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Papers based on application oriented research or field studies in the areas of industry, commerce, business studies and management are invited. The length of a paper including tables, diagrams, illustrations, etc., should not exceed 20 double space pages. Short communications (not more than 5 double spaced pages) relating to review articles, report of conferences, summary/views on various governments reports, debatable issues, etc., are also published. Book reviews and summary of Ph.D. dissertations not exceeding two double spaced pages, are welcome. Manuscripts sent for publication in this journal should not have been published or sent for publications elsewhere. All correspondence will be held with the senior (first) author only.

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Contents

Impact of IFRS on Firms' Reporting: An Evidence from UK

M.S. TURAN AND DIMPLE

European countries took a leap forward by making IFRS mandatory in the year 2005, while India is bracing to take a leap with effect from 2011. This propelled us to make a comprehensive study on UK, one of the most developed and IFRS integrated country of Europe. This paper is an attempt to examine the effect of transition to IFRS on selected financial statement items of 62 sampled companies migrating from UK GAAP to IFRS. The results reveal that on adoption of IFRS, the intangible assets, total assets and equity have witnessed the differences across various clusters. Similarly the prominent items of comprehensive income statement which have seen significant effects include sales & administration expenses and gross profit/ loss explained variance in total assets, operating profit/loss and profit/loss after tax correspondingly.

Introduction

Recent years have seen a rapid development in international reporting standards particularly consequent to the decision of European Commission to prepare the financial statements of listed companies under the IFRS issued by the International Accounting Standard Board (IASB) from 2005 onwards. Currently, more than 113 countries require IFRS convergence whereas a number of others have cleared their intention to adopt it from one or the other future date, e.g., Canada and India from the year 2011. Now no more choices are available for Indian companies for convergence with IFRS after its transition date from April 2011. So it is necessary for Indian corporates to take some steps to adopt these new standards in a manner that will benefit all those stakeholders who are associated with these companies. The journey to IFRS requires proper planning and the successful implementation of IFRS would involve its usage as the basis for primary financial reporting on daily basis and also performance tracking.

Review of Literature

Wong and Wong (2005) examined the impact of not amortizing goodwill and identifiable intangible assets with indefinite lives on some commonly used

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valuation multiples of New Zealand listed companies. Results indicate that non-amortization of goodwill and identifiable intangible assets with indefinite lives have a significant downward effect on the EV/EBIT and PE multiples. Silva and Couto (2007) measured the impact of IFRS on financial information of Portuguese public companies and noted that the PER and EPS ratios indicate depreciation in the position of stakeholders with the new accounting standards. Ball (2008) found that IFRS offers increased comparability and hence reduced information costs and information risk to investors. In case of indirect benefit, IFRS lead to a reduction in firm's cost of equity capital, the researcher observed. Callao *et al.* (2009) that the first application of IFRS has different effects on the financial reporting among countries. Capkun *et al.* (2008) found that the transition from local GAAP to IFRS had a small but statistically significant impact on total assets, equity, total liabilities and among assets the most pronounced impact on intangible assets and property, plant & equipment. Christensen *et al.* (2008) studied how accounting quality is affected by the adoption of IFRS for two groups of firms, those that perceive net benefits of IFRS and second is those that have no incentive to adopt and are forced to comply. The result disclosed that accounting quality does not always improve with IFRS adoption. The results suggested that mandatory IFRS will not improve accounting quality for firms that have no incentive to adopt. Daske *et al.* (2008) analyzed the effect on market liquidity and cost of capital in 26 countries using a large sample of 3100 firms that are mandated to adopt IFRS. It was found that on an average, market liquidity increase around the time of the introduction of IFRS. It was examined by Horton *et al.* (2008) whether there is market reaction to and value-relevance of information contained in the mandatory transitional documents required by IFRS. The study revealed significant negative abnormal returns and positive trading activity for firms reporting a negative reconciliation adjustment on UK GAAP earnings. Pickering *et al.* (2008) analyzed the views of preparation of financial reports on the costs and benefits of making the transition from Australian GAAP to Australian equivalents of IFRS. The finding of this report revealed that a major difficulty of implementation was the uncertainty regarding interpretation of the standards and complexity of the standards themselves. This resulted in increase in time and cost spent in discussion with auditors. Lantto and Sahlstrom (2009) studied the impact of IFRS on continental European country (Finland) and the result of the study highlighted that the adoption of IFRS changes the magnitude of key accounting ratios. Stent *et al.* (2010) assessed the effect of New Zealand IFRS on the financial statements of first time adoption of NZ IFRS and concluded that 87 % of firms are affected by NZ IFRS.

Objectives

The major objectives are to measure the impact of transition to IFRS on financial statements of the selected companies and to bring out how this transition affects the entities reported financial accounts.

Hypothesis

H$_o$: There is no significant impact of transition to IFRS on the items of financial statements.

H$_1$: There is a significant impact of transition to IFRS on the items of financial statements.

Research Methodology

The present study is based on secondary data on selected variables sourced from the published annual reports. The annual reports were available on the websites of companies. Only such companies are purposively selected that have prepared their annual reports on the basis of UK GAAP and IFRS both. Our sample comprises of 62 companies covering important sectors like information technology, energy, basic materials, industrials, health care, non-cyclical consumer goods, media & publishing and telecommunication services. For analyzing the data, statistical techniques are applied with the help of SPSS 13.0 software. Important among these techniques are mean, median, standard deviation, minimum, maximum, k means Cluster Analysis, correlation and regression analysis.

Results

Table 1 presents the summary of descriptive statistics such as mean, median, standard deviation, minimum and maximum for all major items of statement of financial position. The items of statement of financial position are considered for the fiscal year when firms converted their financial statements from UK GAAP to IFRS. Table 1 presents 16 major items of statement of financial position based on UK GAAP and IFRS. According to their UK GAAP based annual statement of financial position, firms in our sample has intangible assets of average £ 223.17 million and median of £ 3.20 million ranging from £ 0 to £ 3345.00 million, while the average of intangible assets based on IFRS is 234.36 million. This result reveals the positive change in average of intangible assets due to transition to IFRS. Total assets of sample firms ranged from £ 0.92 million to £ 11618.00 million with a mean of £ 1032.98 million (median of £ 84.41 million), while under IFRS the same total assets ranged from £ 0.92 million to £ 11671.00 million with a mean of 1067.88 million (median of £ 88.24 million). This result also indicates positive effect on the average of total assets due to convergence with IFRS. The average of total equity and the total liability for the year preceding the transition to IFRS are £ 305.88 million and £ 693.98 million (medians of £ 23.22 million and £ 65.87 million respectively). Total current assets ranged from £ 0 to £ 2988.00 million and total current liabilities from £ 0.02 million to £ 5131 million under UK GAAP based accounting. Similar to these, the table presents the descriptive statistics for others items of statement of financial position based on both UK GAAP and IFRS standards. Further, Table 1 presents the results of percentage variation in certain accounting items of statement of financial position. It can be seen that IFRS's implementations produce some major variation in the items of statement of financial position. Average of PPE, goodwill, trade & other Receivable and retained earnings

Table 1: Descriptive statistics for the items of statement of financial position

Balance sheet items	UK GAAP				
	Mean	Median	Std. Deviation	Minimum	Maximum
Intangible assets	223169	3203	695440	0	3345000
PPE	493946	12554	1645238	1.047	8152000
Total non-current assets	702858	33013.5	1837889	45	8630000
Goodwill	41197.7	1443	112817	-6420	610045
Retained Earnings	119075	3220	399066	-191600	2427000
Equity	331349	24742	934214	-1143700	4459000
Deferred tax assets	6016.9	19.5	23622.1	0	145000
Total current Assets	313904	43439	710610	0	2988000
Trade & other receivable	139642	27450	410813	0	2683000
Total assets	1032981	84413	2494883	918	11618000
Total non - current liabilities	347876	7344.5	934437	0	5672000
Provisions	53140.1	1371	215038	0	1326000
Total current liabilities	319701	29583.5	860905	18.266	5131000
Total liabilities	663466	55871	1702826	18.266	8652000
Reserves	89295.4	82	492473	-916000	2578300
Trade & other payable	209350	24854	527977	0	2385000
Balance Sheet Items	IFRS				
Intangible assets	234359	4953.4	853885	0	3554000
PPE	519958	12027	1576941	1.047	8329000
Total non-current assets	735353	38110.5	1913720	21	8914000
Goodwill	38635	1539	99527.3	0	508528
Retained Earnings	109547	5951	917254	-200100	2012000
Equity	305883	23220.5	1191167	-705600	4112000
Deferred tax assets	23359.6	3048	64454.4	0	342000
Total current Assets	315668	43439	825274	0	2988000
Trade & other receivable	126487	27168	337855	0	2120000
Total assets	1067876	88235	2517769	918	11671000
Total non - current liabilities	434845	15183.5	1129061	0	7021000
Provisions	101161	3144	445440	0	2670000
Total current liabilities	313977	29000.5	856807	18.266	5036000
Total liabilities	693977	65867	9.1E+07	18.266	10274000
Reserves	70229.6	257	388497	-410000	2578300
Trade & other payable	206418	25062	520939	0	2658000
percentage variation					
Intangible assets	173.82	0	996.5076	-100	7694.118
PPE	-2.5131	0	13006.23	-99.333	99900
Goodwill	-4.96	0	23.26884	-100	14.583
Total non-current assets	12.88	4.810273	32.36294	-99.7034	131.1111
Deferred tax assets	157.81	0	536.2819	-39.8571	3333.333

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contd...

Trade & other receivable	-0.83	0	5.728171	-22.861	27.697
Total current Assets	0.3	0	11.35917	-19.9	78.858
Total assets	3.51	1.823	14.61588	-57.534	85.903
Retained Earnings	-86.81	0.2405	793.1647	-5920.27	1441.71
Reserves	21.2	0	128.4224	-100	710
Equity	19.2	0.138	239.9447	-1078.75	1207.752
Trade & other payable	10.98	0	104.1998	-30.2004	809.8765
Provisions	33.62	0	168.0996	-49.342	1080
Total current liabilities	1.26	0	17.95767	-26.137	129.508
Total noncurrent liabilities	67.99	6.974	272.3173	-39.549	2120
Total liabilities	11.68	2.3205	24.79231	-37.058	129.508

Table 2: Descriptive statistics for the items of comprehensive income statement

P&L Account items	UK GAAP				
	Mean	Median	Std. Deviation	Minimum	Maximum
Revenue	1184903	163374	3041008	0	15409000
Cgs	762595.9	36775	2564946	0	14722000
Gross profit/loss	214650.1	27629	593549.4	-442	2954000
Sales & administration Exp	100574.1	5940.5	374746.3	0	2308600
Operating profit/loss	52509.46	3562	164628.2	-142000	1046000
Profit/Loss before tax	40003.23	1755	139117.1	-237000	862000
Profit/Loss after tax	41530.33	2071.5	114687.8	-23900	580000
Finance income	6010.563	150	14046.19	0	77000
Finance Cost	23314.06	1196	52889.92	0	267000
Taxation	17150.64	993.5	44720.8	0	286000
P & L Account items		IFRS			
Revenue	1202633	160169	3015469	0	15202000
Cgs	751232.1	36775	2538748	0	14544000
Gross profit/loss	210328.5	22131	588851.6	-528	3011700
Sales & administration Exp	99222.39	5141.699	382947.5	0	2371600
Operating profit/Loss	61032.88	4270.5	186923.2	-151000	1240000
Profit/Loss before tax	49550.13	2933.5	166008.1	-238000	1078000
Profit/Loss after tax	56553.25	4330	153426	-27900	790000
Finance income	10858.29	176	29632.78	0	180000
Finance Cost	28018.57	2287	65000.14	-56	342000
Taxation	15928.09	985.5	43574.58	-26110	288000
Revenue	1609.532	0	12687.54	-36.3752	99900
Cgs	-2.36203	0	8.743262	-53.1542	6.556065
Gross profit/loss	-0.39076	0	7.439258	-37.3379	25.74831
Sales & administration Exp	-4.7873	0	13.17338	-71.8386	6.895659
Finance income	72.33037	0	343.5499	-14.2105	2514.286
Finance Cost	48.56173	0	331.7627	-394.737	2550
Operating profit/Loss	30.59346	2.157145	142.1769	-172.826	884.901
Profit/Loss before tax	11.9087	0	464.7964	-2603.32	2382.8
Taxation	-135.25	0	984.9685	-7734.5	158.9577
Profit/Loss after tax	39.56149	3.831093	377.7942	-2146.33	1698

infer negative variation, while the average of remaining selected items produce positive variation due to harmonization with IFRS. Range in variation of total assets and equity are £ -57.53 thousand to £ 85.90 thousand and £ -1078.75 thousand to £ 1207.75 thousand respectively. Succinctly, it can be deduced from these results that total assets and equity will be improved due to implementation of IFRS.

Table 2 reveals the summary of descriptive statistics for all major items of comprehensive income statement which is based on UK GAAP, IFRS and their percentage variations respectively. The result in Table 2 shows that the average of revenue is £ 1184.90 million under UK GAAP and £ 1202.63 million after transition to IFRS. Concisely, it is discerned that the average of revenue is improved due to implementation of IFRS. The range of profit/loss after tax have £ -23.90 million to £ 580 million under UK GAAP and having £ -27.90 million to £ 790 million under IFRS. It can be observed from Table 2, that the average of revenue, finance income, finance cost, operating profit/ loss, profit/loss before tax and profit/loss after tax have registered positive change, while the average of cost of goods sold, gross profit/loss, sales & administration expenses and taxation expenses are adversely affected by the implementation of IFRS. All this leads us to infer that profit figure will register an increase due to harmonization with IFRS.

Table 3 and Table 4 show the results of cluster analysis and we use k means cluster analysis for constructing ten clusters. Here the firms are aggregated into various clusters according to the variations resulting from transition to IFRS. Table 3 presents the results of cluster analysis for the items of statement of financial position. In addition to this, the table also shows the significance for each of the variables used in cluster analysis and the number of firms within each group. This table reveals that there is a significant variation in the intangible assets, total assets and equity at 5 percent level of significance. Table 4 reveals the results of cluster analysis for the items of comprehensive income statement. A reference to this table shows significant difference at 5 percent level, in items of revenue, operating profit/loss, profit/ loss after tax and sales & administration expenses. Further, both these tables also disclose that the firms in different cluster are asymmetric.

Table 5 presents the outcome of linear regression analysis for the independent variables of statement of financial position such as intangible assets, PPE, goodwill, net assets, deferred tax assets, total current assets, trade & receivable, total non-current liabilities, total current liabilities and total liabilities corresponding to four dependent variables like total assets, revenue, operating profit/loss and profit/loss after tax of statement of financial position and comprehensive income statement. Results reported in this table indicate that PPE explains 32.8 percent, 30.6 percent and 26.3 percent variance in the total assets, operating profit/loss and profit/loss after tax respectively, which is highly significant at 5 percent level as indicated by Sig value of this table. Similar to this result, goodwill and net assets also present the significant difference at 5 percent level for the dependent variables of total assets, operating profit/loss and profit/loss after tax respectively, while deferred tax assets and total non-current liabilities reveal significant

Table 3: Cluster analyses for items of statement of financial position

Variables	Variable's Significance								
	2 Cluster	3 Cluster	4 Cluster	5 Cluster	6 Cluster	7 Cluster	8 Cluster	9 Cluster	10 Cluster
Intangible assets	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total current Assets	0.971	0.519	0.718	0.370	0.515	0.635	0.743	0.668	0.763
Total assets	0.850	0.950	0.980	0.000	0.000	0.000	0.000	0.000	0.000
Equity	0.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total current liabilities	0.589	0.780	0.906	0.701	0.825	0.903	0.928	0.971	0.025
Total liabilities	0.662	0.618	0.752	0.318	0.174	0.260	0.344	0.127	0.000
Cluster Number	Number of cases in each cluster								
Cluster 1	1	1	56	2	1	1	1	1	1
Cluster 2	61	3	1	1	55	1	1	1	1
Cluster 3		58	2	1	1	1	1	1	50
Cluster 4			3	56	2	1	1	1	1
Cluster 5				2	2	55	1	53	1
Cluster 6					1	1	2	1	1
Cluster 7						2	54	2	1
Cluster 8							1	1	4
Cluster 9								1	1
Cluster 10									1

Table 4: Cluster analyses for items of comprehensive income statement

Variables	Variable's Significance								
	2 Cluster	3 Cluster	4 Cluster	5 Cluster	6 Cluster	7 Cluster	8 Cluster	9 Cluster	10 Cluster
Revenue	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Operating Profit/Loss	0.853	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Profit/Loss after tax	0.758	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Taxation	0.902	0.977	0.925	0.000	0.000	0.000	0.000	0.000	0.000
sales & administration Exp.	0.838	0.002	0.001	0.002	0.000	0.000	0.000	0.000	0.000
Cluster	Number of cases in each cluster								
Cluster 1	1	59	2	2	1	1	1	1	1
Cluster 2	61	2	3	1	1	1	2	9	1
Cluster 3		1	1	1	1	1	1	1	1
Cluster 4			56	55	3	50	1	1	48
Cluster 5				3	55	3	1	46	5
Cluster 6					1	5	46	1	1
Cluster 7						1	9	1	1
Cluster 8							1	1	2
Cluster 9								1	1
Cluster 10									1

Table 5: Results of regression models (Statement of financial position)

Dependent variables	Independent variables			
	Total Assets	Revenue	Operating Profit/loss	Profit/Loss after Tax
Intangible assets				
r2	0.002	0.001	0.001	0.002
B	2.664	-0.002	-0.261	0.142
Sig	0.765	0.862	0.773	0.704
Constant	164.622	176.662	181.771	158.869
Sig C	0.214	0.175	0.169	0.238
PPE				
r2	0.328	0.001	0.306	0.263
B	-0.681	0.000	-0.067	-0.026
Sig	0.000	0.894	0.000	0.000
Constant	0.037	-2.353	-0.278	0.381
Sig C	0.984	0.294	0.883	0.848
Goodwill				
r2	0.227	0.001	0.138	0.112
B	-0.765	0.000	-0.061	-0.023
Sig	0.000	0.098	0.003	0.008
Constant	-2.321	-5.043	-3.115	-2.581
Sig C	0.392	0.832	0.275	0.383
Net assets				
r2	0.170	0.000	0.201	0.145
B	-7.188	0.000	-0.798	-0.279
Sig	0.001	0.970	0.000	0.002
Constant	15.725	-9.256	15.165	20.290
Sig C	0.607	0.778	0.611	0.520
Deferred Tax Assets				
r2	0.000	0.001	0.013	0.004
B	-0.102	-0.002	-0.432	-0.102
Sig	0.983	0.770	0.017	0.611
Constant	158.161	160.389	170.939	168.572
Sig C	0.029	0.024	0.375	0.022
Total Current Assets				
r2	0.006	0.000	0.033	0.030
B	-0.060	0.000	-0.015	-0.006
Sig	0.554	0.979	0.156	0.182
Constant	0.508	0.306	0.743	0.897
Sig C	0.734	0.835	0.613	0.552
Trade & other receivable				
r2	0.017	0.001	0.000	0.000
B	0.050	0.000	0.000	0.000
Sig	0.331	0.884	0.925	0.898
Constant	-1.004	-0.847	-0.848	-0.862
Sig C	0.185	0.257	0.263	0.266

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Total Non-Current liabilities				
r2	0.008	0.001	0.015	0.001
B	1.661	-0.001	-0.234	0.029
Sig	0.494	0.803	0.038	0.775
Constant	62.254	69.106	75.116	64.914
Sig C	0.087	0.054	0.343	0.080
Total Current liabilities				
r2	0.013	0.000	0.015	0.012
B	0.143	0.000	0.015	0.006
Sig	0.371	0.896	0.351	0.401
Constant	0.763	1.219	0.794	0.662
Sig C	0.747	0.601	0.735	0.783
Total Liabilities				
r2	0.027	0.004	0.002	0.008
B	0.280	0.000	0.008	0.006
Sig	0.203	0.638	0.733	0.499
Constant	10.713	11.873	11.447	11.021
Sig C	0.002	0.000	0.001	0.001

difference for the operating profit/loss as a dependent variable at 5 percent level of significance. In addition to these results, the table discloses that intangible assets, total current assets, total current liabilities and total liabilities are not showing significant difference for any dependent variables. Concisely, these results reveal that despite visible differences across all items of the statement of financial position, the significant differences have obtained only in case of PPE, goodwill, net assets, deferred tax assets and total non-current liabilities.

Table 6 divulges the regression results for the independent variables as gross profit/loss, sales & administration expenses, finance cost and taxation of comprehensive income statement corresponding to the former four dependent variables. This table depicts that sales & administration expenses explain 74.0 percent, 54.3 percent and 22.8 percent variance in total assets, operating profit/loss and profit/loss after tax correspondingly and the difference is significant at 5 percent level. The table also exposes the gross profit/loss having significant difference at 5 percent level for the same dependent variables as have been impacted by sales & administration expenses. However, no independent variables present significant difference for the revenue as a dependent variable.

Table 7 presents the results of correlation between all dependent and independent variables set out in Table 5 and Table 6. The results report that both intangible assets and total non-current liabilities have positive correlation with dependent variables total assets and profit/loss after tax, and have negative correlation with revenue and operating profit/loss. In addition to this, trade & other receivables, total current liabilities, total liabilities and gross profit/loss reveal positive correlation for all the four

Table 6: Results of regression models (Comprehensive income statement)

Dependent variables	Independent variables			
	Total Assets	Revenue	Operating Profit/loss	Profit/Loss after Tax
r2	0.114	0.023	0.135	0.081
B	0.173	0.000	0.019	0.006
Sig	0.007	0.244	0.003	0.025
Constant	-0.988	-0.249	-0.975	-1.037
Sig C	0.288	0.794	0.286	0.282
Sales & administration Exp				
r2	0.740	0.001	0.543	0.228
B	-0.246	0.000	-0.068	-0.018
Sig	0.033	0.838	0.000	0.000
Constant	-3.936	-4.832	-2.712	-2.867
Sig C	0.022	0.006	0.023	0.069
Finance Cost				
r2	0.006	0.000	0.012	0.003
B	1.802	0.000	-0.254	0.051
Sig	0.543	0.884	0.400	0.680
Constant	42.178	49.196	56.110	42.990
Sig C	0.337	0.255	0.199	0.337
Taxation				
r2	0.001	0.000	0.001	0.003
B	0.149	0.000	0.024	-0.015
Sig	0.851	0.902	0.767	0.654
Constant	-11.558	-11.222	-11.771	-9.467
Sig C	0.328	0.332	0.316	0.429

Table 7: Correlation between variables

Dependent variables	Independent variables			
	Total Assets	Revenue	Operating Profit/loss	Profit/Loss after Tax
PPE	Negative	Positive	Negative	Negative
Goodwill	Negative	Positive	Negative	Negative
Net assets	Negative	Positive	Negative	Negative
Deferred Tax Assets	Negative	Negative	Negative	Negative
Total Current Assets	Negative	Positive	Negative	Negative
Trade & other receivable	Positive	Positive	Positive	Positive
Total Non Current liabilities	Positive	Negative	Negative	Positive
Total Current liabilities	Positive	Positive	Positive	Positive
Total Liabilities	Positive	Positive	Positive	Positive
Gross profit/loss	Positive	Positive	Positive	Positive
Sales & administration Exp	Negative	Positive	Negative	Negative
Finance Cost	Positive	Positive	Negative	Positive
Taxation	Positive	Positive	Positive	Negative

dependent variables. The other remaining independent variables bear both positive and negative correlation with each dependent variable.

Conclusion

The study reveals that convergence with IFRS brought significant variations in the value of total non- current assets, total current assets, total assets, equity, total liabilities, revenue, operating profit/loss and Profit/loss after tax. The transition from UK GAAP to IFRS has had statistically significant impact on the intangible asset, total assets, equity, revenue, operating profit/ loss, profit/loss after tax and sales & administration expenses for different clusters. Similarly, the regression results discerned significant impact of key financial statement items such as PPE, goodwill, net assets, gross profit/ loss and sales & administration expenses on total assets, operating profit/ loss and profit/loss after tax. No prominent effect of intangible assets, total current assets, total current liabilities, total liabilities, finance cost and taxation expenses on total assets, revenue, operating profit/loss and profit/ loss after tax has been revealed. The results of our study are consistent with the study of Stent *et al.* (2010) which revealed that due to convergence with IFRS in New Zealand, there was significant difference in total assets, total equity and net profit. To some extent our results are consistent with Lantto and Sahlstrom (2009) that equity and net profit have significant difference at 5 percent level. The results of our study are also consistent with the study of Silva and Couto (2007) which noted the impact of IFRS on the reporting of Portugal firms that reported positive variation in the average of total assets, total equity, total liabilities, profit/loss before tax and profit/ loss after tax. The results of this study indicate towards important policy implications not only for the companies going to converge their accounts with IFRS, but also the accounting profession and the investors' community at large.

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Is M&A Wealth Creation Vehicle for Business Houses in India? Case of the Tata Group of Companies

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The Indian researchers examined corporate performance using financial ratios to evaluate impact of M&A associated with an industry or a single company as a case study. This article deals with empirical study in the Indian context of M&A deals of a single Business House. It studies whether M&A have a positive impact on the corporate performance of the acquiring companies and on their shareholders wealth.

Introduction

The M&A activities in the world rose to unprecedented level. This reflects the powerful change force in the world economy. In fact this responded to the changes, which took place due to high level of technology changes, reduction in cost of communication and transportation that created international market, increased competition and emergence of new industries. Favorable economic, financial environment and deregulation of most of the economies also motivated mergers and takeovers. M&A was prevalent in India right from the post independence period, but due to Government regulations like Industrial Development and Regulation Act of 1951, MRTP Act, FERA Act only a very few M&A took place in India prior to 1990s. But policy of decontrol and liberalization coupled with globalization of the economy after 1980s, especially after liberalization in 1991 had exposed the corporate sector to severe domestic and global competition. In that context, Indian business houses started increasingly resorting to M&A as a means to growth. The business group companies namely the Tata, United Breweries, Reliance, Essar, Godrej, Bharti Enterprises, Aditya Birla, ITC, Wadia and Binani had resorted to M&A as a tool for corporate restructuring which included expansion, contractions, divestures, joint ventures and turnarounds.

The Tata Group had 126 M&A deals from April 1988 to March 2008 diverse in seven sectors like Information Systems and Communications, Engineering, Materials, Services, Energy, Consumer products and Chemicals. They were the first to go for cross border acquisition of Tetley in England, takeover of prestigious car brands of the world like Jaguar and Land Rover and highest valued deal by an Indian company of $12 billion of Corus steel. The group's

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27 public listed enterprises have a combined market capitalization of around $60 billion, which is the highest among Indian business houses, and a shareholder base of 3.2 million. The group's major companies are counted globally. Tata Chemicals is the world's second largest manufacturer of soda ash and Tata Communications is one of the world's largest wholesale voice carriers.

Literature Review

George Coontz (2004) found that merger or acquisitions in the 15 firm sample listed on the S&P 500 Index do not on average improve shareholder wealth of the acquiring firm rather it actually decreases it. Michail Pazarskis, Manthos Vogiatzogloy, Petros Christodoulou, and George Drogalas (2006) examined empirically the impact of M&A on the operating performance of M&A involved firms in Greece and found that there is strong evidence that the profitability of a firm decreased due to the M&A event. Pramod Mantravadi and A. Vidyadhar Reddy (2007) studied that type of industry, does seem to make a difference to the post-merger operating performance of acquiring firms. S.Vanitha and M. Selvam (2007) examined the financial performance of merged manufacturing companies and drew conclusion that the merging companies were taken over by companies with reputed and good management and therefore, it was possible for the merged firms to turn around successfully in due course. Carl B. McGowan and Zunaidah Sulong (2008) examined the effect of M&A completion announcements on the stock price behavior for two anchor banks in Malaysia and event study show that the M&A completion announcements are treated as positive information by the market.

Trends of Mergers and Acquisitions in India

Prior to 1991 there were only cases of Merging another companies and Being merged into another companies. Takeover cases started only in the year 1996 and then onwards this mode of M&A has gained importance. In the year 1997, Securities and Exchange Board of India (SEBI) introduced the "Substantial Acquisition of Shares and Takeovers, Regulations, 1997" with disclosure norms on takeovers. This made companies to disclose taking over ownership stake in the target company. The number of deals really picked up in the year 1999 with total of 1453 deals as compared to only 172 deals in 1998. There was a percentage change of almost 966% in 1999. The internet bubble had a negative impact which resulted in a decline of 22% in the number of deals in 2001. The years 2007 and 2008 saw decline in the deals by 2% and 24% respectively due to the global credit crises. The transactions of Being taken over recorded more than any other type of transactions with 736 deals in 2007. The acquiring and selling assets deals over the time has shown a decreasing trend from the year 2000 to 2008. The industry giants took over smaller companies in their operating industries. Few large companies took over smaller companies.

Starting with the year 1996, the sale of asset dominated the scene of M&A in India with value of Rs. 148030 million. Sale of asset generally is carried out to sell off businesses which becomes unprofitable for the company or if

the company wants cash for expansion of existing businesses. Mostly companies having more than one or many business operations running in different industries go for sale of asset. In the year 1997, transactions of companies being taken over were highest in comparison with other type of transactions, because of the revisions made in the takeover code by SEBI. The bidders preferred taking over the whole company rather than buying assets or part of the company. This pattern is observed throughout the period from 1997 to 2008. The deal values have increased at an unprecedented level from merely Rs. 206218 millions in the year 1996 to 9.41 billions at the end of year 2008. In 2006, the deal value of taking over ownership reached at its peak. A decline of 54% is noticed in the deal value similar to the decrease in the number of deals for 2007 and 2008. The global credit crisis was responsible for the decline in number and value of M&A deals in India for the year 2008.

Comparison of M&A Transactions of Business Groups in India

Tata is a rapidly growing Business Group based in India with significant international operations. Their international operations earn them around 61% of their total revenue. The group employs around 350,000 people worldwide. The Tata Group is the most diverse group in terms of its operations as compared to other business groups in India. They operate in seven major sectors with 102 companies in over 80 countries producing myriad type of products. There are 126 M&A deals recorded to their credit which is highest among all the business groups of India beginning from 1988 to 2008.

There are 25 companies in Automotive sector of Tata Group of Companies where Tata Motors is major acquirer. It can be seen that highest number of M&A deals are in the Consumer products sector which are 25 where Tata Tea and Tata Coffee are the major acquiring companies. The Automotive sector has 17 deals, followed by the Tata Power in the Energy sector with 16 deals. The Indian Hotel company also has been very aggressive with 15 deals which helped them expand geographical not only in India but also overseas. In the Communications sector the company Tata Communications is the major acquirer having majority of cross border acquisitions. This helped them expand globally and tap new emerging markets. On the other hand Tata Consultancy Services, an IT major in India has been the company with maximum number of acquisitions in the IT business sector area of the Tata group. The dominant player in the Chemical sector is Tata Chemical with 5 M&A deals, and Rallis India with 3 deals. Tata Steel is also helping the Tata Group to expand globally and create wealth which became the sixth largest steel maker in the world after it acquired Corus.

Methodology

The study examines the impact of M&A on Corporate performance and Shareholders wealth. Twelve acquiring companies of the Tata Group are taken as sample for the period 1996 to 2008 and source of data is CMIE Prowess. The 't-Test: Paired Two Sample for Means' and Cumulative Abnormal Returns (CAR) are used for analysis

Hypotheses

In order to test the validity of the null hypothesis framed for the objective of impact on   Corporate performance, i.e.

H_1: There is no improvement in Profitability, Operational Efficiency and Asset Utilization Capacity, Liquidity and Solvency of the companies from M&A

The Financial and Operating Performance of the 12 acquiring companies of Tata group Pre and Post of M&A event have been analyzed with the help of nine Financial Accounting ratios. They are classified into three categories, which are Profitability, Operational Efficiency and Asset Utilization, and Liquidity and Solvency. Under Profitability, the ratios are Operating profit Margin (OPM), Net profit Margin (NPM), Return on net worth (RONW) and Return on capital employed (ROCE). In Operational Efficiency and Asset Utilization the ratios are Asset Turnover Ratio (ATR) and Return on Total Assets (ROTA). For Liquidity and Solvency the ratios are Quick Ratio (QR), Current Ratio (CR) and Debt-equity ratio (DE).

In order to test the validity of the null hypothesis framed for the objective of impact on shareholders wealth, i.e.

H_2: Cumulative Abnormal Return has not been positive Post M announcement.

The adjusted market model has been used to calculate the abnormal returns. Abnormal return (AR) is calculated as the difference between a certain stock's return (R i,t) on day t, and the market return(R m,t) on day t.

Adjusted Market Model

$$AR_{i,t} = R_{i,t} - R_{m,t} \tag{1}$$

The Cumulative Abnormal Returns (CAR) is the sum of the abnormal returns, that is,

$$CAR_s = \sum_{t=K}^{L} AR_{i,t} \tag{2}$$

Where K to L are days surrounding the M&A announcement.

CAR is calculated for the distinct window periods for Pre announcement period and Post announcement period. Three Event Windows are selected in pre-announcement period viz. t-5 (5 days before announcement date), t-10 (10 days before announcement date) and t-20 (20 days before announcement date). Similarly, three Event Windows are selected for post-announcement period viz. t+5 (5 days after announcement date), t+10 (10 days after announcement date) and t+20 (20 days after announcement date). The CAR calculated for Pre announcement periods are compared to the respective Post announcements periods to examine the impact of M&A on shareholders wealth of respective acquiring companies.

Corporate Performance of Tata Group of Companies after M&A

The Table 1 discloses the Profitability ratios of sample acquiring companies during Pre and Post M&A period. In the test of Operating Profit Margin (OPM)

Table 1: Profitability ratios of The Tata Group Of Companies

Name of Company	Ratios	Mean		% Change	t statistics	p value
		Pre	Post			
TRF	ATR	107.6602	105.0005	-2.47	0.0724	0.9489
	OPM	9.3867	7.2933	-22.30	1.8303	0.2085
		(3.92)	(4.81)		(NS)	
	NPM	4.0167	2.9900	-25.56·	0.8268	0.4953
		(2.899)	(3.611)		(NS)	
TRF	RONW	9.59	7.7333	-19.36	0.2913	0.7983
		(5.0372)	(12.7701)		(NS)	
	ROCE	34.2204	27.9717	-18.26	0.8193	0.4987
		(7.6584)	(20.8514)		(NS)	
	OPM	5.6767	4.5533 .	-19.79	1.4226	0.2908
		(l.4814)	(0.3113)		(NS)	
	NPM	0.8233	2.5233	206.48	-4.7848**	0.0410
Voltas India		(0.318)	(0.297)			
	RONW	-6.9733	6.7767	-197.18	-3.3123*	0.0803
		(3.8123)	(10.9582)			
	ROCE	16.7096	18.5377	10.94	-0.3913	0.7334
		(5.4082)	(2.7946)		(NS)	
	OPM	4.9667	ll.4133	129.80	-1.4516	0.2837
		(6.375 I)	(l.5237)		(NS)	
	NPM	-l.94	6.2833	-423.88	-1.9540	0.1899
Rallis India		(6.375)	(1.527)		(NS)	
	RONW	-60.1067	11.51	-119.15	-4.6935**	0.0425
		(30.1592)	(10.3215)			
	ROCE	7.2098	2l.26857	195'	-0.7399	0.5364
		(32.5713)	(0.3391)		(NS)	
	OPM	25.6567	20.53	-19.98	1.1325	0.3749
		(5.0849)	(2.8406)		(NS)	
	NPM	8.79	10.86	23.55	-0.9049	0.4610
Tata Chemicals		(1.1930)	(3.0067)		(NS)	
	RONW	8.34	23.Q433	176.30	-4.1887*	0.0525
		(2.7442)	(6.0351)			
	ROCE	16.8508	18.4594	9.55	.-0.7398	0.5365
		(2.1368)	(2.8044)		(NS)	
	OPM	21.7133	17.5133	-19.34	1.1269	0.3768
		(3.78)	(2.72)		(NS)	
	NPM	11.1433	7.8933	-29.17	0.8515	0.4842
Tata Tea		(2.982)	(3.670)		(NS)	
	RONW	25.3333	7.67333	-69.71	3.6714*	0.0668
		(5.9273)	(2.4135)			
	ROCE	29.2588	13.30~7	-54.53	4.6659**	0.0430
		(4.9298)	(l.4014)			
	OPM	33.7133	29.5367	-12.40	2.9843*	0.0963
		(1.0225)	(1.4025)			
	NPM	13.5933	11.0667	-18.59	2.5873	0.1225
Tata Power		(1.022)	(1.402)		(NS)	
	RONW	11.1133	11. 7333	5.58	-0.8277	0.4949
		(1.2375)	(0.2122)		(NS)	

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Company		Ratio					
	ROCE	12.8343 (l.0703)	14.5205 (0.9708).	13.14	-9.8484**	0.0102
Indian Hotels	OPM	29.2133 (4.085)	27:73 (3.111)	-5.08	0.3784 (NS)	0.7415
	NPM	(8.496)	(3.294)	-36.68	0.6068 (NS)	0.6057
	RONW	8.1633 (5.9809)	7 (5.4900)	-14.25	0.1780 (NS)	0.8751
	ROCE	11.7799 (2.8707)	10.1291 (2.8240)	-14.01	0.5070 (NS)	0.6625
Tata Communications	OPM	31.19 (1.9727)	20.7833 (9.7381)	-33.37	2.2580 (NS)	0.1525
	NPM	19.3033 (2.898)	6.4667 (9.953)	-66.50	2.8805 (NS)	0.1023
	RONW	21.5433 (5.9788)	3.7133 (7.99[8)	-82.76	5.3340**	0.0334
	ROCE	34.4007 (10.2516)	10.6837 (6.7302)	-68.94	3.7625*	0.0639
Tata Motors	OPM	8.23 (2.1215)	10.7767 (0.3512)	30.94'	-2.3447 (NS)	0.1437
	NPM	-1.3133 (4.463)	6.0333 (0.2122)	-559.39	-2.8315 (NS)	0.1054
	RONW	-2.98 (12.5351)	31.48 (0.6465),	-1156.38	-4.5371 **	0.0453
	ROCE	9.821242 (11.6664)	28.4764 (0.7942)	189.95	-2.9712*	0.0970
Tata Investment Corporation	OPM	93.1167 (2.8007)	95.8867 (0.5301)	2.97	-1.4527 (NS)	0.2835
	NPM	82.4933 (4.238)	90.8733 (3.7886)	10.16	-1.9054 (NS)	0.1970
	RONW	16.27 (4.4809)	27.2533 (3.0282)	67.51	-2.5961 (NS)	0.1218
	ROCE	16.1977 (3.2588)	26.01571 (2.0124)	60.61	-3.2303*	0.0839
Tata Coffee	OPM	17.03 (2.3177)	18.3633 (1.8794)	7.83	-0.5505 (NS)	0.6373
	NPM	8.4133 (3.182)	9.61 (9.398)	14.22	-0.1668 (NS)	0.8829
	RONW	7.2667 (3.8279)	10.9133 (1.8005)	50.18	-1.6786 (NS)	0.2352
	ROCE	15.2717 (2.2720)	11.21236 (2.3547)	-26.58	1.6938 (NS)	0.2324
Tata Steel	OPM	21.54 (6.7621)	24.8367 (6.2689)'	15.30	-0.4523 (NS)	0.6954
	NPM	8.6533 (5.9387)	13.2033 (4.0609)	52.58	-0.8069 (NS)	0.5044
	RONW	23.5267 (19.1236)	46.8367 (17.1250)	99.08	-2.8614 (NS)	0.1035
	ROCE	24.3366 (14.6321)	29.9116 (13.8046)	22.91	1.0046 (NS)	0.4209

Note: 1. Figures given in the parenthesis indicate standard deviation
2. *** Significant at the 0.01 level, ** Significant at the 0.05 level,* Significant at the 0.1 level.
3. NS-Not Significant

ratio, four out of the twelve companies were able to successfully achieve a growth in their OPM after M&A. They are Rallis India, Tata Coffee, Tata Motors, Tata Investment Corporation, and Tata Steel showing a percentage increase of 129.8%, 7.8%, 30.94%, 2.97%, and 15.3% respectively. TRF, Tata Power, Voltas India, Indian Hotels, Tata Communications and Tata Chemicals, showed a decline of 22.03%, 12.39%, 19.79%, 5.08%, 33.37% and 19.98% for its post period mean. Only one result was significant that of Tata Power with t-statistic value of 2.9843 at 1% level of significance. The Chemical Company Rallis India had a Pre merger mean of 4.9667 and Post merger mean of 11.4133 showing an increase of 129.8%. Major decrease came from Tata Communications of 33.37% in its mean OPM of Post M&A period. The t-test brought out the fact that Tata Power was the only one among the sample companies which showed a statistically significant decline in OPM after acquisitions. Indicating that the impact of M&A on other company's OPM was negligible which can be noticed from the 't statistics' values. Higher the 't statistics' value more is the impact of M&A.

In the test of Net Profit Margin (NPM), seven companies showed positive results for the post period. The companies being Rallis India, Voltas India, Tata Coffee, Tata Motors, Tata Investment Corporation, Tata Steel and Tata Chemicals which showed 423.89%, 206.48%, 14.22%, 559.39%, 10.16%, 52.58% and 23.55% increase in their post mean. Only one result of NPM was significant like that of OPM result. Voltas showed significant increase at 5% level of significance. Whereas again the least performer was Tata Communications with a 66% decrease in its NPM in the Post period over the Pre period. Largest variations in the ratio in the pre period was seen in case of Rallis India with 6.375 and in Post period Tata Communications recorded the highest variation of 9.953.The Rallis India was able to turn the NPM from negative (-1.94) to positive (6.28) by overcoming losses and earning profits. It recorded the second highest positive percentage change in the mean NPM among all the sample companies. Highest positive change came from Tata Motors. Voltas India improved its NPM significantly with an increase of 206.47 % in the mean NPM(2.5233) in the post period compared to that of pre period mean(0.8233) with a t statistic value of -4.7848, and p=0.008<0.05 and hence significance at 5% level. Largest variations in the ratio in the Pre period was seen in case of Rallis India with 6.38 and in Post period Tata Communications recorded the highest variation of 9.95. The high variation in Post period of Tata Communications indicates that major changes in its NPM came after the acquisition as its Pre period standard deviation is only 2.9.

It can be noted that the eight companies showed an improvement in their Return on Net Worth ratio (RONW) in the Post period indicating more net worth was added through M&A. Tata Power, Rallis India, Voltas India, Tata Coffee, Tata Motors, Tata Investment Corporation, Tata Steel and Tata Chemicals showed improvement in the Post period over their Pre period performance recording a percentage change of 5.58%, 50.18%, 1156.38%, 67.51%, 99.08% and 176.3% respectively. Whereas TRF, Tata Tea, Indian Hotels and Tata Communications had recorded decline in their Post period mean RONW ratio by 19.36%, 69.71%, 14.25%, and 82.76%. There were five

statistical significant results of which Rallis India and Tata Motors showed significant increase at 5% level and Voltas India at 10% level of significance. Whereas Tata Tea and Tata Communications showed significant decrease at 10% and 5% level of significance respectively. The major decrease was noticed for Tata Communications. The mean RONW of Tata Tea declined from 25.33 % in the Pre period to 7.67 % in the Post period, which showed a decline by -82.76 % and the difference is significant at 10% level (t value=3.6714, p<0.10). Highest percentage change was noticed in the RONW value of Tata Motors of 1156.38% from Pre mean of mere -2.98% to 31.48 % during the Post period. Highest variation in the ratio for the Pre period is seen in the Rallis India with standard deviation of 30.16 whereas highest standard deviation in the Post period has been being recorded by Tata Steel of 17.13.

In the test of Return on capital employed (ROCE), seven companies showed improvement for the post period. Tata Power, Rallis India, Voltas India, Tata Motors, Tata Investment Corporation, Tata Steel and Tata Chemicals showed increase in their mean ROCE ratio in the post period by 13%, 195%, 11%, 189%, 60%, 23% and 9.5% respectively. Whereas the remaining five companies TRF, Tata Tea, Indian Hotels, Tata Communications and Tata Coffee showed a decline of 18.26%, 54.53%, 14.01%, 68.94%, and 26.58% respectively. Tata Communications decreased its mean ROCE after acquisition by over 68% which is also statistically significant. Significant fall is also noticed in Tata Tea ROCE with over 54% decline in the post M&A period over the pre M&A period with t value of 4.6659 significant at 5 % level. It is noticed that Tata Power recorded increase in its ROCE by 13% which was significant at 5% level. The other significant increases are noticed in the ROCE of Tata Motors and Tata Investment Corporation whereas the t-values of other companies which were insignificant at the required probability levels indicates that the increase or decrease in the ROCE between pre and post M&A period is quite negligible. In other words, it can be said that the increase or decrease in ROCE is not related to M&A.

The Table 2 shows the impact of M&A on Operational Efficiency and Asset Utilization of the Sample Companies of Tata Group of Companies. In the test of Asset Turnover Ratio (ATR), six companies have shown a decline in the ratio indicating a decline in their Operating efficiency. TRF, Tata Tea, Rallis India, Indian Hotels, Tata Communications and Tata Coffee showed a decline in their mean ratio of Post period over the mean of Pre period by 2.47%, 24.67%, 0.72%, 4.21%, 29.68% and 25.77% respectively.

The highest decrease was noticed in Tata Communications of 29.67% but not statistically significant. Both the beverage companies of the Tata group, Tata Tea and Tata Coffee noticed a statistical significant fall in their mean ATR. The finance company of the Tata group, Tata Investment Corporation recorded the highest percentage increase of 51.92% in its ATR with pre mean of 16.4762 and post mean of 25.0314 showing significance at 10% level. Also least variations are seen in its ratio as compared to other sample companies. Six companies showed an increase in the mean ratio for the post period and they are Tata Power, Voltas India, Tata Motors, Tata

Table 2: Operational efficiency and asset utilization ratios

Name of Company	Ratios	Mean		% Change	t statistics	p value
		Pre	Post			
TRF	ATR	107.6602 (50.6431)	105.0005 (17.7277)	-2.47	0.0724 (NS)	0.9489
	ROTA	7.7453 (1.2523)	6.8521 (5.2876)	-11.53	0.3821 (NS)	0.7392
Voltas India	ATR	123.9803 (21.3638)	140.2306 (2.8079)	13.11	-1.4873 (NS)	0.2753
	ROTA	5.3467 (2.7114)	5.5529 (0.5331)	3.86	-0.110 I (NS)	0.9224
Rallis India	ATR	129.1878 (7.7858)	128.2569 (7.8826)	~0.72	0.2023 (NS)	0.8584
	ROTA	3.1416 (12.7097)	11.1035 (1.6510)	253.43	-0.9605 (NS)	0.4382
Tata Chemicals	ATR	16.4762 (2.7772)	25.0314 (1.7208)	51.92	-3.2948*	0.0811
	ROTA	15.7146 (2.6678)	24.0059 (1.7702)	52.76	-3.2413*	0.0834
Tata Tea	ATR	96.4422 (7.2119)	72.6507 (10.1171)	-24.67	6.7903**	0.0210
	ROTA	20.0932 (3.8294)	10.1038 (1.9147)	-49.72	3.0704*	0.0917
Tata Power	ATR	37.7053 (2.4533)	54.3092 (8.4047)	44.04	-2.9440*	0.0986
	ROTA	11.0971 (0.6962)	12.1275 (1.0511)	9.29	-3.2975*	0.0801
Indian Hotels	ATR	34.8452 (6.9820)	.33.3794 (7.9429)	-4.21	0.17330 (NS)	0.8784
	ROTA	8.9500 (3.6716)	7.3239 (2.95~3)	-18.17	0.4335 (NS)	0.7069
Tata Communications	ATR	72.3659 (12.9052)	50.8890 (16.3517)	-29.68	1.2917(NS)	0.3256
	ROTA	23.1332 (5.8661)	6.5560 (5.9763)	-71.66	4.0566*	0.0557
Tata Motors	ATR	112.2797 (23.6152)	170.2773 (11.7374)	51.65	-7.4516**	0.0175
	ROTA	4.4167 (5.0217)	15.5818 (1.6475)	252.79	-5.7150**	0.0293
Tata Investment Corporation	ATR	68.5119 (5.3343)	50.8555 (8.1047)	-25.77	2.4655 (NS)	0.1326
	ROTA	9.9199 (1.4612)	8.0815 (1.4562)	-18.53	1.1389 (NS)	0.3728
Tata Coffee	ATR	53.5282 (15.2101)	67.4825 (17.4555)	26.07	-0.8070 (NS)	0.5044
	ROTA	10.7797 (1.3548)	11.2690 (0.9056)	4.54	-1.0255 (NS)	0.4130
Tata Steel	ATR	74.3517 (11.5783)	. 87.3604 (28.7468)	17.5	-0.7147 (NS)	0.5490
	ROTA	12.6793 (7.3796)	18.9041 (6.9170)	49.09	-0.7985 (NS)	0.5083

Note: 1. Figures given in the parenthesis indicate standard deviation
    2. *** Significant at the 0.01 level, ** Significant at the 0.05 level,* Significant at the 0.1 level.
    3. NS-Not Significant

Investment Corporation, Tata Steel, and Tata Chemicals showing a percentage change of 44.04%, 13.11%, 51.65%, 51.95%, 17.5% and 26.07% respectively.

The test of Return on Total Assets (ROTA), seven companies increased their mean ratio in the post period. Tata Power, Rallis India, Voltas India, Tata Motors, Tata Investment Corporation, Tata Steel, and Tata Chemicals showed an increase in the post mean ratio by 9.29%, 253.43%, 3.86%, 253.43%, 52.76%, 49.09% and 4.5% respectively. Whereas TRF, Tata Tea, Indian Hotels, Tata Communications and Tata Coffee showed decline by 11.53%, 49.72%, 18.17%, 71.66 % and 18.53% respectively. And five values were statistically significant which are Tata Tea, Tata Power, Tata Communications, Tata Investment Corporation showed significance at 10% level and Tata Motors Ltd at 5% level of significance. The five companies which showed a decline in their ROTA indicates under utilization of their assets. Tata Communications showed the highest decrease of 71.66% with the t statistic value of 4.0566 significant at 10% level. Tata Tea stood second in decrease with 49.71% showing statistical significance at 10% level.

The Table 3 shows impact of M&A on the Liquidity and Solvency Ratios of the acquiring Tata Group of Companies. The Quick Ratio (QR) test showed an increase for six companies in the post period and they are TRF, Voltas India, Indian Hotels, Tata Coffee, Tata Motors, Tata Steel, and Tata Chemicals

Table 3: Liquidity and solvency ratios

Name of Company	Ratios	Mean		% Change	t statistics	p value
		Pre	Post			
TRF	QR	0.4467 (0.1069)	0.6667 (0.0723)	49.25	-2.3677 (NS)	0.1415
	CR	1.1433 (0.0153)	1.2233 (0.0493)	7	-2.6186 (NS)	0.1201
	DE	1.3567 (0.2650)	0.5667 (0.4665)	-58.23	2.0962 (NS)	0.1710
Voltas India	QR	0.43 (0.1 044)	0.6967 (0.0306)	62.02	-4.3579***	0.0488
	CR	1.0J33 (0.0802)	1.1733 (0.0451)	15.79	-2.4400 (NS)	0.1348
	DE	1.29· (0.0624)	0.5567 (0.0681)	-56.85	14.1715***	0.0049
Rallis India	QR	0.7 (0.0954)	0.5333 (0.0473)	~23.81	2.8537 (NS)	0.1040
	CR	J.33 (0.1587)	1.32 (0.1015)	-0.75	0.2847 (NS)	0.8026
	DE	4.9967 (3.1550)	0.6233 (0.~278)	-87.53	2.1486 (NS)	0.1647
Tata Chemicals	QR	0.3767 (0.0862)	0.4133 (0.0874)	9.73	-0.4308 (NS)	0.7086
	CR	1.34 (0.1609)	0.83 (0.1082)	-38.06	3.7362*	0.0648
	DE	0.5267 (0.1617)	0.9533 (0.3121)	81.01	-1.6820 (NS)	0.2346

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	QR	0.7633 (0.2318)	0.55 (0.0985)	-27.95	1.3806 (NS)	0.3014
Tata Tea	CR	1.4633 (0.2335)	1.2967 (0.1818)	-11.39	0.7271 (NS)	0.5428
	DE	0.7167 (0.1724)	.0.7133 (0.8116)	-0.47	0.0059 (NS)	0.9958
	QR	0.7667 (0.2768)	0.5667 (0.0757)	-26.09	1.2901 (NS)	0.3261
Tata Power	CR	1.35 (0.3251)	1.1733 (0.0404)	-13.09	1.0500 (NS)	0.4039
	DE	0.7133 (0.0379)	0.5767 (0.1210)	-19.16	2.7456 (NS)	0.1110
	QR	0.5733 (0.1193)	1.2967 (0.3808)	126.16	-2.5070 (NS)	0.1290
Indian Hotels	CR	1.1733 (0.2875)	1.52 (0.3005)	29.54	-1.5172 (NS)	0.2685
	DE	0.78 (0.4993)	1.4067 (0.5658)	80.34	-1.0258 (NS)	0.4129
	QR	1.63 (0.1706)	0.57 (0.4854)	-65.03	5.6154**	0.0303
Tata Communications	CR	2.1667 (0.2250)	0.95 (0.7454)	-56.15	2.6862 (NS)	0.1151
	DE	0.0567 (0.0551)	0.29 (0.2571)	411.76	-1.8596 (NS)	0.2040
	QR	0.34 (0.0557)	'0.3533 (0.1012)	3.92	-0.2097 (NS)	0.8534
Tata Motors	CR	0.7733 (0.0231)	0.6633 (0.0681)	-14.22	4.1576*	0.0532
	DE	0.9267 (0.3502)	0.6967 (0.2230)	-24.82	0.7338 (NS)	0.5394
	QR	1.8167 (2.2902)	0.2267 (0.2250)	-87.53	1.3256 (NS)	0.3161
Tata Investment Corporation	CR	2.1267 (2.8253)	0.2433 (0.2194)	-88.56	1.2466 (NS)	0.3388
	DE	0.0767 (0.0404)	0.0033 (0.0058)	-95.65	3.3550*	0.0785
	QR	0.33 (0.04)	0.5733 (0.2290)	73.73	-1.8918 (NS)	0.1991
Tata Coffee	CR	1.22 (0.0458)	1.3833 (0.2627)	13.388	-1.2261 (NS)	0.3449
	DE	0.4833 (0.0814)	2.07 (1.1432)	328.28	-2.3005 (NS)	0.1481
	QR	0.2567 (0.0513)	0.85 (0.4952)	231.17	-1.9518 (NS)	0.1902
Tata Steel	CR	0.6033 (0.0929)	1.3667 (0.4751)	126.52	-2.4466 (NS)	0.1342
	DE	1.36 (0.6065)	0.9533 (0.7295)	-29.90	0.6391 (NS)	0.5882

Note: 1. Figures given in the parenthesis indicate standard deviation
2. *** Significant at the 0.01 level, ** Significant at the 0.05 level,* Significant at the 0.1 level.
3. NS-Not Significant

showing a percentage change of 49.25%, 62.02%, 126.16%, 73.74%, 3.92%, 231.17% and 9.73% respectively. Whereas Tata Power, Tata Tea, Rallis India, Tata Communications and Tata Investment Corporation showed a decline in their mean ratio of post period over the mean of pre period by 26.09%, 23.81%, 65.03% and 87.53% respectively. In all only two results were statistically significant, which are Voltas India and Tata Communications at 5% level of significance. The Indian Hotel improved its QR showing highest percentage change among other Tata Group of companies. The decline indicates that there is more debt incurred in post M&A period and the increase in the QR is attributed to the fact that acquired companies had a better quick ratio and being added to the acquiring sample companies.

For Current Ratio (CR) test, the five companies which improved their ratio in the post period are TRF, Voltas India, Indian Hotels, Tata Coffee and Tata Steel by 7%, 15.79%, 29.55%, 13.38% and 126.52% respectively. Whereas Tata Tea, Tata Power, Rallis India, Tata Communications, Tata Motors, Tata Investment Corporation and Tata Chemicals showed decrease in values in the post period as compared to the pre period by 11.39%, 13.09%, 56.15%, 14.22%, 88.565 and 38.06% respectively. Again like QR two significant values were obtained for Tata Motors and Tata Chemicals at 10% level of significance. The increase is attributed to the event of current assets of acquired companies being added to the acquiring sample companies. The other companies had negligible changes in their CR.

The Debt Equity ratio (DE) test revealed that eight companies reduced their debt in the post M&A period. TRF, Tata Tea, Tata Power, Rallis India, Voltas India, Tata Motors, Tata Investment Corporation and Tata Steel reduced their DE by 58.23%, 0.47%, 19.16%, 87.53%, 56.85%, 24.82%, 95.65% and 29.92% respectively. This indicates that the funds brought in from the acquired companies were able to meet the debt claims. Indian Hotels, Tata Communications, Tata Coffee, and Tata Chemicals increased their DE by 80.34%, 411.76%, 328.28% and 81.01% respectively as these companies added long term debt to their balance sheets. It indicates that the acquisitions were financed by debt and the acquiring companies already had debt in their balance sheets. Also it is inferred that the target companies had considerable debt in their balance sheets. The results for only two companies, Voltas India and Tata Investment Corporation were significant at 10% and 1% level of significance respectively. Implying, that M&A had a significant impact on their DE and thereby an impact on their overall solvency.

Table 4 summarizes the significant and non significant results. A total of 108 't statistics' values were obtained of which only 28 were significant and 80 were insignificant. Out of the 28 values, 13 were of profitability, 9 of operational efficiency and asset utilization and 6 of liquidity and solvency parameters.

TRF, Indian Hotels, Tata Coffee and Tata Steel did not obtained any significant variables in any of the parameter indicating that M&A did not have significant impact on their Corporate performance. Tata Communications and Tata Tea obtained significant values for their decrease in their respective variables indicating that the acquisitions made by them had a negative impact on

Table 4: Consolidated T-Statistics values of the ratios

Name of Company	Profitability			Operational Efficiency and Asset Utilization			Liquidity and Solvency		
	OPM	NPM	RONW	ROCE	AT	ROTA	OR	CR	DE
TRF	NS	NS	NS	NS	NS	NS	NS	NS	NS
Voltas India	NS	S**	S*	NS	NS	NS	S**	NS	S***
Rallis India	NS	NS	S**	NS	NS	NS	NS	NS	NS
Tata Chemicals	NS	NS	S*	NS	NS	NS	NS	S*	NS
Tata Tea	NS	NS	S*	S**	S**	S*	NS	NS	NS
Tata Power	S*	NS	NS	S**	S*	S*	NS	NS	NS
Indian Hotels	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tata Communications	NS	NS	S**	S*	NS	S*	S**	NS	NS
Tata Motors	NS	NS	S**	S*	S**	S**	NS	S*	NS
Tata Investment Corporation	NS	NS	NS	S*	S*	S*	NS	NS	S*
Tata Coffee	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tata Steel	NS	NS	NS	NS	NS	NS	NS	NS	NS

Source: Compilation from Table 5, 6 and 7

Note: 1. *** Significant at the 0.01 level, ** Significant at. the 0.05 level, * Significant at the 0.1 level.
    2. NS-Not Significant

their corporate performance. Tata Tea recorded significant values for RONW, ROCE, ATR and ROTA. Ironically, the four variables were significant for the decrease in their value indicating that the acquisition negatively impacted its profitability, operating efficiency, asset utilization and liquidity. Indian Hotels which is a major part of the hotel and tourism sector of operations for Tata group achieved improvement only in its liquidity ratios. There was a negative impact seen on the variables of profitability, operating efficiency, asset utilization and solvency. Tata Power obtained significant values for improvement of ROCE, ATR, and ROTA, whereas significance obtained for OPM was for its decrease. Tata Chemicals Ltd achieved significant values for RONW and CR variable. The RONW showed an increase whereas CR showed a decrease.

It can be inferred that the M&A made by the company impacted its profitability and liquidity. Tata Investment Corporation achieved significant growth in its one profitability ratio and two asset ratios and obtained better solvency post acquisition. Only liquidity ratios showed a decline. Tata Communications was the worst performer as it showed decline in all the ratios and debt levels also increased in the post period. Tata Steel was the company which benefited the most from the acquisition as all its variables showed an improvement in their values. This indicates a positive impact of acquisition.

Impact of M&A on Shareholders Wealth

The results of Pre and Post period of CAR are analyzed in order to examine the impact of M&A on the Shareholders wealth of the twelve acquiring Tata group of companies. The Table 5 depicts that Tata Motors and Tata Steel were the only two companies which did not have any negative CAR values for all the post announcement window periods signifying that the companies were successful in adding value to their Shareholders wealth.

The 5 days window period is the shortest window period of the study. It shows the immediate reaction of the shareholders to the announcement of the M&A. Out of the twelve companies' nine companies had negative returns in the Post period. The acquisitions made by Tata Communication, Tata Motors and Tata Steel got a positive response and led to increase in the returns for their Shareholders in the Post period. It is observed with the aid of standard deviations calculated for the respective companies that the volatility is considerably less in the Post period as compared to the Pre period.

Table 5: CAR during Pre and Post announcement period for the window periods

Name of Company	Pre Announcement period			Post Announcement period		
TRF	15.02	20.38	9.85	-1.89	-9.52	-11.79
	(3.508)	(4.368)	(5.164)	(2.643)	(2.336)	(2.059)
Tata Tea	-1.97	-11.61	-6.57	-17.60	-23.10	-19.07
	(5.063)	(4.84)	(5.209)	(3.75)	(3.67)	(3.682)
Tata Power	-8.38	-2.20	3.38	-5.71	-10.42	4.04
	(1.92)	(1.43)	(0.775)	(2.039)	(2.06)	(3.27)
Voltas India	19.09	21.83	9.09	-5.74	-2.07	-3.82
	(3.09)	(3.58)	(3.26)	(2.49)	(2.32)	(1.92)
Indian Hotels	-7.22	-2.61	0.83	-1.17	2.02	3.03
	(1.089)	(1.03)	(1.02)	(0.89)	(1.14)	(1.09)
Tata Communications	13.40	9.40	-1.42	2.34	2.07	-9.58
	(2.49)	(3.03)	(3.10)	(0.90)	(1.62)	(2.60)
Rallis India	0.13	-0.66	-1.3 I	-3.26	-10.27	-26.30
	(4.61)	(3.18)	(3.80)	(3.17)	(3.08)	(2.72)
Tata Motors	-5.08	-1.45	1.25	2.69	1.80	0.50
	(1.65)	(1.97)	(2.61)	(1.38)	(1.11)	(1.60)
Tata Investment Corporation	2.19	-0.56	-4.71	-4.17	-6.19	-2.54
	(2.38)	(2.27)	(2.91)	(2.23)	(1.57)	(2.23)
Tata Coffee	24.60	22.84	-0.22	-7.32	0.86	2.28
	(4.16)	(4.95)	(3.96)	(1.64)	(6.09)	(4.68)
Tata Chemicals	6.68	11.07	1.66	-0.38	0.88	-7.99
	(2.46)	(2.52)	(2.10)	(1.36)	(2.15)	(2.21)
Tata Steel	8.81	4.06	-0.34	0.56	3.30	2.58
	(1.63)	(1.45)	(1.19)	(1.20)	(1. 78)	(1.58)

Figures given In the parenthesis indicate standard deviation

For the second window period of 10 days for its Pre period Tata Coffee gave 22.84% which is the highest return to its shareholders but also the highest volatility of 4.95 was noticed in the stock. TRF which recorded a very high return of 20.38% during the Pre period ended up giving negative returns to its shareholders in the corresponding Post period. Six companies had negative value of CAR in the Post period.

For the window period of 20 days Pre and Post only four companies had negative CAR values in the Pre period and seven companies recorded negative CAR values in the post period. The returns of Tata Power, Indian Hotels and Tata Motors improved after merger. Rallis India showed a return of 0.13% and post merger the company recorded negative returns. Also Voltas India had positive CAR of 19.09% in the pre period but in post period it was -3.82% with a standard deviation of 3.09 in the pre period and 1.92 in the Post period. Indicating less volatility in the Post period compared to pre period. Returns of Tata Chemicals in the post period got highly eroded from 6.68% in the Pre period to -7.99% in that Post period. The companies which had positive values in the Pre period but later in the Post period it turned negative. This indicates that the Shareholders did not appreciate the M&A by the companies.

Consolidated Corporate Performance Impact of M&A on Tata Group

Table 6 presents the results of the Pre M&A and Post M&A Operating performance ratios for the entire sample set of M&A. This shows that there was a decline in the mean OPM (25.12% to 24.10%), but the decline was not statistically significant (t-statistic value of 0.765). However NPM (15.18% to 15.38%) ratios showed increase in the Post M&A period of only 1.37% (t-statistic value of 0.11). The mean RONW (5.09% to 16.31%) and ROCE (19.07% to 19.21%) showed an increase in the Post M&A period (t- values of -1.59517

Table 6: All Ratios of the Tata Group of Companies

Ratio PRE	Mean POST	Percentage Change	t Statistic	p-value	
Profitability Ratios					
OPM	25.1194	24.1014	-4.05	0.7656(NS)	0.4601
NPM	15.1755	15.3839	1.37	-0.1138(NS)	0.9115
RONW	5.0906	16.3056	220.31	-1.5952(NS)	0.1390
ROCE	19.0743	19.2076	0.70	-0.0388(NS)	0.9697
Operational Efficiency and Asset Utilization					
ATR	77.2779	82.1436	6.30	-0.7604(NS)	0.4630
ROTA	11.0848	11.4552	3.34	-0.1636(NS)	0.8730
Liquidity and Solvency Ratios					
QR	0.7025	0.6081	-13.44	0.4998 (NS)	0.6271
CR	1.3086	1.0953	-16.30	1.0382(NS)	0.3215
DE	1.1069	0.7842	-29.16	0.7831(NS)	0.4501

Note: NS-Not Significant

and -0.03882 respectively). The comparison of the Pre M&A and Post M&A Operational Efficiency and Asset Utilization ratios for the entire sample showed that there was an increase in the ATR and ROTA by 6.30% and 3.34% respectively. This depicts that the companies did achieve improvement in the Operational Efficiency and Asset Utilizations. But again the results are insignificant at required probability levels. Decline is observed in the liquidity and solvency ratios. The mean DE decreased from 1.1069 to 0.7842 signifying a decrease in the long term debt of the companies. There was a marginal statistically insignificant decrease in leverage after the M&A (1.1069 vs. 0.7842), confirmed by the low t-value of 0.7831. All the ratios showed insignificant results. Hence it is concluded that the M&A event did not have any major significant positive impact on the operating and financial performance of the acquiring Tata Group of Companies. This implies that Corporate acquisitions by Tata Group of companies did not lead to significant improved performance for the sample companies for the period examined in this study. The results are uniform across the nine accounting ratios which show insignificant results.

The Table 7 shows the Consolidated CAR (in %) of the Tata Group of Companies. The returns during the Pre period were positive throughout but at the end of the Pre period the returns showed a considerable decline by recording only 0.96% CAR for the t-5 period. As evident from the results Post period recorded only negative CAR values. And the daily returns started to decrease more and more. Existing evidence has shown that the wealth of bidder shareholders significantly diminishes in the period after a merger or takeover.

Table 7: Consolidated Car of the Tata Group of Companies (in %)

t-20	t-10	t-5	t+5	t+10	t+20
5.61	5.87	0.96	–3.47	–4.22	–5.72

Conclusion

It is evident from the analysis that both hypotheses set for validation are not fully accepted. Overall the Metal industry giant Tata Steel was the company that benefited most from M&A in terms of Corporate performance and Shareholders wealth. Indicating that, their management and integration team were successfully able to obtain synergies from the acquisition. Worst hit was Tata Telecommunication, indicating that acquisition had a negative impact on corporate performance of the company. The 't-test' when done individually, have shown significant results as compared to the consolidated test which showed insignificant results on Corporate performance of the Tata Group of companies. Also the consolidated CAR values obtained were found to be decreasing and negative in the post announcement period but individually there is evidence of positive returns in the post announcement period.

The conclusion emerging from the point of view of Corporate performance evaluation is that the good management of the Tata Group helped carry out

the challenging task of integrating operations and leveraging the projected synergies appropriately. From the aspect of Shareholders wealth it can be concluded that the majority of the acquiring companies were not able to add value to the Shareholders wealth in Post M&A announcement period. The market reacted to the news of the M&A in a negative manner expecting that the M&A would not improve the performance of the company.

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Shareholder Value Creation in India- A Sectoral Analysis

K.R. JALAJA

This paper examined the Shareholder Value Created in Indian Companies by adopting Pablo Fernandez model, a refined model based on Market Values, believed to be a superior model when compared to the traditional measures (ROE, ROI, EPS) and various models developed by Consulting Firms (EP, EVA, MVA, SVA) to analyze Value Creation. For this purpose a sample of 50 companies representing ten industrial sectors for a period of five years from 2002-2006 have been analyzed and found that Old Generation Companies (Companies representing the Industry Sectors – Oil & Gas, Steel, Textiles, Sugar and Cement & Cement Products) created more Shareholder Value than New Generation Companies (Companies representing the Industry sectors - IT, Pharmaceuticals, FMCG, Automobiles and Capital Goods) among the sample companies.

Introduction

With the globalization of competition and capital markets and a tidal wave of privatization, Shareholder Value is rapidly capturing the attention of executives worldwide. It is seen as crucial all over the world. Shareholder Value is slowly becoming the global standard for measuring business performance (Alfred Rappaport). The CEOs of modern firms are worried about Shareholder Value. Satisfying the Shareholders is the best way to make sure that other stakeholders are served as well. If Shareholders believe that the corporation is under performing, they can try to replace the board in the next election. If they succeed, the new board will appoint a new management team. The objective function of the company is to maximize the shareholder value. Managers in most of the firms of the world focus on building shareholder value. Most executives today understand that the need to create shareholder value is paramount and the world's most competitive management teams are responding to the pressure to create value by embracing new metrics and new models for managing their companies.

Literature Review

The theories on Shareholder Value Creation have a history stretching back to 1950s and 1960s and their intellectual roots are in the path breaking work of some economists of that time and a number of them have been honoured with the Nobel Prize for economics. Shareholder value started to take on a life of its own as a result of the Capital Asset Pricing Model (CAPM),

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which argues that the returns both received and expected by investors are related to the risk incurred by owning particular financial assets. As it is commonly understood, the higher the risk the greater the return should be. The main insight of the CAPM model which is central to the shareholder view of the world is that there is a risk-weighted discount factor which allows one to assess the value today and tomorrow's developments, profits and cash flows. Most of the studies dealing with shareholder value creation have investigated the information content of innovative performance measures over the traditional measures.

Gordon (1985), William (1988), David Richard (1989) have advocated the importance of managing for superior shareholder value by identifying value drivers and using the same to reduce the value gap by concentrating on RONA, growth, retention rate and debt equity ratio. Alfred (1980, 1981, 1992), Balachandran et al (1986) and Copeland et al (1990) have dealt with the issue of shareholder value creation. In all the papers the basic proposition is that shareholder value of alternative business strategies, including growth and expansion, can be estimated by discounting cash flows from strategic investments by an appropriate discount rate. Peterson and Peterson (1996) analysed traditional and value added measures of performance and found that traditional measures are not empirically less related to stock returns than return on capital. Dalborg (1999) pointed out that value is created when the return to shareholders, in dividend and share price increases, exceed the risk-adjusted rate of return required in the stock market (the cost of capital). Hogan et al (1999) state that in a competitive environment, shareholder value is created when a company invests in projects that earn a return in excess of the cost of capital. Knight (1997) said that higher profitability does not guarantee value creation for shareholders in a company. Clark (2000) added that what is important is that a company adhering to shareholder value principles concentrates on cash flows rather than profits.

Petty and Martin (2001) state that value creation involves much more than merely monitoring firm performance. Value is created when managers are actively engaged in the process of identifying good investment opportunities and taking steps to capture their value potential. Olson and Knight (1997) argue that creating value for shareholders is consistent with creating value for the other constituents of the company. Pablo (2002) is of the opinion that accounting based measures (including EVA, Economic Profit, Cash Value Added), being historic in nature does not measure value creation.

Omkar, Karthikeyan and Srivastava (1998), Gurudas (2000), Jawaharlal and Madhu (2001), Sengupta (2001), Ramana (2007), Shaveta (2007) have attempted to study the Value creation in Indian companies by adopting EVA and MVA techniques for evaluating the performance of the companies. Bhattacharya and Phani (2004) are of the opinion that India has found supporters for EVA. It has already earned favour with journalists and leaders in corporate reporting. Other studies indicate that there is no strong evidence to support Stern Stewart's claim that EVA is superior to the traditional performance measures in its association with MVA, Though there is rich literature providing useful insights to earnings related issues, very few

researchers have made efforts to measure value creation. Hence an attempt has been made in this paper to measure the Created Shareholder Value in select Indian companies.

Objectives of the Study

● To Measure the Shareholder Value Creation in the sample companies by adopting Pablo Fernandez model;

● To know the shareholder value creation in old generation and new generation companies.

● To study the correlation between Market Capitalisation and Shareholder Value creation in the sample companies.

● To build a suggestive model for Measuring Shareholder Value Creation.

Hypotheses

The study also intended to examine the hypotheses which acted as a milestone to reach the stated Objectives. At every stage Hypotheses provided the required direction to steer through the research program.

The research work was based on following Hypotheses:

1 Relating to Shareholder Value Creation

H_0: Old Generation Companies do not create more Shareholder Value than New Generation companies.

H_1: Old Generation Companies create more Shareholder Value than New Generation Companies.

2 Regarding correlation between Market Capitalisation and Created Shareholder Value.

H_0: There is no Strong correlation between Market Capitalisation and Created Shareholder Value.

H_1: There is a Strong correlation between Market Capitalisation and Shareholder Value creation.

Methodology

The study is based on the secondary data, Sampling technique used is Judgment sampling and the data is obtained from "Capitaline" database maintained by the Bangalore Stock Exchange. The study uses the data for a period of five years from 2002-2006 of 50 companies forming a part of Sensex index of the Bombay Stock Exchange and Nifty Index of National Stock Exchange of India. The Sampling frame consists of companies ranked in ET500 based on Market capitalization and represents five Industrial sectors viz., InfoTech, Pharmaceuticals, FMCG, Automobiles, Oil and Gas, Steel, Textiles, Capital Goods, Sugar, Cement and Cement Products.

Shareholder Value Creation according to Pablo Fernandez: Shareholder Value Creation is the comparison between the Market Value and Book Value per share. When the Market Value exceeds the Book value, the shareholder value is created; when the Book value exceeds the Market Value, the

shareholder value is destroyed. To obtain the Created Shareholder Value, one must define the increase of Equity Market Value, the Shareholder Value Added, the Shareholder Return and the Required Return to Equity. The Equity Market Value of a listed company is the Company's Market Value, that is each share's price multiplied by the number of shares. The increase of Equity Market Value in one year is the Equity Market Value at the end of that year less the Equity Market Value at the end of the previous year. The Equity Market Value is also called as Capitalization.

Difference between Increase of Equity Market Value and Shareholder Value Added: Shareholder Value Added is the term used for the difference between the wealth held by shareholders at the end of a given year and the wealth they held the previous year. The increase of Equity Market Value is not the shareholder Value Added.

One talks of an increase in Equity Market Value, but not have Shareholder Value when

1. Shareholders subscribe to new shares of the company paying money.
2. A conversion of convertible debentures takes place.

One talks of a decrease of the Equity Market Value, but not of a decrease of Shareholder Value when

1. The company pays money to all of the shareholders: dividends
2. The company buys shares on the Market (Share Buybacks or Stock repurchases)

The Shareholder Value is calculated as follows

Shareholder Value Added = Increase of Equity Market Value + Dividends paid during the year + Other payments to shareholders (discounts on par value, share buybacks…) – Outlays for capital increases, exercise of options and warrants – Conversion of convertible debentures.

The Shareholder Return is the Shareholder value added in one year, divided by the Equity Market Value at the beginning of the year.

Shareholder Return = Shareholder Value Added/Equity Market Value

Required Return to Equity (also called cost of Equity) is the return that Shareholders expect to obtain in order to feel sufficiently remunerated. The required Return to Equity depends on the interest rates of long-term treasury bonds and the company's risk. The required return on equity is the sum of the interest rate of long-term Treasury bonds plus a quantity that is usually called the company's risk premium.

Required return on equity = return of long-term treasury bonds + risk premium

Created shareholder value: A company creates value for the shareholders when the shareholder return exceeds the share cost (the required return to equity). In other words, company creates value in one year when it outperforms expectations.

Created shareholder value = Equity market value **x** (Shareholder return – K_e)

Or

Created shareholder value = Shareholder value added - (Equity market value X K_e)

Measuring Shareholder Value Creation in Indian Companies: Analysis and Interpretation of data across companies

In this section, the Shareholder Value Creation across Companies and Industry Sectors have been examined and interpreted. The Companies have been ranked on the basis of Value Creation and Shareholder Returns. The data has been analysed in the following manner:

1. Ranking of Companies on the basis of Shareholder Value Added (SVA) & Created Shareholder Value (CSV)

2. Created Shareholder Value during 2002– 2006 in Specific Industry Sectors

3. Shareholder Return during 2002 – 2006 in Specific Industry Sectors

4. Correlation Between Market Capitalisation and Created Shareholder Value (CSV) in select Indian Companies.

Table 1: Ranking of Companies on the basis of Shareholder Value Added (SVA) & Created Shareholder Value (CSV)

Currency: Rs. in Crs.

Sl. No.	Company	Total SVA 2002-2006	Five year Average SVA	Rank	Total CSV 2002-2006	Five year Average CSV	Rank
1	Wipro	50182.11	10036.42	8	-25858.09	-5171.62	49
2	Infosys Technologies	57434.53	11486.91	6	-13285.33	-2657.07	47
3	HCL Info systems	2352.45	470.49	38	1020.38	204.08	32
4	Mphasis BFL	2937.94	587.59	31	5439.64	1087.93	15
5	TCS	104316.27	20863.25	2	19455.82	3891.16	6
6	Cipla	14311.09	2862.22	18	6838.13	1367.63	14
7	Dr. Reddy's Laboratories	7922.38	1584.48	21	-2790.57	-558.11	45
8	Sun Pharma	13820.79	2764.16	19	-2704.12	-540.82	44
9	Panacea Biotech	1972.21	394.44	39	1576.27	315.25	27
10	Aventis Pharma	2376.36	475.27	36	296.71	59.34	40
11	ITC	58614.07	11722.81	5	36811.48	7362.30	2
12	Hindustan Lever	4892.30	978.46	25	-52243.32	-10448.66	50
13	Nestle India	7071.88	1414.38	23	3274.33	654.87	19
14	Marico	2875.50	575.10	32	2179.31	435.86	25
15	Glaxo Smith Kline Consumers	722.92	144.58	46	-1045.99	-209.20	43
16	Britannia Industries	2480.35	496.07	35	1352.33	270.47	30
17	Bajaj Auto	21254.43	4250.89	13	5335.87	1067.17	16
18	Tata Motors	33794.98	6759.00	10	16643.73	3328.75	7
19	Hero Honda Motors	12632.94	2526.59	20	3079.03	615.81	21

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20	Punjab Tractors	430.17	86.03	49	-632.27	-126.45	42
21	Eicher Motors	804.09	160.82	45	448.54	89.71	38
22	Reliance Industries	73977.50	14795.50	3	-23943.49	-4788.70	48
23	ONGC	189641.63	37928.33	1	66500.72	13300.14	1
24	Indian Oil Corporation	64246.47	12849.29	4	19807.26	3961.45	5
25	Hindustan Petroleum	7882.76	1576.55	22	-5356.04	-1071.21	46
26	Aban Off Shore	4074.16	814.83	28	3443.97	688.79	18
27	Tata Steel	28010.54	5602.11	12	8972.94	1794.59	13
28	Jindal Steel & Power	5767.89	1153.58	24	3602.60	720.52	17
29	Steel Authority of India	34282.32	6856.46	9	10162.56	2032.51	11
30	Kalyani Steels	1172.90	234.58	41	792.21	158.44	33
31	Aditya Birla Nuvo	4131.23	826.25	27	3037.51	607.50	23
32	Raymond's	2705.93	541.19	33	1516.40	303.28	28
33	Century Textiles	3909.08	781.82	29	2182.40	436.48	24
34	S Kumars Nationwide	719.22	143.84	47	528.32	105.66	37
35	Phoenix Mills	1176.43	235.29	40	1153.71	230.74	31
36	Siemens	17558.69	3511.74	16	13402.51	2680.50	8
37	BHEL	52414.15	10482.83	7	34670.44	6934.09	3
38	L & T	29142.20	5828.44	11	22985.14	4597.03	4
39	Thermax	3656.05	731.21	30	3072.26	614.45	22
40	ABB	15022.09	3004.42	17	10636.90	2127.38	10
41	Bajaj Hindustan	4550.81	910.16	26	3138.97	627.79	20
42	Balrampur Chini Mills	2523.98	504.80	34	1495.90	299.18	29
43	SHAKTI SUGAR	521.68	104.34	48	344.86	68.97	39
44	KCP Sugar	840.92	168.18	44	688.11	137.62	35
45	OUDH Sugar	214.49	42.90	50	113.16	22.63	41
46	ACC	18349.98	3670.00	15	9326.97	1865.39	12
47	Birla Corporation	2362.67	472.53	37	1676.83	335.37	26
48	Chettinada Cement Corp.	913.73	182.75	43	681.36	136.27	36
49	Dalmia Cement (Bharat) Ltd	914.55	182.91	42	730.21	146.04	34
50	Gujarat Ambuja	19544.09	3908.82	14	13324.26	2664.85	9

Interpretation

An analysis of Created Shareholder Value across Companies as exhibited in Table 1, reveals top 10 Companies that created value for shareholders over a period of five years from 2002-06 were ONGC (Rs.66500.72 crores), ITC (Rs.36811.48 crores), BHEL (Rs.34670.44 crores), L&T (Rs. 22985.14 crores), IOC (Rs.19807.26 crores), Tata Consultancy Services (TCS-Rs.

19455.82 crores), Tata Motors (Rs.16643.73crores), Siemens (Rs.13402.51crores), Gujarat Ambuja (Rs . 13324.26 crores) and ABB (Rs.10636.90crores).

Comparative Analysis of Data of Industry Sectors

The data has been analysed, interpreted and ranked for each Industry sector based on Created Shareholder Value (CSV) and Shareholder Returns (SR) for five year period from 2002-2006.

Table 2: Created Shareholder Value during 2002– 2006 in Specific Industry Sectors

(Currency: Rs. in Crs.)

Sl. No.	Industry Sectors	Total CSV 2002-2006	Five Year Average CSV	Rank
I	Information Technology	-17213.66	-3442.73	10
II	Pharmaceuticals	3216.41	643.28	8
III	FMCG	-9671.85	-1934.37	9
IV	Automobiles	24874.91	4974.98	4
V	Oil & Gas	60452.42	12090.48	2
VI	Steel	23530.30	4706.06	5
VII	Textiles	8418.35	1683.67	6
VIII	Capital Goods	84767.26	16953.45	1
IX	Sugar	5781.01	1156.20	7
X	Cement & Cement Products	25739.62	5147.92	3

Table 3: Shareholder Return during 2002 – 2006 in Specific Industry Sectors

Sl. No.	Industry Sectors	Total SR (%) 2002-2006	Five Year Average SR (%)	Rank
I	Information Technology	1326.24	265.25	8
Ii	Pharmaceuticals	1198.71	239.74	9
Iii	FMCG	875.45	175.09	10
Iv	Automobiles	1415.13	283.03	7
V	Oil & Gas	1961.27	392.25	6
Vi	Steel	2161.08	432.22	4
Vii	Textiles	2677.95	535.59	3
Viii	Capital Goods	2796.51	559.30	2
Ix	Sugar	3445.99	689.20	1
X	Cement & Cement Products	2089.76	417.95	5

Interpretation

Analysis of Shareholder Value Creation in Industry Sectors for the period 2002-06, reveals that, Capital Goods Sector has been ranked first with value creation of Rs.84767.26crores, Oil & Gas sector is ranked second with value

creation of Rs.60452.42crores and third place is occupied by Cement & Cement Products sector with Rs. 84767.26crores. The Average Returns to Shareholders during 2002-06 was high in Sugar Industry (689.20%), followed by Capital Goods industry (559.30%) and Textiles (535.59%). The Industry Sectors that have destroyed Shareholder Value are Information Technology (Rs.13227.58crores) and FMCG (Rs.9671.85crores) this is probably due to the short life span of the products designed by these industries.

The Sample Companies are divided into two groups: Old Generation Companies and New Generation Companies. Old Generation Companies include Companies representing - Oil & Gas, Steel, Textiles, Sugar and Cement & Cement products Sectors. New Generation Companies include Companies representing - Information Technology, Pharmaceuticals, FMCG, Automobiles and Capital Goods Sectors.

The Student t-test is used for testing the hypothesis to examine and interpret the Shareholder Value Creation among the two sets of data, i.e., Old Generation Companies and New Generation Companies.

Hypothesis testing for High Created Shareholder Value (CSV)

	N	Mean	Standard deviation	SE mean
Old generation Companies	25	5092.911	14985.776	2997.155
New generation Companies	25	3172.890	17565.217	3513.04
Difference		1920.020	2579.440	515.880
T - Value	3.7217			
P - value	0.3447			

Results and Inference

It is found that, at 5% level of significance the table value $t_{24, 0.05}$ is 1.711, since calculated t-value is 3.7217 and exceeds the table value, the null hypothesis is rejected and alternate hypothesis is accepted. Thus, there is substantial evidence to conclude that Old Generation companies create more Shareholder value than New Generation Companies.

The Pearson Co-efficient of Correlation (r) is used to test the hypothesis to determine the degree of correlation between Market Capitalisation and Shareholder Value Creation. One very convenient and useful way of interpreting the Value of Co-efficient of correlation between two variables is to use square of Co-efficient called Co-efficient of determination (r^2). The co-efficient of determination explains the percent of variation in the dependent variable by the independent variable.

The Co-efficient of determination (r^2) is defined as the ratio of the explained Variance to the total variance.

$$r^2 = \frac{\text{Explained Variance}}{\text{Total Variance}}$$

Table 4 : Correlation between market capitalisation and created shareholder value (CSV) in select Indian Companies.

(Currency: Rs. in Crs.)

Sl. No.	Company Name	Market Capitalisation	CSV	Correlation (r)	$(r)^2$
	Company With Perfect Positive Correlation				
1	Phoenix Mills	1394.80	1153.71	1.0000	0.9999
	Companies With Strong Positive Correlation				
2	Marico	6115.81	2179.31	0.9975	0.9951
3	Aban Off Shore	5989.74	3443.97	0.9968	0.9935
4	Panacea Biotech	3484.91	1576.27	0.9939	0.9878
5	KCP Sugar	1161.84	688.11	0.9896	0.9792
6	Gujarat Ambuja	40701.71	13324.26	0.9895	0.9791
7	Chettinada Cement Corp.	1764.09	681.36	0.9886	0.9774
8	Siemens	32929.90	13402.51	0.9875	0.9752
9	Aditya Birla Nuvo	8851.46	3037.51	0.9840	0.9683
10	Dalmia Cement (Bharat) Ltd	1738.09	730.21	0.9815	0.9633
11	Thermax	6527.98	3072.26	0.9751	0.9507
12	S Kumars Nationwide	1363.26	528.32	0.9723	0.9454
13	Cipla	44894.15	6838.13	0.9665	0.9342
14	ABB	31924.64	10636.90	0.9561	0.9141
15	Britannia Industries	10689.19	1352.33	0.9501	0.9026
16	Dr. Reddy's Laboratories	39417.30	-2790.57	0.9401	0.8837
17	L & T	56865.94	22985.14	0.9388	0.8813
18	BHEL	98175.68	34670.44	0.9324	0.8694
19	ITC	165032.22	36811.48	0.9316	0.8679
20	SHAKTI SUGAR	914.40	344.86	0.9258	0.8570
21	Wipro	226602.18	-25858.09	0.9179	0.8425
22	ACC	43518.44	9326.97	0.9159	0.8388
23	Century Textiles	7801.87	2182.40	0.8950	0.8011
	Companies With Moderate Positive Correlation				
24	Kalyani Steels	2017.81	792.21	0.8706	0.7579
25	Raymond's	7403.04	1516.40	0.8597	0.7391
26	Birla Corporation	4553.99	1676.83	0.7907	0.6251
27	Punjab Tractors	5502.42	-632.27	0.7804	0.6090
	Companies With Weak Positive Correlation				
28	Hindustan Lever	207857.35	-52243.32	0.7275	0.5293
29	Bajaj Hindustan	7872.84	3138.97	0.7030	0.4942
30	Sun Pharma	36518.24	-2704.12	0.6427	0.4131
31	Mphasis BFL	9089.19	1453.57	0.5811	0.3376

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32	Tata Motors	76225.00	16643.73	0.5806	0.3371
33	Nestle India	37315.51	3274.33	0.5713	0.3263
34	Hero Honda Motors	48906.54	3079.03	0.5679	0.3225
35	Balrampur Chini Mills	5150.24	1495.90	0.4640	0.2153
36	Jindal Steel & Power	11304.59	-3633.23	0.4550	0.2070
37	Hindustan Petroleum	58412.27	-5356.04	0.4037	0.1630
38	Glaxo Smith Kline Consumers	8842.79	-1045.99	0.3868	0.1496
39	Infosys Technologies	227164.31	-13285.33	0.3712	0.1378
40	Reliance Industries	332458.63	-23943.49	0.2778	0.0772
41	OUDH Sugar	433.38	113.16	0.2664	0.0710
42	Indian Oil Corporation	211076.78	19807.26	0.1945	0.0378
43	Bajaj Auto	77355.65	5335.87	0.1333	0.0178
44	Eicher Motors	2415.06	448.54	0.0297	0.0009
	Companies With Negative Correlation				
45	Aventis Pharma	12250.22	296.71	-0.0378	0.0014
46	ONGC	522154.18	66500.72	-0.0473	0.0022
47	Tata Steel	74546.34	8972.94	-0.1358	0.0184
48	Steel Authority Of India	79406.94	10162.56	-0.1472	0.0217
49	HCL Infosystems	227164.31	1020.38	-0.5726	0.3278
50	TCS	337065.92	19455.82	-0.5845	0.3417

Results and Inference

For the purpose of analysis and interpretation the correlation results have been categorized into five groups, namely,

- Perfect positive correlation: $(r) = (1.0000)$
- Strong Positive correlation: $(r) = (+0.9999$ to $+0.9000)$
  → $(r^2) > 80\%$
- Moderate positive correlation: $(r) = (+0.8999$ to $+0.7800)$
  → $(r^2) > 60\%$
- Weak positive Correlation: $(r) = (+0.7799$ to $+0.0001)$
  → $(r^2) < 60\%$

It can be inferred from Table 4 that among the 50 sample companies only one company has perfect positive correlation ($r = 1.0000$) and 22 companies have strong correlation between Market Capitalization and Created Shareholder Value (CSV) where $(r) = (+0.9999$ to $+0.9000)$, representing 44% of the sample size showing a variation upto 80% (r^2).

Since a large percentage of the sample companies have strong correlation between Market Capitalization and Created Shareholder Value (CSV), there is substantial statistical evidence for accepting the alternate Hypothesis that "*there is strong correlation between Market Capitalisation and Created Shareholder Value*". It can be concluded that the null hypothesis should be rejected.

Conclusion

Old Generation Companies (Companies representing the Industry Sectors – Oil & Gas, Steel, Textiles, Sugar and Cement & Cement Products) have created more Shareholder Value than New Generation Companies (Companies representing the Industry sectors - IT, Pharmaceuticals, FMCG, Automobiles and Capital Goods) among the sample companies. This brings to light that there is huge potential for Value Creation in the Old Generation Companies. Hence, the management should strive to adopt new technology through R&D and also think about the Corporate Restructuring activities to improve Shareholder Value. There is positive correlation between Market Capitalisation and Shareholder Value Creation in 44 Companies out a Sample of 50 Companies, but the degree of Correlation varies. There is strong correlation in 23 Companies, moderate level of correlation in 4 Companies and weak correlation in 17 Companies and the correlation is negative in 6 Companies. Empirical evidence proves that Shareholder Value Creation does not depend on the Size of the Company (measured in terms of Market Capitalisation). It is also revealed that Value Creation is high in mid-cap and low capitalisation companies and low in high-capitalisation companies.

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Role of Components of EVA in Profit Prediction: Evidence from Indian Two Wheelers Industry

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Profit significantly affects stock market and hence prediction of profit is the key question for any business community. The present article aims to investigate the ability of the components of EVA in predicting the operating profit of the subsequent period of Indian Two Wheelers Industry. The study found that Capital Employed and Net Operating Profit After Tax have positive impact on next period's profit while Return on Assets has negative impact thereon.

Introduction

In the late 1980s, Joel Stern and G. Bennet Stewart III of the New York consulting firm Stern Stewart and Company commenced to expand and encourage Economic Value Added (EVA) in the corporate world as a technique that can be associated with a firm's share value. EVA thus, settles conclusively whether shareholders' wealth was formed or not. EVA is a value based performance measure, an investment decision instrument and it is furthermore a performance measure reflecting the complete amount of shareholder value created. It is a distinct system that gives a valid image of shareholder wealth formation.

As profit significantly affects stock market, prediction of profit is the key question for any business community (Hendriksen and Berda, 1992). Traditionally, measurement of accounting income was of central focus with a view to judging real value of the business. Shortcomings such as possibility of manipulation and focus on the quantity of profit have given rise to the concept of EVA (Stewart, 1991). EVA's connection with the stock's price for performance evaluation and indication whether the operating profit is sufficient for the cost of capital employed or not makes it simple yet significant tool for performance evaluation.

Literature Review

Traditionally, the gross earnings of management which a man is getting can only be found after making up a careful account of the true profits of his business, and deducting interest on his capital (Marshall,1920). Difference between net earnings and the cost of capital was treated as economic profit and operationalised as a measure of wealth creation (Solomon, 1965). EVA is the same as Residual Income (RI) that has been in existence for several

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decades. The only significant difference between the two lies in the handling of accounting distortions (Dodd and Chen, 1997). Solomons (1965) suggested that RI can be used as an internal performance measure and Anthony (1973, 1982a, and 1982b) suggested that it be an external performance measure. Value added is a significant explanatory factor in market returns, and its explanatory power is higher than that of earnings (Bao and Bao, 1998). EVA is correct in its methodology and assumptions, and can live up to its claims of being an alternative to traditional accounting (Stewart, 1999). It also gives intangible benefits such as improved decision making, better communication from managers and improved strategic planning (Tejpavan & Kulkarni, 2005). It can also be a powerful tool for changing the company's focus and producing tremendous financial results (Gray, 2006). It is the framework for a complete financial management and incentive compensation system that can guide every decision a company makes, from the boardroom to the shop floor; that can transform a corporate culture; that can improve the working lives of everyone in an organization by making them more successful; and that can help them produce greater wealth for shareholders, customers, and themselves (Al Ehrbar, 1998). It is an effective measure of the quality of managerial decisions as well as a reliable indicator of an enterprise's value growth in future (Geyser and Liebenberg,2003). The EVA based performance measurement system is the basis on which the company should take appropriate decisions related to the choice of strategy, capital allocation, merger & acquisitions, divesting business and goal setting (Rakshit, 2006).

Methodology

The major findings of above mentioned studies did not focus on use of components of EVA i.e. Return on Assets, Net Operating Profit After Tax and Capital Employed in forecasting subsequent year's profit and hence an attempt has been made to analyse the predictive ability of the components of EVA in envisaging subsequent year's operating profit of the Indian Two wheelers industry.

The sample of this study includes following three Indian Two Wheelers players on the basis of their performance, position and sales during the said period:

1. Hero Honda Motors Limited
2. Kinetic Motor Company Limited and
3. TVS Motor Company Limited

The data for the accomplishment of the aforementioned research objectives used was secondary. With a view to analyzing the predictive ability of the components of EVA in forecasting subsequent year's profit, the data was gathered from financial statements as published in annual reports (2001-02 to 2008-09) of Indian Two Wheelers Industry. The data base of Association of Indian Automobiles Industry has also been utilized.

Profit of the subsequent year is measured by Return on Assets, Net Operating Profit After Tax and Capital Employed of the present year and therefore profit of the subsequent year has been taken as dependent variable for the present study. Return on Assets, Net Operating Profit After Tax and Capital

Employed of the present year have been taken as independent variables for the study.

Above discussed variables have been taken together as determinants of profit of the subsequent year and model has been developed in order to analyse whether the components of EVA (Return on Assets, Net Operating Profit After Tax and Capital Employed of the present year – independent variables) are significant in predicting profit of the subsequent year (Operating Profit – dependent variable) or not.

In order to examine and compare the impact of independent variables on the dependent variable, technique of regression has been applied. The hypotheses were tested by simple linear regression.

H_1 ($OPt = a + bRt - 1$): Return on Assets can predict next period's Operating Profit. Where, OIt = Operating Profit of subsequent period and Rt = Current year's Return on Assets.

H_2 ($OPt = a + bCAPITALt - 1$): The amount of Capital Employed can predict next period's Operating Profit.

(Where, $CAPITALt$ = Current year's Capital Employed)

H_3 ($OPt = a + bNOPATt - 1$): Net Operating Profit after taxes can predict next period's Operating Profit.

(Where, $NOPATt$ = Current year's Net Operating Profit)

Results

In order to analyze the hypotheses, dependent and independent variables were studied and measured. Then, the ability of each independent variable in predicting the operating profit of subsequent period was analyzed. To do this, simple regression was used. The results are described below:

Table 1 Role of ROA in Profit Prediction of Indian two-wheelers industry

	Coefficients	Standard Error	t Stat	P-value
Constant	677.2706564	68.804076	9.843467	0.000184
Return on Assets	-3.567655381	1.754898131	-2.03297	0.09774
Multiple R	0.672706			
R Square	0.452533			
Adjusted R Square	0.343039			
Standard Error	69.06284			
ANOVA				
	df	SS	MS	F
Regression	1	19712.91444	19712.91	4.132967
Residual	5	23848.37932	4769.676	
Total	6	43561.29375		

Table 1 reveals that correlation coefficient between next period's Operating Profit and Return on Assets is equal to 0.672706 and the possibility of this is 0.09774, which is more than 0.05. Therefore, with a certainty of 95%, it is

confirmed that there is an insignificant relation between variables. The calculated value of 'F' is 4.132967, while the table value with one degree of freedom in numerator and five degrees of freedom in denominator at five percent significant level is 6. 607891. As tabulated value of 'F' is more than calculated value thereof, it can be concluded that Return on Assets does not have an impact on profit of subsequent year. Finally, considering the first hypothesis' coefficient of determination which equals 0.452533, it can be concluded that around 45.2533% of the dependent variable's change (Subsequent Year's Operating Profit) can be described by independent variable (Return on Assets) and the first hypothesis is rejected. Regression model fitted to the data: $OP_t = 677.2706564 - 3.567655381R_{t-1}$. Coefficient of Return on Assets proposes that each 1 percent change in Return on Assets leads to decrease of 3.567655381 percent in subsequent year's profit.

Table 2: Role of CE in Profit Prediction of Indian two-wheelers industry

	Coefficients	Standard Error	t Stat	P-value
Coefficients	Standard Error	t Stat	P-value	
Constant	395.0330144	57.36690682	6.886078	0.000989
Capital Employed	0.159492795	0.055444429	2.876624	0.034725
Multiple R	0.789525965			
R Square	0.62335125			
Adjusted R Square	0.5480215			
Standard Error	57.28404113			
ANOVA				
	Df	SS	MS	F
Regression	1	27153.98692	27153.99	8.274968
Residual	5	16407.30684	3281.461	
Total	6	43561.29375		

Table 2 divulges that correlation coefficient between next period's Operating Profit and Capital Employed is equal to 0.789525965 and the possibility of this is 0.034725, which is less than 0.05. Therefore, with a certainty of 95%, it is confirmed that there is a significant relation between variables. The calculated value of 'F' is 8.274968, while the table value with one degree of freedom in numerator and five degrees of freedom in denominator at five percent significant level is 6. 607891. As tabulated value of 'F' is less than calculated value thereof, it can be concluded that Capital Employed has an impact on profit of subsequent year. Finally, considering the second hypothesis' coefficient of determination which equals 0.62335125, it can be concluded that around 62.335125% of the dependent variable's change (Subsequent Year's Operating Profit) can be described by independent variable (Capital Employed) and the second hypothesis is confirmed. Regression model fitted to the data: $OP_t = 395.0330144 + 0.1594927951CAPITAL_{t-1}$. Coefficient of Capital Employed proposes that each 1 percent change therein leads to increase of 0.159492795 percent in subsequent year's profit.

Table 3: Role of NOPAT in Profit Prediction of Indian two-wheelers industry

	Coefficients	Standard Error	t Stat	P-value
Coefficients	Standard Error	t Stat	P-value	
Constant	284.5487789	147.0499827	1.935048	0.110771
Net Operating Profit After Tax	0.928924012	0.50973775	1.822357	0.12802
Multiple R	0.63175116			
R Square	0.399109528			
Adjusted R Square	0.278931434			
Standard Error	72.3540826			
ANOVA				
	Df	SS	MS	F
Regression	1	17385.72741	17385.73	3.320984
Residual	5	26175.56634	5235.113	
Total	6	43561.29375		

Table 3 divulges that correlation coefficient between next period's Operating Profit and Net Operating Profit After Tax is equal to 0.63175116 and the possibility of this is 0.12802, which is more than 0.05. Therefore, with a certainty of 95%, it is confirmed that there is an insignificant relation between variables. The calculated value of 'F' is 3.320984, while the table value with one degree of freedom in numerator and five degrees of freedom in denominator at five percent significant level is 6. 607891. As tabulated value of 'F' is less than calculated value thereof, it can be concluded that NOPAT does not have an impact on profit of subsequent year. Finally, considering the second hypothesis' coefficient of determination which equals 0.399109528, it can be concluded that around 39.91209528% of the dependent variable's change (Subsequent Year's Operating Profit) can be described by independent variable (Net Operating Profit After Tax) and the third hypothesis is rejected. Regression model fitted to the data: OPt = 284.5487789 + 0.928924012NOPATt − 1. Coefficient of Net Operating Profit After Tax proposes that each 1 percent change in Net Operating Profit After Tax leads to increase of 0.928924012 percent in subsequent year's Operating Profit.

Conclusion

The study divulges that the Capital Employed has a strong connection with predicting next period's Operating Profit because the coefficient of determination of 62% showed that Capital Employed is the most suitable choice regarding the prediction of next period's Operating Profit in comparison to Net Operating Profit After Tax (40%) and Return on Assets (45%). Moreover, Capital Employed and Net Operating Profit After Tax have positive impact on next period's profit while Return on Assets had negative impact thereon. It can be concluded that due to the high ability of Net Operating Profit After Tax, capital amount and Return on Assets in predicting Operating Profit of the next period, these variables can be the proper criteria for capital

allocation, designing reward system, increasing capital and evaluation of the companies' performance. It can also be concluded that EVA is substantial foundation in assessing the company's performance by covering weaknesses inborn in accounting criteria. Looking to usefulness of the EVA and its components in prediction of profit, it is recommended that it should be used to determine the real value of companies i.e. through evaluation of performance of staff and company. At the end, the companies under the study should also take into account that EVA improves if operating profits grow without employing more capital, implying greater efficiencies, additional capital is invested in projects that return more than the cost of capital and capital is curtailed in activities that do not cover its costs – minimising or eliminating unproductive capital. Therefore, essential steps should be initiated to improve EVA and get benefits thereof such as improved decision making, better communication from managers and improved strategic planning.

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Performance Analysis of Indian Mutual Funds with a Special Reference to Sector Funds

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Mutual Fund industry in India has emerged as the most dynamic segment of the Indian financial system. The industry grew by leaps and bounds during the last few years. With the plethora of schemes available for the investors to choose, it becomes essential for a retail investor to know the performance of the mutual funds in order to make an informed decision. In this paper, we have carried out the performance evaluation of open-ended equity sector mutual funds using five approaches of performance measures viz, Sharpe Ratio, Treynor Ratio, Jensen's Measure, Information Ratio and M-squared measure. The sectors selected for the purpose of the study are banking sector, FMCG sector, infrastructure sector, pharma sector & technology sector. All the schemes are selected from the respective sectors which were existing during the period of the study. The period adopted for the study is from 1st April 2008 to 31st March 2011.

Introduction

Mutual funds play an extremely crucial role in Indian economy. They are the vehicles for mobilisation and channelization of savings from individuals and households towards the capital markets. Mutual funds have shown a tremendous improvement in the quantum of their assets under management over the last couple of years. The concept of mutual funds was conceived to pool the resources of small and retail investors and deploy the same in the capital markets through participation in equity and debt instruments. Mutual funds offer several benefits to the investors like diversification, professional management, tax benefits, transparency, liquidity, flexibility, choice of schemes, low cost etc. Every mutual fund is managed by a fund manager, who is using his investment management skills and necessary research works ensures much better returns than what the investors can manage on his/her own.

The Indian mutual fund industry has come a long way from a single player monopoly in 1964 for almost 45 years to a vibrant, competitive, fast growing sector. The industry has emerged as the most dynamic segment of the Indian financial system. The industry has witnessed surprising growth in terms of products and services offered, returns generated, volumes generated and international players who have contributed to the growth of the industry.

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Mutual funds have time and again responded to the changing market dynamics. They have tried to capture every pocket of the market and encourage greater investor participation. Till some years back, equity diversified funds were the only choice available, sectoral funds were launched as a new genre of equity funds. Today, we have Technology Funds allocating primarily to IT Stocks, Pharma Funds focussing on healthcare sector, Banking Funds specifically investing in Banking stocks and many more. This study analyses the performance of the sector mutual funds.

Literature Review

Block & French (2000) emphasised the importance to use multiple indexes while evaluating the performance of equity mutual funds. Saidov (2007) analysed the performance of mutual funds by using seven different approaches of performance measures. These seven measures were Jensen's Alpha, Sharpe Ratio, Treynor Ratio, Sortino Ratio, Fama Ratio, Information Ratio and Fama-French Three Factor Model. His study concluded that the different measures have no significant effect on the ranking results of German Equity Mutual Funds. Gali (1995) evaluated the past performance of the mutual funds and assessed the factors that have an influence on the performance. The factors considered were portfolio turnover, timing and stock selection skills, organisational structure, research, size and expenses charged to the fund. He found that mutual funds in general do not provide risk-adjusted returns. It was also found that mutual funds do not have market timing ability. Rao (2003) studied the performance evaluation of Indian mutual funds in bear market through relative performance index. He found that most of the mutual fund schemes were able to satisfy investor's expectations by giving excess returns over expected returns.

Objectives Of The Study

The major objectives of the study are:

i.   To evaluate the performance of the sector mutual funds in relation with the market performance using different approaches of performance measures.
ii. To study the risk-return analysis of the sector funds.

Methodology

Data sources: For the purpose of the study, we have selected 40 open-ended equity sector funds. Five Sectors viz., Banking Sector, FMCG Sector, Infrastructure Sector, Pharma Sector and Technology Sector are chosen for the study. All funds are selected from the respective sectors which were existing during our period of the study. The funds launched after 1st April 2008 are not been selected. Growth option and Dividend option are considered as separate funds in the study. 6 funds are selected from Banking Sector, 5 from FMCG Sector, 34 from Infrastructure Sector, 8 funds from Pharma Sector and 7 funds from Technology Sector. The Net Asset Value (NAV) of the funds are obtained from fact sheets and websites. The data for the study is mainly derived from AMFI Website.

Data On Indices: Since our study includes only open-ended equity sector funds, the respective indices are used as benchmarks for evaluating the performance. The benchmarks used for the analysis is obtained from BSE website. The benchmark indices for the sector funds are as follows: Banking Funds – BSE BANKEX, FMCG Funds – BSE FMCG INDEX, Infrastructure Funds – BSE CAPITAL GOODS INDEX, Pharma Funds – BSE HEALTHCARE INDEX, and Technology Funds – BSE IT INDEX

Data On Risk-Free Rate Of Return: The risk-free rate is the rate of return of the 365-days Treasury Bills obtained from Reserve Bank of India Website.

Performance Measures

Standard Deviation: is a measure if dispersion in return. A higher value of standard deviation means higher risk.

Beta (â): measures the relationship between index return and the fund's return. It measures the systematic risk. It relates the return of the fund to the market index. It reflects the sensitivity of the fund's return to fluctuations in the market index. A beta greater than 1, means that the fund is more volatile than the benchmark index, while beta less than 1 means the fund is less volatile than the index.

R-Squared (R^2): It measures how close all the points on the XY Graph are to the best-fit line. If all points were on the line, a fund would have an R-squared of 1, indicating perfect correlation with the chosen index. A R-squared of zero would indicate no correlation. The lower the R-squared, the less reliable beta is as a measure of fund's volatility.

Sharpe's Ratio: It is a measure of risk-adjusted return on a portfolio developed by William Sharpe. It is a ratio of excess return to the standard deviation of portfolio. It is relevant for performance evaluation when comparing mutually portfolios. It measures reward to variability. The Sharpe measure of performance denoted by S is give by

$$S = \frac{R_p - R_f}{\sigma_p}$$

where, R_p = portfolio rate of return during a specified period; R_f = risk-free rate of return during the same period; σ_p = standard deviation

A fund with a higher Sharpe Ratio is relation to another is preferable as it indicates that the fund has higher risk premium for every unit of standard deviation risk.

Treynor's Ratio: developed by Jack Treynor. It adjusts excess return for systematic risk. This ratio of return generated by the fund over and above risk-free rate of return. The Treynor's measure is denoted by T is given by

$$T = \frac{R_p - R_f}{\beta_p}$$

where, R_p = portfolio rate of return during a specified period; R_f = risk-free rate of return during the same period; β_p = beta of the fund

While a high and positive Treynor's measure shows a superior risk-adjusted performance of a fund, a low and negative Treynor's measure is an indication of unfavourable performance.

Alpha: is the most commonly used method of determining the return that should have been earned by the scheme at a given level of risk.

$$\alpha = (R_p - R_f) - \beta_p (R_m - R_f)$$

where, α = The Jensen Measure (Alpha); R_p = portfolio rate of return during a specified period; R_f = risk-free rate of return during the same period; β_p = beta of the fund; R_m = Market Return

A positive alpha means that the return tends to be higher than expected given the beta statistic. A negative alpha indicates that the fund is underperformer. Alpha measures the value-added of the portfolio given its level of systematic risk. It is popularly known as Jensen's Alpha.

M_2 Measure: Franco Modigiliani and Lea Modigiliani derived another risk-adjusted performance measure in 1997, by adjusting the risk of a particular portfolio so that it matches the risk of the market portfolio and then calculate the appropriate return for that portfolio. It operates on the concept that scheme's portfolio can be levered or de-levered to reflect a standard deviation that is identical with that of the market. The return that this adjusted portfolio earns is called M^2.

$$M^2 = (\alpha_m / \alpha_{mf}) \times (R_{mf} - R_f) + R_f$$

Where, α_m = the standard deviation of the market; α_{mf} = the standard deviation of the scheme; R_{mf} = return on the scheme; R_f = risk free rate of return

A high M^2 indicates that the portfolio has outperformed the market portfolio whereas; a low M^2 indicates that the portfolio has underperformed the market portfolio.

Information Ratio: was developed by William Sharpe. It measures the excess return over benchmark index of an investment divided by its tracking error. It can be calculated as follows:

$$IR = \frac{R_p - R_m}{TE}$$

Where, IR = Information Ratio; Rp = Portfolio Return; Rm = Market return; TE = Tracking Error

Tracking error is defined as the time-series standard deviation of the difference between a fund return and its market index return. It is expressed as follows:

$$TE = \alpha (R_p - R_m)$$

The information ratio expresses how effectively a stock generates active return relative to the amount of risk taken.

Funds Selected For The Study

Table 1: Selected funds

Sl. No.	Name of the Scheme	Option	Launch Date
1	Jm Financial Services Sector	Div	Nov-06
2	Jm Financial Services Sector	GR	Nov-06
3	Reliance Banking	DIV	May-03
4	Reliance Banking	GR	May-03
5	Uti Banking Sector	DIV	Apr-04
6	Uti Banking Sector	GR	Apr-04
FMCG Sector			
1	Franklin FMCG	CDIVI	Mar-99
2	Franklin FMCG	CGRG	Mar-99
3	Icici Prudential FMCG	CDIVI	Mar-99
4	Icici Prudential FMCG	CGRG	Mar-99
5	Sbi Msfu FMCGCG	-	Jul-99
Infrastructure Sector			
1	Aig Infrastructure and Economic Reform	DIV	Jan-08
2	Aig Infrastructure and Economic Reform	GR	Jan-08
3	Birla Sunlife Infrastructure	DIV	Feb-06
4	Birla Sunlife Infrastructure	GR	Feb-06
5	Canara Robeco Infra	DIV	Nov-05
6	Canara Robeco Infra	GR	Nov-05
7	DSPBR T.I.G.E.R.	DIV	May-04
8	DSPBR T.I.G.E.R.	GR	May-04
9	ICICI Prudential Infra	DIV	Aug-05
10	ICICI Prudential Infra	GR	Aug-05
11	JM HI FI	DIV	Mar-06
12	JM HI FI	GR	Mar-06
13	Kotak Indo World Infra	DIV	Dec-07
14	Kotak Indo World Infra	GR	Dec-07
15	LIC Nomura Mf Infra	DIV	Feb-08
16	LIC Nomura Mf Infra	GR	Feb-08
17	Religare Infra	DIV	Oct-07
18	Religare Infra	GR	Oct-07
19	Sahara Infra Fixed Pricing	DIV	Mar-06
20	Sahara Infra Fixed Pricing	GR	Mar-06

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21	Sahara Infra Variable Pricing	DIV	Mar-06
22	Sahara Infra Variable Pricing	GR	Mar-06
23	Tata Infra	DIV	Dec-04
24	Tata Infra	GR	Dec-04
25	Taurus Infra	DIV	Mar-07
26	Taurus Infra	GR	Mar-07
27	UTI infra	DIV	Apr-04
28	UTI Infra	GR	Apr-04

Pharma Sector

1	Franklin Pharma	DIV	Mar-99
2	franklin Pharma	GR	Mar-99
3	SBI Msfu Pharma	DIV	Jul-99
4	SBI Msfu Pharma	GR	Jul-99
5	Reliance Pharma	DIV	May-04
6	Reliance Pharma	GR	May-04
7	UTI Pharma & Healthcare	DIV	Jun-99
8	UTI Pharma & Healthcare	GR	Jun-99

Technology Sector

1	Birla Sunlife New Millenium	DIV	Jan-00
2	Birla Sunlife New Millenium	GR	Jan-00
3	DSPBR Techology.com	DIV	Apr-00
4	DSPBR Techology.com	GR	Apr-00
5	Franklin Infotech	DIV	Aug-98
6	Franklin Infotech	GR	Aug-98
7	SBI MSFU IT		Jul-99

Source: Mutual Fund Insight, Volume VIII, Number 8

Results Of Performance Evaluation

Standard Deviation of the market is 2.623. Sharpe ratio of the market is 0.015.

The analysis of Sharpe's measure shown in Table 2 reveals that, Reliance Banking Fund and UTI Banking Fund has outperformed the market whereas JM financial services sector fund has underperformed the market as the sharpe ratio is less than the market. Among the six funds, Reliance Banking Growth Fund is the best performer as its value is highest (0.029).

The analysis of Treynor's ratio reveals that, Reliance Banking Fund and UTI Banking Fund has outperformed the market as their value is greater than the treynor's ratio of the market, whereas JM financial services sector fund has underperformed the market.

Table 2: Banking sector funds analysis

Name of the Scheme	Std Dev	Beta	Corre-lation	R-Squared	(Fund) Sharpe	(Fund) Treynor	(Market) Treynor	Jensen	Infor-mation	M-Squared
Jm Financial Services Sector (DIV)	2.279	0.296	0.340	0.116	-0.030	-0.229	-0.159	-0.079	9.555038817	-0.015
JM Financial Services SECTOR (GR)	2.570	0.331	0.329	0.108	-0.025	-0.194	-0.142	-0.078	8.877230606	-0.003
Reliance Banking (DIV)	2.156	0.327	0.397	0.158	0.020	0.133	-0.144	0.030	19.45701388	0.115
Reliance Banking (GR)	2.128	0.326	0.401	0.161	0.029	0.191	-0.144	0.049	24.43517174	0.139
UTI Banking Sector (DIV)	2.319	0.326	0.369	0.136	0.006	0.043	-0.144	0.001	14.15261268	0.078
UTI Banking Sector (GR)	2.241	0.329	0.385	0.148	0.022	0.151	-0.143	0.037	19.26559205	0.121

As per Jensen's measure, Reliance Banking Growth Fund is the best performer among all the six funds, with the highest Jensen's ratio.

As per Information Ratio, Reliance Banking Growth Fund is the best performer whereas JM financial services sector dividend fund has worse performance.

M^2 measure shows the similar results. Overall, we can say that, Reliance Banking Growth Fund is the best performer and JM financial services sector fund is the underperformer.

Standard deviation of the market is 1.469. Sharpe ratio of the market is 0.001.

The analysis of Sharpe's measure shown in Table 3 reveals that, Franklin FMCG Fund and SBI FMCG fund has outperformed the market whereas ICICI Prudential FMCG fund has underperformed the market as the sharpe ratio shows a negative value. Among the five funds, SBI FMCG fund is the best performer as its value is highest (0.033).

The analysis of Treynor's ratio reveals that, Franklin FMCG Fund and SBI FMCG fund has outperformed the market as their value is greater than the treynor's ratio of the market, whereas ICICI Prudential FMCG fund has underperformed the market with negative Treynor's ratio.

As per Jensen's measure, SBI FMCG Fund is the best performer among all the five funds, with the highest Jensen's ratio (0.036).

As per Information Ratio, Franklin FMCG Growth Fund is the best performer whereas SBI FMCG Fund has performance badly.

Franklin FMCG Dividend Fund is the best performer as per M^2 measure with the higher value of 0.086 among all five funds.

Standard deviation of the market is 1.313. Sharpe ratio of the market is 0.005.

The analysis of Sharpe's measure shown in Table 4 reveals that, all pharma funds have outperformed the market. Among 8 funds, Franklin Pharma Growth Fund has been the best performer with highest Sharpe ratio of 0.056.

The analysis of Treynor's ratio and Jensen's measure reveals that, all pharma funds have outperformed the market. Franklin pharma dividend fund has been the best performer.

As per Information Ratio, Franklin pharma growth fund has been the best performer among 8 pharma funds. M^2 measure also shows the similar results.

Table 3: FMCG analysis

Name of the Scheme	Std Dev	Beta	Corre-lation	R-Squared	(Fund) Sharpe Ratio	(Fund) Treynor Ratio	(Market) Treynor Ratio	Jensen Ratio	Infor-mation Ratio	M-Squared
Franklin Fmcg (DIV)	0.981	0.227	0.340	0.116	0.016	0.069	-0.270	0.015	41.311	0.086
Franklin Fmcg (GR)	0.980	0.296	0.444	0.197	0.014	0.047	-0.207	0.013	75.910	0.083
ICICI Prudential Fmcg (DIV)	1.246	0.368	0.433	0.187	-0.038	-0.127	-0.163	-0.048	17.198	0.007
ICICI Prudential FMCG (GR)	1.181	0.365	0.452	0.205	-0.011	-0.037	-0.164	-0.015	25.931	0.046
SBI MSFU FMCG	1.121	0.383	0.499	0.249	0.033	0.097	-0.157	0.036	-10.836	0.111

Table 4: Pharma sector analysis

Name of the Scheme	Std Dev	Beta	Corre-lation	R-Squared	(Fund) Sharpe	(Fund) Treynor	(Market) Treynor	Jensen	Infor-mation	M-Squared
Franklin Pharma (DIV)	1.552	0.309	0.258	0.066	0.047	0.236	-0.187	0.071	17.252	0.124
Franklin Pharma (GR)	1.019	0.241	0.311	0.097	0.056	0.235	-0.240	0.055	48.383	0.135
SBI Msfu Pharma (DIV)	1.477	0.369	0.327	0.107	0.005	0.020	-0.157	0.005	22.317	0.069
SBI Msfu Pharma (GR)	1.476	0.369	0.327	0.107	0.005	0.019	-0.157	0.005	22.256	0.069
Reliance Pharma (DIV)	1.395	0.313	0.295	0.087	0.036	0.162	-0.184	0.049	27.116	0.110
Reliance Pharma (GR)	1.349	0.321	0.312	0.097	0.050	0.212	-0.180	0.066	34.767	0.128
UTI Pharma & Healthcare (DIV)	1.135	0.281	0.326	0.106	0.009	0.038	-0.205	0.009	24.499	0.075
UTI Pharma & Healthcare (GR)	1.081	0.282	0.343	0.117	0.026	0.098	-0.205	0.026	32.394	0.096

Table 5: Infrastructure sector analysis

Name of the Scheme	Std Dev	Beta	Corre-lation	R-Squared	(Fund) Sharpe	(Fund) Treynor	(Market) Treynor	Jensen	Infor-mation	M-Squared
AIG Infrastructure and Economic Reform (DIV)	1.602	0.283	0.421	0.177	-0.025	-0.144	-0.284	-0.029	167.1363579	0.002
AIG INfrastructure and Economic Reform (GR)	1.602	0.283	0.421	0.177	-0.025	-0.144	-0.284	-0.029	167.1363579	0.002
Birla Sunlife Infrastructure (DIV)	1.174	0.030	0.049	0.002	-0.024	-0.942	-2.694	-0.027	23.2659492	0.005
Birla Sunlife Infrastructure (GR)	1.187	0.021	0.034	0.001	-0.030	-1.685	-3.844	-0.034	20.55166098	-0.008
Canara Robeco Infra (DIV)	1.844	0.276	0.356	0.127	-0.016	-0.105	-0.291	-0.017	238.6697914	0.025
Canara Robeco Infra (GR)	1.830	0.273	0.356	0.127	-0.011	-0.072	-0.294	-0.008	-4915.616316	0.037
DSPBR T.I.G.E.R (DIV)	1.849	0.279	0.359	0.129	-0.031	-0.207	-0.288	-0.046	57.42503557	-0.012
DSPBR T.I.G.E.R. (GR)	1.782	0.339	0.453	0.205	-0.020	-0.105	-0.237	-0.021	304.4179683	0.015
ICICI Prudential Infra (DIV)	1.900	0.453	0.568	0.322	-0.035	-0.145	-0.177	-0.046	45.32595619	-0.020
ICICI Prudential Infra (GR)	1.766	0.435	0.587	0.345	-0.019	-0.076	-0.184	-0.014	-261.416002	0.018
JM HI FI (DIV)	2.157	0.349	0.385	0.149	-0.066	-0.410	-0.230	-0.128	18.48036513	-0.096
JM HI FI (GR)	2.157	0.349	0.385	0.149	-0.066	-0.410	-0.230	-0.128	18.47798919	-0.096
Kotak Indo World Infra (DIV)	1.754	0.041	0.055	0.003	-0.027	-1.150	-1.968	-0.045	41.85079368	-0.001
Kotak Indo World Infra (GR)	1.754	0.041	0.055	0.003	-0.027	-1.150	-1.968	-0.045	41.85079368	-0.001
LIC Nomura Mf Infra (DIV)	2.244	-0.031	-0.033	0.001	-0.016	1.185	2.587	-0.038	48.26788824	0.023

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LIC Nomura Mf Infra (GR)	2.244	-0.031	-0.033	0.001	-0.016	1.185	2.587	-0.038	48.26785046	0.023
Religare Infra (DIV)	1.459	0.035	0.057	0.003	-0.032	-1.341	-2.301	-0.045	64.7463308	-0.014
Religare Infra (GR)	1.456	0.036	0.058	0.003	-0.032	-1.311	-2.246	-0.045	64.90585781	-0.014
Sahara Infra Fixed Pricing (DIV)	1.619	0.248	0.365	0.133	-0.027	-0.175	-0.324	-0.033	106.8678517	-0.002
Sahara Infra Fixed Pricing (GR)	1.619	0.248	0.365	0.133	-0.027	-0.175	-0.324	-0.033	106.96844	-0.002
Sahara INFRA Variable Pricing (DIV)	1.619	0.248	0.365	0.133	-0.025	-0.162	-0.324	-0.030	131.3077921	0.003
Sahara INFRA Variable Pricing (GR)	1.619	0.248	0.365	0.133	-0.025	-0.162	-0.324	-0.030	131.3077921	0.003
Tata INFRA (DIV)	1.896	0.329	0.412	0.170	-0.026	-0.150	-0.244	-0.035	78.37103211	0.000
Tata INFRA (GR)	1.888	0.328	0.414	0.171	-0.021	-0.121	-0.245	-0.026	129.3425704	0.012
Taurus INFRA (DIV)	2.064	0.338	0.390	0.152	-0.015	-0.092	-0.238	-0.017	183.0152715	0.026
Taurus INFRA (GR)	2.053	0.338	0.392	0.154	-0.011	-0.067	-0.237	-0.008	694.6923045	0.036
UTI INFRA (DIV)	1.585	0.224	0.319	0.102	-0.031	-0.220	-0.359	-0.040	17.62251224	-0.012
UTI INFRA (GR)	1.467	0.214	0.342	0.117	-0.035	0.020	-0.375	-0.042	27.40632328	-0.021

Table 6: Technology sector analysis

Name of the Scheme	Std Dev	Beta	Corre-lation	R-Squared	(Fund) Sharpe	(Fund) Treynor	(Market) Treynor	Jensen	Infor-mation	M-Squared
Birla Sunlife New Millenium (DIV)	1.688	0.381	0.484	0.234	-0.041	-0.179	-0.121	-0.082	9.940819462	-0.024
Birla Sunlife New Millenium (GR)	1.614	0.227	0.302	0.091	-0.020	-0.139	-0.204	-0.039	11.82937459	0.021
DSPBR Techology.com (DIV)	1.527	0.366	0.514	0.264	-0.013	-0.054	-0.126	-0.032	15.11604365	0.035
DSPBR Techology.com (GR)	1.532	0.308	0.432	0.186	-0.012	-0.058	-0.150	-0.029	14.25673318	0.037
Franklin Infotech (DIV)	2.044	0.178	0.187	0.035	0.004	0.047	-0.260	0.002	12.23846714	0.071
Franklin Infotech (GR)	1.908	0.172	0.193	0.037	0.023	0.258	-0.270	0.038	13.79500651	0.112
SBI MSFU IT	1.803	0.235	0.279	0.078	-0.004	-0.029	-0.197	-0.015	12.5190963	0.054

Standard deviation of the market is 2.283. Sharpe Ratio of the market is -0.018.

The analysis of Sharpe's measure shown in Table 6 reveals that, all infrastructure funds have outperformed the market. Among 28 funds, JM Hi-Fi Fund has been the best performer. The analysis of Treynor's ratio reveals that, LIC Nomura Fund has outperformed the market as well as it has been the best performer among 28 infrastructure funds. As per Jensen's measure, JM Hi-Fi Fund has been the best performer.

As per Information Ratio, Taurus Infra Growth Fund has been the best performer whereas Canara Robeco Infra Dividend Fund has shown worse performance. M^2 measure shows the similar results. Standard deviation of the market is 2.142. Sharpe Ratio of the market is -0.004.

The analysis of Sharpe's measure shown in Table 7 reveals that, Franklin Infotech Fund with the highet Sharpe ratio i.e. 0.023. The analysis of Treynor's ratio reveals the same results as that of Sharpe's ratio. As per Jensen's measure, Franklin Infotech Growth Fund has been the best performer among the 7 funds, with the highest Jensen's ratio (0.038). As per Information Ratio, DSP Black Rock Technology.com Dividend Fund has performed well whereas, Bila Sun Life New Millenium Dividend Fund has shown underperformance. Franklin Infotech Growth Fund is the best performer as per M^2 measure with the higher value of 0.112 among all 7 funds. Overall, we can say that, Franklin Infotech Fund has been the best performer.

Conclusion

The evaluation of the performance of the open-ended equity sector mutual funds reveal that, all the sector funds have outperformed the market according to the Sharpe and Treynor's Ratio except Infrastructure Sector funds. FMCG sector is the lowest volatility sector with low standard deviation and beta value having lower risk whereas Banking and Infrastructure sector shows highest degree of volatility subject to high risk among all the sectors considered together.

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Fundamental Factors Influencing Investment in Mutual Funds - EIC Approach - A Case Study of RCAML

K. Viyyanna Rao and Nirmala Daita

The present research is an attempt to analyse the influence of fundamental factors such as economy, industry and company on the performance of mutual funds. Effort has been made to carry out an in-depth analysis of the economy through collection of monthly data pertaining to the key macro economic variables covering a period of 228 months spread over 19 years. The causal relationship between real economic variables and their impact on the performance of mutual funds has been studied with the help of descriptive statistics consisting of suitable test statistics, correlation matrix, Augmented Dickey-Fuller (ADF) test, and Granger causality test. To appraise the mutual fund industry in a lucid style, various aspects such as Assets Under Management (AUM), investor type and product classification have been studied with the help of percentage analysis. Finally, the fundamental soundness of the company has been gauged against the chosen parameters with the support of descriptive statistics, correlation matrix, simple regression and multiple regressions.

Introduction

With the growing risk appetite, rising income, and increasing awareness, mutual funds in India are becoming a preferred investment option compared to other investment avenues like Fixed Deposits (FDs) and postal savings that are considered safe but give comparatively low returns. Before investing in mutual funds, investors have to analyse the factors of the economy, industry and company within the investment environment in which they operate. There are several macro economic factors having influence on the investment choices. The investigator intends to study more particularly, the impact of quantitative economic variables on the investment of mutual funds. The trends of the industry also have to be examined from time to time. In response to the changing circumstances, the fund houses have introduced a host of interesting technological innovations to grab the attention of the investors. Investors need to correctly appraise the risks and rewards of investing in schemes which seek to offer attractive returns.

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Objectives of the Study

The study aims at concentrating on the fundamental factors influencing the investment in mutual funds. In this direction the following objectives have been framed:

● To study the nature of causal relationship that exist between mutual fund market and real economic variables;

● To explore the present status and product offering of mutual fund industry in India;

● To examine the characteristics of funds that affect the performance of Reliance Capital Asset Management company

Hypotheses

In the light of the above objectives, the study attempts to test the following hypotheses:

Economy: The investigator has developed the following hypotheses to test empirically the impact of economy on the investment in mutual funds by taking S&P CNX Nifty, as bench mark index (dependent variable). The key economic variables included in the study are; RBI Bank Rate, Domestic Savings, Forex Reserves, Gross Domestic Capital Formation (GDCF), Gross Domestic Product (GDP), Broad Money (M3), Per-capita Gross National Product (GNP) and Wholesale Price Index (WPI) (as independent variables).

H0: RBI Bank Rate does not influence S & P CNX Nifty.
H1: RBI Bank Rate influence S & P CNX Nifty.

H0: Domestic Savings does not influence S & P CNX Nifty
H2: Domestic Savings influence S & P CNX Nifty

H0: Forex Reserves does not influence S & P CNX Nifty
H3: Forex Reserves influence S & P CNX Nifty

H0: GDCF does not influence S & P CNX Nifty
H4: GDCF influence S & P CNX Nifty

H0: GDP does not influence S & P CNX Nifty
H5: GDP influence S & P CNX Nifty

H0: Money Supply does not influence S & P CNX Nifty
H6: Money Supply influence S & P CNX Nifty

H0: Per-capita GNP does not influence S & P CNX Nifty
H7: Per-capita GNP influence S & P CNX Nifty

H0: WPI does not influence S & P CNX Nifty
H8: WPI influence S & P CNX Nifty.

Company: In order to test the performance of the company, the investigator examined the performance of variables and developed a hypothesis by taking mutual fund return as dependent variable and the factors affecting are Popularity variables (fund size, market capitalisation, net asset value), Growth variables (P/E, P/B), Risk variables (standard deviation and beta), Cost variables (expenses) and Management variables (turnover, management tenure, fund age) as independent variables. The test hypotheses are:

Ho: Fund size does not influence the performance of mutual funds.
H1: Fund size influences the performance of mutual funds.

Ho: Market capitalization does not influence the return.
H2: Mutual funds returns influenced with market capitalization.

Ho: Net asset value does not impact the return.
H3: Net asset value does impact the return.

Ho: Growth variables (P/E, P/B) do not influence the return of the mutual fund.
H4: Growth variables (P/E, P/B) influence the return of the mutual fund.

Ho: Risk variables (standard deviation and beta) do not influence the return.
H5: Risk variables (standard deviation and beta) influence the return.

Ho: Expenses has no impact on the return of mutual funds.
H6: Funds with high expenses generate higher returns than low expenses.

Ho: Turnover does not influence the return.
H7: Funds turnover influence the return of mutual funds.

Ho: Management tenure has no impact on the return of funds.
H8: Management tenure impact the return of funds.

Ho: Fund age does not influence the performance of the funds.
H9: Fund age influence the performance of the funds.

Data Collection and Statistical Techniques

For the purpose of conducting a detailed study on the fundamental aspects relating to the economy, industry and company, the pertinent data have been gathered from diverse sources. The data relating to the key macro economic variables for a period of 228 months (covering 19 years) was gathered from the Economic Survey 2009-10, Handbook of Statistics on Indian Economy 2009-10. The data pertaining to the structure of the industry was collected from the web sites of www.mutualfundsindia.com, www.valueresearchonline.com, www.amfiindia.com to understand the current status of the players in the industry. For analyzing the company the investigator considered Reliance mutual fund, the current market leader of the industry with respect to AUM. In order to analyse the fundamental soundness of Reliance mutual funds, data have been obtained from the fact sheets of reliance mutual funds covering the period 1995-2010.Efforts have also been made to select a sample which includes all such funds that were in existence for at least 60 months as on July 6, 2010. Despite a total of 21 schemes following fell under the above criterion, due to the constraint of data availability for the chosen parameters, a sample of 11 schemes (Table-1) has been considered out of a population of 80 schemes operated by Reliance. The sample fairly represents about 14 per cent of the total schemes offered by Reliance mutual funds.

The study pertains to analyzing the impact of several variables on the investment choices. The focus is mainly on the following:

Economy Analysis: For want of indepth analysis of the economy, the monthly data of macro economic variables have been opted for the study. First, the

Table 1: Details of RCAML performance variables

Fund Name	1 Year Return	Fund Size (Rs. Cr)	Market Cap (Rs. Cr)	NAV as on 6th July 2010	P/B Ratio	P/E Ratio	S.D	Beta	Expense Ratio (%)	Tur- nover (%)	Tenure (Yrs.)	Fund Age (Mths.)
Reliance Growth	44.43	7,494,607,494.60	14,598.94	458.83	4.06	26.92	37.05	1.01	1.79	18	6	177
Reliance Vision	38.16	3,567,543,567.54	39,868.08	265.02	4.16	24.76	34.59	0.95	1.82	86	6	177
Reliance Banking Retail	53.80	1,158,461,158.46	20,106.39	88.38	1.92	15.79	39.86	0.81	2.04	6	5	86
Reliance Diversified Power Sector Retail	32.90	5,324,745,324.74	19,679.59	82.06	4.37	34.19	38.22	1.02	1.80	19	6	75
Reliance Pharma	111.32	45178451.78	5,253.43	53.86	6.44	27.40	35.95	1.08	2.36	21	5	74
Reliance Media & Entertainment	53.39	12953129.53	2,629.32	28.60	2.91	15.22	40.83	0.98	2.43	25	5	70
Reliance NRI Equity	39.02	13571135.71	23,784.10	37.67	3.53	21.49	36.70	0.99	2.43	11	2	68
Reliance Equity Opportunities	69.36	2,112,972,112.97	9,792.81	33.32	3.88	25.05	37.31	1.00	1.91	46	5	64
Reliance Regular Savings Balanced	33.47	55391553.91	34,355.59	21.15	3.37	21.06	28.44	1.05	2.37	187	3	62
Reliance Regular Savings Equity	40.44	2,808,182,808.18	21,439.80	29.56	3.25	29.18	41.37	1.08	1.90	40	3	62
Reliance Tax Saver	45.30	2,184,442,184.44	13,487.91	20.09	4.00	26.90	33.18	0.88	1.89	73	5	59

Compiled from Website of Reliance Capital Asset Management Ltd (RCAML)

monthly data collected have been processed through MS-Excel to conduct the descriptive statistics and correlation matrix. The descriptive statistics examined mean, median, maximum and minimum values; standard deviation, skewness, kurtosis, Jarque-Bera (JB) and probability. The correlation matrix helped to know the variables on which we need to apply Granger causality test. Then, unit root Augmented Dickey-Fuller (ADF) test has been conducted on all the variables to check their stationarity, in order to fulfill the pre condition of Granger causality. Finally, Granger causality test was applied to measure the causal relationship between real economic variables and their impact on mutual funds in India.

Industry Analysis: The data relating to the various aspects of industry such as AUM, investor type and product classification have been studied with the help of percentage analysis.

Company Analysis: The fundamental soundness of the company has been tested with the help of chosen parameters. In the process of evaluation, descriptive statistics, Correlation matrix simple and multiple regressions have been used. The descriptive statistics examine mean, median, minimum value, and maximum value. Further to analyse the degree of relationship among the variables, correlation matrix has been applied. Finally, by using MS-Excel, simple and multiple regressions were conducted to know the extent of relationship and the influence of variables on the performance of the company.

Results and Discussion

Economy Analysis: The Economy variables were tested for their significance in influencing the investment choices of mutual funds. The macro economic variables were represented by RBI bank rate, domestic savings, GDCF, GDP, M3, per-capita GNP, and WPI whereas influence of Mutual Funds investment choices of represented by S&P CNX Nifty. The testing carried on with the

Table 2: Descriptive statistics- macroeconomic variables

Particulars	RBI Bank Rate	Domestic Savings	Forex Reserves	GDCF at Current Prices	GDP at Factor Cost	Broad Money (M3)	Per Capita GNP	WPI	S&P CNX Nifty
Mean	8.75	5.26	5.27	5.26	5.26	5.27	5.26	5.27	5.27
Median	8.00	3.90	2.40	3.90	4.60	3.90	4.90	5.30	3.50
Minimum	6.00	1.00	0.20	1.10	1.30	0.90	1.70	3.40	1.20
Maximum	12.00	14.50	18.90	15.10	12.80	15.90	11.80	7.40	16.00
Std Deviation	2.52	4.27	5.77	4.33	3.29	4.24	2.87	1.18	3.85
Kurtosis	-1.69	-0.21	0.37	0.01	-0.33	0.22	-0.36	-1.12	1.39
Skewness	0.17	1.04	1.26	1.14	0.80	1.08	0.76	0.11	1.56
Jarque-Bera (JB)	185.45	38.01	34.10	32.84	50.12	36.96	52.32	126.92	92.97
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	228	228	228	228	228	228	228	228	228

Table 3: Correlation between macroeconomic variables

Particulars	RBI Bank Rate	Domestic Savings	Forex Reserves	GDCF at Current Prices	GDP at Factor Cost	Broad Money (M3)	Per Capita GNP	WPI	S&P CNX Nifty
RBI Bank Rate	1.0000								
Domestic Savings	-0.8147	1.0000							
Forex Reserves	-0.7774	0.9924	1.0000						
GDCF at Current Prices	-0.7909	0.9984	0.9920	1.0000					
GDP at Factor Cost	-0.8658	0.9880	0.9751	0.9842	1.0000				
Broad Money (M3)	-0.8322	0.9904	0.9887	0.9887	0.9943	1.0000			
Per Capita GNP	-0.8583	0.9841	0.9686	0.9813	0.9970	0.9881	1.0000		
WPI	-0.2083	0.4241	0.4744	0.4278	0.3616	0.4250	0.3417	1.0000	
S & P CNX Nifty	-0.6548	0.9517	0.9489	0.9564	0.9122	0.9192	0.9132	0.4170	1.0000

support of descriptive statistics, correlation matrix, Augmented Dickey Fuller (ADF) test and Granger test.

The descriptive statistics developed to analyse the impact of the economy revealed that the standard deviation of forex reserves is relatively high among other variables, indicating volatility by 5.77% around its mean value. Skewness of all the variables is found positive. Kurtosis found that forex reserves, GDCF at Current Prices, Broad Money and S & P CNX Nifty were positively skewed and the rest negatively skewed. The calculated value of Jarque-Bera (JB) statistics is very high and compels to accept the null hypothesis, while probability is zero (see Table 2). The test statistics follows a chi-square distribution with 2 degrees of freedom.

The correlation matrix revealed that all the variables were positively correlated with each other except bank rate and WPI. Bank rate found with a high negative correlation and WPI with a low correlation (Table 3). Since high or low degree of correlation certainly does not signify or rules out causality between the variables under consideration, further econometric tools were applied.

The Augmented Dickey Fuller (ADF) test is applied on the variables to check their stationarity as a precondition of Granger causality and found all the variables were stationary at 5% significance level i.e., 1.645 (Table 3). Finally, the Granger causality test revealed that no bi-directional causality exist between macro-economic variables and mutual fund market (Table 4). The real economic variables considered during the study period are not significantly influencing the investment of mutual funds.

Industry Analysis: The Indian mutual fund industry is operating by different fund houses and categorised into three major groups such as Bank Sponsored, Institutions and Private Sector. Further based on the nationalities of sponsoring / controlling entities, these groups can be classified into Indian,

Table 4: Unit Root (ADF) test for macroeconomic variables

Variables	ADF Statistic
RBI Bank Rate	-0.2389
Domestic Savings	-0.8709
Forex Reserves	-0.7411
Gross Domestic Capital Formation	-0.8980
Gross Domestic Product	-1.1684
Money Supply (M3)	-1.1218
Per capita Gross National Product	-0.8690
Wholesale Price Index	0.2124
S & P CNX Nifty	-0.0871

Note: Stationarity at 5% level of significance

Table 5: Granger Causality test for macroeconomic variables

Direction of Causality (Null Hypothesis)	Observations	F-Statistic	Probability
RBI Bank Rate does not Granger cause S&P CNX Nifty	228	0.0269	0.9734
S&P CNX Nifty does not Granger cause RBI Bank Rate		0.0517	0.9496
Domestic Savings does not Granger cause S&P CNX Nifty	228	0.0517	0.9496
S&P CNX Nifty does not Granger cause Domestic Savings		0.2461	0.7820
Forex Reserves does not Granger cause S&P CNX Nifty	228	0.0339	0.9667
S&P CNX Nifty does not Granger cause Forex Reserves		0.1198	0.8871
GDCF does not Granger cause S&P CNX Nifty	228	0.0453	0.9557
S&P CNX Nifty does not Granger cause GDCF		0.2066	0.8135
GDP does not Granger cause S&P CNX Nifty	228	0.0601	0.9417
S&P CNX Nifty does not Granger cause GDP		0.3943	0.6746
Money Supply does not Granger cause S&P CNX Nifty	228	0.0486	0.9526
S&P CNX Nifty does not Granger cause Money Supply		0.2528	0.7768
Per-capita GNP does not Granger cause S&P CNX Nifty	228	0.0471	0.9540
S&P CNX Nifty does not Granger cause Per-capita GNP		0.2416	0.7856
WPI does not Granger cause S&P CNX Nifty	228	0.0100	0.9900
S&P CNX Nifty does not Granger cause WPI		0.0006	0.9994

Note: Stationarity at 5% level of significance

Foreign and Joint Ventures, the last category can be divided into - Predominantly Indian and - Predominantly Foreign (Table 6). Currently (as on 31st March 2010), 38 mutual fund players were operating in India. Among all the players Reliance, HDFC, ICICI Prudential, UTI and Birla Sun Life stood in the top five positions with 14.54%, 12.31%, 10.80%, 10.33% and 9.04% respectively contributing 57.02% of total assets under management of the industry; while the remaining 33 players shared the rest of the 42.98% of the industry (Table 6). Out of the top five players, Reliance is purely Indian player. HDFC, ICICI Prudential and Birla Sun Life are all predominantly Indian cross-border joint ventures, while UTI, the former monopolist is an Indian financial institution. The industry is dominated by private sector funds with about 75% of AUM followed by bank sponsored (19 per cent) and institutions (6%) (Table 5).

The Industry is now offering all most all broad types of schemes that are offered around the world. The industry is offering 92.96% of open ended schemes and 7.04% of closed ended schemes. In the open ended category of funds, 60.99% are income schemes, 21.38% are growth schemes, 11.33% are liquid/money market funds, 2.88% are ELSS, 2.18% are balanced funds,0.46% are Gilt funds, 0.39% FOF investing overseas, 0.23% are Gold ETF, and the remaining 0.17% are other EFT schemes (Table 7). In the closed ended category of funds the industry is offering only few varieties of schemes - 58.09% are income schemes, 33.37% are Growth funds, 5.63% are ELSS and 2.91% are balanced funds (Table 7).

The investment contribution of different investors paved a way for a massive growth of mutual fund industry in the recent years. The break up of the aggregate mutual fund market by investor type for different product categories can be seen in the Table 7. Corporate assets account for over half of the

Table 6: Types of schemes offered by the mutual fund market as on April 30, 2010

(Rs. in Crores)

Nature	Schemes				
	Open End		Close End		Total
Balanced	16127	2.18%	1630	2.91%	17757
ELSS	21328	2.88%	3157	5.63%	24485
FOF Investing Overseas	2872	0.39%	-		2872
Gilt	3436	0.46%	-		3436
GOLD ETF	1711	0.23%	-		1711
Growth	157960	21.36%	18699	33.37%	176659
Income	451073	60.99%	32553	58.09%	483626
Liquid/Money Market	83827	11.33%	-		83827
Other ETF	1271	0.17%	-		1271
Total	739605	100.00%	56039	100.00%	795644
Per Cent of Total	92.96%		7.04%		100.00%

Source: AMFI Website

Table 7: Break-up of mutual fund market by investors of different product categories as on April 30, 2010

Particulars	Liquid / Money Market	Gilt	Debt Oriented	Equity Oriented	Balanced	Gold ETF	ETFs (other than Gold)	Fund of Funds Investing Overseas	Total	Per Cent
Corporates	60527.71	2954.38	223284.90	23009.53	2084.88	594.22	303.43	628.12	313387.17	50.99%
Banks / FIs	6389.50	16.99	9285.82	2293.08	62.42	1.76	5.53	50.19	18105.29	2.95%
FIIs	2565.95	0.00	1081.80	1383.59	3.11	3.00	62.56	0.04	5100.05	0.83%
High Networth Individuals*	4921.47	342.73	62530.71	39826.21	4663.24	509.16	467.17	1236.88	114497.57	18.63%
Retail	1348.18	146.93	18146.67	133298.38	8969.41	482.49	117.90	945.91	163455.87	26.60%
Total	75752.81	3461.02	314329.93	199810.78	15783.06	1590.63	956.59	2861.16	614545.98	100.00%
Per Cent	(12.33)	(0.56)	(51.15)	(32.51)	(2.57)	(0.26)	(0.16)	(0.47)	(100.00)	

Source: AMFI Website

total assets under management (50.99%), while the Retail investors account for 26.60%, High Networth Individuals (investing five lakhs and above) make up about 18.63%, Banks / Financial Institutions contribute 2.95% and the remaining share of 0.83% by FIIs (see Table 7). When analysed on the basis of schemes, it is clear that Debt oriented schemes dominated by 51.57% followed by equity schemes, liquid/money market schemes, balanced schemes.

Company Analysis: The performance of the company analysed with the aid of descriptive statistic reveals that all attributes, mean and median are close to each other except for NAV, funds size and market capitalisation, owing to the reason that some funds are much bigger than others (Table 8). In the process of deriving logical analysis through correlation, it is found that some attributes of funds correlated significantly with each other (Table 9). Returns and market capitalisation have a high degree of negative correlation, indicating that the company is following the growth strategy by reinvesting its earnings and offering less return to fund holders. This is the reason that reliance has reached a number one position in AUM within a short span of time in comparison to the other players in the market. Fund size has a positive correlation with NAV and P/E Ratio indicating that earnings increases with the increase in fund size. A high positive correlation is found between fund age and its NAV as is evident from the fund's longevity and performance. A high negative correlation is found with turnover and standard deviation which signifies that increase in turnover is reducing the risk of the funds.

Simple regression analysis is performed to examine how the fund attributes influenced the returns individually for different schemes. The study found that the market capitalisation recorded 39.01 percent which has highest coefficient followed by P/B ratio 36.38 percent (Table 10). Further, multiple regression analysis is performed to know the extent of influence of two or more fund characteristics over the return. The study revealed that P/E Ratio

Table 8: Company analysis by individual parameters (Case study of RCAML)

Variables	N	Mean	Median	Min value	Max value
Return	11	51.05	44.43	32.90	111.32
Fund Size	11	2252549901.99	2112972112.97	12953129.53	7494607494.60
Market Cap	11	18636.00	19679.59	2629.32	39868.08
NAV	11	101.68	37.67	20.09	458.83
P/B Ratio	11	3.81	3.88	1.92	6.44
P/E Ratio	11	24.36	25.05	15.22	34.19
Std. Deviation	11	36.68	37.05	28.44	41.37
Beta	11	0.99	1.00	0.81	1.08
Expense Ratio	11	2.07	1.91	1.79	2.43
Turnover	11	48.36	25	6	187
Tenure	11	4.64	5	2	6
Fund Age	11	88.54	70	59	177

Table 9: Correlation between variables (Case study of RCAML)

Variables	Return	Fund Size	Market Cap	NAV	P/B Ratio	P/E Ratio	S.D	Beta	Expense Ratio	Turno-ver	Te-nure	Fund Age
Return	1.0000											
Fund Size	-0.3453	1.0000										
Market Cap	-0.6246	0.1108	1.0000									
NAV	-0.1616	0.7733	0.1932	1.0000								
P/B Ratio	0.6031	0.1110	-0.2217	0.1134	1.0000							
P/E Ratio	-0.0179	0.6032	0.0454	0.1635	0.6163	1.0000						
S.D	0.1163	0.1497	-0.4751	0.0032	-0.2680	-0.0519	1.0000					
Beta	0.1914	0.0445	-0.0573	-0.0371	0.5433	0.4753	-0.0735	1.0000				
Expense Ratio	0.3019	-0.8387	-0.1854	-0.4947	0.0012	-0.5901	-0.1536	0.2024	1.0000			
Turnover	-0.3076	-0.2083	0.5740	-0.1460	-0.0394	-0.0632	-0.8308	0.1680	0.1226	1.0000		
Tenure	0.1779	0.5889	-0.2213	0.5324	0.2630	0.2388	0.1361	-0.2727	-0.5827	-0.2384	1.0000	
Fund Age	-0.1684	0.6534	0.3501	0.9466	0.1085	0.0808	-0.0399	-0.1049	-0.4625	-0.0592	0.5479	1.0000

Table 10: Simple regression results for RCAML

	Coefficient	t Stat	P-value	R square
Fund Size	3.191680596	-1.103615456	0.298392366	11.92 %
Market Cap	-0.001243369	-2.399258270	0.039946436	39.01 %
NAV	-0.026564211	-0.491358912	0.634932441	2.61 %
P/B Ratio	12.243123737	2.268403153	0.049492102	36.38 %
P/E Ratio	-0.071578482	-0.053598544	0.958425904	0.03 %
Std. Deviation	0.710319911	0.351340607	0.733417652	1.35 %
Beta	52.794133550	0.584858387	0.573011153	3.66 %
Expense Ratio	25.202437214	0.950154610	0.366849568	9.12 %
Turnover	-0.132500445	-0.969767593	0.357500560	9.46 %
Tenure	2.956225490	0.542432885	0.600691842	3.16 %
Fund Age	-0.085834994	-0.512454265	0.620671860	2.84 %

Note: Confidence level 95 percent

Table 11: Multiple regressions results for RCAML

Coefficient	t Stat	P-value	R square	
Fund Size	-5.633969096	-1.505363310	0.175948815	54.06 %
Market Cap	-0.001275637	-2.449387238	0.044146915	
NAV	0.071235519	1.056971056	0.325631420	
P/B Ratio	20.101987606	3.525165176	0.007786851	60.85 %
P/E Ratio	-2.517099779	-2.236167571	0.055757864	
Std. Deviation	0.800526392	0.380125212	0.713745971	5.37 %
Beta	55.452383258	0.582800531	0.576082121	
Expense Ratio	25.202437214	0.950154610	0.366849568	9.12 %
Turnover	-0.109562046	-0.724735796	0.492122231	19.32 %
Tenure	5.170893855	0.743170316	0.481570583	
Fund Age	-0.180436658	-0.868793619	0.413753081	

Note: Confidence level 95 percent

and P/B Ratio are significant in this context (Table 11). Growth variables such as return (P/B, P/E ratios) and popularity variables (fund size, market capitalisation, NAV) are found to be having significant influence on the return of the funds.

Conclusion

It is evident from the study that the real economic variables considered during the period of study are not significantly influencing the investment in mutual funds and even to predict the market movements. The study has shown that, the state of the economy neither significant bearing on the mutual fund market nor on the health of mutual funds. The study thus highlights the fact that there are certain other macro economic factors that might be exerting influence on the investment of mutual funds. Future

research could be carried out in that direction. The industry analysis has revealed the fact that the entire mutual fund industry is dominated by a few players with big chunk of their Assets Under Management (57 percent). Further, the study reveals the fact closed-ended funds have lost their utility with the investing public. Company analysis has shown that P/B Ratio and P/E ratio have great impact on the returns produced by a fund followed by fund size and market capitalisation.

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Impact of Currency Future Trading on Base Metals Prices: An Analytical Study

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In developed nations like US and UK, the relationship between physical trading and volume and currency price is inverse in nature. This research paper is an attempt to consider the investor behaviour regarding currency future trading in India. The results were analysed with the help of statistical tools and techniques i.e. Average method, and Karl Pearson Correlation Coefficient Method. It is identified that there exits negative high degree of correlation between Currency Future and four Base Metals except that of Copper metal.

Introduction

Currency Futures can be defined as a standardised foreign exchange, where derivatives contract traded on a recognised stock exchange to buy or sell one currency against another. Currency derivatives can be described as contracts between sellers and buyers whose values are settled according to the recognised exchange rate. Most of the exporters and importers use the currency derivatives for hedging purpose and some of the traders also used the currency derivatives as instruments for speculation. Currency future or derivatives today makes the easiest way for the exporters and importers to hedge their fund. It helps them to restraint their investment and this hedging increase the volume in the currency future market. Currency Derivatives i.e. Currency Future is similar as Index future.

Currency Future are standardised in terms of contract sizes, settlement procedures and traded on regulated exchanges. The contract size is fixed and is referred to as lot size. Future contract are traded through exchanges, the settlement of the contract is guaranteed by the exchange or clearing corporation and hence there is no counter party risk. In India, the currency future trading was started on 29th August 2008 in National Stock Exchange (NSE), in Multi Commodity Exchange (MCX) on 7th Oct. 2008 and in Bombay Stock Exchange on 1st Oct. 2008. Currency Future trading play a vital role in developed nations and developing nations. It makes so much volatility in metal prices in terms of online trading as well as in physical trading. After the starting of currency future trading in India the volatility increased in the MCX non precious metal. The total number of contract traded before starting of currency future trading in non precious metal are 84186 (lots) and after the starting of currency future trading 69358 (lots). It shows that there is lot of volatility in the metal market and sometimes it increases the

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volume or it decreases the volume. Multi Commodity Exchange of India Ltd (MCX) is a state of the art electronic commodity future exchange.

Literature Review

Since the beginning of trading in financial futures and options in the 1970's, the effect of financial derivatives trading on the underlying spot markets has been of great interest to both academics and practitioners. One of the issues commonly investigated by finance researchers is whether futures trading increases the price volatility of underlying markets and thus leads to destabilisation of these markets. Previous studies provide mixed evidence on this issue. Investigating the market behaviour (such as currency price volatility, metal market depth and trading volume) is an important aspect of research on the market microstructure literature. Tauchen and Pitts (1983) argue that these three variables are closely related. However, most studies deal with mutual contemporaneous relationship between two of those three dimensions and reach no consistent results. Very few empirical papers investigate the dynamic nature of the interactions, such as the feedback effects between those three variables.

The relationship between currency future and trading volume has been examined frequently and usually is in a positive correlation between volatility and trading volume. Copeland (1976), develop sequential arrival of information models where new information flows into market to generate both trading volume and price movement. Karpoff (1987) identified relation between price changes and trading volume in financial markets. Eighteen of nineteen empircal papers support the positive correlation between volatility and trading volume. Bessembinder and Segun (1993) accommodate persistence in the positive relationship on eight futures market by ARCH-GARCH empirical method. There are few studies for the analysis of return volatility and trading volume incorporating with the market depth, which is proven to be fundamentally related to trading activity and market behaviour of return volatility (Bessembinder and Seguin, 1992).

Some studies provide empirical results that support the opinion that trading in futures can destabilize the spot market. For example, Figlewiski (1980) investigates the futures contracts for Treasury Bills (GNMA pass through certificates) and provides evidence that futures market activity increases the volatility of cash prices. More recent study by Bae, Kwon and Park (2004) focused on the effect of the introduction of index futures trading in the Korean markets on spot price volatility. The authors concluded that introducing the futures and options trading on the Korean stock exchange resulted in both larger spot price volatility and greater market efficiency (allowing for quicker adjustment of market prices to information). Taylor (1998) investigates precious metals (gold, platinum and silver) reactions against inflation. He tested the hypothesis that precious metals act as short-run and long-run hedges against inflation. He focused his analysis on the period before 1939 and around the second OPEC oil shock in 1979. During no other period could precious metals be used to hedge inflation. His analysis notices that the belief that precious metals (in particular gold) have always acted as hedges against inflation until very recently is completed unfounded.

He found that there have been particular periods during the last 80 years when precious metals have been used as a short-run hedge against inflation, but they could not be used to hedge inflation around the first oil crisis in 1973/74 or during the last ten years. Since he found a co integrated relationship between metal prices and the level of CPI with the help of a VAR model, it can be inferred that precious metals can be used as a long-run inflation hedge.

The combined average daily turnover of the currency futures contracts in all the three exchanges (NSE, BSE, MCX) increased from USD 1.1 billion in March 2009 to 2.5 billion in September 2009. This means a growth of more than 125% in just six months period. The main objective of this paper is to analyse the impact of Currency Future US$ on base metal with reference to India.

Research Hypothesis

H_0: There is positive relationship between currency future US$ trading and volume trading of base metals in Indian market.

H_1: There is negative relationship between currency future US$ trading and volume trading of base metals in Indian market

Research Methodology

The research design of the paper is causal in nature. Data was collected from different journals, magazines, and internet sites. Data was analysed by Karl Pearson's Correlation Coefficient Method.

Data collected was monitored on daily basis for twenty seven months. 5 metals such as Aluminium, Copper, Lead, Nickel, and Zinc were taken into consideration and their day to day prices were collected and averaged for twenty seven months.

Discussion

The impact of currency future i.e. US$ on base metals depend on the day to day trading prices of currency as well as metals. To find out the impact of currency on base metals we need the daily transaction prices, for this we collect it from secondary resources.

Table 1: Average closing rate of five different base metals and exchange rate of US$ in Indian rupee (Yearly/Quarterly/Monthly)

Year wise Monthly details	Exchange Rate of US$ (INR)	Alu- minium	Copper	Lead	Nickel	Zinc
2008: Quarter 4						
October	49.19	102.96	230.27	71.31	567.65	62.00
November	49.16	91.91	187.13	64.21	540.38	57.65
December	48.80	73.38	152.75	47.27	481.86	54.44
Mean	49.05	89.42	190.05	60.93	529.96	58.03
Standard deviation	0.22	14.95	38.84	12.35	43.83	3.79
Value of 'R'		0.952	0.868	0.975	0.970	0.857

contd...

2009: Quarter 1

January	48.93	70.11	161.84	55.75	564.14	59.14
February	49.33	66.32	165.30	54.42	516.73	55.57
March	51.35	68.98	195.43	64.18	500.56	63.17
Mean	49.87	68.47	174.19	58.12	527.14	59.29
Standard deviation	1.30	1.95	18.48	5.29	33.04	3.80
Value of 'R'		0.074	0.998	0.961	-0.799	0.800

2009: Quarter 2

April	50.11	72.56	225.97	70.25	567.19	69.98
May	48.58	71.39	225.93	70.46	616.29	72.54
June	47.86	76.07	241.59	80.00	717.74	74.88
Mean	48.85	73.34	231.16	73.57	633.74	72.47
Standard deviation	1.15	2.44	9.03	5.57	76.78	2.45
Value of 'R'		-0.564	-0.745	-0.759	-0.920	-0.984

2009: Quarter 3

July	48.50	81.30	254.93	81.40	715.30	76.90
August	48.38	93.25	299.62	92.52	936.68	88.20
September	48.52	89.15	302.76	106.96	844.04	91.19
Mean	48.47	87.90	285.77	93.63	832.01	85.43
Standard deviation	0.08	6.07	26.75	12.82	111.18	7.54
Value of 'R'		-0.671	-0.326	0.206	-0.732	-0.190

2009: Quarter 4

October	46.73	88.20	298.31	104.95	868.83	97.30
November	46.58	91.38	312.38	107.43	792.86	102.66
December	46.66	102.41	330.51	109.12	808.17	111.75
Mean	46.66	94.00	313.73	107.17	823.29	103.90
Standard deviation	0.08	7.46	16.14	2.10	40.18	7.30
Value of 'R'		-0.175	-0.401	-0.560	0.932	-0.331

2010: Quarter 1

January	46.00	103.11	339.52	108.98	852.54	111.78
February	46.37	95.74	319.70	99.36	886.78	100.50
March	45.55	101.00	341.79	99.33	1024.22	104.03
Mean	45.97	99.95	333.67	102.56	921.18	105.44
Standard deviation	0.41	3.80	12.15	5.56	90.86	5.77
Value of 'R'		-0.651	-0.884	0.059	-0.792	-0.252

2010: Quarter 2

April	44.52	103.75	346.13	101.09	1155.72	105.93
May	45.78	94.55	317.15	87.12	1014.32	91.27
June	46.65	90.25	302.74	79.90	906.59	81.89
Mean	45.65	96.18	322.01	89.37	1025.54	93.03
Standard deviation	1.07	6.90	22.10	10.77	124.94	12.12
Value of 'R'		-0.995	-0.996	-0.997	-1.000	-1.000

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2010: Quarter 3

July	46.92		93.77	318.31	86.95	921.26	87.13
August	46.70		98.22	341.41	97.36	1003.43	96.14
September	46.14		100.34	357.69	101.24	1054.40	99.58
Mean	46.59		97.44	339.14	95.18	993.03	94.28
Standard deviation	0.40		3.35	19.79	7.39	67.18	6.43
Value of 'R'			-0.901	-0.941	-0.875	-0.928	-0.878

2010: Quarter 4

October	44.55		104.70	371.56	106.45	1060.99	105.98
November	45.10		105.36	382.68	107.11	1033.46	103.43
December	45.24		106.96	417.10	109.34	1092.18	103.46
Mean	44.96		105.67	390.45	107.63	1062.21	104.29
Standard deviation	0.36		1.16	23.74	1.51	29.38	1.46
Value of 'R'	0.844	0.815	0.805	0.227	-0.979		

The quarter 2008 (4) shows, there exits high positive correlation between exchange rate of US$ and Prices of Base Metals. We can also infer there exist a direct linear relation between two variables. The quarter 2009 (1) shows, there exits high positive correlation between exchange rate of US$ and Prices of three base metals i.e. Copper, Lead and Zinc, but very low positive correlation relationship with Aluminium in the quarter. Negative high correlation is with Nickel. The quarter 2009 (2) shows, there exits high negative correlation between exchange rate of US$ and Prices of three base metals i.e. Lead, Nickel and Zinc, but very moderate negative correlation relationship with Aluminium and Copper. The quarter 2009 (3) shows, there exits negative moderate correlation between exchange rate of US$ and Prices of three base metals i.e. Aluminium, Copper and Nickel; whereas, negative low correlation relationship with Zinc but positive correlation with Lead. The quarter 2009 (4) shows, there exits negative moderate correlation between exchange rate of US$ and Prices of three base metals i.e. Copper, Zinc and Lead; whereas, negative low correlation relationship with Aluminium. Positive high correlation relationship exits with Nickel. The quarter 2009 (5) shows, there exits negative high correlation between exchange rate of US$ and Prices of two base metals i.e. Copper and Nickel; whereas, negative moderate correlation relationship with Aluminium and Zinc. Very low but positive correlation relationship exits with Lead. The quarter shows, there exits perfectly negative correlation between exchange rate of US$ and Prices of two base metals i.e. Zinc and Nickel; whereas, negative highly correlation relationship with remaining three metals. The quarter shows, there exits high degree of negative correlation between exchange rate of US$ and Prices of all five base metals. ACLNZ. Interpretation: The quarter shows, there exits high degree of positive correlation between exchange rate of US$ and Prices of three base metals i.e. Aluminium, Copper, and Lead; where as negative high degree correlation with Zinc prices, but low positive correlation with Nickel prices.

Overall details for 27 months

Overall Mean	47.34	90.26	286.69	87.57	816.46	86.24
Overall Standard deviation	1.78	13.01	72.68	19.43	209.52	18.84
Value of 'R'		-0.787	-0.267	-0.770	-0.897	-0.850

Overall, there exists high degree of negative correlation with all four metals except that of Copper which have low but negative degree of correlation.

Overall analysis for 27 months showed there exists negative correlation between Prices of Base Metals and Exchange rate of US$ It can also be inferred that when the currency future prices rise, the base metals prices decrease and vice-versa. This approves our alternative hypothesis.

Table 2: Pattern identified amongst prices of base metals and exchange rate of US$ (compared with next quarter 'Mean of ER of US$' and 'R' Value)

Quarter	Exchange Rate of US$ (INR)		Aluminium		Copper		Lead		Nickel		Zinc	
2008Q4	49.05	↕	0.952	↕	0.868	↕	0.975	↕	0.97	↕	0.857	↕
2009Q1	49.87	↕	0.074	↕	0.998	↕	0.961	↕	-0.799	↕	0.8	↕
2009Q2	48.85	↕	-0.564	↕	-0.745	↕	-0.759	↕	-0.92	↕	-0.984	↕
2009Q3	48.47	↕	-0.671	↕	-0.326	↕	0.206	↕	-0.732	↕	-0.19	↕
2009Q4	46.66	↕	-0.175	↕	-0.401	↕	-0.56	↕	0.932	↕	-0.331	↕
2010Q1	45.97	↕	-0.651	↕	-0.884	↕	0.059	↕	-0.792	↕	-0.252	↕
2010Q2	45.65	↕	-0.995	↕	-0.996	↕	-0.997	↕	-1	↕	-1	↕
2010Q3	46.59	↕	-0.901	↕	-0.941	↕	-0.875	↕	-0.928	↕	-0.878	↕
2010Q4	44.96	↕	0.844	↕	0.815	↕	0.805	↕	0.227	↕	-0.979	↕

Copper and Zinc showed strong inverse relationship with the changing pattern in Exchange Rate of US$ (Table2).

Table 3: Pattern identified amongst prices of base metals and exchange rate of US$ (compared with overall 'Mean of ER of US$' and 'R' Value)

Quarter	Exchange Rate of US$ (INR)		Aluminium		Copper		Lead		Nickel		Zinc	
2008Q4	49.05	↕	0.952	↕	0.868	↕	0.975	↕	0.97	↕	0.857	↕
2009Q1	49.87	↕	0.074	↕	0.998	↕	0.961	↕	-0.799	↕	0.8	↕
2009Q2	48.85	↕	-0.564	↕	-0.745	↕	-0.759	↕	-0.92	↕	-0.984	↕
2009Q3	48.47	↕	-0.671	↕	-0.326	↕	0.206	↕	-0.732	↕	-0.19	↕
2009Q4	46.66	↕	-0.175	↕	-0.401	↕	-0.56	↕	0.932	↕	-0.331	↕
2010Q1	45.97	↕	-0.651	↕	-0.884	↕	0.059	↕	-0.792	↕	-0.252	↕
2010Q2	45.65	↕	-0.995	↕	-0.996	↕	-0.997	↕	-1	↕	-1	↕
2010Q3	46.59	↕	-0.901	↕	-0.941	↕	-0.875	↕	-0.928	↕	-0.878	↕
2010Q4	44.96	↕	0.844	↕	0.815	↕	0.805	↕	0.227	↕	-0.979	↕
Mean value for 27 months	47.34		-0.787		-0.267		-0.77		-0.897		-0.85	

There exists high level of volatility in prices of Copper metal followed by Aluminium and Copper if compared with overall means of ER of US$ and 'R' Value for twenty seven months (Table 3).

Conclusion

The data analysis proves that high degree of negative correlation in four metals to Currency future except that of copper. When there is volatility in

the currency future and base metals, it impacts the relation between them. Sometimes it makes the positive relation between currency future and base metals and sometimes it makes the negative relation between them. When the prices volatility increases in base metals it creates the problem in physical metals trading that impact directly or indirectly to the economic condition of our nation. The data analysis represents the inverse linear relationship between currency future and base metals.

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Mapping the Reasons of Non-Adopters' Resistance to Internet Banking

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Internet banking service has not yet fully convinced the banking customers for its usefulness and added value. There seems to be resistance to adopt this new and innovative service particularly in India. Ram and Sheth (1989) argued that one major cause for the market failure of innovations is the resistance they encounter from customers. The present study attempts to explore the type of resistance internet banking is facing, and especially how the reasons to resist this innovative service are differ between non-adopters of internet banking. Based on the information the study provides, bank marketers can identify those potential customers who will be immediately responsive to their internet banking offerings and hence speed up the adoption of internet banking services by selecting right targeted communication strategies.

Introduction

In the present scenario, banking business, all over the world, is witnessing a paradigm shift in the way it functions and delivers its services on the account of rapid advances in informational technology, evolving macroeconomic environment and unrelenting waves of globalization. Most of banks in developed and some in developing parts of the world have widely adopted electronic and telecommunications networks for delivering a wide range of value-added products and services. In the similar way, Indian banking organizations have also moved towards exploiting internet capabilities for commercial purposes through internet banking in the bid to make their financial services cost-effective, competitive, more accessible for customers and comparable to global developments. Many previous studies have documented that internet banking offers new frontiers of opportunities for the banks in relation to improve operational efficiency, increase customer base, create a unique value proposition for customers and enhance market image (Brown and Molla, 2005; Jayawardhena and Foley, 2000; Pikkarainen et al., 2006; Suganthi et al. 2001). However, the success of this new distribution channel in bringing competitive advantage to banks will depend upon the customers' attitude towards and acceptance of it. It has been reported in existing literature that customers are still not accustomed to using internet banking for conducting their banking business (Aladwani, 2001; Suganthi et al., 2001). Some research studies conducted in case of

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India are also in the agreement that a large portion of customers hesitate to use internet banking to manage their financial affairs and it is not being popularly adopted in India (IAMAI, 2006; Ravi et al., 2007).

Review of Existing Literature

A thorough review of existing research studies undertaken to identify factors resisting customers to bank upon internet reveals that although many studies (Al-Sabbagh and Molla, 2004; Chung and Paynter, 2002; Geetika et al., 2008; Laukkanen et al., 2008; ; Lee et al., 2005; Mattila et al. 2001; Mattila et al., 2003; Mittal and Gandhi, 2008; Nor and Pearson, 2007; Padachi, et al., 2008; Ramayah et al., 2006; Sathye, 1999; Sudha et al., 2007; Suganthi et al., 2001) have been geared to address this issue throughout the world, but except very few (such as Laukkanen et al., 2008; Lee et al., 2005) most of these studies seem to have dichotomous view of adopters versus non-adopters in regard of investigating the reasons for the resistance to internet banking. It will be more revealing if the differences in resistance among non-adopters who have varying degree of behavioral intention to adopt internet banking are studied.

Table 1: Summary of studies dealing with factors resisting customers to adopt internet banking

Study	Research Settings and Sample Size Studied	Tools of Data Analysis	Findings
Sathye (1999)	Australia 612	Factor Analysis	The study identified concern about security of transactions, concern about ease of use, lack of awareness of internet banking services and benefits, ambiguity about cost of services, resistance to change and lack of accessibility of the internet to be major inhibitors of customers' adoption of internet banking.
Mattila et al. (2001)	Finland 350	Factor Analysis	The study found lack of personal service, time consuming and security concern to be major barriers to internet banking adoption.
Suganthi et al. (2001)	Malaysia 300	Factor Analysis followed by T-test	The study found that lack of trust, security of internet transaction, reluctance to change and preference for human interface had an adverse impact on the decision to adopt internet banking.
Chung and Paynter (2002)	New-Zealand 109	Frequency Analysis followed by Correlation Analysis	The study identified security concern, likings of personal contacts, has not tried it before, perceived complexity and don't need instant 24 hours access to account to be factors resisting customers to use internet banking.

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Mattila et al. (2003)	Finland 1167	Factor Analysis	The study identified perceived difficulty in using computers, concern about security and lack of personal service to be significant barriers in the adoption of e-banking.
Al-Sabbagh and Molla (2004)	Oman 205	Descriptive Analysis	The study found concern about security, preference for face to face personal banking as major deterrents to internet banking adoption.
Lee et al. (2005)	USA 1349	Multinomial Logit Modeling	The study found non-adopters to be more concerned about the security and privacy of transactions conducted over internet as compared to adopters.
Ramayah et al. (2006)	Northern Malaysia 180	Discriminant Analysis	The study found internet banking users to be more aware about the benefits of internet banking services, having prior internet experience, having positive views about the ease of use and security in contrast to non-users of internet banking
Nor and Pearson (2007)	Malaysia 1164	SEM (Structural Equation Modeling)	The results showed that trust in technology, relative advantage and trialability had significant influence on the customers' attitude towards the likelihood of adopting internet banking.
Geetika et al. (2008)	India 200	T-test	The study found non-users far more conscious for the security than that of users.
Mittal and Gandhi (2008)	India 140	T-test	The study found that internet banking users were mid-aged male, more technology-oriented, well-awaked about the benefits of internet banking and convenience-mined consumers on one hand. And on the other hand, it found non-users to be younger or older, more traditional-oriented, less familiar about the benefits of internet banking and having lack of confidence of using this innovative service.
Laukkanen et al. (2008)	Finland 302	ANOVA	The findings of the study revealed that resistance to internet banking of the Rejecters was much more intense and diverse than that of the Opponents, while the Postponers showed only slight resistance. And Security and privacy concern tend to resist all three identified non-adopter categories uniformly.
Padachi et al. (2008)	Island 188	Cross-Tabulation	The study found awareness, access to internet facility, length of banking relationship, people working in the internet banking/finance sector, education level and income to be significantly correlated with the adoption of internet banking.

Variables Known to Resist Adoption of Internet Banking

The Variables are: Prior Knowledge, Awareness, Amount of Information, Scarcity and Privacy Concern, Fear of Committing Error, Perceived Complexity, Lack of Interest, Lack of Accessibility to Internet.

Research Methodology

Sample Design: The present study is exploratory in nature. The population of the interest for the present study has been retail customers of four Indian scheduled commercial banks consisting of two public sector banks, namely, State Bank of India (SBI) and Punjab National Bank (PNB) and two private sector banks, namely, ICICI bank and HDFC bank. The study carried out a questionnaire survey to gather data from the targeted population within Rohtak, Panipat, Gurgaon located in North India during July-December 2009. Respondents have been chosen by Judgmental sampling method. A total of 600 questionnaires have been administered to those adult individual customers who have bank account in the CBS branches either in public sector banks or in private sector banks under reference for a period of approximately one year or more.

Survey Instrument: A five-point Likert scale ranging from strongly disagree (1) to strongly agree (5) has been used to measure the level of agreement with each of the 8 variables. The possible range of scores is 1 to 5 with high scores reflecting high degree of resistance. Mean score more than 3 attest existence of resistance. Second part of this section designed to evince non-adopters' intention to use/reject internet banking in future so as to categorize them into three different segments based on their intention about adopting internet banking. First segment belongs to the customers intending to adopt internet banking within next 12 months. Second segment comprises customers intending to adopt internet banking but have not yet decided when to adopt. Third segment relates to those who do not intend to adopt internet banking at all.

Procedure: Before conducting a full-fledged survey, the questionnaire developed for the study has been subjected to pilot study among 50 bank customers via personal interview method to confirm the face validity and reliability of the questionnaire after pre-testing by the experts, academic and professional. Based on feedback received, necessary revisions concerning rewording, clarity and consistency of the items were made. The finalized questionnaire has then been issued to a total of 600 targeted subjects.

Data Collection and Sample Description: Out of the total 600 questionnaires issued, 512 usable questionnaires were collected, resulting in 85.3% valid response rate. Of the 512 respondents 316 respondents have been found not having experience of using internet banking and 196 respondents have been found availing internet banking service. Since the interest of the study in those respondents who are not having experience of using internet banking service, users of internet banking do not constitute the part of the present study. Furthermore, from the 316 non-adopters, we

analyzed inputs from those non-adopters who have heard about internet banking (n=264). Those non-adopters who answered that they have not heard about the internet banking service (n=52) have been removed from the further analysis. The justification lies in the fact that it will make the results more revealing to study the responses of those customers who are still not inclined to use internet banking in spite of being aware about the prevalence of this service. As to the intention to start using internet banking service in future, of the 264 non-adopters, 74 (28.03 per cent) are those intending to adopt internet banking within next 12 months, 129 (48.9 per cent) are those intending to adopt this service but have not decided when, and finally, 61 (23.1 per cent) are those reporting that they would not go to adopt internet banking at all. In the line of the Laukkanen et al.'s (2008) research the present study named these three non-adopters segments as Postponers, Opponents and Rejecters respectively.

Reliability Analysis: Collected data on perception of barriers deterring to adopt internet banking have been first analyzed for reliability analysis using Cronbach' Alpha Model. As alpha value of all eight variables under consideration has been found to be .615 which is above the commonly accepted threshold of .60 (Hair et al., 1998), all variables are deemed reliable for subsequent analysis.

Statistical Analysis: To investigate the reasons for the resistance of internet banking, the data so collected has been first subjected to descriptive statistical analysis to measure the intensity of different causes of resistance to internet banking on aggregate level by computing mean score for each of the variable. Thereafter, One-way ANOVA (Analysis of Variance) has been performed using intention to adopt internet banking as group variable (independent variable) and factors causing resistance to internet banking as dependent variables. The ultimate goal of this analysis is to ascertain whether the average perceptions (of the issues under investigation) have been identical for all non-adopter groups i.e. Posponers, Opponents and Rejecters (formed based on their intention to adopt/reject internet banking in future) involved in this survey. These statistical techniques have been conducted through SPSS (Statistical Package for Social Science) version 17 for windows.

Analysis and Discussion

Descriptive Statistical Analysis: Table 2 displays the results of descriptive statistical analysis based on mean responses measured in 5-point Likert-Scale.

Table 2: Descriptive statistics regarding factors resisting adoption of
internet banking

Dimensions	N	Mean	Standard Deviation
Not having adequate knowledge of using computer and internet	264	2.454	1.112
Lack of awareness about the benefits and utilities of internet banking	264	3.140	1.060
Lack of sufficient information about how to make use of internet banking	264	3.871	.946
Fear of Security and Privacy of your banking transactions	264	4.492	.692
Fear of making error while feeding information	264	3.034	1.121
Internet banking system would be too complicated to operate	264	3.303	1.146
Lack of interest in using internet for conducting banking transactions	264	2.734	1.034
Lack of accessibility to internet at home or office.	264	3.030	1.001

Source: Primary Data

It can be observed from the Table 2 that the security and privacy concern constitute as prime de-motivating factor with the highest mean score of 4.4924. This result is in keeping with the findings reported in previous studies (Black et al., 2002; Howcroft et al., 2002; Polatoglu and Ekin, 2001; Rotchanakitumnuai and Speece, 2003; Sathye, 1999 Tan and Teo, 2000) which found security concern to be significantly negative correlated with the adoption of internet banking. The next in the line is lack of information about using the channel (Pikkarainen et al., 2004) followed by perceived complexity (Black et al., 2002; Gerrard and Cunningham, 2006; Howcroft et al., 2002;) lack of awareness of relative advantage and utilities of internet banking (Howcorft et al., 2002 and Sathye, 1999) fear of making error (Kuisma et al., 2007; Laukkanen and Lauronen, 2005) and lack of accessibility to internet (Sathye, 1999; Singh, 2008; Tan and Teo, 2000) with the mean scores being 3.871, 3.303, 3.140, 3.034 and 3.030 respectively. Interestingly, lack of knowledge of internet is reported as weakest barrier to the adoption of internet banking, as the mean score against this dimension is below 3. This implies that there are many potential customers who have knowledge to use internet but are not using internet banking. A research study carried out by Internet and Mobile Association of India (2009) also reported that people from small towns and less affluent classes of the society are increasingly getting exposed to internet. However, an effective marketing strategies can not be worked out only on the basis of the results of descriptive statistical analysis because descriptive analysis presents the results considering all the non-users in similar fashion, it would be more revealing when the difference among different non-adopter groups, who are having different intention to adopt internet banking, with regard to their perceived

factors of resistance is studied. Since all non-users do not carry equal probability of adoption it would be inappropriate to approach all non-users as a homogeneous population (Lee et al., 2005). As already discussed, it is of paramount importance to understand the diversity of resistance between different non-adopters because it can better help the banking organization in identifying profitable segment of non-users, thereby employing right promotional strategies. To address this issue, inferential statistical analysis is undertaken.

Inferential Statistical Analysis: One-way ANOVA (Analysis of Variance) is next used to analyze statistical differences in resistance to internet banking among three groups of non-adopters i.e. Posponers, Opponents and Rejecters**.**

It is observed from the Table 3 that except security and privacy concern, there are significant differences among different non-adopters categories,

Table 3: ANOVA result examining the differences among Postponers, Opponents and Rejecters regarding factors resisting them to adopt internet banking

Dimensions	Postponers (N=74)		Opponents (N=129)		Rejecters (N=61)		F-Value	Sig.
	Mean	SD	Mean	SD	Mean	SD		
Not having adequate knowledge of using computer and internet	1.473	.502	2.751	1.000	3.016	1.131	59.538	.000*
Lack of awareness about the benefits and utilities of internet banking	2.851	1.130	3.178	.987	3.409	1.054	4.943	.008*
Lack of sufficient information about how to make use of internet banking	3.635	1.105	3.961	.860	3.967	.874	3.254	.040*
Fear of Security and Privacy of your banking transactions	4.459	.601	4.511	.740	4.491	.698	.133	.876
Fear of making error while feeding information	2.837	1.034	2.891	1.201	3.573	.865	9.865	.000*
Internet banking system would be too complicated to operate	2.378	1.094	3.612	.912	3.770	1.022	45.198	.000*
Lack of interest in using internet for conducting banking transactions	2.283	.672	2.403	.667	3.983	1.056	103.342	.000*
Lack of accessibility to internet at home or office.	2.729	.969	3.007	1.003	3.442	.904	9.059	.000*

Source: Primary Data

Note: * Denotes significant at 5% level of significance

namely, Postponers, Opponents and Rejecters with respect to all the factors deterring them to adopt internet banking. Security and privacy concern is the most intense and uniformly perceived barrier to the adoption of internet banking among all three groups. This result supports the findings of Laukkanen et al. (2008) and Lee et al. (2005). A closer look at the results reveals that resistance to internet banking on the part of Postponers is not intense and diverse in contrast to Opponents and Rejecters. Security and privacy concerns followed by lack of information about using internet banking seem to prevent Postponers to adopt internet banking. An examination of Opponents' results reveals that in addition to sharing Postponers' causes of resistance to internet banking with greater intensity, they perceive internet banking as more complex to use. They seem to think that internet banking would be complicated to operate. They are also having doubts about the potential benefits and utilities of internet banking. However, lack of accessibility to internet does not appear causing resistance among Opponents, as the mean score against this variable is almost equal to 3. As far as Rejecters are concerned, their resistance to internet banking is more intense and diverse than that of other two groups. They not only report high resistance of internet banking on the ground of all those barriers what two other groups report, but also they have negative interest of using internet banking and concern to the fear of feeding wrong information. Lack of accessibility to internet can also be noticed as barrier to adoption of internet banking among Rejecters. They are having relatively less knowledge of using internet in comparison other two groups, but this seems not a great cause of resistance, as the mean score against this variable is slightly above 3. In the order of intensity, the most intense barrier among Rejecters is clearly lack of interest that differentiates most this group from other two groups. These findings are in corroboration with the results reported by Gerrard et al. (2006) and Mattila et al. (2003) that lack of interest in using internet as channel to conduct banking transactions adversely affects intention to use internet banking. All in all, findings of present study reflects heterogeneity of non-adopter population of internet banking in the line of Lee et al. (2005) and Laukkanen et al. (2008).

Conclusion

The present study furthers the understanding of how the reasons to resist the internet banking differ between non-adopters of internet banking. An examination of ANOVA results reveal that security and privacy concern is the major and identical barrier that tend to hamper the willingness to adopt internet banking of all three non-adopter segments of internet banking uniformly. With the exception of security and privacy concern, there exists significant difference among the identified three non-adopter segments i.e. Postponers (those who intend to use internet banking within 12 next months), Opponents (those who intend to use internet banking but not decided when) and Rejecters (those who do not intend to use internet banking at all) in respect of their reasons for the resistance to internet banking. Postponers seem to register resistance to internet banking because of Security and privacy concern and lack of adequate information of how to use internet

banking. Opponents demonstrate resistance not only on the ground of those barriers reported by Postponers but also they tend to perceive internet banking complex to use and having doubts about the utilities and benefits of internet banking. However, lack of accessibility to internet does not appear causing resistance among Opponents, as the mean score against this variable is almost equal to 3. As far as Rejecters are concerned, they seem to be more challenging ones, as they report résistance to internet banking on the various grounds than that of Postponers and Opponents. In addition to sharing concerns reported by other two groups regarding internet banking risks with greater intensity, they seem to have negative interest towards using internet banking and concern to the fear of feeding wrong information. They also seem to attach resistance due to lack of accessibility to internet. The findings of the present study are consistent with the results of Lee et al. (2005) and Laukkenen et al. (2008) studies which reported security and privacy to be most intense barrier to the adoption of internet banking. Furthermore, in the line of these studies, the present study reinforces that non-adopters do not constitute homogeneous population but are rather heterogeneous population, as they differ from each other in their resistance to internet banking. Hence, the study emphasizes the need to devise distinct promotional strategies as per the attitudinal feature of targeted non-adopter segment.

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Comparison of Non Performing Assets of Selected Public Sector Banks

JAPPANJYOT KAUR KALRA AND S.K. SINGLA

The study included loan follow up procedure and causes and suggestions of NPAs of Punjab and Sind bank and Central Bank of India, in Ludhiana. The major causes for the occurrence of NPAs were lack of proper planning, wrong selection of the customer by the banks and the recessionary trend. This paper compares the non performing assets of selected public sector banks.

Introduction

Commercial banks act as a vehicle through which demand deposits act as a medium of exchange and circulate among the public. In general there are several challenges confronting the commercial banks in its day to day operations. The main challenge facing the commercial banks is the disbursement of funds in quality assets (Loans and Advances) or otherwise it leads to non-performing assets. An asset, including a leased asset, becomes non-performing when it ceases to generate income for the bank. A non-performing asset (NPA) was defined as a credit facility in respect of which the interest and/ or installment of principal has remained past due for a specified period of time. Non performing asset means an asset or account of borrower ,which has been classified by bank or financial institution as sub –standard , doubtful or loss asset, in accordance with the direction or guidelines relating to assets classification issued by RBI. Standard asset is one which does not disclose any problems and which does not carry more than normal risk attached to the business. Such an asset is not a 'non-performing asset' (NPA). Sub-standard asset is one which has been classified as NPA for a period not exceeding two years. With effect from 31st March 2001, a sub-standard asset is one, which has remained NPA for a period less than or equal to 18 months. A doubtful asset is one, which has remained NPA for a period exceeding two years. With effect from 31 March 2001, an asset is to be classified as doubtful, if it has remained NPA for a period exceeding 18 months. A loss asset is one where loss has been identified by the bank or internal or external auditors or the RBI inspection but the amount has not been written off, wholly or partly. According to the RBI guidelines the banks are required to make provision for NPAs limit between 0.25%- 2% of the total assets. In order to regulate and control the NPAs and quicken recovery, the Goverment of India set up Debt Recovery Tribunals and Debt

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Appellate Tribunals under the "Recovery of Debts Due to Banks and Financial Institutions Act, 1993". As a corollary to this and to speed up the process of recovery from NPAs, the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002, was enacted by the Goverment of India for regulation of securitization and reconstruction of financial assets and enforcement of security interest by secured creditors, including Securitization or Reconstruction Companies (SC/RC).

Review of Literature

Reddy (2002) stresses the importance of a sound understanding of the macroeconomic variables and systemic issues pertaining to banks and the economy for solving the NPA problem along with the criticality of a strong legal framework and legislative framework. Gupta (2004) found that amongst the seven parameters, NPAs are the most important variable that affects the performance of any financial corporation. Naik (2006) concluded that the government of India has to set the asset reconstruction companies to manage NPAs to face the challenges before the banking sector and give various management techniques like analysis of NPAs by sector , prevention of slippage, early warning signals and legal remedies etc to cure NPAs problem.

Antony and M (2007) has made an attempt to design a model for pricing loans in the backdrop of Basel 2nd guidelines. Accordingly interest rate for a loan is to be fixed as a sum of percentage costs, percentage risk premium and percentage economic value added. The risk premium is the computation of the expected loss premium and unexpected loss premium depends on the value of probability of default and loss given default and their values have to be arrived at based on past data. Expected loss is completed as the product of probability of default and loss given default. Un expected loss is computed as the product of weighted average cost of capital and economic capital required for the loan. To compute economic capital the IRB risk weight models of Basel 2nd are used.

Bhatia (2007) found that the amount of NPAs has been on a continuous increase and had reached an alarming 6% in 2006 which was much higher than the 4% benchmark of Citi Financial. Rajender and Suresh (2007) an assessment on the cause and consequences of NPAs of the commercial banks was done. Rajaraman and Vasishtha (2008) applied a panel regression on the definitionally uniform data available for a five-year period ending in 1999-2000, on non-performing loans of commercial banks. Ahmed (2009) concluded that Indian banking has huge quantum of NPAs and the effective management of NPAs is essential to speed up the growth of profitability of public sector banks. Bishnoi and Pal (2009) seeks to explain the productivity growth of the Indian banking sector using panel data of 63 commercial banks from 1996-2005. Rehman (2009) found that the volume of idle fund is in increasing trend that leads to increase the NPA level.

Research Methodology

Present study has been conducted on the two leading public sector banks of

Ludhiana zone- Punjab & Sind bank and Central Bank of India. The study was conducted for all the 50 branches of Punjab and Sind bank and 44 branches of Central Bank of India in Ludhiana zone. To study the NPAs both primary and secondary data were collected. Secondary data was obtained from the records of the banks. The secondary data was related to the numbers of sanctions, disbursements, recovery, NPAs etc. This data helped in understanding the trend of NPAs in the banks and its impact on the performance of the banks. The time period chosen for the study of NPAs of 2005-2009 as this period is considered sufficient to study the trend of NPAs in all the branches. To study the causes and remedies of NPAs, primary data was collected from the employees as well as NPA account holders of Central bank of India and Punjab and Sind bank using pre tested and modified two structured non- disguised questionnaires. The questionnaire was personally administered and got filled up through personal interview from the employees and account holders of the two banks. For this 30 accounts of both Central bank of India and Punjab and Sind bank respectively, which have turned NPA, were contacted. This helped us in finding whether the causes of NPAs as perceived by the bank and the actual reasons for not returning the loan amount by NPAs are same or there is a difference in both.

Dicussions

Let us set up the null hypothesis that there is no significance difference in the assets and year wise recovery of mounting NPAs of Punjab and Sind bank and Central Bank of India over the study period, for which ANOVA test is employed and the results are presented in the table 4. The quality of the loan asset is most important factor for the basic viability of the Banking system. The level of Non Performing loans is recognized as a critical indicator for assessing banks credit risk, asset quality and efficiency in allocation of resources to productive sectors. The avoidance of loan losses is one of the important functions to be performed by the management of banks.

Asset-wise Classification of NPAs of the banks

NPAs are categorized into three groups viz. Sub-Standard, Doubtful and Loss assets. It is clear from table 2 that in P&S bank, there has been decrease in quantum of doubtful assets over the periods. Doubtful assets in absolute terms decreased from Rs.21.13 cr in 2005 to Rs.0 .49 cr in 2009. In relative terms there has been significant decrease in doubtful assets since percentage of doubtful assets to total advances came down to 0.05% at the end of march 2009 from 6.6% at the end of march 2005. The increase in share of standard assets to total advances from 90.76% in 2005 to 99.73% in 2009 was significant enough. The sub-standard assets has decreased from 7.03 cr in 2005 to 1.72 crores in 2009 in absolute terms and from 2.2% in 2005 to 0.2% in 2009 in relative terms shows the increased efficiency of the bank. Also the loss assets has decreased from 1.45 cr in2005 to 0.01 cr in 2009 and the percentage decrease was from 0.005% in 2005 to 0.001% in 2009. This shows that the management of the bank is effective in recovering

mounting NPAs over the study period. From table -3, we can see that in CBI, there has been a decrease in the quantum of doubtful assets over the periods. Doubtful assets in absolute terms decreased from Rs.33.78 cr in 2005 to Rs.15.73 cr in 2009. In relative terms there has been significant decrease in doubtful assets since percentage of doubtful assets to total advances came down to 1.49 % at the end of march 2009 from 12.59% at the end of march 2005. The standard assets increased from 209.46 cr in 2005 to 1041.32 crores in 2009 and rose to 98.33% to total advances in 2009 in percentage terms. The increase in standard assets both in absolute and relative terms shows the efficiency of the bank.

The study found that there is no significance difference in the means of sub-standard assets, doubtful assets and loss assets in recovery of mounting NPAs and significant difference in the year wise recovery of NPAs. In the case of CBI the calculated value of F is greater than the table value in both the cases the year of recovery and the asset wise recovery, thus the hypothesis is rejected. Hence there is significance difference in the asset wise recovery and year wise recovery.

Factors evaluated before giving loan

Many factors have to be evaluated before giving loan to someone. After receiving the application, the manager looks into various factors like industry growth, financial statements, plant and machinery, etc.

In table 5 factors like industry prospects (mean score=4.04 in P&S bank and 3.94 in CBI), operational Efficiency of the client (mean score=3.6 in P&S bank and 3.68 in CBI) and financial efficiency (mean score=4.00 in P&S bank and 4.04in CBI) are the most important factors looked up by the managers of both the banks before lending loans. Managerial efficiency (mean score=2.98 in P&S bank and 2.78 in CBI) and government proposals (mean score=2.34 in P&S bank and 2.4 in CBI) came out to be low. The z-values have been checked at 5% level of significance. The results have been found to be significant for all the factors and insignificant for the responses of the managers.

Causes of NPAs

To restrain the problems of NPAs the causes of their occurrence were asked. They rated responses as per the importance on a five point scale ranging from most important(5) to least important(1). The mean scores and standard deviation were found out and z- test was applied to check whether there is any difference between the replies of the managers of these two banks. Table 6 shows that in the opinion of the managers of the P&S bank and CBI are same. The major cause are lack of proper planning and wrong selection of the customer with mean(4.18 and 4.16) and the next important factor is lack of owners stake and heavy outside borrowings . The recessionary trend and the lack of experience and exposure along with the mismanagement of the funds becomes other such reasons for account turning to NPAs(mean score ranges between (3.7-4.10). The least important factors as marked by the managers are high competition and political interference. Sometimes

Table 2: Asset classification of P&S Bank from year 2005-09

Year	Standard assets		Sub standard assets		Doubtful assets		Loss assets		Total advances	
	Rs. crores	% of total advances	Rs. Crores	% of total advances	Rs. crores	% of total advances	Rs. crores	% of total advances	Rs. crores	Total %
2005	290.62	90.76	7.03	2.2	21.13	6.6	1.45	0.005	320.23	100
2006	403.25	94.16	3.99	0.93	19.33	4.51	1.69	0.39	428.26	100
2007	544.66	98.88	1.53	0.28	4.37	0.79	0.29	0.05	550.85	100
2008	840.59	99.6	2.77	0.33	0.61	0.07	0.04	0.005	844.01	100
2009	848.05	99.73	1.72	0.2	0.49	0.05	0.01	0.001	850.29	100

Table 3: Asset classification of CBI from year 2005-09

Year	Standard assets		Sub standard assets		Doubtful assets		Loss assets		Total advances	
	Rs. crores	% of total advances	Rs. Crores	% of total advances	Rs. crores	% of total advances	Rs. crores	% of total advances	Rs. crores	Total %
2005	209.46	78.04	24.28	9.04	33.78	12.59	0.89	0.33	268.41	100
2006	227.18	81.63	9.75	3.5	40.78	14.65	0.59	0.21	278.3	100
2007	492.51	92.9	3.73	0.7	33.45	6.31	0.44	0.08	530.13	100
2008	771.75	96.5	1.51	0.19	25.73	3.22	0.7	0.09	799.69	100
2009	1041.32	98.33	1.18	0.11	15.73	1.49	0.18	0.02	1059	100

Table 4: ANOVA test

Year	S.S. (Sum of squares)		v (Degress of freedom)		M.S.S. (Mean sum of squares)		F		Significance	
	P&S Bank	CBI	P&S Bank	CBI	P&S Bank	CBI	P&S Bank	CBI	P&S Bank	CBI
Years	188.034	2320.998	4	4	28.3942	62.5763	3.02	4.86	N.S	6.758
Assets	224.690	382.711	2	2	42.9895	213.587	4.58	16.59	4.47	5.235
Error	510.468	2832.778	8	8	9.3917	12.8768				
Total	923.193	5536.488	14	14						

Table 5: Factors evaluated before giving Loan

Consideration	Mean Score		Standard Deviation		Z-value		Z-value with two means
	P&S	CBI	P&S	CBI	P&S	CBI	P&S and CBI
Industry Prospects	4.04	3.94	0.807	0.651	9.111*	10.197*	0.682
operational Efficiency of the client	3.66	3.68	1.222	1.077	3.818*	4.463*	-0.088
Financial Efficiency	4.00	4.04	1.385	0.832	5.105*	8.838*	-0.175
Managerial Efficiency	2.98	2.78	1.203	1.183	-0.118*	-1.315*	0.838
Government proposals	2.34	2.4	1.272	0.990	-3.670*	-4.287*	-0.263

* Significant at 5% level of significance $\mu= 3$ z (table) at 5% (d.f. = 49) = 1.96

insufficiency of funds with the bank may lead to delay in disbursement or not getting the approval which leads to NPAs. Even the lack of efficient and informed management and the employees also affects the NPAs in general. Even the z-test supports that the political influence and the high competition are the least important factors.

Table 6: Mean score along with the Z value

Causes	Mean Score		Standard Deviation		t-value		Z-value with two means
	P&S	C B	P&S	C B	P&S	C B	P&S &CBI
i. Lack of owner's stake and Heavy outside borrowings at exorbitant cost of raising margin money	3.86	4.06	0.825	0.740	7.372*	10.131*	-1.269
ii. delay in disbursement of loan	3.26	3.02	1.230	1.316	1.495	0.107	0.937
iii. Lack of experience & exposure	3.64	3.78	1.054	0.910	4.295*	6.061*	-0.707
iv. Industry or business slowdown	3.78	3.58	1.171	1.162	4.709*	3.528*	0.853
v. Mismanagement of funds	3.68	3.74	0.968	0.803	4.966*	6.513*	-0.335
vi. Political interference/ influence	1.84	2.12	0.833	0.773	-9.843*	-8.049*	-1.732
vii. Unexpected and adverse development in external environment	3.04	3.26	0.847	1.084	0.334	1.695	-1.126
viii. Recessionary trend	3.8	3.7	0.748	0.647	7.559*	7.652*	0.711
ix. Lack of research & development i.e. product development	3.34	3.34	0.930	0.939	2.586*	2.559*	0
x. Spending much on unnecessary items	3.18	3.28	1.307	1.371	0.974	1.444	-0.372
xi. Lack of proper Planning and Wrong selection of customers	4.18	4.16	0.74	0.681	11.275*	12.045*	0.140
xii. Wrong valuation of security	3.04	3.2	1.111	1.212	0.509	1.167	-0.514
xiii. Over leverage of existing borrowers	3.5	3.66	1.170	1.272	3.021*	3.670*	-0.652
xiv. High competition	2.58	2.72	1.041	1.144	-2.853*	-1.731	-0.637

* Significant at 5% level of significance μ = 3 z (table) at 5% (d.f.= 49) = 1.96

When z test for two means was applied, it was proved that there is no significance difference between the responses of the managers of P&S bank and the CBI. The respondents (NPA accounts) were asked about the reasons for not giving the loan payment back. They were given a number of choices and they rated these choices according to the importance.

Table 7 shows that the most important reasons according to the NPA accounts were the outside borrowing increases and business slowdown occurs, delay in the disbursement of the loan , lack of experience and the very important fact was the recessionary trend in the economy. Factors were political influence, over leverage of existing borrowers or certain unexpected changes in the external environment. The t value has been checked at 5% level of significance. The t values have been found insignificant in case of factors like political influence and mismanagement of the borrowed funds. The results have been found to be significant for factors like, business slowdown, outside borrowing increases and delay in the disbursement of the loan, recessionary trend, lack of experience, unable to pay due to insufficiency of funds and lack of experience and technical knowledge of the management. Then t-test for checking the responses of the managers whows that there is no significance difference between their responses.

Table 7: Causes for not making the payments

	Causes	Mean Score		Standard Deviation		Z-value		Z-value with two means
		P&S	C B	P&S	C B	P&S	C B	
i.	Lack of owner's stake and Heavy outside borrowings at exorbitant cost of raising margin money	3.833	4.167	1.053	0.379	4.334*	16.858*	-1.631
ii.	delay in disbursement of loan	4.167	4.5	0.874	0.900	7.309*	7.443*	.466
iii.	Lack of experience & exposure	3.6	3.7	1.221	0.466	2.693*	8.226*	-.419
iv.	Industry or business slowdown	4.3	4.3	0.702	0.466	10.140*	15.227*	0
v.	Mismanagement of funds	3.233	3.367	0.935	1.033	1.366	1.943	-.524
vi.	Political interference/ influence	2	2.7	0.743	0.988	-7.374*	-4.877*	-.284
vii.	Unexpected and adverse development in external environment	2.667	3.1	1.269	1.185	-1.439	-0.162	-.968
viii.	Recessionary trend	4	4.567	1.438	0.817	3.808*	9.256*	-1.217
ix.	Lack of research & development i.e. product development	4.067	3.033	1.230	0.928	4.750*	4.646*	2.115
x.	Spending much on unnecessary items	3.633	2.9	1.245	1.125	2.786*	1.361	1.601
xi.	Lack of proper Planning and Wrong selection of customers	2.6	3.3	1.003	1.055	-2.183*	-.150	-1.273

_____
contd...

xii. Wrong valuation of security	2.467	2.5	1.224	1.225	-2.386*	-2.236*	-.105
xiii. Over leverage of existing borrowers	2.7	3.1	1.291	1.269	-1.273	0.432	-1.210
xiv. High competition	2.933	2.63	0.740	1.377	-0.494	-1.459	1.051

* Significant at 5% level of significance μ = 3   t (table) at 5% (d.f. = 29) = 2.045

Remedies of NPAs

Today the major chunks of the profits of these banks are suffering because of the non performing loans. The earning capacity of banks is limited by its quantum and thus inversely related to NPAs. Thus, if the banks want to increase their profitability than the reduction of NPAs is significant.

Table 8: Remedies of NPAs

Causes	Mean Score		Standard Deviation		Z-value		Z-value with two means
	P&S	C B	P&S	C B	P&S	C B	
I. Bank should prevent diversion of funds by the promoters	4.08	3.94	0.752	0.712	10.16*	9.339*	0.956
II. Operating staff should scrutinize the level of inventories/receivables at the time of assessment of working capital	4.2	4.3	0.535	0.707	15.87*	13*	-0.798
III. The Credit section should carefully watch the warning signals viz. non-payment of quarterly interest, dishonor of check etc	4	3.84	0.606	0.710	11.67*	8.363*	1.212
IV. Effective inspection system should be implemented	3.96	4.14	0.570	0.351	11.91*	22.99*	-1.902
V. More frequent inspections	3.64	3.84	0.663	0.584	6.829*	10.168*	-1.601
VI. Increase in provision of NPAs	4.38	4.54	0.490	0.503	19.90*	21.629*	-1.61
VII. Re phasing un paid loan installments	3.26	3.38	1.209	1.123	1.520	2.393*	-0.514
VIII. Efficient reminder system	4.2	4.02	0.670	0.622	12.66*	11.589*	1.392
IX. Providing assistance	2.6	2.92	1.069	0.986	-2.646*	-0.573	-1.556
X. Checking financial projections like profitability ratios, cash books, bank statements.	3.84	4.02	0.997	0.769	5.957*	9.379*	-1.011

* Significant at 5% level of significance μ = 3 z (table) at 5% (d.f.= 49) = 1.96

Table 8 shows that the most important factor to cure NPAs is increase in the provision of NPAs(mean score=4.38,4.45), before and after sanctioning the loans the effective inspection system should be implemented so that bank can prevent diversion of funds by the borrower (mean score=3.96,4.14). The other important tools are of valuation of inventories and the receivables and efficient reminder systems are very necessary. The bank managers gave least importance to the rephrasing of unpaid loan installments and to providing assistance to the borrower.

Conclusion

Majority of the managers are of the opinion that if the due care and caution are taken at the time of sanctioning a loan, an asset will not turn into non performing asset. The effective monitoring, follow-up and the efficient reminder system is also considered as vital necessity by a large section of the study group. According to the managers by developing proper management information system and improving the coordination between the banks and providing the list of the defaulters, the NPAs level can be reduced to great extent.

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GENERAL BODY MEETING AND ELECTION NOTICE FOR 64th ALL INDIA COMMERCE CONFERENCE AT PONDICHERRY UNIVERSITY (DECEMBER 13-15, 2011).

Dear friends,

It gives me great pleasure to inform you that as per the wishes of the Life Members of the Indian Commerce Association expressed at the time of the Annual General Body Meeting held at Goa in 63rd All India Commerce Conference, the General Body Meeting of the Indian Commerce Association shall be held on the second day of the 64th All India Commerce Conference at Pondicherry University on 14 December 2011 at 4.00 p m (The agenda for the General Body Meeting shall be circulated in Puducherry at the time of the Conference). This shall be followed by the Elections of the Office Bearers and the Executive Committee Members of the ICA. To finalise the mode and schedule of the Elections a Committee was constituted.

The Committee comprising of the Office Bearers and Past Presidents of the ICA finalized the election mode for 2011 ICA elections which shall be conducted at the time of 64th Annual Conference of the ICA scheduled to be held on December 13-15, 2011 at Pondicherry University, Pondicherry. The details of the election mode are as follows:

i) There shall be direct elections for the four office bearer positions, i.e. Executive Vice-President, Secretary, Joint Secretary, and Managing Editor-cum-Treasurer.

ii) There shall be direct elections for eight positions of the EC members in the following manner.

Various States and Union Territories of India shall be grouped into four zones and two EC members shall be elected from each zone. Each voter will have only one vote for electing an EC member. Voter belonging to a particular zone will be entitled to elect EC member from their respective zone only. The distribution of States and Union Territories in four zones shall be as given below:

East Zone Assam, Meghalaya, Mizoram, Manipur, Nagaland, Arunachal Pradesh, Sikkim, Tripura, West Bengal, Orissa, Bihar, Jharkhand, Chhattisgarh.

West Zone Maharashtra, Gujarat, Rajasthan, Goa, Daman, Diu & Nagar Haveli.

North Zone Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh, Delhi, Uttar Pradesh, Uttrakhand, Madhya Pradesh.

South Zone Tamil Nadu, Kerala, Pondicherry, Andhra Pradesh, Karnataka, Lakshadweep, Andeman & Nicobar.

iii) Individual Life Members registered upto 31st October 2011 shall be eligible to vote in election 2011.

iv) Each voter shall have to bring his/her photo ID card at the time of voting, failing which, he/she shall not be entitled to vote.

v) Prof. P Purushatham Rao, (Past President, ICA), Department of Commerce, Osmania University, Hyderabad shall be the Returning Officer. He is authorized to appoint his own team of Assistant Returning Officer(s)/ Polling Officer(s).

vi) The Conference Secretary shall make all the arrangements for the smooth conduct of elections at the time of 64th All India Commerce Conference including making arrangement of 12 empty boxes for casting votes and other logistics.

vii) The schedule of the election shall be as follows:

a)	Time & Date for filing nomination papers	:	13th December 2011 between 12.00 noon to 5.00 pm
b)	Withdrawal of nomination papers	:	14th December 2011 between 9.00 a.m. to 11.00 a.m.
c)	Scrutiny of nomination papers	:	14th December 2011 at 11.15 a.m.
d)	Printing of ballot papers	:	14th December 2011 upto 3.00 p.m.
e)	Election, if required	:	14th December 2011 5.30 p.m. to 8.00 p.m.
f)	Counting of votes	:	Immediately after the completion of polling
g.)	The Returning Officer shall declare the results of the Election 2011		

RAVINDER VINAYEK
Secretary, ICA

The Indian Commerce Association

Membership Form

To

The Managing Editor
The Indian Journal of Commerce
School of Management Studies
Indira Gandhi National Open University
Maidangarhi
New Delhi 110068

Dear Sir,

You are requested to enroll me as (put a ✓ mark):

☐ Individual Life Member (Rs. 3,000)

☐ Institutional Annual Member (Rs. 600)

☐ Patron – Institutional Life Member (Rs. 15,000)

I am sending an amount of Rs. .... (in words)..................................

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<div align="right">Yours Sincerely</div>

Date: Signature of Applicant

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Form – 5

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I, Nawal Kishor, hereby declare that the particulars given are true to the best of my knowledge and belief.

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Prof. Nawal Kishor
(Signature of the Publisher)