profitable firms settle their dues timely.

7.4.3 Summary of Results of Simple and Stepwise Regressions

A summary of the results of Simple and Stepwise Regressions is prepared and presented in Table 7.10 to have a comparative view of the significant indicators of the explanatory variables. Thus, on examining the results of Simple and Stepwise Regressions in the Non Financial Service Industry, the following observations can be made:

- Profitability measured in terms of OPM is affected by CBBTCAR (Liquidity) and TATR (Efficiency). However LnTA, TDTAR, CLTAR, RTCAR, ALR, IHP and CBTR which were observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.
- Profitability measured in terms of NPM is affected by LnTA (Size), ALR, RTCAR and IHP (Liquidity). However LnS, TDTAR, CBBTCAR, QR, APP and CBTR which were observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.
- Profitability measured in terms of ROTA is affected by LnS (Size), TDTAR (Leverage), CTR (Efficiency), NTC and LATCAR (Liquidity). However LnTA (Size), LTDTAR (Leverage), CATAR, CLCAR (Working Capital Policy), ITCAR, CBBTCAR, QR, IHP, OC (Liquidity) and TATR (Efficiency) which were observed to be significant in Simple Linear Regression are eliminated whereas NTC and LATCAR which were not significant in Simple Linear Regression are included in the Stepwise Regression.
- Profitability measured in terms of EAT/TA is affected by LnS, TDTAR, CTR, TATR, ALR and NWCCAR. However LTDTAR (Leverage), CATAR, CANFAR

(Working Capital Policy), RTCAR (Liquidity) and ITR (Efficiency) which were observed to be significant in Simple Linear Regression are eliminated whereas LnS, TATR, ALR and NWCCAR which were not significant are observed to be significant in Stepwise Regression.

- Profitability measured in terms of RONW is affected by IHP and LnS. However LnTA and ITR which were observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.

TABLE 7.10

Summary Table for Results of Simple and Stepwise Linear Regressions: Non Financial Service Industry (All 79 Companies)

Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
1	Size	LnS	Simple	—	+ve**	+ve*	—	+ve*
			Stepwise	—	—	+ve*	+ve*	+ve**
		LnTA	Simple	+ve*	+ve*	+ve*	—	+ve**
			Stepwise	—	+ve**	—	—	—
2	Leverage	LTDTAR	Simple	—	—	–ve*	–ve*	—
			Stepwise	—	—	—	—	—
		TDTAR	Simple	–ve**	–ve*	–ve*	–ve*	—
			Stepwise	—	—	–ve**	–ve*	—
3	Working Capital Policy	CLTAR	Simple	–ve**	—	—	—	—
			Stepwise	—	—	—	—	—
		CATAR	Simple	—	—	+ve*	+ve**	—
			Stepwise	—	—	—	—	—
		CANFAR	Simple	—	—	—	+ve*	—
			Stepwise	—	—	—	—	—
		CLCAR	Simple	—	—	–ve**	—	—
			Stepwise	—	—	—	—	—
		NWCCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	–ve**	—
4	Liquidity	ITCAR	Simple	—	—	–ve**	—	—
			Stepwise	—	—	—	—	—
		RTCAR	Simple	–ve*	–ve*	—	–ve*	—
			Stepwise	—	–ve**	—	—	—
		CBBTCAR	Simple	+ve*	+ve*	+ve*	—	—
			Stepwise	+ve*	—	—	—	—
		PETCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		LATCAR	Simple	—	—	—	—	—
			Stepwise	—	—	–ve**	—	—
		MSTCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		QR	Simple	—	+ve*	+ve*	—	—
			Stepwise	—	—	—	—	—
		ALR	Simple	+ve*	+ve*	—	—	—
			Stepwise	—	+ve*	—	+ve*	—

TABLE 7.10 (Continued...)

Summary Table for Results of Simple and Stepwise Linear Regressions: Non Financial Service Industry (All 79 Companies)

Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
5	Efficiency	TATR	Simple	–ve*	---	+ve**	---	---
			Stepwise	–ve**	---	---	+ve*	---
		CATR	Simple	---	---	---	---	---
			Stepwise	---	---	---	---	---
		WCTR	Simple	---	---	---	---	---
			Stepwise	---	---	---	---	---
		ITR	Simple	---	---	---	+ve*	+ve**
			Stepwise	---	---	---	---	---
		IHP	Simple	–ve**	–ve**	–ve*	---	–ve*
			Stepwise	---	–ve**	---	---	–ve**
		RTR	Simple	---	---	---	---	---
			Stepwise	---	---	---	---	---
		ACP	Simple	---	---	---	---	---
			Stepwise	---	---	---	---	---
		CBTR	Simple	–ve**	–ve**	---	---	---
			Stepwise	---	---	---	---	---
		CTR	Simple	---	---	+ve*	+ve*	---
			Stepwise	---	---	+ve**	---	---
		APP	Simple	---	–ve**	---	---	---
			Stepwise	---	---	---	---	---
		OC	Simple	---	---	–ve**	---	---
			Stepwise	---	---	---	---	---
		NTC	Simple	---	---	---	---	---
			Stepwise	---	---	–ve**	---	---

+ve indicates positive impact; –ve indicates negative impact

--- indicates Not Significant

* Indicates significance at 1% level ** Indicates significance at 5% level

SECTION – V

In this section firm level analysis based on industry wise classification is carried out to identify the indicators of WCM, LEV and Size that affects the profitability of firms in the selected three major industries, *viz,* Hotels and Restaurant Industry, IT-ITeS Industry and Transport Services Industry and the results are presented in the same order.

7.5 Impact of WCM, LEV and Size on Profitability in Hotels and Restaurant Industry (25 Companies)

The results of Simple Linear Regressions and Stepwise Regression for Hotels and Restaurant Industry are presented and analyzed in this section. The results of Simple Linear Regressions for each measure of profitability are presented separately in Tables

7.18 to 7.22. Also the interpretation is made first for OPM followed by NPM, ROTA, EAT/TA and RONW. After that, the results of Stepwise Regressions are presented in Table 7.23. Further a comparative summary of results of Simple as well as Stepwise Regressions is presented in Table 7.24 after discussing the result of Stepwise Regressions.

Three firms belonging to Hotels and Restaurant Industry had zero inventories throughout the study period due to which ITR was as high as infinity which vitiates the results of entire industry. Therefore, simple linear regression on ITR is conducted for 22 of the 25 firms in order to understand if, at all it has a significant impact on any of the profitability measures. However, in order to maintain consistency ITR is not entered in the model for Stepwise Regression. Further, due to zero inventories, IHP of these three firms is considered to be zero. Thus, for these companies OC = ACP as IHP is zero and therefore regressions for IHP, OC and NTC (simple and stepwise) were carried out as observations were available for all 25 companies.

7.5.1 Results of Simple Linear Regressions on OPM, NPM, ROTA, EAT/TA and RONW

A. Simple Linear Regressions for OPM as well as NPM

Table 7.11 and Table 7.12 details the result of Simple Linear Regression for OPM and NPM respectively. Since, the results for both the measures of profitability are similar the results are interpreted for both of them together.

From the perusal of Tables 7.11 and 7.12, it is observed that none of the indicators of Firm size and LEV have significant impact on OPM as well as NPM. Further it is observed that out of 30 explanatory variables, only 6 in case of OPM and 7 in case of NPM are found to be significantly explaining variations in these measures.

From the perusal of Table 7.11 it is observed that none of the indicators of WCP have significant impact on OPM. ***However, CATAR*** has a significant positive impact on NPM which indicates that as the CATAR increases the profitability in terms of NPM increases. The increase in CATAR is indicative of conservative working capital investment policy thereby indicating its positive influence on NPM of firms in Hotels and Restaurant Industry and that managers of firms in the industry should maintain sufficient levels of current assets in the total assets structure to improve NPM.

Liquidity measured in terms of RTCAR, CBBTCAR, CR, QR and ALR have significant affect on OPM as well as NPM.

Liquidity measured in terms of RTCAR has a negative impact on OPM as well as NPM which indicates that as the investment in Receivables in proportion to Current

Assets increase there is a decline in OPM and NPM. Thus, the managers of firms in Hotels and Restaurant Industry should take measures to reduce its blocked investments in Receivables by making efforts for prompt collections to lower the loss of revenues due to bad debts which would lead to efficient receivables management as well as improvement in operational profitability.

TABLE 7.11

Results of Simple Linear Regression for OPM: Hotels and Restaurant Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.001	17.057	0.373	0.135	0.894
	LnTA	0.007	-0.032	1.201	0.413	0.684
Leverage	LTDTAR	0.110	33.187	-37.543	-1.683	0.106
	TDTAR	0.116	43.392	-43.564	-1.735	0.096
Working Capital Policy	CLTAR	0.003	21.891	11.747	0.267	0.792
	CATAR	0.104	12.988	36.501	1.637	0.115
	CANFAR	0.052	20.248	4.062	1.120	0.274
	CLCAR	0.011	28.164	-3.989	-0.512	0.613
	NWCCAR	0.011	24.174	3.989	0.512	0.613
Liquidity	ITCAR	0.006	26.335	-22.416	-0.377	0.709
	RTCAR	0.285	56.169	-69.146	-3.030*	0.006
	CBBTCAR	0.248	5.891	79.441	2.755*	0.011
	PETCAR	0.007	21.882	29.327	0.415	0.682
	LATCAR	0.049	20.444	48.528	1.084	0.290
	MSTCAR	0.000	24.182	1.334	0.031	0.976
	CR	0.184	6.859	9.421	2.280**	0.032
	QR	0.199	7.534	9.668	2.392**	0.025
	ALR	0.323	12.772	16.418	3.313*	0.003
Efficiency	TATR	0.038	29.043	-8.961	-0.957	0.348
	CATR	0.053	28.953	-1.734	-1.137	0.267
	WCTR	0.034	24.678	0.147	0.893	0.381
	ITR#	0.274	28.731	-0.191	-2.748**	0.012
	IHP	0.018	28.164	-0.302	-0.657	0.518
	RTR	0.009	26.125	-0.266	-0.464	0.647
	ACP	0.005	21.764	0.021	0.351	0.729
	CBTR	0.046	27.363	-0.137	-1.053	0.303
	CTR	0.005	25.527	-0.079	-0.334	0.741
	APP	0.032	30.037	-0.107	-0.874	0.391
	OC	0.003	22.060	0.016	0.274	0.787
	NTC	0.023	20.610	0.046	0.733	0.471

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
23	0.01	2.807
23	0.05	2.069
#20	0.01/0.05	2.086/2.845

* Results significant at 1% level of significance ** Results significant at 5% level of significance

TABLE 7.12						
Results of Simple Linear Regression for NPM: Hotels and Restaurant Industry						
Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.008	-7.400	1.000	0.424	0.676
	LnTA	0.008	-9.195	1.044	0.418	0.680
Leverage	LTDTAR	0.110	33.187	-37.543	-1.683	0.106
	TDTAR	0.116	43.392	-43.564	-1.735	0.096
Working Capital Policy	CLTAR	0.010	8.349	17.720	0.471	0.642
	CATAR	**0.168**	-0.333	39.681	2.153**	0.042
	CANFAR	0.080	7.649	4.326	1.412	0.171
	CLCAR	0.032	17.546	-5.746	-0.870	0.393
	NWCCAR	0.032	11.799	5.746	0.870	0.393
Liquidity	ITCAR	0.000	12.031	-1.218	-0.024	0.981
	RTCAR	**0.351**	42.287	-65.802	-3.530*	0.002
	CBBTCAR	**0.190**	-1.867	59.628	2.324**	0.029
	PETCAR	0.008	9.812	26.015	0.430	0.671
	LATCAR	0.056	8.403	44.738	1.170	0.254
	MSTCAR	0.012	10.804	19.950	0.537	0.596
	CR	**0.270**	-6.133	9.775	2.916*	0.008
	QR	**0.275**	-4.928	9.738	2.953*	0.007
	ALR	**0.356**	1.584	14.773	3.564*	0.002
Efficiency	TATR	0.004	13.294	-2.576	-0.315	0.755
	CATR	0.025	14.699	-1.027	-0.774	0.447
	WCTR	0.019	12.188	0.094	0.663	0.514
	ITR	**0.306**	17.529	-0.197	-2.967*	0.008
	IHP	0.018	15.192	-0.253	-0.642	0.527
	RTR#	0.000	12.080	-0.023	-0.047	0.963
	AGP	0.004	10.045	0.015	0.307	0.761
	CBTR	0.017	13.529	-0.071	-0.627	0.537
	CTR	0.002	11.194	0.045	0.222	0.827
	APP	0.062	18.787	-0.127	-1.231	0.231
	OC	0.002	10.326	0.012	0.231	0.819
	NTC	0.031	8.254	0.046	0.863	0.397

Critical Values of "t"		
Degrees of Freedom	Probability (Alpha)	Table Value – t
23	0.01	2.807
23	0.05	2.069
#20	0.01/0.05	2.086/2.845

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Liquidity measured in terms of CBBTCAR, CR, QR and ALR has positive impact on OPM, NPM and indicates that as the liquidity increases, OPM and NPM improves. Further, ALR is observed to be an important determinant for both OPM and NPM with 32.3% variation in OPM and 35.6% variation in NPM being explained by ALR. Thus,

firms in Hotels and Restaurant Industry should strive to maintain sufficient liquidity to improve OPM and NPM.

Current Asset Management Efficiency measured in terms of ITR has a ***negative impact*** on OPM as well as NPM which is an unusual finding indicating that higher ITR will result in decline in OPM and NPM. High ITR has two implications: *i)* Efficient Inventory Management and liquid inventories which is an ideal and good situation, and *ii)* Overtrading situation wherein a given level of sales is supported by very low level of inventory which is situation of concern. Thus, the negative impact of ITR on OPM and NPM is pointing towards the 2nd case where in the firms in Hotels and Restaurant Industry are operating with lower level of inventories which results to lesser sales and therefore lower profitability. Also, as noted by Blinder and Maccini[3], "Inventories can be held for display purposes; as unavoidable "pipeline" inventories; to improve production scheduling; to smooth production in the face of fluctuating sales; to minimize stock-out costs; to speculate on or hedge against price movements; to reduce purchasing costs by buying in quantity; to shorten delivery lags, and so on". Thus, it can be concluded that although being in the Service industry, the Hotels and Restaurant Industry still has to maintain a reasonable level of inventory to provide effective hospitality services which ensures smooth and efficient functioning of the firms in the industry. Also, the reduction in level of inventory beyond a reasonable level would result to decline in OPM and NPM.

B. Simple Linear Regressions for ROTA as well as EAT/TA

Tables 7.13 and 7.14 details the results of Simple Linear Regression for ROTA and EAT/TA respectively. Since, the results for both the measures of profitability are similar; the results are interpreted for both of them together.

From the perusal of Tables 7.13 and 7.14, it is observed that only 4 variables each explain significant variations in ROTA and EAT/TA. Moreover, none of the indicators of ***Size and Current Asset Management Efficiency*** have significant impact on ROTA or EAT/TA.

Further, ***Leverage measured in terms of LTDTAR has a*** significant negative impact on ROTA, EAT/TA which indicates that with increase in use of long term debt there is decline in profitability measured in terms of ROTA as well as EAT/TA. In addition, ***TDTAR*** has a significant negative impact on EAT/TA. From these results it is concluded that utilizing higher long term as well as total debt will hamper the returns on total assets of the firms in Hotels and Restaurant Industry.

TABLE 7.13						
Results of Simple Linear Regression for ROTA: Hotels and Restaurant Industry						
Independent Variable	**Indicators**	**R^2**	**Intercept**	**Slope**	**t-Statistic**	**p-value**
Size	LnS	0.034	-2.943	0.715	0.904	0.376
	LnTA	0.003	6.284	0.227	0.267	0.792
Leverage	LTDTAR	**0.250**	14.817	-16.539	-2.768*	0.011
	TDTAR	0.141	17.050	-14.040	-1.945	0.064
Working Capital Policy	CLTAR	0.097	7.015	19.206	1.572	0.130
	CATAR	**0.194**	6.401	14.515	2.351**	0.028
	CANFAR	0.070	9.525	1.375	1.312	0.203
	CLCAR	0.008	11.863	-1.002	-0.440	0.664
	NWCCAR	0.008	10.862	1.002	0.440	0.664
Liquidity	ITCAR	0.000	10.994	-1.209	-0.070	0.945
	RTCAR	**0.323**	20.796	-21.480	-3.316*	0.003
	CBBTCAR	**0.167**	6.488	19.009	2.147**	0.043
	PETCAR	0.048	9.128	21.668	1.074	0.294
	LATCAR	0.042	9.853	13.095	0.999	0.328
	MSTCAR	0.005	10.650	4.155	0.327	0.746
	CR	0.023	9.106	0.962	0.729	0.474
	QR	0.026	9.119	1.019	0.784	0.441
	ALR	0.083	9.189	2.421	1.438	0.164
Efficiency	TATR	0.037	9.506	2.577	0.943	0.356
	CATR	0.000	10.976	-0.035	-0.076	0.940
	WCTR	0.000	10.879	-0.001	-0.021	0.983
	ITR#	0.106	12.265	-0.049	-1.537	0.140
	IHP	0.059	12.999	-0.140	-1.203	0.241
	RTR	0.015	10.189	0.099	0.592	0.560
	ACP	0.041	12.892	-0.017	-0.988	0.333
	CBTR	0.002	11.085	-0.009	-0.231	0.819
	CTR	0.034	11.864	-0.061	-0.898	0.378
	APP	0.001	11.158	-0.005	-0.141	0.889
	OC	0.059	13.653	-0.020	-1.196	0.244
	NTC	0.057	12.603	-0.021	-1.177	0.251

Critical Values of "t"		
Degrees of Freedom	**Probability (Alpha)**	**Table Value – t**
23	0.01	2.807
23	0.05	2.069
#20	0.01/0.05	2.086/2.845

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Working Capital Policy measured in terms of CATAR has a positive impact on both ROTA and EAT/TA *i.e.,* with rise in CATAR there will be rise in profitability measured in terms of ROTA and EAT/TA. These results are common with NPM and hence the interpretations thereat holds good here also.

The negative impact of RTCAR on ROTA and EAT/TA is common with the results of OPM and NPM and indicates that as the investment in Receivables in proportion to

Current Assets increase there is a decline in profitability. Further, RTCAR explains the highest variation in ROTA (32.3%) and EAT/TA (33.2%) and thus is an important determinant of ROTA and EAT/TA. Thus, firms in the Hotels and Restaurant Industry should take measures to reduce its amount blocked in Receivables to improve profitability. ***Liquidity measured in terms of*** CBBTCAR positively influences ROTA thereby indicating that higher liquidity is accompanied with rise in ROTA.

TABLE 7.14

Results of Simple Linear Regression for EAT/TA: Hotels and Restaurant Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.019	-2.032	0.429	0.666	0.512
	LnTA	0.000	4.930	0.065	0.095	0.925
Leverage	LTDTAR	**0.317**	9.830	-15.032	-3.268*	0.003
	TDTAR	**0.247**	12.834	-14.980	-2.746*	0.012
Working Capital Policy	CLTAR	0.053	3.955	11.413	1.130	0.270
	CATAR	**0.211**	2.484	12.211	2.478**	0.021
	CANFAR	0.073	5.135	1.134	1.343	0.192
	CLCAR	0.021	7.514	-1.287	-0.706	0.488
	NWCCAR	0.021	6.227	1.287	0.706	0.488
Liquidity	ITCAR	0.000	6.382	-1.386	-0.099	0.922
	RTCAR	**0.332**	14.356	-17.556	-3.380*	0.003
	CBBTCAR	0.131	3.110	13.600	1.864	0.075
	PETCAR	0.023	5.277	12.068	0.732	0.472
	LATCAR	0.060	5.528	12.672	1.209	0.239
	MSTCAR	0.022	5.847	7.273	0.717	0.481
	CR	0.085	3.481	1.502	1.457	0.159
	QR	0.089	3.628	1.518	1.495	0.149
	ALR	0.142	4.459	2.565	1.954	0.063
Efficiency	TATR	0.032	5.217	1.940	0.878	0.389
	CATR	0.001	6.389	-0.050	-0.136	0.893
	WCTR	0.000	6.247	-0.002	-0.063	0.951
	ITR#	0.083	7.200	-0.035	-1.349	0.192
	IHP	0.058	7.943	-0.112	-1.189	0.247
	RTR	0.015	5.690	0.080	0.596	0.557
	ACP	0.018	7.336	-0.009	-0.652	0.521
	CBTR	0.002	6.388	-0.006	-0.189	0.851
	CTR	0.007	6.603	-0.022	-0.390	0.700
	APP	0.016	7.211	-0.018	-0.610	0.548
	OC	0.030	7.851	-0.012	-0.842	0.409
	NTC	0.014	6.935	-0.008	-0.565	0.578

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
23	0.01	2.807
23	0.05	2.069
#20	0.01/0.05	2.086/2.845

* Results significant at 1% level of significance ** Results significant at 5% level of significance

C. Simple Linear Regressions for RONW

From the perusal of Table 7.15 it is observed that of the 30 explanatory variables only 2 significantly affect RONW. The variables related to ***Size, Leverage, Liquidity and Current Asset Management Efficiency have no significant impact on RONW.***

TABLE 7.15

Results of Simple Linear Regression for RONW: Hotels and Restaurant Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.025	41.083	-1.382	-0.765	0.452
	LnTA	0.027	45.951	-1.526	-0.799	0.433
Leverage	LTDTAR	0.004	13.893	5.008	0.320	0.752
	TDTAR	0.015	10.461	10.526	0.599	0.555
Working Capital Policy	CLTAR	0.006	12.815	11.273	0.387	0.702
	CATAR	0.001	15.658	-1.857	-0.119	0.906
	CANFAR	0.000	15.166	-0.082	-0.033	0.974
	CLCAR	0.164	5.199	10.093	2.127**	0.044
	NWCCAR	0.164	15.293	-10.093	-2.127**	0.044
Liquidity	ITCAR	0.078	10.176	52.945	1.396	0.176
	RTCAR	0.012	19.442	-9.440	-0.531	0.601
	CBBTCAR	0.000	15.155	-0.303	-0.014	0.989
	PETCAR	0.008	16.754	-20.162	-0.440	0.664
	LATCAR	0.010	13.948	14.465	0.478	0.637
	MSTCAR	0.004	15.561	-8.531	-0.296	0.770
	CR	0.036	20.202	-2.771	-0.931	0.362
	QR	0.031	19.492	-2.548	-0.864	0.396
	ALR	0.002	15.610	-0.751	-0.188	0.852
Efficiency	TATR	0.000	15.336	-0.470	-0.074	0.941
	CATR	0.007	13.969	0.412	0.398	0.694
	WCTR	0.026	14.837	-0.087	-0.790	0.438
	ITR#	0.040	11.072	0.075	0.917	0.370
	IHP	0.020	17.885	-0.186	-0.686	0.499
	RTR	0.026	13.015	0.294	0.782	0.442
	ACP	0.029	18.951	-0.032	-0.832	0.414
	CBTR	0.011	14.084	0.044	0.503	0.620
	CTR	0.030	17.178	-0.131	-0.841	0.409
	APP	0.003	13.952	0.021	0.255	0.801
	OC	0.038	20.169	-0.037	-0.955	0.349
	NTC	0.054	18.882	-0.046	-1.141	0.265

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
23	0.01	2.807
23	0.05	2.069
#20	0.01/0.05	2.086/2.845

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Working Capital Policy represented by CLCAR has a positive impact and NWCCAR has a negative impact on RONW which indicates that increased use of CL to finance

CA would improve RONW whereas increased use of NWC to finance CA will result to decline in RONW. Thus, managers of firms in Hotels and Restaurant Industry can create shareholder value by utilizing more of current liabilities to fund their working capital requirements as compared to net working capital

7.5.2 Results of Stepwise Regression

The results of Stepwise Regressions for all the profitability measures, *i.e.,* OPM, NPM, ROTA, EAT/TA and RONW are presented in Table 7.16

From the perusal of Table 7.16, it is observed that 41.3% variation in ***OPM*** is explained by ALR and CTR. However, when NPM is taken as the measure of profitability CTR is replaced with RTCAR and both RTCAR and ALR explain 43.2% variation in NPM. Further, RTCAR and IHP explain 43.6% and 44.5% variation respectively in ROTA and EAT/TA. When RONW is taken as the measure of profitability, only CLCAR which is an indicator of Working Capital Policy is found to be significantly explaining 12.8% variation in RONW. The VIF Statistics also indicates no multicollinearity amongst the independent variables.

Liquidity measured in terms of ALR has a positive impact on OPM as well as NPM, *i.e.,* as the ALR increases OPM and NPM both increase. ALR is an indicator of absolute liquidity and its positive impact on profitability indicates that as the cash balances increase the profitability also increases.

CTR is observed to have a negative impact on OPM, i.e., as the CTR increases the OPM declines and *vice-versa* which means that as the frequency of payment to creditors increase there is decline in profitability of Hotels and Restaurant Industry. Thus, managers of firms in Hotels and Restaurant Industry can increase their profitability by slowing the payments to the extent possible to improve OPM.

Liquidity measured in terms of RTCAR has a negative influence on three measures of profitability, i.e., NPM, ROTA as well as EAT/TA which indicates that as the proportion of receivables to current assets increase there is decline in profitability of firms in Hotels and Restaurant Industry. This is a very logical finding as increased blockage of funds in receivables indicates a liberal credit policy as well as blocked liquidity along with the probability of credit risk. Thus, managers of firms in Hotels and Restaurant Industry should try to reduce their investment in receivables to improve their profitability.

IHP has a negative influence on ROTA as well as EAT/TA and indicates that high IHP results to lower profitability and *vice-versa.* The results are very logical as low IHP indicates lower investment in inventory and thereby leading to lower working capital

requirements which is possible only through efficient inventory management. Thus, it is concluded that the efficient inventory management leads to higher profitability in Hotels and Restaurant Industry and support the findings of Deloof[4], Tereul and Solano[6], Samiloglu and Dermiguines[7], Falope and Ajilore[8], Karaduman *et al*[9], and many more[10 to21] but inconsistent with the findings of Chowdhury and Amin[44] and Ali[23].

Working Capital Policy measured in terms of CLCAR positively influences RONW indicating that with increased use of short term funds to finance the current assets the profitability in terms of RONW can be increased. A high CLCAR signifies an aggressive working capital financing policy and thus the results indicate a positive influence of aggressive working capital financing policy on RONW of the Hotels and Restaurant Industry which is inconsistent with the findings of Al Shubiri[40], Al-Shubiri[41], Hussain *et al*[19] and Pouraghajan and Emamgholipourarchi[34].

TABLE – 7.16

Results of Stepwise Linear Regression for all Profitability Measures: Hotels and Restaurant Industry

Independent Variable	R^2	Adj. R^2	Intercept	Slope	t-Statistic	p-value	F-Statistic	VIF Statistics
Dependent Variable – OPM								
ALR	0.462	0.413	16.545	22.000	4.325*	0.000	9.451* (0.001)	1.269
CTR				-0.479	-2.385**	0.026		1.269
Dependent Variable – NPM								
ALR	0.479	0.432	25.337	10.066	2.323**	0.030	10.121* (0.001)	1.293
RTCAR				-44.333	-2.283**	0.032		1.293
Dependent Variable – ROTA								
RTCAR	0.482	0.435	25.947	-25.180	-4.219*	0.000	10.238* (0.001)	1.060
IHP				-0.266	-2.596**	0.016		1.060
Dependent Variable – EAT/TA								
RTCAR	0.508	0.463	18.737	-20.703	-4.412*	0.000	11.364* (0.000)	1.060
IHP				-0.227	-2.808*	0.010		1.060
Dependent Variable – RONW								
CLCAR	0.164	0.128	5.199	10.093	2.127**	0.044	4.523**	1.000

Critical Values of "t" and "F"

t-test			F-test, Degrees of Freedom = 1		
DF	Probability (Alpha)	Table Value – t	N	Probability (Alpha)	Table Value – F
23	0.01*	2.807	23	0.01*	7.88
23	0.05**	2.069	23	0.05**	4.28
t-test			F-test, Degrees of Freedom = 2		
22	0.01*	2.819	22	0.01*	5.72
22	0.05**	2.074	22	0.05**	3.44

* Results significant at 1% level of significance ** Results significant at 5% level of significance

7.5.3 Summary of Results of Simple and Stepwise Regressions of Hotels and Restaurant Industry

A summary of the results of Simple and Stepwise Regressions is prepared and presented in Table 7.17 to have a comparative view of the significant indicators of the explanatory variables in Simple and Stepwise Regressions for each measure of profitability of the Hotels and Restaurant Industry. Thus, following observations can be made from the perusal of Table 7.17:

- Profitability measured in terms of OPM is affected by ALR (Liquidity) and CTR (Efficiency). *However* RTCAR, CBBTCAR, CR, QR, and ITR which were observed to be significant in Simple Linear Regression are eliminated whereas CTR which was not found to be significant is observed to be significant in Stepwise Regression.
- Profitability measured in terms of NPM is affected by ALR and RTCAR (Liquidity). *However* CBBTCAR, CR, QR, and ITR which were observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.
- Profitability measured in terms of ROTA and EAT/TA is affected by RTCAR and IHP (Liquidity). *However* LTDTAR, CATAR and CBBTCAR which were observed to be significant in Simple Linear Regression on ROTA whereas LTDTAR, TDTAR and CATAR observed to be significant in Simple Linear Regression on EAT/TA are eliminated and IHP which was not significant earlier is observed to be significant in Stepwise Regression.
- Profitability measured in terms of RONW is affected by CLCAR (Working Capital Policy). *However,* NWCCAR, which was observed to be significant in Simple Linear Regression is eliminated in Stepwise Regression.

TABLE 7.17

Summary Table for Results of Simple and Stepwise Linear Regressions: Hotels and Restaurant Industry

Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
1	Size	LnS	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		LnTA	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
2	Leverage	LTDTAR	Simple	—	—	–ve*	–ve*	—
			Stepwise	—	—	—	—	—
		TDTAR	Simple	—	—	—	–ve*	—
			Stepwise	—	—	—	—	—
3	Working Capital Policy	CLTAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CATAR	Simple	—	+ve**	+ve**	+ve**	—
			Stepwise	—	—	—	—	—

TABLE 7.17 (Continued...)

Summary Table for Results of Simple and Stepwise Linear Regressions: Hotels and Restaurant Industry

Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
3	Working Capital Policy	CANFAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CLCAR	Simple	—	—	—	—	+ve**
			Stepwise	—	—	—	—	+ve**
		NWCCAR	Simple	—	—	—	—	–ve**
			Stepwise	—	—	—	—	—
4	Liquidity	ITCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		RTCAR	Simple	–ve*	–ve*	–ve*	–ve*	—
			Stepwise	—	–ve**	–ve*	–ve*	—
		CBBTCAR	Simple	+ve*	+ve**	+ve**	—	—
			Stepwise	—	—	—	—	—
		PETCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		LATCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		MSTCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CR	Simple	+ve**	+ve*	—	—	—
			Stepwise	—	—	—	—	—
		QR	Simple	+ve**	+ve*	—	—	—
			Stepwise	—	—	—	—	—
		ALR	Simple	+ve*	+ve*	—	—	—
			Stepwise	+ve*	+ve**	—	—	—
5	Efficiency	TATR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CATR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		WCTR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		ITR	Simple	–ve**	–ve*	—	—	—
			Stepwise	—	—	—	—	—
		IHP	Simple	—	—	—	—	—
			Stepwise	—	—	–ve**	–ve**	—
		RTR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		ACP	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CBTR	Simple	—	–ve**	—	—	—
			Stepwise	—	—	—	—	—
		CTR	Simple	—	—	—	—	—
			Stepwise	–ve**	—	—	—	—
		APP	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		OC	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		NTC	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—

+ve indicates positive impact; –ve indicates negative impact

— indicates NOT SIGNIFICANT

* Indicates significance at 1% level ** Indicates significance at 5% level

7.6 Impact of WCM, LEV and Size on Profitability in IT Industry (20 Companies)

The results of Simple Linear Regressions and Stepwise Regression for IT Industry are presented and analyzed in this section. The results of Simple Linear Regressions for each measure of profitability are presented separately in Tables 7.18 to 7.22. Also the interpretation is made first for OPM followed by NPM, ROTA, EAT/TA and RONW. After that, the results of Stepwise Regressions are presented in Table 7.23. Further a comparative summary of results of Simple as well as Stepwise Regressions is presented in Table 7.24 after discussing the result of Stepwise Regressions.

Three companies belonging to IT Industry have zero inventories throughout the study period due to which ITR was as high as infinity which vitiates the results of entire industry. Therefore, simple linear regression on ITR is conducted for 17 of the 20 companies in order to understand if, at all it has a significant impact on any of the measures of profitability of IT Industry. However, in Stepwise Regression in order to maintain consistency ITR is not entered in the model. Further, due to zero inventories, IHP of these three companies is considered to be zero. Thus, for these companies OC = ACP as IHP is zero and therefore regressions for IHP, OC and NTC (simple and stepwise) were carried out as observations were available for 20 companies.

7.6.1 Results of Simple Linear Regressions on OPM, NPM, ROTA, EAT/TA and RONW

A. Simple Linear Regressions for OPM

It can be observed from the perusal of Table 7.18 that out of the 30 indicators selected to examine their impact on OPM, only 4 are observed to have significant impact. These 4 variables are ITCAR, CBBTCAR, IHP and CBTR. Thus 2 ratios each pertain to broad groups of liquidity and efficiency. Of these, two ratios relate to inventory and remaining two ratios related to cash.

Both **ITCAR** and **IHP** have ***negative impact*** on OPM which indicates that as the proportion of inventory to CA increases OPM will go down. Similarly as the inventory holding period increases, OPM will decline. Both the findings are quite logical.

Moreover, **CBBTCAR** as a measure of liquidity is found to have a ***positive impact*** on OPM, *i.e.,* as CBBTCAR increases, the OPM also improves. However, **CBTR** is found to have a ***negative impact*** on OPM conveying thereby that as CBTR increases OPM declines. This seems to be an unusual finding. However, when there are low cash balances for high sales turnover, the CBTR would be very high which indicates lower liquidity. Thus, lower liquidity leads to lower profitability and is in line with

CBBTCAR. Further, CBTR explains 46.1% variation in OPM and thus is an important determinant of OPM.

Further, LEV, WCP and Firm Size have no significant impact on OPM of firms in IT$_{e4}$ Industry.

TABLE – 7.18

Results of Simple Linear Regression for OPM: IT$_{e4}$ Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.087	-18.185	1.684	1.308	0.207
	LnTA	0.173	-38.162	2.646	1.940	0.068
Leverage	LTDTAR	0.080	14.636	26.749	1.248	0.228
	TDTAR	0.107	24.639	-19.689	-1.466	0.160
Working Capital Policy	CLTAR	0.176	24.400	-24.158	-1.960	0.066
	CATAR	0.020	24.152	-12.354	-0.600	0.556
	CANFAR	0.002	17.427	-0.263	-0.196	0.847
	CLCAR	0.027	20.015	-5.835	-0.707	0.488
	NWCCAR	0.027	14.176	5.654	0.701	0.493
Liquidity	ITCAR	**0.367**	22.448	-133.626	-3.231*	0.005
	RTCAR	0.165	33.854	-31.487	-1.889	0.075
	CBBTCAR	**0.431**	2.360	75.936	3.691*	0.002
	PETCAR	0.126	13.368	40.042	1.609	0.125
	LATCAR	0.013	17.953	-20.682	-0.494	0.627
	MSTCAR	0.001	16.860	-3.209	-0.097	0.923
	CR	0.038	12.875	1.254	0.843	0.410
	QR	0.049	12.517	1.411	0.966	0.347
	ALR	0.186	10.210	7.500	2.030	0.057
Efficiency	TATR	0.114	24.840	-6.963	-1.522	0.145
	CATR	0.097	25.069	-4.380	-1.394	0.180
	WCTR	0.040	17.186	-0.107	-0.865	0.398
	ITR#	0.226	14.028	5.626E-5	2.090	0.054
	IHP#	**0.249**	19.327	-0.246	-2.446**	0.025
	RTR	0.008	14.601	0.518	0.387	0.703
	ACP	0.124	20.209	-0.022	-1.595	0.128
	CBTR	**0.461**	27.426	-0.699	-3.926*	0.001
	CTR	0.124	15.547	0.007	1.593	0.129
	APP	0.118	18.388	-0.026	-1.553	0.138
	OC	0.138	20.234	-0.020	-1.695	0.107
	NTC	0.120	22.673	-0.056	-1.567	0.135

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
18	0.01*	2.878
18	0.05**	2.101
#15	0.01*/0.05**	2.131*/2.947**

* Results significant at 1% level of significance ** Results significant at 5% level of significance

B. Simple Linear Regressions for NPM

From the perusal of Table 7.19, it is observed that of the 30 indicators, only 13 have significant impact on NPM. However, all these 13 ratios belong to all the 5 groups indicating that Firm Size, LEV, WCP, Liquidity and WCME have significant impact on NPM of firms in IT$_{eA}$ Industry.

Both the indicators of Firm Size have positive impact on NPM indicating that as LnS and LnTA increases, NPM improves.

The measure of Leverage – TDTAR has a negative impact on NPM indicating that as the Total Debt of firms in IT$_{eA}$ Industry increases NPM declines and *vice-versa.* From these results it is concluded that utilizing higher levels of debt is not profitable for the IT$_{eA}$ Industry.

Working Capital Policy measured in terms of ***CLTAR, CLCAR and NWCCAR*** have significant impact on NPM and all the three represent the current asset financing policy. CLTAR and CLCAR have a negative impact whereas NWCCAR has a positive impact on NPM which indicates that as the use of current liabilities to finance Current Assets is increased there is a decline in NPM. However by increasing NWC to finance the current assets, the NPM improves. Greater use of working capital to finance the current assets is indicative of conservative working capital financing policy. Thus, by pursuing conservative working capital financing policy firms in IT$_{eA}$ Industry can improve NPM.

Both ITCAR and ***IHP*** have ***negative impact*** on NPM indicating that with increased blockage of funds in inventory the NPM declines which is very logical.

CBBTCAR and ***ALR*** which are the measures of liquidity have ***positive impact*** on NPM thereby indicating that as the cash balances increases the NPM increases. However, ***CBTR*** has a ***negative impact*** on NPM conveying that as the CBTR increases the NPM goes down. And as already discussed in *sub para A*, these three ratios indicate a positive impact of liquidity on NPM. Further, ***CBTR*** explains 53% variation in NPM and is also an important determinant of NPM.

Further, ***OC and APP*** negatively influences NPM indicating that smaller the length of OC and APP higher is the NPM and *vice versa.* The negative influence of APP is consistent with the view that profitable firms pay their bills timely.

Thus, managers of firms in IT$_{eA}$ industry can create value for shareholders and increase profitability by shortening OC and APP.

TABLE – 7.19						
Results of Simple Linear Regression for NPM: IT&A Industry						
Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.310	-45.236	2.748	2.842*	0.011
	LnTA	0.384	-59.018	3.409	3.353*	0.004
Leverage	LTDTAR	0.008	12.122	-7.464	-0.388	0.702
	TDTAR	0.354	24.204	-31.011	-3.142*	0.006
Working Capital Policy	CLTAR	0.206	18.852	-22.605	-2.162**	0.044
	CATAR	0.060	0.202	18.639	1.070	0.299
	CANFAR	0.023	9.276	0.747	0.650	0.524
	CLCAR	0.243	20.370	-15.114	-2.403**	0.027
	NWCCAR	0.239	5.243	14.654	2.375**	0.029
Liquidity	ITCAR	0.397	16.813	-120.178	-3.446*	0.003
	RTCAR	0.031	18.013	-11.771	-0.758	0.458
	CBBTCAR	0.492	-1.594	70.113	4.172*	0.001
	PETCAR	0.004	12.093	-6.448	-0.281	0.782
	LATCAR	0.026	13.171	-24.801	-0.690	0.499
	MSTCAR	0.006	10.865	9.327	0.329	0.746
	CR	0.145	5.250	2.118	1.748	0.098
	QR	0.165	5.084	2.232	1.885	0.076
	ALR	0.405	3.407	9.554	3.498*	0.003
Efficiency	TATR	0.037	15.590	-3.405	-0.826	0.420
	CATR	0.079	18.140	-3.405	-1.241	0.231
	WCTR	0.031	12.005	-0.082	-0.764	0.455
	ITR#	0.199	10.290	5.426E-5	1.933	0.072
	IHP#	0.368	14.415	-0.258	-3.239*	0.005
	RTR	0.006	13.060	-0.383	-0.331	0.745
	ACP	0.196	13.476	-0.024	-2.095	0.051
	CBTR	0.530	21.582	-0.647	-4.504*	0.000
	CTR	0.174	10.471	0.007	1.947	0.067
	APP	0.265	13.863	-0.033	-2.551**	0.020
	OC	0.216	15.482	-0.022	-2.225**	0.039
	NTC	0.063	15.352	-0.035	-1.097	0.287

Critical Values of "t"		
Degrees of Freedom	Probability (Alpha)	Table Value – t
18	0.01*	2.878
18	0.05*	2.101
#15	0.01*/0.05**	2.131*/2.947**

* Results significant at 1% level of significance ** Results significant at 5% level of significance

C. Simple Linear Regressions for ROTA

Table 7.20 details the results of Simple Linear Regression for ROTA and it is observed that of the selected 30 variables, only 7 variables have significant on ROTA of which 2 belong to the broad group of Firm Size, 3 to the Liquidity group and remaining 2 are Efficiency measures.

Both the indicators of Firm Size have significant impact on ROTA indicating that as sales and total assets increase, the ROTA and EAT/TA improves. Further, LnS explains 43.1% variation in ROTA and is an important determinant for ROTA.

Both CBBTCAR and ***ALR*** have positive impact on ROTA which is common with OPM and NPM and therefore the interpretations thereat holds good here also indicating positive influence of liquidity on ROTA.

Further 2 measures relate to inventory, *viz,* ITCAR and IHP. **ITCAR** has a negative impact whereas **ITR** has a positive impact on ROTA which indicates that as the proportion of ITCAR increases, ROTA declines and higher is the turnover of inventories higher will be the ROTA. Both these ratios convey that with improvement in inventory profitability improves. **CTR** has a positive impact on ROTA which indicates that as CTR increases, ROTA also increases.

C. Simple Linear Regressions for EAT/TA

Table 7.21 details the results of Simple Linear Regression for EAT/TA and it is observed that of the selected 30 variables, only 11 variables have significant on EAT/TA. Of these, 11 variables, 7 are common with ROTA and therefore the interpretations thereat holds good here also.

However, Firm size in terms of LnS explains 45.7% variation in EAT/TA and also is an important determinant for EAT/TA.

TDTAR has ***negative impact*** on EAT/TA indicating that as the Total Debt of IT$_{eA}$ Industry increases EAT/TA declines and *vice-versa.* From these results it is concluded that utilizing higher levels of debt is not profitable for the firms in IT$_{eA}$ Industry as also observed for NPM.

Working Capital Policy measured in terms ***of CATAR, and NWCCAR*** have a positive impact whereas ***CLCAR*** has a negative impact on EAT/TA. The positive impact indicates that as the proportion of current assets in total assets structure increases EAT/TA improves. Similarly when more NWC is utilized to finance CA, the EAT/TA improves. However as CLCAR increases the EAT/TA declines and therefore firms in IT$_{eA}$ Industry should pursue a conservative current asset investment and financing policy to improve profitability.

CBTR is observed to have a negative impact on EAT/TA indicating that as CBTR rises, EAT/TA falls and *vice-versa.* The high CBTR would result on account of lower cash balances against higher sales volume and thus, lower liquidity is not profitable for firms in IT$_{eA}$ Industry.

TABLE – 7.20						
Results of Simple Linear Regression for ROTA: IT$_{e4}$ Industry						
Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.431	-49.566	3.274	3.692*	0.002
	LnTA	0.378	-52.608	3.415	3.310*	0.004
Leverage	LTDTAR	0.037	19.279	-153923	-0.832	0.416
	TDTAR	0.184	27.294	-22.568	-2.015	0.059
Working Capital Policy	CLTAR	0.043	21.462	-10.438	-0.901	0.380
	CATAR	0.163	-0.865	31.094	1.873	0.077
	CANFAR	0.007	16.791	0.426	0.364	0.720
	CLCAR	0.166	25.440	-12.606	-1.891	0.075
	NWCCAR	0.131	13.357	10.984	1.651	0.116
Liquidity	ITCAR	0.204	21.890	-86.874	-2.146**	0.046
	RTCAR	0.012	22.222	-7.531	-0.476	0.640
	CBBTCAR	0.246	8.690	50.117	2.426**	0.026
	PETCAR	0.023	19.311	-14.928	-0.650	0.524
	LATCAR	0.060	20.577	-38.387	-1.076	0.296
	MSTCAR	0.071	15.640	32.576	1.176	0.255
	CR	0.029	15.229	0.962	0.738	0.470
	QR	0.038	14.951	1.084	0.845	0.409
	ALR	0.194	12.394	6.677	2.081**	0.052
Efficiency	TATR	0.099	11.400	5.673	1.406	0.176
	CATR	0.041	13.293	2.491	0.881	0.390
	WCTR	0.068	18.745	-0.122	-1.144	0.268
	ITR#	0.275	15.420	7.005E-5	2.386**	0.031
	IHP#	0.182	20.119	-0.183	-2.000	0.061
	RTR	0.070	12.966	1.319	1.167	0.258
	ACP	0.087	20.724	-0.016	-1.308	0.207
	CBTR	0.126	23.037	-0.319	-1.614	0.124
	CTR	0.239	16.799	0.008	2.378**	0.029
	APP	0.091	19.455	-0.020	-1.342	0.196
	OC	0.097	20.750	-0.015	-1.391	0.181
	NTC	0.069	22.114	-0.037	-1.157	0.262

Critical Values of "t"		
Degrees of Freedom	Probability (Alpha)	Table Value – t
18	0.01*	2.878
18	0.05**	2.101
#15	0.01*/0.05**	2.131*/2.947**

* Results significant at 1% level of significance ** Results significant at 5% level of significance

TABLE – 7.21						
Results of Simple Linear Regression for EAT/TA: IT$_{e4}$ Industry						
Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.457	-54.529	3.295	3.895*	0.01
	LnTA	0.440	-60.949	3.600	3.763*	0.001

TABLE – 7.21 (Continued...)

Results of Simple Linear Regression for EAT/TA: IT&A Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Leverage	LTDTAR	0.107	15.534	-26.383	-1.465	0.160
	TDTAR	**0.348**	25.938	-30.332	-3.100*	0.006
Working Capital Policy	CLTAR	0.084	18.176	-14.269	-1.288	0.214
	CATAR	**0.205**	-7.187	34.048	2.153**	0.045
	CANFAR	0.024	11.252	0.758	0.669	0.512
	CLCAR	**0.272**	22.762	-15.770	-2.591**	0.018
	NWCCAR	**0.236**	7.374	14.373	2.357**	0.030
Liquidity	ITCAR	0.190	17.156	-81.968	-2.054	0.055
	RTCAR	0.012	17.615	-7.371	-0.477	0.639
	CBBTCAR	**0.284**	3.713	52.552	2.670**	0.016
	PETCAR	0.077	15.748	-26.723	-1.225	0.236
	LATCAR	0.033	15.363	-27.620	-0.781	0.445
	MSTCAR	0.102	10.709	38.019	1.429	0.170
	CR	0.063	9.463	1.379	1.102	0.285
	QR	0.074	9.298	1.474	1.198	0.247
	ALR	**0.295**	6.702	8.049	2.745*	0.013
Efficiency	TATR	0.026	10.213	2.851	0.697	0.495
	CATR	0.000	13.273	0.159	0.056	0.956
	WCTR	0.054	14.145	-0.107	-1.017	0.322
	ITR#	**0.275**	12.793	6.273E-5	2.386**	0.031
	IHP#	0.142	15.324	-0.158	-1.727	0.101
	RTR	0.008	11.908	0.430	0.376	0.711
	ACP	0.051	15.551	-0.012	-0.986	0.337
	CBTR	**0.267**	20.598	-0.454	-2.563**	0.020
	CTR	**0.231**	12.330	0.008	2.328**	0.032
	APP	0.073	14.770	-0.017	-1.194	0.248
	OC	0.060	15.616	-0.012	-1.072	0.298
	NTC	0.018	15.575	-0.018	-0.573	0.574

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
18	0.01	2.878
18	0.05	2.101
#15	0.01/0.05	2.131/2.947

* Results significant at 1% level of significance ** Results significant at 5% level of significance

D. Simple Linear Regressions for RONW

Table 7.22 details the results of Simple Linear Regression for RONW and it is observed that only ***firm size*** measured in terms of ***LnS, LnTA*** has a significant impact on RONW of IT&A Industry. These 2 indicators are common with ROTA and EAT/TA and

therefore interpretations thereat holds good for RONW too. Further, LnS explains 41.1% variation in RONW and is its important determinant.

Further, LEV, WCP, Liquidity and CAME have no significant impact on RONW.

TABLE – 7.22

Results of Simple Linear Regression for RONW: IT&A Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	**0.411**	-72.109	4.584	3.542*	0.002
	LnTA	**0.353**	-75.378	4.734	3.137*	0.006
Leverage	LTDTAR	0.001	22.355	3.791	0.136	0.894
	TDTAR	0.062	30.302	-18.814	-1.092	0.289
Working Capital Policy	CLTAR	0.029	26.611	-12.338	-0.737	0.471
	CATAR	0.146	-3.079	42.162	1.753	0.097
	CANFAR	0.000	22.750	-0.037	-0.022	0.983
	CLCAR	0.132	32.043	-16.153	-1.657	0.115
	NWCCAR	0.102	16.639	13.891	1.432	0.169
Liquidity	ITCAR	0.104	26.517	-88.941	-1.444	0.166
	RTCAR	0.000	22.919	-0.517	-0.023	0.982
	CBBTCAR	0.066	15.625	37.342	1.132	0.272
	PETCAR	0.003	23.285	-7.996	-0.240	0.813
	LATCAR	0.115	27.541	-75.976	-1.531	0.143
	MSTCAR	0.056	19.502	41.515	1.037	0.314
	CR	0.016	19.627	1.008	0.536	0.599
	QR	0.021	19.291	1.152	0.620	0.543
	ALR	0.075	17.561	5.941	1.205	0.244
Efficiency	TATR	0.135	11.458	9.467	1.673	0.112
	CATR	0.076	13.286	4.845	1.218	0.239
	WCTR	0.002	22.787	-0.028	-0.180	0.860
	ITR#	0.109	20.840	6.077E-5	1.354	0.196
	IHP#	0.141	25.185	-0.231	-1.717	0.103
	RTR	0.065	15.570	1.816	1.117	0.279
	ACP	0.070	26.011	-0.020	-1.162	0.261
	CBTR	0.024	25.753	-0.201	-0.672	0.510
	CTR	0.093	21.471	0.007	1.361	0.190
	APP	0.072	24.372	-0.025	-1.186	0.251
	OC	0.070	26.011	-0.020	-1.162	0.261
	NTC	0.020	26.179	-0.037	-0.611	0.549

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
18	0.01	2.878
18	0.05	2.101
#15	0.01/0.05	2.131/2.947

* Results significant at 1% level of significance ** Results significant at 5% level of significance

7.6.2 Results of Stepwise Regression

The results of Stepwise Regressions for all the profitability measures, *i.e.*, OPM, NPM, ROTA, EAT/TA and RONW is presented in Table 7.23

From the perusal of Table 7.23, it is observed that ***CBTR, LTDTAR*** and ***ACP*** jointly explain 67.1% variation in ***OPM***. However, when NPM is taken as a measure of profitability, CBTR remains whereas the other two are excluded and three new indicators enter the model. ***CBTR, LnS, ITCAR*** and ***RTR*** jointly explain 82.1% variation in ***NPM*** indicating their greater importance for determining the NPM. However when **ROTA** is taken as a measure of profitability **LnS** remains and the remaining three variables are excluded and **WCTR** is included in model. Both of them explain 59.1% variation in ROTA. Further, when EAT/TA is taken as a measure of profitability, the same variables remain and TDTAR is added. ***LnS, WCTR and TDTAR*** jointly explain 69.1% variation in ***EAT/TA***. Further, ***LnS. RTR and CLCAR*** jointly explain 59.1% variation in ***RONW***. The VIF Statistics also indicates no multicollinearity amongst the independent variables.

Efficiency represented by CBTR has a negative impact on OPM as well as NPM indicating that with as CBTR increases, OPM and NPM declines. The negative impact of high cash turnover indicates that the sales of firms in IT$_{CA}$ Industry is supported by very low level of cash. Thus low liquidity results to lower profitability.

ACP has a negative impact on OPM which indicates that as the number of days' collections increases it results to decline in profitability and that shorter the length of ACP higher will be the OPM. Thus, the results implicates that liberal credit policy is detrimental to the profitability and the managers of firms in IT$_{CA}$ Industry can maximize their and operating profitability by efficiently reducing the length of ACP. This result agrees with the findings of Deloof[13], Nobanee and Alhajjar[45] and Afeef[46].

Leverage represented by LTDTAR has a positive impact on OPM which indicates that as long term debts increase, OPM improves which is an unusual finding as leverage should affect the post tax returns. However, it is in line with the Static Tradeoff Theory which states that more profitable firms have lower expected bankruptcy costs and higher tax benefits (Jensen[47]) and implies that the firms in IT$_{CA}$ Industry prefer to use more debt as compared to equity in their financial structure which is beneficial also as reflected by the positive impact of Leverage on profitability.

Size measured in terms of LnS positively influences the four measures of profitability, i.e., NPM, ROTA, EAT/TA and RONW and indicates that with increase in sales turnover the profitability of the firms in IT$_{CA}$ Industry increases. It is in line

with the premise that "large organizations enjoy the benefits of the economies of scale"[4]. Thus firms with large size in IT&A Industry are more profitable which is consistent with the findings of Deloof[13], Padachi[14] and many more[5,9,12-18,20-25] but inconsistent with the results of Enqvist *et al*[26].

TABLE – 7.23

Results of Stepwise Regression for all Profitability Measures: IT&A Industry

Independent Variable	R^2	Adj. R^2	Intercept	Slope	t-Statistic	p-value	F-Statistic	VIF Statistics
Dependent Variable – OPM								
CBTR	0.742	0.694	32.738	-0.783	-5.918*	0.000	15.358* (0.000)	1.026
NTC				-0.060	-2.874*	0.011		1.021
LTDTAR				32.827	2.683**	0.016		1.035
Dependent Variable – NPM								
CBTR	0.820	0.786	-8.679	-0.473	-5.026*	0.000	24.263* (0.000)	1.134
IHP				1.859	-3.448*	0.003		1.200
LnTA				-64.418	2.160**	0.046		1.317
Dependent Variable – ROTA								
LnS	0.634	0.591	-61.210	3.893	5.131*	0.000	14.738* (0.000)	1.076
WCTR				-0.219	-3.073**	0.007		1.076
Dependent Variable – EAT/TA								
LnS	0.740	0.691	-46.191	3.279	4.769*	0.000	15.173* (0.000)	1.224
WCTR				-0.166	-2.658**	0.017		1.143
TDTAR				-17.464	-2.471**	0.025		1.163
Dependent Variable – RONW								
LnS	0.656	0.591	-68.925	4.186	3.665*	0.002	10.155* (0.001)	1.185
RTR				3.886	3.272*	0.005		1.288
CLCAR				-17.320	-2.188**	0.044		1.476

Critical Values of "t" and "F"

t-test			F-test, Degrees of Freedom = 1		
DF	Probability (Alpha)	Table Value – t	N	Probability (Alpha)	Table Value – F
18	0.01	2.807	18	0.01	8.29
t-test			F-test, Degrees of Freedom = 2		
17	0.01	2.898	17	0.01	6.11
17	0.05	2.110	17	0.05	3.59
t-test			F-test, Degrees of Freedom = 3		
16	0.01	2.921	16	0.01	5.29
16	0.05	2.120	16	0.05	3.24
t-test			F-test, Degrees of Freedom = 4		
15	0.01	2.947	15	0.01	4.89
15	0.05	2.131	15	0.05	3.06

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Liquidity represented by ITCAR has a negative impact on NPM which indicates that increased investment in inventories will lead to decline in NPM. Thus, firms in IT&A

Industry can increase their operational earnings by efficiently managing their inventories through reduced investment in inventories.

Efficiency represented by RTR is observed to influence two measures of profitability, i.e., NPM and RONW positively and it indicates that with increased efficiency in receivables management profitability (NPM and RONW) can also be increased which would further lead to increase in shareholder's wealth and support the findings of Ahmed[48].

Efficiency represented by WCTR has a negative impact on ROTA and EAT/TA which indicates that increase in WCTR would lead to decline in profitability measured in terms of ROTA and EAT/TA. A low level of NWC supporting a given level of sales turnover would lead to high WCTR and thus, the firms in IT&A Industry can improve profitability by utilizing higher NWC for operating sales.

Further, ***TDTAR has negative impact on EAT/TA*** which indicates that increased use of leverage in terms of Total Debt will lead to decline in post tax returns measured in terms of total assets and supports the Pecking Order Hypothesis of Myers and Majluf[27]. These results are consistent with the findings of Rajan and Zingales[28], Samiloglu and Dermiguines[29], Enqvist *et al*[26], Hayajneh and Yassine[18], Karaduman *et al*[20], Ali[16], Azhar and Saad[30], Hayat and Bhatti[8] and Afza and Nazir[5].

Working Capital Policy measured in terms of CLCAR is observed to have negative impact on RONW which indicates that as the CLCAR increases, RONW declines, *i.e.,* as the firms utilize more of current liabilities to finance the current assets, the profitability would decline and *vice–versa.* Similar result is also obtained for firms in Hotels and Restaurant Industry. Thus, it is inferred that aggressive working capital financing policy negatively influences RONW and is consistent with the findings of Al Shubiri[40], Al-Shubiri[41], Hussain *et al*[19] and Pouraghajan and Emamgholipourarchi[34].

7.6.3 Summary of Results of Simple and Stepwise Regressions of IT&A Industry

A summary of the results of Simple and Stepwise Regressions is prepared and presented in Table 7.24 to have a comparative view of the significant indicators of the explanatory variables for each measure of profitability of the IT&A Industry. Thus, following observations can be made from the perusal of Table 7.24:

- Profitability measured in terms of OPM is affected by ACP (Liquidity), LTDTAR (LEV) and CBTR (Efficiency). However ITCAR, CBBTCAR and IHP which were observed to be significant in Simple Linear Regression are eliminated whereas ACP

and LTDTAR which were not found to be significant are observed to be significant in Stepwise Regression.

TABLE 7.24

Summary Table for Results of Simple and Stepwise Linear Regressions: IT&I Industry

Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
1	Size	LnS	Simple	—	+ve*	+ve*	+ve*	+ve*
			Stepwise	—	+ve*	+ve*	+ve*	+ve*
		LnTA	Simple	—	+ve*	+ve*	+ve*	+ve*
			Stepwise	—	—	—	—	—
2	Leverage	LTDTAR	Simple	—	—	—	—	—
			Stepwise	+ve*	—	—	—	—
		TDTAR	Simple	—	–ve*	—	–ve*	—
			Stepwise	—	—	—	–ve**	—
3	Working Capital Policy	CLTAR	Simple	—	–ve**	—	—	—
			Stepwise	—	—	—	—	—
		CATAR	Simple	—	—	—	+ve**	—
			Stepwise	—	—	—	—	—
		CANFAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CLCAR	Simple	—	–ve**	—	–ve**	—
			Stepwise	—	—	—	—	–ve**
		NWCCAR	Simple	—	+ve**	—	+ve**	—
			Stepwise	—	—	—	—	—
4	Liquidity	ITCAR	Simple	–ve*	–ve*	–ve**	—	—
			Stepwise	—	–ve*	—	—	—
		RTCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CBBTCAR	Simple	+ve*	+ve*	+ve**	+ve**	—
			Stepwise	—	—	—	—	—
		PETCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		LATCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		MSTCAR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		QR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		ALR	Simple	—	+ve*	+ve**	+ve*	—
			Stepwise	—	—	—	+ve*	—
5	Efficiency	TATR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		CATR	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—
		WCTR	Simple	—	—	—	—	—
			Stepwise	—	—	–ve*	–ve**	—

TABLE 7.24 (Continued...)								
Summary Table for Results of Simple and Stepwise Linear Regressions: IT&A Industry								
Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
5	Efficiency	ITR	Simple	—	—	+ve**	+ve**	—
			Stepwise	—	—	—	—	—
		IHP	Simple	–ve**	–ve*	—	—	—
			Stepwise	—	—	—	—	—
		RTR	Simple	—	—	—	—	—
			Stepwise	—	+ve**	—	—	+ve*
		ACP	Simple	—	—	—	—	—
			Stepwise	–ve**	—	—	—	—
		CBTR	Simple	–ve*	–ve*	—	–ve**	—
			Stepwise	–ve*	–ve*	—	—	—
		CTR	Simple	—	—	+ve**	+ve**	—
			Stepwise	—	—	—	—	—
		APP	Simple	—	–ve**	—	—	—
			Stepwise	—	—	—	—	—
		OC	Simple	—	–ve**	—	—	—
			Stepwise	—	—	—	—	—
		NTC	Simple	—	—	—	—	—
			Stepwise	—	—	—	—	—

+ve indicates positive impact; –ve indicates negative impact

— indicates NOT SIGNIFICANT

* Results significant at 1% level of significance ** Results Significant at 5% level of significance

- Profitability measured in terms of NPM is affected by ITCAR (Liquidity), LnS (Size), CBTR and RTR (Efficiency). However LnTA, TDTAR, CLTAR, CLCAR, NWCCAR, ALR, ITCAR, CBBTCAR, ACP, OC and APP which were observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.
- Profitability measured in terms of ROTA is affected by LnS (Size) and WCTR (Efficiency). However LnTA, ITCAR, CBBTCAR, ALR and CTR which were observed to be significant in Simple Linear Regression are eliminated and WCTR which was not significant is observed to be significant in Stepwise Regression.
- Profitability measured in terms of EAT/TA is affected by TDTAR (LEV), LnS (Size) and WCTR (Efficiency). Further LnTA, CATAR, NWCCAR, CBBTCAR, ALR, CBTR and CTR which were observed to be significant in Simple Linear Regression are eliminated and WCTR which was not found to be significant is observed to be significant in Stepwise Regression.
- Profitability measured in terms of RONW is affected by CLCAR (Working Capital Policy), RTR (Efficiency) and LnS (Size). However LnTA which was observed to be significant in Simple Linear Regression is eliminated and RTR and CLCAR which were not significant are observed to be significant in Stepwise Regression.

7.7 Impact of WCM, LEV and Size on Profitability in Transport Services Industry (16 Companies)

The results of Simple Linear Regressions and Stepwise Regression for Transport Services Industry are presented and analyzed in this section. The results of Simple Linear Regressions for each measure of profitability are presented separately in Tables 7.25 to 7.29. Also the interpretation is made first for OPM followed by NPM, ROTA, EAT/TA and RONW. The results of Stepwise Regressions for all the measures of profitability are presented in Table 7.30. A comparative summary of results of Simple and Stepwise Regressions is presented in Table 7.31 after discussing the result of Stepwise Regressions.

7.7.1 Results of Simple Linear Regressions on OPM, NPM, ROTA, EAT/TA and RONW

A. Simple Linear Regressions for OPM

From Table 7.25, it can be observed that out of the 30 explanatory variables only 7 variables explain variations in OPM in a significant manner wherein, LnTA explains variation in OPM to a highest extent, *viz,* 48.8%. Sales size also has a significant impact on OPM conveying thereby that as the asset base or sales size of a company expands, OPM improves.

Three ***Working Capital Policy*** ratios, *i.e.,* CLTAR, CATAR and CANFAR have a negative impact on OPM which indicates that as the three of them rises, OPM declines. A high CATAR and CANFAR indicate conservative working capital investment policy whereas a high CLTAR indicates aggressive working capital financing policy. From this it can be inferred that firms in Transport Services Industry can improve their OPM by pursuing a conservative working capital financing policy and an aggressive working capital investment policy. *Amongst the 9 liquidity ratios,* ***RTCAR*** is found to have a significant negative impact on OPM indicating that as the proportion of receivables in the Current Assets increases the OPM reduces. However, ***CBBTCAR*** has a positive impact on OPM indicating that higher cash balances leads to improvement in OPM.

Amongst the Current Asset Management Efficiency ratios, only **TATR** was found to be significant explaining 41.5% variation in OPM. It was unusual to find negative impact of TATR on OPM.

B. Simple Linear Regressions for NPM

From Table 7.26 it is observed that only five ratios *viz,* ***LnS, LnTA, CLTAR, RTCAR and CBBTCAR*** have significant impact on NPM. Further, all of them are found to be common with OPM and hence, the interpretations thereat holds good here also. However, in case of NPM, LnTA explains 45.3% variation.

TABLE – 7.25

Results of Simple Linear Regression for OPM: Transport Services Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.273	-60.843	3.769	2.293**	0.038
	LnTA	0.488	-82.296	4.739	3.657*	0.003
Leverage	LTDTAR	0.242	8.523	42.840	2.114	0.053
	TDTAR	0.001	18.406	-2.323	-0.108	0.916
Working Capital Policy	CLTAR	0.417	35.325	-70.190	-3.165*	0.007
	CATAR	0.449	38.492	-45.576	-3.380*	0.004
	CANFAR	0.329	24.818	-4.684	-2.619**	0.020
	CLCAR	0.013	14.051	5.227	0.434	0.671
	NWCCAR	0.013	19.278	-5.227	-0.434	0.671
Liquidity	ITCAR	0.002	16.756	10.566	0.181	0.859
	RTCAR	0.265	35.894	-35.817	-2.245**	0.041
	CBBTCAR	0.362	6.125	46.678	2.818*	0.014
	PETCAR	0.019	14.383	39.914	0.526	0.607
	LATCAR	0.065	21.559	-76.182	-0.983	0.343
	MSTCAR	0.001	17.699	-6.326	-0.140	0.891
	CR	0.005	18.954	-0.685	-0.271	0.790
	QR	0.008	19.547	-1.025	-0.328	0.748
	ALR	0.046	14.253	3.660	0.817	0.428
Efficiency	TATR	0.415	31.425	-14.528	-3.150*	0.007
	CATR	0.008	20.010	-1.196	-0.338	0.741
	WCTR	0.004	18.311	-0.185	-0.244	0.811
	ITR	0.094	18.891	-0.003	-1.206	0.248
	IHP	0.005	18.084	-0.055	-0.260	0.798
	RTR	0.202	11.352	0.958	1.883	0.081
	ACP	0.157	27.066	-0.086	-1.617	0.128
	CBTR	0.079	22.245	-0.250	-1.092	0.293
	CTR	0.090	20.214	-0.110	-1.173	0.260
	APP	0.005	16.040	0.033	0.253	0.804
	OC	0.125	25.572	-0.065	-1.412	0.180
	NTC	0.143	23.448	-0.070	-1.528	0.149

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
14	0.01	2.977
14	0.05	2.145

* Results significant at 1% level of significance ** Results significant at 5% level of significance

TABLE – 7.26

Results of Simple Linear Regression for NPM: Transport Services Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.325	-55.159	3.123	2.595**	0.021
	LnTA	0.453	-63.231	3.465	3.402*	0.004

TABLE – 7.26 (Continued...)						
Results of Simple Linear Regression for NPM: Transport Services Industry						
Leverage	LTDTAR	0.110	5.108	21.957	1.316	0.209
	TDTAR	0.018	13.474	-8.344	-0.513	0.616
Working Capital Policy	CLTAR	0.349	22.128	-48.784	-2.740*	0.016
	CATAR	0.205	20.700	-23.361	-1.897	0.079
	CANFAR	0.189	19.932	-2.697	-1.805	0.093
	CLCAR	0.042	14.045	-7.039	-0.780	0.449
	NWCCAR	0.042	7.006	7.039	0.780	0.449
Liquidity	ITCAR	0.016	8.472	21.067	0.478	0.640
	RTCAR	0.316	25.028	-29.728	-2.543**	0.023
	CBBTCAR	0.326	1.547	33.638	2.600**	0.021
	PETCAR	0.049	6.074	48.017	0.846	0.412
	LATCAR	0.027	11.686	-37.192	-0.619	0.546
	MSTCAR	0.000	9.727	-1.795	-0.052	0.959
	CR	0.011	7.872	0.755	0.394	0.699
	QR	0.010	7.668	0.906	0.382	0.708
	ALR	0.124	5.762	4.588	1.407	0.181
Efficiency	TATR	0.232	17.627	-8.252	-2.055	0.059
	CATR	0.016	12.508	-1.289	-0.481	0.638
	WCTR	0.000	9.819	-0.037	-0.064	0.950
	ITR	0.058	10.554	-0.002	-0.930	0.368
	IHP	0.000	9.751	-0.009	-0.058	0.954
	RTR	0.147	5.749	0.620	1.553	0.143
	ACP	0.207	18.107	-0.075	-1.913	0.076
	CBTR	0.047	12.504	-0.146	-0.829	0.421
	CTR	0.028	10.856	-0.047	-0.540	0.533
	APP	0.003	10.404	-0.020	-0.201	0.844
	OC	0.152	16.541	-0.055	-1.585	0.135
	NTC	0.137	14.168	-0.052	-1.490	0.158

Critical Values of "t"		
Degrees of Freedom	**Probability (Alpha)**	**Table Value – t**
14	0.01	2.977
14	0.05	2.145

* Results significant at 1% level of significance ** Results significant at 5% level of significance

C. Simple Linear Regressions for ROTA

From the perusal of Table 7.27, it is observed that of the 30 explanatory variables only 7 significantly influence ROTA. Further LEV and WCP have no significant impact on ROTA.

Both the indicators of Firm Size have significant impact on ROTA which indicates that as the total assets base as well as sales turnover of the firms in Transport Services Industry increases ROTA improves.

TABLE – 7.27						
Results of Simple Linear Regression for ROTA: Transport Services Industry						
Independent Variable	**Indicators**	**R^2**	**Intercept**	**Slope**	**t-Statistic**	**p-value**
Size	LnS	**0.428**	-39.145	2.449	3.238*	0.006
	LnTA	**0.342**	-31.591	2.057	2.697*	0.017
Leverage	LTDTAR	0.003	11.180	2.327	0.193	0.850
	TDTAR	0.006	13.123	-3.175	-0.284	0.781
Working Capital Policy	CLTAR	0.022	13.779	-8.274	-0.555	0.588
	CATAR	0.099	16.9332	-11.124	-1.243	0.234
	CANFAR	0.225	14.868	-2.009	-2.014	0.064
	CLCAR	0.007	12.920	-2.008	-0.320	0.754
	NWCCAR	0.007	10.911	2.008	0.320	0.754
Liquidity	ITCAR	0.070	13.304	-30.118	-1.029	0.321
	RTCAR	0.118	18.090	-12.412	-1.369	0.193
	CBBTCAR	**0.290**	6.448	21.700	2.394**	0.031
	PETCAR	0.164	7.208	60.208	1.657	0.120
	LATCAR	0.003	11.196	8.338	0.201	0.844
	MSTCAR	0.164	13.707	-35.514	-1.655	0.120
	CR	0.043	14.017	-1.016	-0.790	0.442
	QR	0.037	14.180	-1.168	-0.731	0.477
	ALR	0.002	11.324	0.396	0.167	0.870
Efficiency	TATR	0.001	12.059	-0.413	-0.132	0.897
	CATR	0.080	7.825	1.954	1.104	0.288
	WCTR	0.072	9.562	0.396	1.044	0.314
	ITR	0.014	11.969	0.000	-0.444	0.663
	IHP	0.131	13.687	-0.150	-1.452	0.169
	RTR	**0.457**	6.989	0.748	3.434*	0.004
	ACP	**0.337**	19.044	-0.066	-2.665**	0.018
	CBTR	0.000	11.472	0.009	0.076	0.940
	CTR	0.092	13.174	-0.058	-1.192	0.253
	APP	0.000	11.460	0.005	0.075	0.941
	OC	**0.332**	18.640	-0.055	-2.640**	0.019
	NTC	**0.341**	16.557	-0.056	-2.690**	0.018

Critical Values of "t"		
Degrees of Freedom	**Probability (Alpha)**	**Table Value – t**
14	0.01	2.977
14	0.05	2.145

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Liquidity represented by CBBTCAR has a positive impact on ROTA as also observed in case of OPM and NPM. Hence, liquidity has a positive influence on ROTA. ***Efficiency represented by RTR has a positive impact whereas ACP has a negative impact*** on ROTA. The results indicate that as RTR increases ROTA also increases. RTR explains 45.7% variation in ROTA which is highest and thus is an important determinant of ROTA. Further, ***ACP, OC and NTC negatively influences ROTA***

indicating that as the length of collection period, operating cycle, and net trade cycle reduces, the ROTA improves thereby indicating that efficient WCM has a positive influence on ROTA.

D. Simple Linear Regressions for EAT/TA

From the perusal of Table 7.28, it is observed that only 7 explanatory variables significantly influence EAT/TA.

TABLE – 7.28

Results of Simple Linear Regression for EAT/TA: Transport Services Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	**0.371**	-30.543	1.791	2.873*	0.012
	LnTA	**0.336**	-27.067	1.602	2.660**	0.019
Leverage	LTDTAR	0.000	6.619	-0.079	-0.008	0.993
	TDTAR	0.071	10.645	-8.758	-1.031	0.320
Working Capital Policy	CLTAR	0.112	10.400	-14.815	-1.325	0.206
	CATAR	0.088	10.510	-8.240	-1.165	0.263
	CANFAR	0.167	8.778	-1.361	-1.676	0.116
	CLCAR	0.073	9.749	-5.009	-1.052	0.311
	NWCCAR	0.073	4.740	5.009	1.052	0.311
Liquidity	ITCAR	0.013	7.155	-10.111	-0.427	0.676
	RTCAR	**0.262**	14.132	-14.531	-2.230**	0.043
	CBBTCAR	**0.374**	1.956	19.353	2.894*	0.012
	PETCAR	0.115	3.672	39.654	1.350	0.198
	LATCAR	0.005	6.146	8.237	0.253	0.804
	MSTCAR	0.058	7.559	-16.585	-0.927	0.370
	CR	0.000	6.612	-0.004	-0.004	0.997
	QR	0.000	6.388	0.100	0.078	0.939
	ALR	0.068	5.062	1.830	1.014	0.328
Efficiency	TATR	0.024	7.987	-1.427	-0.588	0.566
	CATR	0.015	5.123	0.661	0.459	0.653
	WCTR	0.030	5.545	0.200	0.656	0.523
	ITR	0.025	6.928	0.000	-0.596	0.561
	IHP	0.039	7.478	-0.065	-0.758	0.461
	RTR	**0.399**	3.174	0.549	3.052*	0.009
	ACP	**0.297**	12.054	-0.048	-2.432**	0.029
	CBTR	0.003	7.010	-0.021	-0.214	0.834
	CTR	0.033	7.318	-0.027	-0.694	0.499
	APP	0.008	7.279	-0.017	-0.325	0.750
	OC	**0.259**	11.444	-0.038	-2.212**	0.044
	NTC	0.227	9.743	-0.036	-2.027	0.062

Critical Values of "t"

Degrees of Freedom	Probability (Alpha)	Table Value – t
14	0.01	2.977
14	0.05	2.145

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Further, WCP and LEV have no significant impact on EAT/TA. Of the significant variables, 6 variables *viz,* LnS, LnTA, CBBTCAR, RTR, ACP, OC and NTC are observed to be common with ROTA and hence the interpretations for these ratios thereat holds good here also.

Further, in case of EAT/TA, RTR explains 39.9% variation. ***Liquidity measured in terms of RTCAR*** has a negative impact on EAT/TA indicating that as the share of receivables in current assets increase, the EAT/TA reduces which is in line with negative impact of ACP and positive impact of RTR.

E. Simple Linear Regressions for RONW

From the perusal of Table 7.29, it is observed that only 5 variables, *viz,* LnS, LnTA, ACP, OC and NTC significantly influence RONW. Also, it is observed that all these five variables are common with ROTA and hence the interpretations thereat holds good here also. Except that in case of RONW, NTC is an important determinant explaining the highest variation in RONW, *i.e.,* 43.9%.

Hence, managers of firms in Transport Services Industry can create shareholder value by reducing the length of ACP, OC and NTC and expanding their business either through asset base or through sales size.

TABLE – 7.29

Results of Simple Linear Regression for RONW: Transport Services Industry

Independent Variable	Indicators	R^2	Intercept	Slope	t-Statistic	p-value
Size	LnS	0.369	-69.044	3.296	2.860*	0.013
	LnTA	0.275	-54.648	3.189	2.306**	0.037
Leverage	LTDTAR	0.109	7.090	25.756	1.308	0.212
	TDTAR	0.037	5.920	14.012	0.737	0.473
Working Capital Policy	CLTAR	0.021	15.968	-13.971	-0.542	0.596
	CATAR	0.082	20.644	-17.416	-1.116	0.283
	CANFAR	0.134	16.672	-2.682	-1.473	0.163
	CLCAR	0.027	16.601	-6.709	-0.625	0.542
	NWCCAR	0.027	9.892	6.709	0.625	0.542
Liquidity	ITCAR	0.046	14.675	-41.882	-0.818	0.427
	RTCAR	0.018	16.707	-8.336	-0.505	0.622
	CBBTCAR	0.082	7.618	19.861	1.115	0.284
	PETCAR	0.120	5.817	88.889	1.380	0.189
	LATCAR	0.015	10.560	32.943	0.462	0.651
	MSTCAR	0.165	15.943	-61.646	-1.665	0.118
	CR	0.035	16.065	-1.585	-0.711	0.489
	QR	0.032	16.435	-1.875	-0.678	0.509
	ALR	0.003	13.119	-0.870	-0.212	0.835
Efficiency	TATR	0.000	12.099	0.297	0.055	0.957
	CATR	0.123	3.039	4.177	1.399	0.184

TABLE – 7.29						
Results of Simple Linear Regression for RONW: Transport Services Industry						
Independent Variable	**Indicators**	**R^2**	**Intercept**	**Slope**	**t-Statistic**	**p-value**
Efficiency	WCTR	0.194	6.451	1.120	1.837	0.087
	ITR	0.013	12.902	-0.01	-0.427	0.676
	IHP	0.156	16.208	-0.282	-1.606	0.130
	RTR	0.146	7.829	0.730	1.548	0.144
	ACP	0.380	25.943	-0.120	-2.931*	0.011
	CBTR	0.046	9.021	0.171	0.821	0.425
	CTR	0.034	13.969	-0.060	-0.698	0.497
	APP	0.016	10.207	0.056	0.479	0.639
	OC	0.378	25.250	-0.102	-2.919*	0.011
	NTC	0.439	21.985	-0.110	-3.307*	0.005

Critical Values of "t"		
Degrees of Freedom	**Probability (Alpha)**	**Table Value – t**
14	0.01*	2.977
14	0.05**	2.145

* Results significant at 1% level of significance ** Results significant at 5% level of significance

7.7.2 Results of Stepwise Regression

The results of Stepwise Regressions are presented in Table 7.30 for all the profitability measures, *i.e.,* OPM, NPM, ROTA, EAT/TA and RONW.

On observing the results of stepwise regressions for **OPM and NPM**, it is found that for both these profitability ratios, LnTA and CLTAR are the significant explanatory variables. These two variables explain approximately 71% variations in OPM and 61% variation in NPM. Further, the results indicate that as the total assets base of the firms in Transport Services Industry increases OPM and NPM are likely to improve. . It is in line with the premise that "large organizations enjoy the benefits of the economies of scale"[4] and is consistent with the findings of Deloof[13], Afza and Nazir[33] and Nassirzadeh and Rostami[9] but inconsistent with the results of Khan *et al*[15].

Further, CLTAR has a negative influence on OPM and NPM indicating that with higher utilization of CL to finance TA, the OPM and NPM are likely to fall. Thus, managers of firms in Transport Services Industry should always try to reduce the proportion of CL to TA.

On further examining the results of stepwise regressions it is observed that RTR and LnS explains 58.6% variation in **ROTA**. When **EAT/TA** is taken as a measure of profitability, LnS is eliminated and 2 new variables, *viz,* CLCAR and CANFAR enter the model and they jointly explain 69.1% variation in EAT/TA. The VIF Statistics also indicates no multicollinearity amongst the independent variables.

In case of **RONW** only 1 variable, *i.e.,* NTC is observed to explain 41.1% variation which is an indicator of Efficiency

TABLE – 7.30

Results of Stepwise Linear Regression for all Profitability Measures: Transport Services Industry

Independent Variable	R^2	Adj. R^2	Intercept	Slope	t-Statistic	p-value	F-Statistic	VIF Statistics
Dependent Variable – OPM: Model - 1								
LnTA	0.748	0.709	-52.052	3.991	4.133*	0.001	19.306*	1.047
CLTAR				-56.657	-3.661*	0.003	(0.000)	1.047
Dependent Variable – NPM: Model – 1								
LnTA	0.663	0.611	-42.536	2.954	3.481*	0.004	12.795*	1.047
CLTAR				-38.769	-2.851**	0.014	(0.001)	1.047
Dependent Variable – ROTA: Model – 1								
RTR	0.641	0.586	-27.784	0.552	2.774**	0.016	11.595*	1.171
LnS				1.735	2.577**	0.023	(0.001)	1.171
Dependent Variable – EAT/TA: Model – 1								
RTR	0.753	0.691	12.468	0.552	4.249*	0.001	12.182* (0.001)	1.084
CLCAR				-10.814	-3.730*	0.003		1.191
CANFAR				-1.576	-2.990**	0.011		1.216
Dependent Variable – RONW: Model – 1								
NTC	0.755	0.694	43.034	-0.125	-5.003*	0.000	12.314* (0.001)	1.119
CLCAR				-23.216	-3.555*	0.004		1.261
CANFAR				-3.194	-2.809**	0.016		1.181

Critical Values of "t" and "F"

t-test			F-test, Degrees of Freedom = 1		
DF	Probability (Alpha)	Table Value – t	N	Probability (Alpha)	Table Value – F
14	0.01	2.977	14	0.01	8.86
14	0.05	2.145	14	0.05	4.60
t-test			F-test, Degrees of Freedom = 2		
13	0.01	3.012	13	0.01	6.70
13	0.05	2.160	13	0.05	3.81
t-test			F-test, Degrees of Freedom = 3		
12	0.01	3.055	12	0.01	5.95

* Results significant at 1% level of significance ** Results significant at 5% level of significance

Size measured in terms of LnS positively influences ROTA and indicates that with increase in sales turnover the profitability of the firms in Transport Services Industry increases which is consistent with the findings of Nassirzadeh and Rostami[9], Sabunwala[24] and many more[5,12,14,15,21,23-25].

Efficiency represented by RTR positively influences ROTA and EAT/TA indicating that with increased efficiency in receivables management profitability (ROTA and EAT/TA) can be increased. From the results it can also be inferred that profitable firms manage their receivables efficiently.

Working Capital Policy measured in terms of CLCAR and CANFAR is observed to have negative impact on EAT/TA of Transport Services Industry. *CLCAR signifies* the extent of current assets financed by current liabilities and thus indicates the type of working capital financing policy pursued by a firm. A high ratio is indicative of conservative approach whereas a low ratio is indicative of aggressive approach followed by an enterprise. The results indicate that as the *CLCAR* increases, EAT/TA declines, *i.e.,* as the firms utilize more of current liabilities to finance the current assets, the profitability would decline and *vice–versa* which implies a negative influence of aggressive working capital financing policy on profitability. This negative influence of aggressive working capital financing on profitability is consistent with the results of Afza and Nazir[5], Vahid *et al*[6], Al Mwalla[7], Azhar and Saad[30], Al Shubiri[40] and Al-Shubiri[41]. *CANFAR* indicates the nature of working capital investment policy pursued by a firm with high ratio indicative of conservative approach whereas a low ratio of aggressive approach pursued by a firm. The results indicate that as the CANFAR increases, EAT/TA declines, *i.e.,* as the firms increase investments in current assets in proportion to net fixed assets, EAT/TA falls. This result indicates a negative influence of conservative working capital investment policy on profitability and is consistent with the findings of Vahid *et al*[6] but inconsistent with the results of Afza and Nazir[5], Azhar and Saad[30], Al Shubiri[40], Al Mwalla[7], and Al-Shubiri[41].

Thus, the managers of firms in Transport Services Industry should make a higher use of long term funds in the form of net working capital to finance the current assets, *i.e.,* pursue a conservative working capital financing policy which should be balanced by an aggressive working capital investment policy, *i.e.,* by maintaining low level of current assets in the asset structure.

WCME represented by NTC has a negative impact on RONW which indicates that as the length of NTC increases it will have a declining effect on RONW. Thus, firms in Transport Services Industry can create Shareholder Value by reducing the length of NTC and these results support the findings of Azam and Haider[49].

7.7.3 Summary of Results of Simple and Stepwise Regressions of Transport Services Industry

A summary of the results of Simple and Stepwise Regressions is prepared and presented in Table 7.31 to have a comparative view of the significant indicators of the explanatory variables in Simple and Stepwise Regressions for each measure of profitability of the Transport Services Industry.

TABLE 7.31								
Summary Table for Results of Simple and Stepwise Linear Regressions: Transport Services Industry								
Sr. No.	Independent Variables	Indicators	Regression Model	Dependent Variable: Profitability Ratios				
				OPM	NPM	ROTA	EAT/TA	RONW
1	Size	LnS	Simple	+ve**	+ve**	+ve*	+ve*	+ve*
			Stepwise	NS	NS	+ve**	NS	NS
		LnTA	Simple	+ve*	+ve*	+ve*	+ve**	+ve**
			Stepwise	+ve*	+ve*	NS	NS	NS
2	Leverage	LTDTAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		TDTAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
3	Working Capital Policy	CLTAR	Simple	–ve*	–ve*	NS	NS	NS
			Stepwise	–ve*	–ve**	NS	NS	NS
		CATAR	Simple	–ve*	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		CANFAR	Simple	–ve**	NS	NS	NS	NS
			Stepwise	NS	NS	NS	–ve*	NS
		CLCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	–ve*	NS
		NWCCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
4	Liquidity	ITCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		RTCAR	Simple	–ve**	–ve**	NS	–ve**	NS
			Stepwise	NS	NS	NS	NS	NS
		CBBTCAR	Simple	+ve*	+ve**	+ve**	+ve*	NS
			Stepwise	NS	NS	NS	NS	NS
		PETCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		LATCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		MSTCAR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		CR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		QR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		ALR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
5	Efficiency	TATR	Simple	–ve*	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		CATR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		WCTR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		ITR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		IHP	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS

TABLE 7.31 (Continued...)								
Summary Table for Results of Simple and Stepwise Linear Regressions: Transport Services Industry								
Sr. No.	**Independent Variables**	**Indicators**	**Regression Model**	**Dependent Variable: Profitability Ratios**				
				OPM	**NPM**	**ROTA**	**EAT/TA**	**RONW**
5	Efficiency	RTR	Simple	NS	NS	+ve*	+ve*	NS
			Stepwise	NS	NS	+ve**	+ve*	NS
		ACP	Simple	NS	NS	–ve**	–ve**	–ve*
			Stepwise	NS	NS	NS	NS	NS
		CBTR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		CTR	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		APP	Simple	NS	NS	NS	NS	NS
			Stepwise	NS	NS	NS	NS	NS
		OC	Simple	NS	NS	–ve**	–ve**	–ve*
			Stepwise	NS	NS	NS	NS	NS
		NTC	Simple	NS	NS	–ve**	NS	–ve*
			Stepwise	NS	NS	NS	NS	–ve*
+ve indicates positive impact; –ve indicates negative impact * Indicates significance at 1% level ** Indicates significance at 5% level								

Thus, following observations can be made from the perusal of Table 7.31:

- Profitability measured in terms of OPM and NPM are affected by LnTA (Size) and CLTAR (Working Capital Policy). However LnS, CLTAR, CATAR, CANFAR, RTCAR, CBBTCAR and TATR observed to be significant in Simple Linear Regression on OPM are eliminated in Stepwise Regression. *Similarly*, LnS, RTCAR and CBBTCAR observed to be significant in Simple Linear Regression on NPM are eliminated in Stepwise Regression.
- Profitability measured in terms of ROTA is affected by LnS (Size) and RTR (Efficiency). However LnTA, CBBTCAR, ACP, OC and NTC observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression..
- Profitability measured in terms of EAT/TA is affected by RTR (Efficiency), CLCAR and CANFAR (Working Capital Policy). However LnS, LnTA, RTCAR, CBBTCAR, ACP and OC observed to be significant in Simple Linear Regression are eliminated whereas CLCAR and CANFAR which were not significant are observed to be significant in Stepwise Regression.
- Profitability measured in terms of RONW is affected by NTC (Liquidity). Further LnS, LnTA, ACP and OC observed to be significant in Simple Linear Regression are eliminated in Stepwise Regression.

CONCLUSIONS

In this Chapter the impact of Sales on Working Capital; Impact of WCL on ROTA as well as Impact of Liquidity, LEV, Working Capital Policy, CAME and Size on Profitability was examined by running Simple Linear Regressions and Stepwise Regressions. The conclusions based on analysis and findings are presented here. The conclusion for impact of sales on working capital is given followed by impact of WCL on ROTA and then the conclusions are given for each measure of profitability for stepwise regression for all industries.

A. Impact of Working Capital on Sales

It is concluded that Sales is an important determinant of working capital and the results support the premise of Pandey[1] and findings of Mallick & Sur[2].

B. Impact of Working Capital Leverage on ROTA

It is concluded that ROTA is sensitive to the change in current asset investment policy and that working capital leverage is operational in the Non Financial Service Industry as well as Hotels and Restaurant *and* IT&A Industry. However it is observed that in Transport Services Industry the ROTA is not sensitive to the change in current asset investment policy. Further it is concluded that firms in Non Financial Service Industry as well as Hotels and Restaurant *and* IT&A Industry are affected by the working capital risk whereas *vice-versa* is the case for Transport Services Industry.

C. Impact of Size, LEV, WCP, Liquidity and WCME on Profitability of Non Financial Service Industry (All 79 companies)

- It is concluded that Firm Size measured in terms of LnS positively influences ROTA, EAT/TA and RONW whereas LnTA influences NPM indicating that firm size is an important determinant of profitability of these firms except OPM.
- It is concluded that Leverage measured in terms of TDTAR has a negative impact on ROTA and EAT/TA.
- It is concluded that there is a negative impact of conservative working capital financing policy, *i.e.*, NWCCAR on EAT/TA and by following an aggressive approach to current asset financing the managers of firms in Non Financial Service Industry can improve their post tax returns on total assets.
- It is concluded that RTCAR and LATCAR has a negative impact on NPM and ROTA respectively and that by reducing blockage of funds in receivables and Loans & advances, firms can improve their profitability. It is also concluded that CBBTCAR has positive influence on OPM, ALR on NPM as well as EAT/TA indicating positive impact of liquidity on profitability.

- It is also concluded that there is a positive influence of efficiency represented by CTR on ROTA and EAT/TA indicating that the firms in the industry can increase their profitability by ensuring timely settlement of their dues.
- It is concluded that TATR has a positive impact on EAT/TA. Further, IHP has a negative impact on NPM and RONW indicating that managers of firms in Non Financial Service Industry can create shareholder value and increase operational profitability by reducing the length of IHP. Further NTC has a negative influence on ROTA indicating that through overall efficiency of WCM the NTC can be reduced which would lead to rise in ROTA.

D. Impact of Size, LEV, WCP, WCME and Liquidity on Profitability of Hotels and Restaurant Industry (25 Companies)

- It is concluded that ALR positively influences OPM and NPM indicating the positive influence of liquidity on profitability. Further a negative impact of RTCAR on NPM, ROTA and EAT/TA indicates that increased investments in receivables which is an indicator of liberal credit policy results to decline in profitability.
- It is also concluded that there is a negative influence of efficiency represented by CTR on OPM and the firms in the industry can increase their profitability by slowing the payments and lengthening their payment period
- It is concluded that inventory management in the Hotels and Restaurant Industry is efficient and leads to improvement in ROTA and EAT/TA.
- Aggressive working capital financing policy is observed to positively influence the RONW and it is concluded that managers of firms in Hotels and Restaurant Industry can increase their profitability by utilizing more of short term funds as compared to long term funds to finance the current assets.

E. Impact of Size, LEV, WCP, WCME and Liquidity on Profitability of ITes Industry (20 Companies)

- It is concluded that Size measured in terms of LnS has a positive impact on NPM, ROTA, EAT/TA and RONW. Thus firms with large size in are more profitable.
- It is concluded that TDTAR has a negative impact on EAT/TA and that firms in IT$_{es}$ Industry should reduce their debt component to earn higher profitability.
- It is concluded that CBTR has a negative influence on OPM, NPM which indicates that the firms in IT$_{es}$ Industry should maintain reasonable level of cash balances in order to maintain a profitable position.
- It is concluded that there is a negative impact of ITCAR on NPM and so firms in IT$_{es}$ Industry can increase their profitability and operational profitability by efficiently managing their inventories through reduced investment in inventories.

- It is concluded that ACP has a negative influence on OPM whereas RTR has a positive influence on NPM and RONW indicating that through shorter collection period and prompt collection efforts the firms in IT&A Industry can improve their profits and create shareholder value. Further it is concluded that efficient receivables management positively influences profitability.
- It is concluded that there is negative impact of WCTR on ROTA and EAT/TA indicating that increased use of working capital to fund the current assets is not good for the profitability of the business. Thus, the IT&A Industry should take measures to utilize more of short term funds to support their sales and finance their current assets. This result is confirmed by a negative impact of conservative working capital financing policy on profitability.

E. Impact of Size, LEV, WCP, WCME and Liquidity on Profitability of Transport Services Industry (16 companies)

- It is concluded that LnTA has a positive impact on OPM, NPM whereas LnS has a positive impact on ROTA indicating that larger firms in Transport Services Industry are reaping the benefit of economies of scale resulting to positive impact on profitability.
- It is concluded that there is a positive impact of efficient receivables management (RTR) on ROTA, EAT/TA and so firms in Transport Services Industry can increase their profitability through prompt collection efforts.
- It is concluded that there is a negative impact of aggressive working capital financing policy (CLTAR, CLCAR) on OPM, NPM and EAT/TA and thus firms in Transport Services Industry should utilize more of working capital to fund their current assets. Further, a negative impact of conservative working capital investment policy (CANFAR) is also observed on EAT/TA of the firms in Transport Services Industry. Thus firms in Transport Services Industry can increase profitability by reducing their investments in current assets and maintaining lower level of current assets in the total asset structure as also by funding major part of its current assets through working capital, *i.e.,* long term funds.
- It is concluded that managers of firms in Transport Services Industry can create shareholder value by reducing the length of net trade cycle which further indicates lower investment in current assets and confirms the negative influence of conservative working capital investment policy observed on profitability.

Overall from the analysis it is observed that different measures of liquidity, LEV, WCP, Firm Size and Efficiency distinctively affect the different measures of

profitability. However, it is understood that efficient liquidity and working capital management is bound to have a positive influence on profitability and *vice-versa.*

As this chapter presented the last stage of analysis, the next chapter presents the ***"Major Findings, Conclusions and Suggestions"*** based on the empirical examination carried out in Chapters 5, 6 and 7.

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