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Impact of Financial Variables on Profitability Performance of Selected Tea Companies in West Bengal

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Abstract:

Profit earning ability is called the profitability. It is the power of business for proper planning; controlling, optimum utilisation of available resources, proper management and profit planning capacity, follow-up all sections and make changes if needed. It is an indicator of how efficiently a business is operating, managed and policy has been taken. If a business is run efficiently and effectively then the earning capacity of the business is also more. It is the power how efficiently a business run and managed. Profitability of tea companies in West Bengal depends on so many factors. Financial performance is the indicator of firm's working capital management and profitability management which helps us to identify the financial strength and weakness of the firms. We have taken nineteen variables of financial factors such as current ratio (CR), quick ratio (QR), cash position ratio (CPR), net working capital cycle (NWCC), short term debt equity ratio (STDER), interest coverage ratio (ICR), stock turnover ratio (STR), debtors turnover ratio (DTR), creditors turnover ratio (CTR), return on total income (ROTI), cash profit to total income (CPTI), return on capital employed (ROCE), return on assets (ROA), return on sales (ROS), total income total assets (TITA), return on net worth (RONW), cash profit to net worth (CPNW), total income to net worth (TINW), working capital to net worth (WCNW) out of which five are profitability indicators. The present study aims to identify the impact of financial variables on profitability of leading tea companies in West Bengal. The study covers nine leading tea companies in West Bengal based on market capitalisation. The study has been undertaken for the period of twelve years from 2011-12 to 2022-23. The necessary data have been obtained from CMIE prowess database. In order to analyse

impact of financial variables on profitability nineteen variables have been used. Correlation coefficient analysis, linear multiple regression analysis and t-test has been used to test the relationship between the profitability and financial performance indicators. The multiple analyses represents that the entire five models are perfectly fitted and all dependent variable highly responded by the independent variables. The study will help the investors, the researchers and the management to identify the nature of tea companies in West Bengal and will also help to take decision regarding investment in tea companies in West Bengal.

Key words: Financial performance, tea companies in West Bengal, descriptive statistics, t-test, multiple regressions, and performance indicators.

Introduction

Tea is an important non alcoholic hot beverages used by most of the households since decades. Tea in West Bengal is important because besides the agricultural crop, it has industrial value. The success of tea industry in West Bengal is depends on overall financial performance of the business and discloses the overall efficiency of the particular industry. Profitability is one of the important measures that can express the earning capacity of the firm; it is the part of overall financial condition of an organisation and can measures the financial efficiency of an enterprise. Profitability is depends on the smooth running of a business, power of market capitalization, expected return on investment, dividend paying capacity and sometimes firm's strength depends on it. The tea industry in West Bengal bears an important role in profit earning, earning foreign exchange and employment generation in West Bengal. Therefore, our sincere effort will try to focus on the impact of financial variables on profitability of selected leading tea companies in West Bengal and try to find out the variables which have a positive impact on profitability of tea companies in West Bengal and make few suggestions.

Literature Survey

Financial performance analysis is important for the enterprise because it can express the financial health, financial deficiency and overall performance of an organisation. Financial performance analyses the working capital strength and weaknesses, profitability performance, financial stability, financial efficiency, liquidity and solvency capacity of an organisation. Ahmed & Chakraborty (2015) reported there is a positive relationship between the institutional finance and financial reform of tea companies. Arya (2013) identified the factors responsible for poor performance of tea companies in West Bengal are higher cost of production, the old age of tea bushes, lack of infrastructure, high price, labour problem, inefficient Tea Board, high labour cost, etc. Export-oriented industry plays a significant role for the

earning of foreign exchange noticed by Atkotiya (2005). Goshami and Sarkar (2011) argued that lower the investment higher the profitability. To cover the fixed operating costs the firm should have to improve its net sales so as to maintaining the operating risk within the manageable limit in the years to come. Joseph (2002) researched that almost all plantations became over aged plants in West Bengal and reported that firm should replant the uneconomic bushes. Nagoor (2009) argued that the major factors responsible for poor performance of India's tea exports are, rising domestic demand, slow increase in yield, slow expansion of area under tea cultivation, unable to compete with major tea exporting countries, increase in world supply of tea compared to world demand, lost of traditional tea market and more attraction towards domestic market compared to international market. No study has made on profitability of tea companies in West Bengal. Nor has any previous research examined the impact of financial variables on profitability of leading tea companies in West Bengal.

Objectives of the Study

The main objective of the present work is to make a study on impact of financial variables on profitability of selected tea companies in West Bengal. Based on the present study, analyses are made, findings are drawn, suggestions made. More specifically, it seeks to reside upon mainly the following issues:

(i) To assess the profitability of selected tea companies in West Bengal; and

(ii) To examine the impact of financial variables on profitability of selected tea companies in West Bengal.

Keeping the above objectives in mind, the following null and alternative hypotheses have been formulated and tested statistically.

Hypothesis-1:

H_0: There is no significant relationship between financial variables and profitability; and

H_1: There is a significant relationship between financial variables and profitability.

Methodology of the Study

The present study covers nine leading tea companies operating in West Bengal. The sample of the companies has been selected on the basis of market capitalisation of tea companies in West Bengal and the necessary data have been obtained from CMIE prowess database. We select nine tea companies operating in West Bengal namely, Amalgamated Plantations Pvt. Ltd., Amarpur Tea Plantations Ltd., Andrew Yule & Co. Ltd., Duncans Industries Ltd., Gillianders Arbuthnot & Co. Ltd., Goodricke group

Ltd., Jayshree tea & Industries Ltd., Luxmi Tea Company Ltd. and Mclead Russel India Ltd. The study has been undertaken for the period of twelve years from 2011-12 to 2022-23. We have taken nineteen variables of financial factors such as current ratio (CR), quick ratio (QR), cash position ratio (CPR), net working capital cycle (NWCC), short term debt equity ratio (STDER), interest coverage ratio (ICR), stock turnover ratio (STR), debtors turnover ratio (DTR), creditors turnover ratio (CTR), return on total income (ROTI), cash profit to total income (CPTI), return on capital employed (ROCE), return on assets (ROA), return on sales (ROS), total income total assets (TITA), return on net worth (RONW), cash profit to net worth (CPNW), total income to net worth (TINW), working capital to net worth (WCNW) out of which five are profitability indicators. In order to analyse the relationship between the financial variables and profitability correlation coefficient analysis and linear multiple regression analysis have been used and t-test has been tested.

Empirical Results and Discussion

Profitability is the main indicator of firm's performance. The entrepreneur, the investor, the creditors and the lenders all are interested on profit earning capacity of the firm and firm's performance mainly depends on it. Ratio analysis helps to compare and provides relative measures of the company's performance and draw a clear picture of financial position of the particular company. For measuring financial position appropriate level of financial performance indicators are required with whom comparison can be made. We have selected nineteen financial performance indicators for measuring the profitability and testing the relationship between the profitability and financial performance indicators.

Correlation Coefficient Analysis

Table 4 displays Pearson Correlation Matrix among the variables focussed on the relationship between independent and dependent variables.

Table 4: Pearson's Correlation Coefficient Analysis

	CR	QR	CPR	NWCC	STDER	ICR	STR	DTR	CTR	ROTI	CPTI	ROCE	ROA	ROS	TITA	RONW	CPNW	TINW	WCNW
CR	1																		
QR	.369	1																	
	.237																		
CPR	.307	.599*	1																
	.331	.039																	
NWCC	.783**	.287	.119	1															
	.003	.365	.712																
STDE	-.54	-.03	-.33	-.585	1														

R	7	7	9	*															
	.066	.908	.280	.046															
ICR	.089	.291	.660*	-.219	-.202	1													
	.782	.358	.020	.495	.530														
STR	-.531	.155	-.189	-.711**	.715**	.100	1												
	.076	.630	.557	.010	.009	.758													
DTR	.314	-.158	-.382	.099	.222	-.013	.108	1											
	.321	.624	.220	.761	.488	.968	.738												
CTR	.347	.318	.038	.646*	-.146	-.218	-.236	-.078	1										
	.26	.31	.90	.023	.651	.49	.46	.81											

	9	4	7			7	0	1											
ROTI	-.184	.235	.636*	-.443	.186	.729**	.361	.037	-.210	1									
	.567	.462	.026	.149	.562	.007	.248	.909	.512										
CPTI	-.088	.316	.673*	-.368	.201	.756**	.342	.072	-.145	.984**	1								
	.786	.318	.016	.240	.532	.004	.276	.824	.654	.000									
ROCE	-.174	.239	.620*	-.417	.108	.777**	.345	.061	-.239	.987**	.961**	1							
	.589	.455	.031	.177	.739	.003	.272	.849	.455	.000	.000								
ROA	-.041	.294	.677*	-.291	.038	.768**	.270	.077	-.125	.980**	.971**	.985**	1						
	.898	.354	.016	.359	.907	.004	.397	.811	.699	.000	.000	.000							

ROS	-.097	.232	.530	-.357	.328	.594*	.381	.251	-.149	.949**	.963**	.914**	.927**	1				
	.765	.469	.076	.255	.297	.042	.221	.432	.645	.000	.000	.000	.000					
TITA	.390	.466	.249	.510	-.191	.053	-.019	.198	.726**	.245	.288	.248	.371	.331	1			
	.210	.127	.435	.090	.552	.871	.954	.537	.008	.444	.364	.436	.235	.293				
RONW	-.319	.236	.587*	-.595*	.192	.709**	.482	-.070	-.429	.946**	.903**	.954**	.908**	.848**	.058	1		
	.312	.460	.045	.041	.549	.010	.112	.829	.164	.000	.000	.000	.000	.000	.857			
CPNW	-.300	.069	.256	-.577*	.207	.464	.563	.121	-.542	.742**	.692*	.764**	.729**	.705*	.085	.841**	1	
	.343	.831	.421	.050	.518	.129	.057	.708	.069	.006	.013	.004	.007	.010	.793	.001		
TI	.34	.19	-	.384	-	.16	-	-	.41	-	-	-	-	-	.04	-	-	1

NW	7	6	.085		.370	8	.192	.159	4	.448	.370	.400	.362	.534	8	.468	.478		
	.269	.541	.793	.218	.237	.601	.549	.623	.181	.144	.237	.198	.247	.074	.882	.125	.116		
WCNW	.675*	.124	.198	.553	-.515	.396	-.532	.134	.320	-.190	-.077	-.163	-.078	-.199	.117	-.335	-.410	.764**	1
	.016	.700	.538	.062	.087	.203	.075	.677	.310	.555	.813	.613	.809	.536	.717	.286	.185	.004	

Data Source: Annexure 1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 4 shows the degree of association between each variable which are used in this research. The correlation matrix represents the influence and direction of relationship among the variables. From the above table, it can be observed that RONW and ROCE are showing highest correlation is 0.954 which is significant at 1% level and they are positively correlated with each other, while all other variables have very less correlation. We considered those variables which have less than 0.70 correlations to reduce the multicollinearity problem.

Regression Analysis

Regression analysis when dependent variable is ROTI

Multiple regression methods have been used to study the joint influence of all the selected ratios indicating company's selected indicators and performance on the profitability and the regression coefficients have been tested with the help of the most popular 't' test.

The regression model used in this analysis is: ROTI = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROTI line.

Table 5: Multiple Regression Test Results

Model	Unstandardized Coefficients		t	Sig.	VIF
	B	Std. Error			
(Constant)	-15.805	0.753	-3.325	0.045	
CR	-12.389	0.721	-2.166	0.019	2.137
QR	-20.279	0.140	-2.491	0.008	3.241
CPR	16.210	0.205	7.335	0.005	3.318
STDER	0.030	0.299	0.100	0.027	2.509
STR	0.384	0.197	1.949	0.046	3.865
DTR	0.898	0.368	2.443	0.002	2.897
CTR	-0.007	0.545	-0.012	0.991	2.122
TITA	4.510	0.779	0.944	0.415	2.412
R = 0.987	R^2 = 0.974	Adjusted R^2 = 0.906		S. E. of the Estimate = 0.935	
Durbin-Watson Statistic = 2.879			F-statistic =14.316(Probability = 0.026)		

Data Source: Computed from Annexure 1

Table 5 reveals that multiple regression results between the dependent and independent variables has been authenticated because the result variance inflation factor satisfy the model (even rule of thumb of

statistics), that is, VIF value exceeds 2 and does not exceeds 10 (rule of thumb of statistics) (Bowerman and O' Connell, 1990; Myers, 1990).

It is seen from the above table that an increase in variables CR, QR and CTR by one unit; the ROTI is decreased by 12.389 units, 20.279 units and 0.007 units that were statistically significant in case of CR and QR but statistically insignificant in case of CTR at 5 per cent level (as $p<0.05$ and $p>0.05$). When CPR, STDER, STR, DER, TITA is increased by one unit, the ROTI is increased by 16.210 units, 0.030 units,0.384 units, 0.898 units and 4.510 units that were statistically significant in case of CPR, STDER, STR and DTR but statistically insignificant in case of TITA at 5 per cent level (as $p<0.05$ and $p>0.05$). It shows that the multiple correlations among the dependent variable ROTI and the independent variables taken together were 0.987 indicates that the profitability was highly responded by its independent variables. The coefficient of determination R^2 for the study is 0.974 indicates that 97.40% of the variations in the model can be explained by the explanatory variables of the model while 2.60% of the variation can be attributed to unexplained variation captured by the stochastic term. The Adjusted R Square of 90.60% show a negligible penalty for additional explanatory variables. Standard Error of regression coefficients being low (0.935), reveals that there survives actually line of estimates among the variables. It shows that the VIF is less than 5 in all the cases which indicate that there was no multicollinearity problem. It further shows that Durbin-Watson statistics (2.879) indicates that residuals were not serially correlated. It also shows that F statistics (14.316) with probability (0.001) indicates that the regression model is perfectly fitted. An insignificant variability in profitability could be the result of the combined effect accepted in the study and numerous other variables connected unexplained variables.

Regression analysis when dependent variable is CPTI

The regression model used in this analysis is: $CPTI = £ + ß_1CR + ß_2QR + ß_3CPR + ß_4STDTR + ß5STR + ß_6DTR + ß_7CTR + ß_8TITA + \varepsilon_t$ (unexplained variables or error terms), where £, $ß_1$, $ß_2$, $ß_3$, $ß_4$, $ß_5$, $ß_6$, $ß_7$ and $ß_8$ are the parameters of the CPTI line.

Table 6: Multiple Regression Test Results

Model	Unstandardized Coefficients		t	Sig.	VIF
	B	Std. Error			
(Constant)	-18.589	0.958	-3.749	0.033	
CR	-9.087	0.968	-1.523	0.025	2.137
QR	-18.368	0.491	-2.163	0.019	3.241
CPR	17.225	0.948	7.088	0.006	3.318
STDER	0.167	0.312	0.535	0.030	2.509
STR	0.369	0.205	1.797	0.170	1.865
DTR	0.906	0.384	2.362	0.009	2.897
CTR	0.151	0.568	0.265	0.808	2.122
TITA	3.295	0.985	0.661	0.556	2.412
R = 0.986	R^2 = 0.971	Adjusted R^2 = 0.895		S. E. of the Estimate = 0.975	
Durbin-Watson Statistic = 2.864			F-statistic =12.782(Probability = 0.030)		

Data Source: Computed from Annexure 1

Table 6 reveals that an increase in variables CR and QR by one unit; the CPTI is decreased by 9.087 units and 18.368 units that were statistically significant at 5 per cent level (as $p<0.05$). When CPR, STDER, STR, DTR, CTR and TITA is increased by one unit, the CPTI is increased by 17.225 units, 0.167 units, 0.384 units, 0.369 units, 0.906 units, 0.151 units and 3.295 units that were statistically significant in case of CPR, STDER and DER but statistically insignificant in case of STR, CTR and TITA at 5 per cent level (as $p<0.05$ and $p>0.05$). It shows that the multiple correlations among the dependent variable CPTI and the independent variables taken together were 0.986 indicates that the profitability was highly responded by its independent variables. The coefficient of determination R^2 for the study is 0.971 indicates that 97.10% of the variations in the model can be explained by the explanatory variables of the model while 2.90% of the variation can be attributed to unexplained variation captured by the stochastic term. The Adjusted R Square of 89.50% show a negligible penalty for additional explanatory variables. Standard Error of regression coefficients being low (0.975), reveals that there survives actually line of estimates among the variables. It shows that the VIF is less than 5 in all the cases which indicate that there was no multicollinearity problem. It further shows that Durbin-Watson statistics (2.879) indicates that residuals were not serially correlated. It also shows that F statistics (12.782) with probability (0.030) indicates that the regression model is perfectly fitted.

Regression analysis when dependent variable is ROCE

The regression model used in this analysis is: ROCE = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROCE line.

Table 7: Multiple Regression Test Results

Model	Unstandardized Coefficients		t	Sig.	VIF
	B	Std. Error			
(Constant)	-19.845	0.985	-2.367	0.099	
CR	-23.083	0.092	-2.287	0.106	2.137
QR	-18.737	0.360	-1.305	0.083	3.241
CPR	14.226	0.353	5.411	0.012	1.318
STDER	-0.476	0.528	-0.902	0.034	2.509
STR	0.565	0.347	1.625	0.003	1.865
DTR	1.585	0.649	2.443	0.002	3.897
CTR	0.105	0.961	0.109	0.920	2.122
TITA	3.800	0.430	0.451	0.013	3.412
R = 0.978	R^2 = 0.956	Adjusted R^2 = 0.839		S. E. of the Estimate = 1.649	
Durbin-Watson Statistic = 2.905			F-statistic =8.166(Probability = 0.036)		

Data Source: Computed from Annexure 1

Table 7 reveals that an increase in variables CR, QR and STDER by one unit; the ROCE is decreased by 23.083 units, 18.737 units and 0.476 units that were statistically insignificant at 5 per cent level (as $p<0.05$). When CPR, STR, DTR, CTR and TITA is increased by one unit, the ROCE is increased by 14.226 units, 0.565 units, 1.585 units, 3.800 units that were statistically significant in case of CPR, STDER and DER but statistically insignificant in case of CTR at 5 per cent level (as $p<0.05$ and $p>0.05$). It shows that the multiple correlations among the dependent variable ROCE and the independent variables taken together were 0.978 indicates that the profitability was highly responded by its independent variables. The coefficient of determination R^2 for the study is 0.956 indicates that 95.60% of the variations in the model can be explained by the explanatory variables of the model while 4.40% of the variation can be attributed to unexplained variation captured by the stochastic term. The Adjusted R Square of 83.90% show a negligible penalty for additional explanatory variables. Standard Error of regression coefficients (1.649), reveals that there survives actually line of estimates among the variables. It shows that the VIF is less than 5 in all the cases which indicate that there was no

multicollinearity problem. It further shows that Durbin-Watson statistics (2.905) indicates that residuals were not serially correlated. It also shows that F statistics (8.166) with probability (0.036) indicates that the regression model is perfectly fitted.

Regression analysis when dependent variable is ROA

The regression model used in this analysis is: ROA = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROA line.

Table 8: Multiple Regression Test Results

Model	Unstandardized Coefficients		t	Sig.	VIF
	B	Std. Error			
(Constant)	-14.677	0.938	-2.973	0.059	
CR	-9.640	0.943	-1.622	0.203	2.137
QR	-14.953	0.456	-1.768	0.175	3.241
CPR	9.807	0.874	5.584	0.011	3.318
STDER	-0.160	0.311	-.516	0.041	1.509
STR	0.321	0.205	1.568	0.015	2.865
DTR	0.792	0.382	2.072	0.030	2.897
CTR	-0.033	0.566	-0.058	0.058	1.122
TITA	5.129	0.964	1.033	0.378	2.412
R = 0.979	R^2 = 0.959	Adjusted R^2 = 0.851		S. E. of the Estimate = 0.971	
Durbin-Watson Statistic = 2.923			F-statistic =8.845(Probability = 0.005)		

Data Source: Computed from Annexure 1

Table 8 reveals that an increase in variables CR, QR, STDER and CTR by one unit; the ROA is decreased by 9.640 units, 14.953 units, 0.160 and 0.033 units that were statistically insignificant in case of CR, QR and CTR and significant in case of STDER at 5 per cent level (as p<0.05 and p>0.05). When CPR, STR, DTR and TITA is increased by one unit, the ROA is increased by 9.807 units, 0.321 units, 0.792 units and 5.129 units that were statistically significant in case of CPR, STR and DER but statistically insignificant in case of TITA at 5 per cent level (as p<0.05 and p>0.05). It shows that the multiple correlations among the dependent variable ROA and the independent variables taken together were 0.979 indicates that the profitability was highly responded by its independent variables. The coefficient of determination R^2 for the study is 0.959 indicates that 95.90% of the variations in the model can be explained by the

explanatory variables of the model while 4.10% of the variation can be attributed to unexplained variation captured by the stochastic term. The Adjusted R Square of 85.10% show a little punishment for additional explanatory variables. Standard Error of regression coefficients being low (0.971), reveals that there survives actually line of estimates among the variables. It shows that the VIF is less than 5 in all the cases which indicate that there was no multicollinearity problem. It further shows that Durbin-Watson statistics (2.923) indicates that residuals were not serially correlated. It also shows that F statistics (8.845) with probability (0.005) indicates that the regression model is perfectly fitted.

Regression analysis when dependent variable is ROS

The regression model used in this analysis is: ROS = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROS line.

Table 9: Multiple Regression Test Results

Model	Unstandardized Coefficients		t	Sig.	VIF
	B	Std. Error			
(Constant)	-16.885	0.227	-7.582	0.005	
CR	-6.468	0.680	-2.413	0.095	3.137
QR	-23.480	0.814	-6.156	0.009	1.241
CPR	12.317	0.712	14.924	0.001	1.318
STDER	0.675	0.140	4.814	0.017	2.509
STR	0.189	0.092	2.047	0.133	3.865
DTR	0.869	0.172	5.044	0.015	2.897
CTR	-0.480	0.255	-1.881	0.157	2.122
TITA	10.563	0.239	4.718	0.018	2.412
R = 0.998	R^2 = 0.995	Adjusted R^2 = 0.982		S. E. of the Estimate = 0.438	
Durbin-Watson Statistic = 2.776			F-statistic =16.708(Probability = 0.002)		

Data Source: Computed from Annexure 1

The above table shows that an increase in variables CR, QR and CTR by one unit; the ROS is decreased by 6.468 units, 23.480 units and 0.480 units that were statistically insignificant in case of CR and CTR but statistically insignificant in case of QR at 5 per cent level (as $p<0.05$ and $p>0.05$). When CPR, STDER, STR, DTR, TITA is increased by one unit, the ROS is increased by 12.317 units, 0.675 units,0.189 units, 0.869 units and 10.563 units that were statistically significant in case of CPR, STDER, DTR and TITA but statistically insignificant in case of STR at 5 per cent level (as $p<0.05$ and

p>0.05). It shows that the multiple correlations among the dependent variable ROS and the independent variables taken together were 0.998 indicates that the profitability was highly responded by its independent variables. The coefficient of determination R^2 for the study is 0.995 indicates that 99.50% of the variations in the model can be explained by the explanatory variables of the model while 0.50% of the variation can be attributed to unexplained variation captured by the stochastic term. The Adjusted R Square of 98.20% show a negligible penalty for additional explanatory variables. Standard Error of regression coefficients being low (0.975), reveals that there survives actually line of estimates among the variables. Standard Error of regression coefficients being low (0.438), reveals that there survives actually line of estimates among the variables. It shows that the VIF is less than 5 in all the cases which indicate that there was no multicollinearity problem. It further shows that Durbin-Watson statistics (2.776) indicates that residuals were not serially correlated. It also shows that F statistics (16.706) with probability (0.002) indicates that the regression model is perfectly fitted. One sample t-test shows that mean difference and t-value is significant at 5% level which indicates that the null hypothesis is rejected.

Findings, Conclusions and policy Recommendations of the Study

From the study of the impact of financial variables on profitability of selected tea companies in West Bengal it can be noticed that the correlation matrix represents that RONW and ROCE are showing highest correlation is 0.954 which is significant at 1% level and they are positively correlated with each other, while all other variables have very less correlation. The profitability of tea companies mainly depends on eight variables which have positive impact on profitability and with the help of eight variables we make multiple regression analysis and fitted five models. The multiple analyses represents that the entire five models are perfectly fitted and all dependent variable highly responded by the independent variables. The five models are

(i) ROTI = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROTI line.

(ii) CPTI = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the CPTI line.

(iii) ROCE = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROCE line.

(iv) ROA = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROA line.

(v) ROS = £ + ß$_1$CR + ß$_2$QR + ß$_3$CPR + ß$_4$STDTR + ß5STR + ß$_6$DTR + ß$_7$CTR + ß$_8$TITA + ε_t (unexplained variables or error terms), where £, ß$_1$, ß$_2$, ß$_3$, ß$_4$, ß$_5$, ß$_6$, ß$_7$ and ß$_8$ are the parameters of the ROS line.

From the above, we can concluded that CR, QR, CTR, STDTR, TITA have negative impact on profitability and CPR, STR, DTR have positive impact on profitability which shows in deferent sections. So, we can say that working capital management, debt paying capacity and financial stability position should be increased.

Limitations of the Study

The study suffers from certain limitations. The study is fully depends on CMIE prowess database. The study covers a period of only twelve years from 2011-12 to 2022-23. We have collected only for nine companies' data and this might not be true representation of the population.

References

1. Agarwal, N.P. (1981): *Analysis of Financial Statements*, National Publishing House, New Delhi.

2. Bernstein, A. L. (1978): *Financial Statement Analysis theory, Application and Interpretation*, Richard D. Irwin, New York.

3. Gujarati, D. N (1992): *Basic Econometrics*, Prantice Hall, Delhi.

4. Howard, L.R. (1971): *Working Capital-Its Management and Control*, Macdonald and Evans Ltd., London.

5. Kothari, C,R. (1990): *Research Methodology-Methods and Techniques*, Wishwa Prakashan, Calcutta.

6. Sam, R. Goodman (1970). *Technique of Profitability Analysis*, Jon Wiley & Sons Inc., New Jersey, U.S.

7. Ahmed, J. U. & Chakraborty, M. (2015). *Institutional Financing of Tea Industry: A Study in Barak Valley Region of Assam.* Indian Journal of Commerce & Management Studies, 6(2), 64-72.

8. Anthony, S. R. G. & Parthasaarathy, A. K. (2013). *An Analysis on Financial Performance of Tata Steel Limited for the Financial Years 2008 to 2012.* International Journal of Commerce, Business and Management, 2(1), 26-34.

9. Arya, N. (2013). *Indian Tea Scenario.* International Journal of Scientific and Research Publications, 3(7), 1-10. [Accessed on: 20.08.2015, at 11.25 (PT)]

10. Atkotiya, K.N. (2005). *Analysis of Financial Performance of Tea Industry in India.* Ph. D. thesis, Saurashtra University, taken online from http://www.ethesis.saurastrauniversity.edu/203/1/atkotiya_kn_thesis_com.pdf [Accessed on: 27.09.2015, at 11.30 (PT)]

11. Bhunia, A., Mukhuti, S. & Roy, G. (2011). *Financial Performance Analysis-A Case Study.* Current Research Journal of Social Sciences, 3(3), 269-275.

12. Goswami, S. & Sarkar, A. (2011). *Analysis of Financial Performance of Tata Steel- A Case Study.* International Journal of Multidisciplinary Research, 1(5), 161-174.

13. Joseph, M. (2002). *Problems and Prospects of Tea Plantation Industry in Kerala.* Ph. D. thesis, Cochin University of Science and Technology, taken online from http://www.dyuthi.cusat.ac.in/xmlui/bilstrream/handle/purl/63/dyuthi_T0180.pdf?

14. Kalunda, E. (2013). *Financial Inclusion impact on Small-Scale tea farmers in Nyeri County, Kenya.* International Business and Social Sciences Research Conference, Elizabeth Kalunda, Kimathi University College of Technology, Kenya, taken online from http://www.wbiconpro.com/601-Elizabeth.pdf

15. Mosalakae, I. G. B. (2007). *Financial Performance Measurement of South Africa's top Companies: An Exploratory Investigation.* Ph. D. thesis, University of South Africa, taken online from http://uir.unisa.ac.za/bitstream/handle/10500/1264/00thesis.pdf

16. Nagoor, B.H. (2009). *Performance of India's Tea Exports: A Comparative Study of Major Tea Exporting Countries of the World.* Conference paper, Fourth Annual International Conference on Public Policy and Management, Indian Institute of Management Bangalore (IIMB), IGIDR Proceedings/Project Reports Series, taken online from http://www.igidr.ac.in/pdf/publication/PP-062-21.pdf

17. Sivanesan, R. (2013). *Tea Industry in India–Analysis of Import and Export of Tea.* International Journal of Business and Management Invention, 2(8), 9-15.

18. Vennila, A. & Mekala, A. (2015). *Financial Performance of Nilgiris Monarch Tea Ltd., Ooty.* International Journal of Innovative Research in Science, Engineering and Technology, 4(6), 3920-3927.

Annexure 1:

Company average									
Year	CR	QR	CPR	NWCC	STDER	ICR	STR	DTR	CTR
2011-12	0.952	0.571	0.164	36.280	6.327	2.926	18.025	11.448	6.053
2012-13	0.811	0.511	0.150	14.722	3.205	2.716	17.141	10.929	3.785
2013-14	0.847	0.591	0.189	40.444	6.407	3.766	15.255	11.048	6.823
2014-15	0.965	0.663	0.270	23.289	2.017	8.647	16.381	8.964	4.987
2015-16	0.962	0.455	0.196	38.431	2.111	5.161	11.207	11.274	5.224
2016-17	1.081	0.546	0.183	82.706	1.766	3.313	14.185	12.528	8.080
2017-18	1.017	0.622	0.196	84.331	1.530	4.612	12.646	12.327	7.070
2018-19	1.126	0.656	0.216	106.944	1.508	4.440	12.773	10.556	7.388
2019-20	0.883	0.539	0.200	76.867	0.781	2.365	10.526	6.484	7.369
2020-21	1.142	0.637	0.207	85.044	0.946	2.531	11.010	9.811	6.694
2021-22	0.995	0.562	0.176	63.644	0.928	6.226	13.442	10.385	7.065
2022-23	1.131	0.539	0.195	94.844	0.713	4.533	9.036	12.397	5.010
Industry Average									
Year	CR	QR	CPR	NWCC	STDER	ICR	STR	DTR	CTR
2011-12	0.782	0.321	0.088	14.8	1.175	1.139	8.091	5.384	1.922
2012-13	0.563	0.426	0.088	-3.2	1.831	0.494	7.585	7.68	1.941
2013-14	0.73	0.441	0.115	-10	1.899	1.96	7.917	11.619	2.087
2014-15	0.794	0.322	0.081	-8.7	1.812	0.886	8.861	11.714	2.24
2015-16	0.841	0.531	0.065	0.2	1.574	2.562	10.379	13.187	2.641
2016-17	0.907	0.424	0.0779	11.7	1.135	5.504	10.75	14.646	2.884
2017-18	0.912	0.335	0.969	38.9	1.09	4.4	9.095	13.709	3.524
2018-19	0.939	0.458	0.103	69.7	0.579	4.39	9.248	15.572	5.645
2019-20	0.908	0.532	0.8583	94.9	0.594	3.937	9.259	13.4	6.975
2020-21	1.011	0.416	0.9354	98.5	0.519	4.093	9.35	14.573	7.749

2021-22	0.992	0.512	0.1156	102.8	0.516	2.599	9.201	14.481	7.857
2022-23	1.044	0.436	0.1145	107.1	0.465	2.1	9.987	13.37	6.658

Company average										
Year	ROTI	CPTI	ROCE	ROA	ROS	TITAR	RONWR	CPNWR	TINW	WCNWR
2011-12	3.333	5.900	3.824	2.770	9.088	1.041	8.851	19.564	0.872	0.214
2012-13	3.256	3.656	5.889	2.967	6.478	0.913	17.814	26.487	0.465	-0.381
2013-14	6.278	7.789	8.511	4.978	11.022	1.052	17.023	11.556	0.496	-0.073
2014-15	11.967	13.589	16.567	10.322	15.189	1.100	42.333	30.933	0.637	0.196
2015-16	7.644	8.767	10.400	6.778	11.622	1.015	20.567	23.689	0.512	0.307
2016-17	4.989	6.511	7.033	5.144	10.022	1.342	10.069	13.856	0.683	0.201
2017-18	5.756	7.700	8.722	6.022	10.767	1.364	14.733	21.456	0.751	0.327
2018-19	5.033	6.844	7.900	5.644	9.311	1.282	14.267	20.233	0.909	0.333
2019-20	1.767	3.211	2.489	1.933	4.678	1.074	3.889	8.156	0.852	0.123
2020-21	1.178	2.978	1.600	1.667	4.711	1.067	1.867	7.411	0.920	0.343
2021-22	2.400	4.233	4.756	3.000	4.778	1.043	5.733	9.433	1.631	0.822
2022-23	2.011	4.211	3.622	2.500	6.878	0.924	4.078	9.267	0.796	0.616
Industry Average										
Year	ROTI	CPTI	ROCE	ROA	ROS	TITA	RONW	CPNW	TINW	WCNW
2011-12	1.6	4.2	1.3	1	6.2	1.617	2.8	7.6	2.7334	0.8951
2012-13	-10.8	-5.2	-9.1	-6.8	3.5	1.625	-22.6	-10.9	2.431	0.2882
2013-14	3.8	7.2	3.3	2.4	7.8	1.638	9.6	18.2	2.867	0.492
2014-15	2.9	4.4	2.5	1.7	7.9	1.592	7.3	10.9	2.3725	-0.217

2015-16	6.6	8.8	6.4	4.3	13	1.656	17.1	23	3.4714	0.1987
2016-17	13	15.5	14.2	9.7	16.9	1.748	33.1	39.5	2.1124	0.1007
2017-18	9.1	10.9	9.4	6.5	13.1	1.709	20.1	24.1	2.383	0.208
2018-19	13.6	14.9	16.6	11.3	11.7	1.831	29.8	32.7	3.459	0.3308
2019-20	7.2	8.6	8.8	5.9	10.8	1.814	13.9	16.6	2.901	0.4337
2020-21	1.011	0.416	0.9354	98.5	0.519	1.836	14.7	17.1	2.3109	0.4062
2021-22	0.992	0.512	0.1156	102.8	0.516	1.776	6	8.4	3.228	0.4103
2022-23	1.044	0.436	0.1145	107.1	0.465	1.769	8.3	11	2.348	0.4631