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A Cross Sector Comparison of Financial Trends in Textile, Food and Chemical Sectors: An Empirical Analysis of Profitability, Leverage, Liquidity and Activity

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Abstract- The aim of the study is to use ratio analysis to observe significant financial trends within three major sectors of the non financial industry for the 2005-2010 period….namely textile, food and chemical sectors. Consequences shows that at least for the test period, 11 out of 14 financial ratios are statistically different across the three non financial sectors. By itself, economic trends and cross sectional abnormalities with in observed non financial industry segments are better embedded.

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Abstract- The aim of the study is to use ratio analysis to observe significant financial trends within three major sectors of the non financial industry for the 2005-2010 period….namely textile, food and chemical sectors. Consequences shows that at least for the test period, 11 out of 14 financial ratios are statistically different across the three non financial sectors. By itself, economic trends and cross sectional abnormalities with in observed non financial industry segments are better embedded.

Study solely depend on the published financial data, so it is subject to all limitations that are inherent in the condensed published financial statements. Inflation couldn't be taken into contemplation in the present study. It was not possible to convert the relevant financial data inti their present values because of non availability of sufficient information required for the purpose. The study is of crucial importance to measure the firm liquidity, leverage, activity and profitability and other indicators that the business is conducted in a rational and normal way. Multiple analysis of variance with independent sample characteristics were analysed through Statistical Package for the Social Sciences (SPSS). The analysis of variance do not control for several factors that may systematically affect profitability, leverage, liquidity and activity. They are Total Sales and Total Assets. We control for the factors mentioned above in a multiple regression framework.

I. Introduction

The model of this research is extracted from private and government companies included in non financial industry. The focal point of this investigation is on investment management because of its significance in commerce and industry the specific focus is on financial ratio analysis. Financial ratios give the advantage when they are matched up with other matching ratios. When we are using ratios in order to check the performance of a company two different approaches are attained they judge due course and they provide the comparison between two companies or more than two. Eventually, evaluating a ratio of one company in comparison to another company is a factual way to recognize a company's movement if firm ratios are gradually improving it implies a positive effect on company's financial situation. On the other hand if certain ratios appear to be getting poorer position it indicates that firm is in declining position. It is important to judge a company's ratios in comparison to other industries. If we are performing comparison of different firms and it shows that one firm's ratio is increasing eventually, we must find out whether it is increasing in comparison to its competitor. If it isn't as flushed as its opponents. This indicates that company isn't is in sound situation or handled well as its other industry rivals are.(Kousar and Saba, 2012) did a wise compariso of banks (Salman and Qamar, 2011) used two pharmaceuticals and compared them by using appropriate financial ratios. We here compare the operational and financial position of the entire sectors (textile, food and chemical) which one's performance is superlative as compared to others. We check the impact of TA and TS on dependant variables i.e. profitability, liquidity, activity and leverage.

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II. Literature Review

(Justin, 1924) The period 1920's was the time which shows great interest of analysts about the use of financial ratios for measuring future financial failures and the effect of financial statements (Gilman, 1925) thought current ratio was the only ratio for the analysis of financial staement (Wall and Dunning, 1928) were the first who gave the idea of using many ratios rather than only current ratio (Bliss, 1923) merge financial ratios with business returns (Smith and Winakor, 1935) proceed the work of Wall and propose that CA to TA and Net Worth to TA give more accurate result than CR (Holdren, 1964) establish that financial ratios also examine the effect of Lifo and Fifo methods of inventory assessment on financial ratios (Beaver, 1966) use financial ratios to predict future failure in profile analysis (Altman, 1968) prompted by giving position to these ratios accordind to their weights (Horrigon, 1968) predicted these ratios will be very helpful for conducting research when the income is limited (Dakin, 1972) continue the work of Beaver by adding cash to sale ratio (O Connor, 1973) prefer weighted index instead of using singly used ratios to predict financial failures but still there is a sign of instability to forecast ROR (Abdul Khaliq, 1974) criticize

by providing evidence about the lack of usefulness of ratios (O Connor, 1974) replied ratios are the first step in predicting ROR. After this era research continues using financial ratios in foretelling different aspects as Long term and Short term financial decision making (Backer and Gosman, 1980) profitability (Dholakia, 1978) level of risk (Choi, Hino, Min, Nam, Ujiie, Stonehill, 1983) determine particular ratio is not adequate to measure performance rather than using a group of ratios (Soenon and Bulke, 1988) desribe a ratio defines a relationship between two facts numerator and denominator (MC leary, 1992) bankruptcy (Rujoub, Cook, Hay, 1995) financial failure (Bar and Siems, 1996) distiguish falied banks from non failed (Yeh, 1996) whether private companies are working more or less as to publically traded companies (Deventer and Malatesta, 2001) effect of inflation on financial results (Tatoglu, 2003) liquidity (S.k. Acarvci, 2007) operational nad financial performance of public and private sector (Aftab, Nasr, 2008) liquidity and profitability for financial situation and profit/loss (Karacaer, Kapusuzoglu, 2008) financial analysis (Mukhuti, Bhunia and Roy, 2011) the alliance between liquidity and profitability (Bhunia and Brahama, 2011) financial and operational position of insurance companies (H. Malik, 2011) association between profitability and liquidity ratios (Bhunia, Khan and Mukhuti, 2011) manufacturing sector of india 3years before Merger and Acquisition and 3 years after (Leepsa and Mishra, 2012) relationship between profitability and liquidity ratios (Khan, Sajjad, 2012)

III. Cross-Sectional Comparison of Textile Food and Chemical Sectors

a) Data

Our cross-sectional comparison use data accessed through websites of Karachi Stock Exchange, State Bank of Pakistan and Annual reports of incorporated firms. This study integrates secondary data for six years period. The information reported for most of the companies include its Assets, Debt, Equity, Capital employed, Dividend covered, and Inventory, Interest covered Cash flows and Sales. The study is based on all companies included in KSE. We use data published for 2005, 2006, 2007, 2008, 2009, and 2010 from annual reports of related firms. It includes both private limited and publically traded companies. It embrace non-financial sector which further include Textile, Food, Chemical and Pharmaceutical sectors. Textile sector consist of 164 observations, food 56, Chemical and Pharmaceutical contain 43 observations. We exclude financial firms from the analysis reported here. We take all companies of the three mentioned sectors because if we make a sample with criteria as a company attaining share value of above 90 percent will be included in our sample, the study will furnish biased results. The motive is to integrate those companies whose total assets and total sales should not be zero. For this the number of companies taken in our sample is 263. It excludes the defaulter companies which were black listed by Karachi Stock Exchange on 31st December 2012. The total number of defaulter companies for these sectors is 114.

Summary figures computing size indicate that they are precisely huge firms. The average of the annual sale of chemical sector is greater than that of the food and textile sector. If we measure these companies in term of size than it is found that government firms employ more people than private firm so the size of government firms is always greater than the private firms.

IV. Methods and Results

(Beaver, 1966) and (Altman, 1968) were the first who used these yard sticks called financial ratios. The objective of our study is the comparison of profitability, leverage, liquidity, activity for the model companies present in textile, food and chemical sector. It determines which sector is working more efficiently as compared to other sectors of Pakistan. Efficiency in our study measures operational cycle efficiency of an industry which includes how asset is managed sufficiently to get profit of an industry. The operating cycle is cash-RM-WIP-FG-A/R-cash. R.M includes labor FOH and A/R. it shows if operational cycle is working efficiently than the overall profitability of an industry is high. The ratios that measure the efficiency are Inventory Turnover, Total Asset Turnover.

Altman, Beaver judge against two sectors. They used models to compare these two groups. The model used by them is ratio analysis and bankruptcy. They used average mean value of two groups to have economic comparison. We focus on the leverage, liquidity, profitability, and activity comparison of these sectors of KSE. Profitability is proxied by ROA, ROE, ROCE and Net Profit Margin. Two ratios are Current and quick ratios which are accepted measures of the liquidity of a firm. Another variable leverage is measured through interest cover, dividend cover, debt equity and cash flow to debt ratio. Another aspect of the firm includes activity proxied by asset turnover and inventory turnover.

In order to determine the difference between sectors (textile, food and chemical) i.e. means of theses independent variables the Wilk's Lamda is used. The omnibus MANOVA test indicates that Wilk's Lamda. In this test Wilk's Lamda $p = 0.000$ which the three groups are significant different in term of the forteen financial ratios.

The examination of multi variate test table indicates that the means of textile, food and chemical are significantly different in term of eleven ratios i.e. Quick ratio, Trade debt, Asset turnover, Current ratio,

Debt equity ratio, ROA, ROE, ROCE, Inventory turnover, Net Profit Margin, EPS. However, Dividend cover (f = 0.131, p = .878), Interest cover (f = 1.130, p = 0.349), Operating cash flow to debt ratio (f = 0.547, p = 0.590) are not significantly different among textile, food and chemical sector. In order to find where the differences are present in these ratios we use post – hoc (LSD) strategy. The mean difference is significant at 0.05 levels. In case of quick ratio chemical vs food (MD = 0.5917, p = 0.00), chemical vs textile (MD = 0.4100, p = 0.000) which are significantly different whereas food vs textile (MD = -0.1817, p= 0.017) which is not significantly different. Asset turnover ratio for chemical vs food (MD = -0.4483, p = 0.000), food vs textile (MD= 0.6633, p= 0.000), and for chemical vs textile it is (MD= 0.2150, p= 0.018) which is not significantly different. current ratio for chemical vs food (MD= 0.5217, p= 0.000), chemical vs textile (MD= 0.3083, p=0.001) which are significantly different where as current ratio food vs textile (MD= -0.2133, p=0.015) which is not significantly different. ROE for chemical vs food (MD= 1.8433, p= 0.629) which is not significantly different where as chemical vs textile and food vs textile are significantly different. ROCE food and chemical industry are higher than textile whereas chemical vs food (MD= 7.5567, p= 0.044) are not significantly different whereas chemical vs textile and food vs textile are significantly different. Inventory turnover is higher for chemical than for food and textile and is significantly different for all the three sectors i.e. p=0.000. Dividend cover ratio is higher for chemical sector than for textile and food sector. DCR for chemical vs food (MD= 0.3917, p=0.822), chemical vs textile (MD= 0.8750, p= 0.617), food vs textile (MD= 0.4833, p=0.782). Interest cover ratio is higher for chemical than for food. ICR for chemical vs food (MD = 0.83, p=0.418), chemical vs textile (MD= 1.50, p=0.154), food vs textile (MD= 0.67, p=0.515). NPM is statistically significantly different for all the sectors but it is highest for chemical sector than food and textile. Operating cash flow to debt ratio is not significantly different which is chemical vs food (p = 0.887), chemical vs textile (p= 0.3460), food vs textile (p = 0.425).

V. Time Series Analysis of Textile, Food and Chemical Sectors

a) Data

The initial sample comes from three sectors of KSE. We here check the dependency of profitability, liquidity, activity and leverage on Total Assets and Total Sales. So it overall gives the impact of Total Assets and Total Sales on dependant variables i.e. profitability, liquidity, activity and leverage. We use financial ratios to evaluate the movements among those ratios here by use the time series data. We use six year data for a single ratio of a single sector and represent it graphically. There are also various factors that logically affect the profitability, leverage, liquidity and activity. Two most noticeable factors are total assets and total sales. We can control the exceeding issues of profitability, leverage, liquidity and activity in a multi variant regression model. Evaluation of these are reverted on these two factors i.e. assets and sales. Our time series analysis use accounting data which consists of only those firms for which income statement and balance sheet are available for six years period. The blacklisted and defaulters are excluded from the data.

VI. Changes in Profitability, Leverage, Liquidity and Activity for Textile, Food and Chemical Sectors

In our cross-sectional comparisons we measure profitability, liquidity, leverage and activity. Our extensive approach is to compute the intensity of these measures over different time periods and to illustrate interventions from changes in the intensity of these measures. Our accounting data will give more accurate results than the results present in annual reports of these firms. So here we discuss those measures that are not discussed in last section (cross-sectional comparisons). For profitability measure we use ROA, ROE, ROCE, NPM paralleling the liquidity of a company we use current ratio and quick ratio. Another variable leverage is proxied by interest cover ratio, dividend cover, debt-equity ratio and cash flow to debt ratio and the last we examine activity in relation to asset turnover and interest turnover.

Table 1 : Regression Results

	Explanatory variables				
Dependant variable	NCA	CA	Sales	R	R2
QR	3.081	2.535	-1.802	.357	.127
CR	-5.573	2.707	-9.538	.441	.194

Note: This table reports results of regressions of liquidity, activity, profitability and leverage measures on variables noncurrent assets, current assets and sales.

Sales and Assets are measured in million of rupees. Figures for sales and assets are from annual reports of textile, food and chemical sectors for 2005, Table 1 shows the strength of association between dependant variables quick and current ratios and all the independent variable joined together i.e. total assets and total sales and the influence of independent variable on the liquidity of food, textile and chemical sectors. It was observed that noncurrent asset increased by one unit quick ratio increased by 3.081 units whereas current ratio decreased by 5.573 units which is statistically significant at 1 percent level whereas current asset increased by one unit quick ratio increased by 2.535 units and current ratio decreased by 9.538 that is statistically significant at 1 percent level. However, sales increased by one unit quick ratio decreased by 1.802 2006, 2007,2008,2009,2010. MANOVA calculated with Wilk's Lamda are significant at the 1 percent level. units whereas current ratio decreased by 9.538 units which is statistically significant at 1 percent level. The multiple correlated coefficients between the dependant variables quick ratio and current ratio and the independent variables noncurrent asset, current asset, sales are 0.357 and 0.441. It indicates that quick ratio and current ratio are affected by noncurrent asset, current asset and sales at some level. It is obvious from the value of R2 that 12.7 percent of variations in quick ratio and 19.4 percent of variations in current ratio were accounted by the joint deviation in current asset, noncurrent asset and sales.

Table 2 : Regression Results

	Explanatory variables				
Dependant variable	NCA	CA	Sales	R	R2
AT	-3.510	-4.661	4.177	.973	.946
IT	5.960	.3.226	2.644	.591	.349

Note: This table reports results of regressions of liquidity, activity, profitability and leverage measures on variables noncurrent assets, current assets and sales. Sales and Assets are measured in million of rupees. Figures for sales and assets are from annual reports of textile, food and chemical sectors for 2005, 2006, 2007,2008,2009,2010. MANOVA calculated with Wilk's Lamda are significant at the 1 percent level.

Table 3 : Regression Results

	Explanatory variables				
Dependant variable	NCA	CA	Sales	R	R2
ROA	-3.476	-3.932	2.458	.561	.314
ROE	-6.480	-1.804	6.574	.820	.673
ROCE	-7.198	-7.774	4.051	.742	.551
NPM	-1.568	-1.642	-7.344	.314	.099

Note: This table reports results of regressions of liquidity, activity, profitability and leverage measures on variables noncurrent assets, current assets and sales. Sales and Assets are measured in million of rupees. Figures for sales and assets are from annual reports of textile, food and chemical sectors for 2005, 2006, 2007,2008,2009,2010. MANOVA calculated with Wilk's Lamda are significant at the 1 percent level.

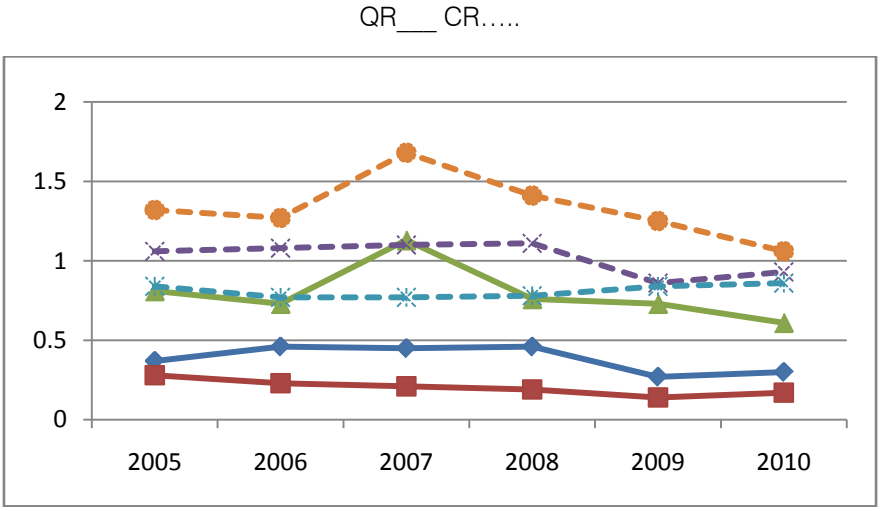
Table 4 : Regression Results

	Explanatory variables				
Dependant variable	NCA	CA	Sales	R	R2
IC	4.299	-9.11	8.560	.848	.719
DC	5.237	-7.961	-5.414	.243	.059
DE	1.290	-4.132	-7.008	.393	.154
OCD	6.810	-1.470	4.505	.771	.595

Note: This table reports results of regressions of liquidity, activity, profitability and leverage measures on variables noncurrent assets, current assets and sales. Sales and Assets are measured in million of rupees. Figures for sales and assets are from annual reports of textile, food and chemical sectors for 2005, 2006, 2007,2008,2009,2010. MANOVA calculated with Wilk's Lamda are significant at the 1 percent level.

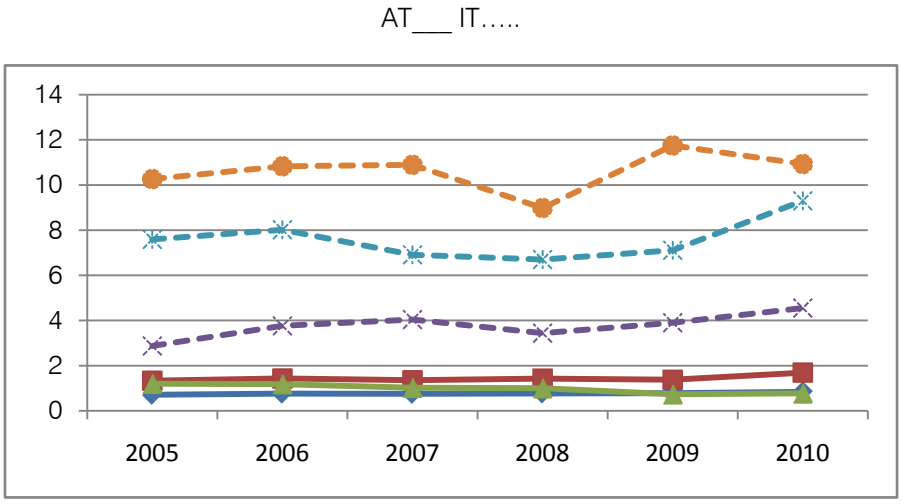
Table 2 shows the strength of association between dependant asset turnover and inventory turnover ratios and all the independent variable taken together i.e. total assets and total sales and the influence of independent variable on the liquidity of food, textile and chemical sectors. It was observed that

noncurrent asset increased by one unit asset turnover decreased by 3.51 units whereas inventory turnover increased by 5.960 units which is statistically significant at 1 percent level whereas current asset increased by one asset turnover ratio decreased by 4.661 units and inventory turnover ratio decreased by 3.226 which is statistically significant at 1 percent level. However, sales increased by one unit asset turnover increased by 4.177 units whereas inventory turnover ratio increased by 2.644 units which is statistically significant at 1 percent level. The multiple correlated coefficients between the dependant variables asset turnover and inventory turnover and the independent variables noncurrent asset, current asset, sales are 0.973 and 0.591. It indicates that asset turnover and inventory turnover are affected by noncurrent asset, current asset and sales at some level. It is obvious from the value of R2 that 94.6 percent of variations in asset turnover and 34.9 percent of variations in inventory turnover are accounted by the joint deviation in current asset, noncurrent asset and sales. Table 3 and table 4 represent the results of changes in trends of profitability and leverage. Table 3 describes illustrative results of changes in trends of ROCE, NPM, ROA and ROE throughout six years and table 4 depicts descriptive results of values for interest cover, dividend cover, debt equity and operating cash flow to debt ratio from 2005 to 2010.

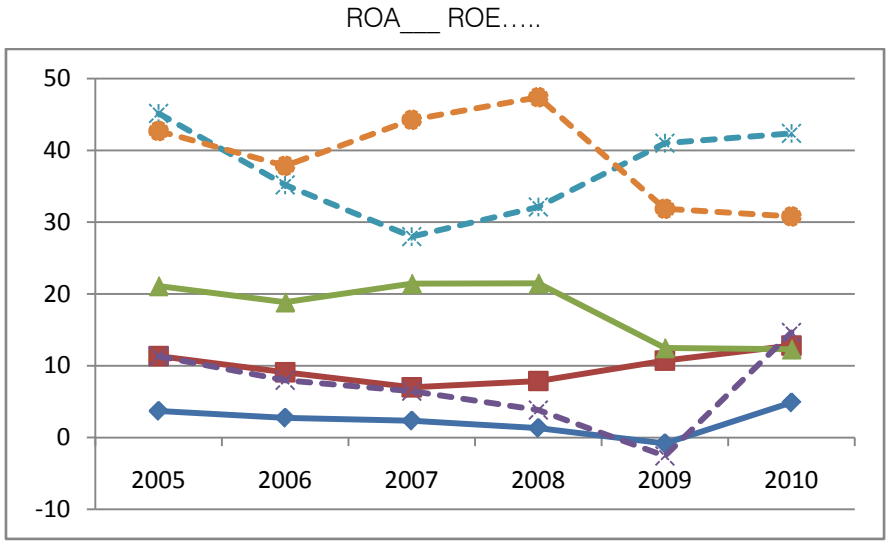


Note: Figure 1 depicts graphs of cross-sectional average liquidity ratios for textile, food and chemical sectors over result years-05 through 10. QR denotes Quick ratio and CR denotes Current ratio.

Figure 1 represents illustrative graph of the sample taken from annual reports of textile, food and chemical sectors for liquidity measures for a period of six years. The graph shows that average quick ratio during the years for textile sector is essentially flat till 2008 and then decrease with slight intensity. In the same pattern quick ratio for food sector will remain unchanged throughout the six years that's why it is less noticeable whereas chemical sector peaks in 2007 and then declines sharply till 2010. The same model appears for average current ratio during the years the textile sector is flat till 2008 and then starts declining whereas the food sector remains constant throughout the six years period. The chemical sector peaks sharply in 2007 and then starts declining with high tendency. Figure 2, 3 and 4 give the graphs of the measure of average, activity, profitability and leverage ratios and changes in trends of above mentioned sectors by using these ratios.

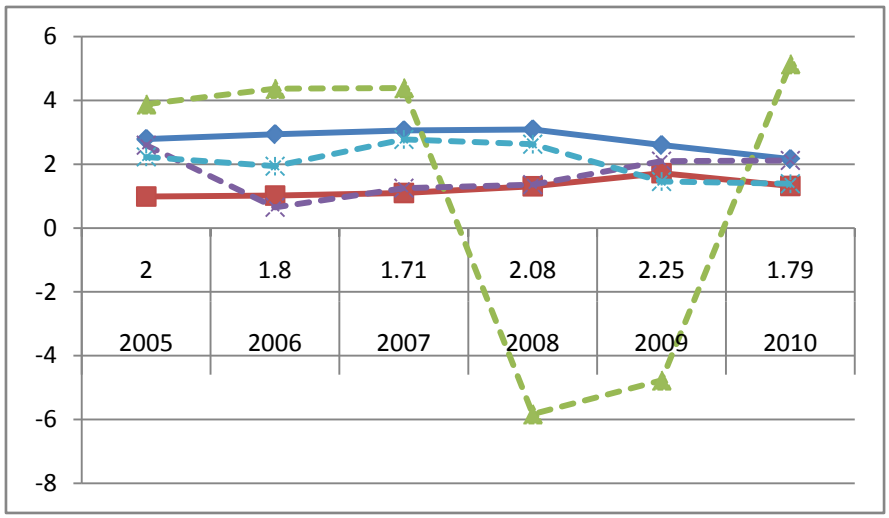


Note: Figure 2 depicts graphs of cross-sectional average avtivity ratios for textile, food and chemical sectors over result years- 05 through 10. AT denotes Asset Turnover ratio and IT denotes Inventory Turnover ratio.



Note: Figure 3 depicts graphs of cross-sectional average profitability ratios for textile, food and chemical sectors over result years- 05 through 10. ROA denotes Return on Assets and ROE denotes Return on Equity.

DE___ DCR…..



Note: Figure 4 depicts graphs of cross-sectional average leverage ratios for textile, food and chemical sectors over result years-05 through 10. DE denotes Debt Equity ratio and DCR denotes Dividend cover ratio.

Figure 2 shows a graph of the measure of average activity ratio for the six years peiod. The asset turnover ratio for textile,food and chemical remains unchanged throughout the six years period. There is only a slight difference between these years. Whereas, the inventory turnover ratio for textile increase gradually till 2007 then decrease for one year and then starts increase for 2009 and 2010. At the same pattern food sector increase sharply in 2007 than remains unchanged and increase at high intensity in 2010. Chemical sector falls in 2008 then peaks in 2009 then declines slightly in 2010. Figure 3 and 4 give the graphs of the measure of average, activity, profitability and leverage ratios and changes in trends of above mentioned sectors by using these ratios.

VII. Conclusion

The examination of multi variate test table indicates that the means of textile, food and chemical are significantly different in term of eleven ratios i.e. Quick ratio, Trade debt, Asset turnover, Current ratio, Debt equity ratio, ROA, ROE, ROCE, Inventory turnover, Net Profit Margin, EPS. However, Dividend cover (f = 0.131, p = .878), Interest cover (f = 1.130, p = 0.349), Operating cash flow to debt ratio (f = 0.547, p = 0.590) are not significantly different among textile, food and chemical sector. In order to find where the differences are present in these ratios we use post – hoc (LSD) strategy. The mean difference is significant at 0.05 levels. Chemical sector's ability to meet current liabilities is higher than textile nad food sector so it has higher liquidity. AT is high for food industry than chemical and textile industry. Current ratio for chemical sector is higher than the two. Food industry indicate high risk as it is able to meet its long term and other obligations than other two sectors. Chemical industry earn more return on its assets than food and chemical. Same as, due to high ROE it indicates more income is generated by given level of assets. ROCE is same for food chemical as well as textile sector. Chemical sector represents efficient inventory management as the industry is efficient in managing and selling inventory. DCR and ICR for chemical sector is higher because it can meet interest obligations. NPM is used to measure the amount of income that a company is able to generate for its revenue. Higher its value higher will be the profitability. So the chemical sector has high profitability than food and textile. Operational cash flow to debt ratio is not significantly different for all the three sectors. Cash flow is an actual amount that a company is engendering to run its future business. Higher the cash flow the more leverage the company is considered. Leverage and financial risk of a company. For textile and food it is .3460 and .425. The minimum level given to this ratio is 0.2. By using which is obvious in multi variant comparison and multi variant regression. The difference in profitability of chemical sector is not only statistically significant but also huge. So it various measures we came to know that textile and food firms are significantly less profitable than chemical firms. The result is rather tough provides support to the above point that chemical sector performance is superlative as compared to food and textile.

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