

RESEARCH PAPER

IMPACT OF LIQUIDITY, EFFICIENCY AND CAPITAL STRUCTURE ON PROFITABILITY OF THE SELECTED TEXTILE COMPANIES IN INDIA : A PANEL DATA APPROACH

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ABSTRACT

It is a known fact that, from the time of new economic policies undertaken by the Government of India, the contribution to GDP from secondary sector depicts a deplorable picture. It is evident that over the last few years Indian manufacturing sector has registered a negative growth in terms of its expansion. Increasing completion, lack of improved technology, removal of foreign trade restriction, lack of demand, are the fundamental causes of such backwardness. Under such situation we actually try to explore the effect of various liquidity, efficiency and capital structure ratios on the profitability in panel framework of some selected textile companies in India. For this purpose we have taken ten textile companies and our study covers the period from 2005 to 2014. We know that liquidity ratios measure firm's ability to meet current liabilities or payment obligations from the cash and near-cash items i.e., from current assets. Here we take current ratio and quick ratio as a representative of liquidity position. The inverse relationship between liquidity and profitability is normally assumed but it is not always true for all the cases. On the other hand, profitability of the firm is measured by the excess of its revenue over relevant expenses. Several ratios are used to measure profitability position of the firm, such as Net profit ratio, Return on Capital employed, Return on equity etc. Again, various efficiency ratios are the indicative of the level or degree of efficiency in utilization of various types of assets deployed in the firm, such as inventory turnover ratio, debtor's turnover ratio, fixed assets turn over ration, total assets turnover ratio etc. Interestingly, these efficiency ratios have direct influence on the earning capacity of the firm. Capital structure and solvency ratios have also larger influence on profitability. For this study we select debt-equity ratio as a representative of capital structure. We all know that higher level of debt indicates higher level of fixed interest burden. Under favourable environment it helps to magnify EPS, however, the business becomes more risky. Higher level of equity indicates lower level of EPS and lower level of financial risk. The higher level of debt-equity ratio reflects greater dependency of the firm on outside fund and vice versa. Against this back drop this paper tries to measure the impact of liquidity, efficiency and solvency on the profitability position of the firm in a Panel framework. We find that current ratio and debtors' turnover ratio has positive and significant impact on the net profit position of the companies. Current ratio and total asset turnover ratio have positive and significant impact on ROCE and debtors' turnover ratio has negative and highly significant impact on the ROCE. Again, we also find that the current ratio, debtors' turnover ratio and total asset turnover ratio have positive and highly significant impact on RONW.

Keywords: *Liquidity, Profitability, Solvency, Efficiency, Textiles Industry, Panel Data, Fixed Effect Model.*

1. INTRODUCTION

It is well known that from the time of new economic policies undertaken by the Government of India, the contribution to GDP from secondary sector has occupied third place. Over the last few years Indian manufacturing sector has registered a negative growth in terms of its expansion. Again, increasing completion, lack of improved technology, removal of foreign trade restriction, lack of demand makes the situation more complex. Under such situation in this paper we try to measure the impact of liquidity, efficiency and capital structure on the profitability of the ten selected textile companies situated in India in a panel framework. We all know that the term liquidity indication the ability of the firm to meet its current liabilities. Liquidity position of the firm is measured by different ratios (such as current ratio, quick ratio etc.). Working capital management component have got enough importance in the arena of corporate finance as it directly affects the liquidity and profitability position of the company. Again, majority of the corporate indices

used for measuring the corporate liquidity is a function of the working capital components (Priya and Nimalathasan, 2013) However, every organization use liquidity ratios for the purpose of liquidity management. We all know that liquidity ratios measures firm's ability to meet current liabilities or payment obligations from the cash and near-cash items i.e., from current assets. If the values of former become higher than that of latter items it indicates that firm is facing tremendous difficulties in meeting its immediate financial obligations which in turn not only affects firm's business operations but also it has immense effect on the profitability position of the firm (Saleem and Rehman, 2011). The inverse relationship between liquidity and profitability is generally assumed but it is not true for all the cases. On the other hand, profitability of the firm is indicated as the excess of its revenue over relevant expenses. Several ratios are used to measure profitability position of the firm (such as Net profit ratio, Return on Capital employed, Return on equity etc.). Again, various efficiency ratios are the indicative of the level or degree of

efficiency in utilization of various types of assets deployed in the firm (such as inventory turnover ratio, debtor's turnover ratio, fixed assets turn over ration, total assets turnover ratio etc). Interestingly, these efficiency ratios have direct influence on the earning capacity of the firm. Capital structure and solvency ratios have also larger influence on profitability. For this study we select debt-equity ratio as a representative of capital structure. We all know that higher level of debt indicates higher level of fixed interest burden. Under favourable environment it helps to magnify EPS, however, the business becomes more risky. Higher level of equity indicates lower level of EPS and lower level of financial risk. The higher level of debt-equity ratio reflects greater dependency of the firm on outside fund and vice versa.

Against this back drop this paper tries to measure the impact of liquidity, efficiency and solvency on the profitability position of the firm in a Panel framework. Our paper is structured as follows: Section 2 represents review of literature; in section 3 we provide data and methodology. Section 4 discusses about trends in the several liquidity, efficiency, capital structure and profitability ratios of the ten selected firms over the period of our study. In section 5 we measure the impact of liquidity, efficiency, capital structure ratios on the profitability position in a panel framework. Finally, section 6 represents our concluding observations

2. REVIEW OF LITERATURE

Literature in this area is not plenty. We can safely classify the literature in this area on the basis of their nature and focus.

Several studies have made by considering a single company particularly to measure the impact of liquidity on profitability (Singh and Pandey, 2008; Mandal and Goswami, 2010; Pandey and Jaiswal, 2011; SenGupta and SenGupta, 2015)

Singh and Pandey (2008) in their study on Hindalco industries limited have found that the current ratio, liquid ratio, receivables turnover ratio and working capital to total asset ratio have statistically significant impact on profitability. In their studies for identifying the influence of liquidity on profitability they used linear multiple regression model. Again, Mandal and Goswami (2010) in their study on ONGC have found that under the liberal economic conditions the effective utilization of working capital is inevitable for the growth and sustainability of the enterprise. Moreover, the risk dimension of liquidity can't be ignored for the purpose of the measurement of overall performance. Again Pandey and Jaiswal (2011) in their study on Nalco have found that all the liquidity ratios on Return on Capital employed have statically insignificant effect. Finally, SenGupta and SenGupta (2015) in their study on Century Textile and Industries Limited have found that the Rank Correlation Coefficient between liquidity and profitability is negative but not significant. Again they found that the effect of inventory turnover ratio on Net Profit ratio is positive and highly significant, as well as the effect of Creditors Turnover ratio on Net Profit ratio is negative and highly significant.

On the other hand several studies have made by considering more than one firm within the same industries and also within the same country. (Priya and Nimalathanam, 2013; Reheman and Nasr, 2007; Mathuva, 2010; Usama, 2012; Alipour, 2011; Gill Et.al., 2010; Zainudin, 2006; Saleem and Rehman, 2011; Ching et. al., 2011; Nireesh, 2012.)

Priya and Nimalathanam (2013) in their study on liquidity management and profitability for listed manufacturing companies in Srilanka have found that Inventory sales period, and current ratio have statistically significant impact on Return on Asset, again operating cash flow ratio is significantly correlated with Return on Equity. They also found that inventory sales period and operating cash flow ratio are significantly correlated with Return on Asset and Creditors Payment period is significantly correlated with Return on Equity. This study considers listed manufacturing companies in Srilanka. Zainudin (2006) in his study on Malaysian SME's for examining the relationship between liquidity and profitability have found that there exists heterogeneity in the level of liquidity maintained by the different groups of industry. And there exists positive association between liquidity and profitability. Similarly Reheman and Nasr (2007) in their study on Working Capital Management and profitability have found that there exist positive relationship between the size of the firm and its profitability. They also found that there exists inverse and statically significant relationship between debt used by the firm, and its profitability. However, Gill et.al. (2010) in their study on the relationship between working capital management and profitability found that there exists positive relationship between Cash conversion cycle and gross operating profit. They also found insignificant relationship between the size of the firm and its gross operating profit ratio. Mathuva (2010) in his study on the influence of working capital management components on corporate profitability have found that, the firms which maintain sufficiently high inventory levels are able to reduce costs of possible interruptions in the production process and loss owing to scarcity of products. Nireesh (2012) in his study on trade off between liquidity and profitability which is based on some selected manufacturing firm in Srilanka have found, negative Correlation between Return on Capital Employed and all the liquidity variables undertaken for the purpose of the study. Moreover, positive association exists between quick ratio and net profit, current ratio and Return on Equity and finally, quick ratio and Return on Equity, but the Correlation values are found to be statistically insignificant. On the other hand, country specific study done by Alipour (2011) on Iran to find the relation between Working Capital Management and Corporate Profitability found that the significant relation exists between Working Capital Management and Profitability, as well as managers can create value for their share holders by means of lowering receivable accounts and inventory. Almost similar findings are reflected from the study done by Usama (2012) while he is trying to capture the effect of Working Capital Management on firm's profitability for food sector which is listed in Karachi stock exchange. Again, Ching et. al. (2011) in their study

on relationship between Working Capital Management and Profitability in Brazilian listed companies have found that proper management of inventory an achievement of cash conversion efficiency to an optimum level will yield more profit, in the Working Capital intensive type of company. They also found from ANOVA that days inventory is negatively related with Return on Sales and Return on Assets.

GAP IN LITERATURE

However, all the above studies remains silent on the effect of current ratios, efficiency ratios and capital structure ratio on various types of profitability positions. This motivates us to undertake this study.

3. DATA AND METHODOLOGY

This study is an empirical analysis based on secondary data available from Capitaline Neo. For the purpose of our analysis we have selected ten companies belonging to the Textile industry. For the purpose of our study we have selected ten companies namely Alps Industries, Arvind Mills, Bang Overseas, Bombay Rayon, Grasim Inds, JCT, Lakshmi Mills, Mandhana Indus, Premco Global, Richa Industries and we also cover the period from 2005 to 2014. So far as methodology is concerned we have used conventional statistical tools like mean, coefficient of variation (CV henceforth) for analyzing the trends of several ratios undertaken for the purpose of our analysis. Actually in this paper we try to measure the impact of liquidity ratios, efficiency ratios and capital structure ratio on profitability. We select current ratio (CR henceforth), Quick ratio (QR henceforth) as the representative of liquidity ratios and inventory turnover ratio (ITR henceforth), debtors turnover ratio(DTR henceforth), fixed assets turnover ratio(FATR henceforth) and total asset turnover ratio(TATR henceforth).We also select Debt-Equity ratio (D/E henceforth)as a representative of capital structure. Again we select three profitability ratios namely Net Profit ratio (NP ratio henceforth), Return on Capital Employed (ROCE henceforth) and Return on Net worth (RONW henceforth). We use tabular form for presenting and analysing the variability of the aforesaid ratios over the period of our analysis. Again to measure the impact of several independent ratios on profitability ratio we use econometric technique which is popularly known as panel data analysis.

4. TRENDS IN PROFITABILITY, LIQUIDITY, EFFICIENCY AND SOLVENCY OF SELECTED COMPANIES.

It has already mentioned that for the purpose of analyzing the trends in the profitability positions of the selected companies we have chosen there ratios normally net profit ratio, return on capital employed ratio and return on net worth ratio. Appendix table-1 reveals the highest value, lowest value, mean and CV of each ratios for individual organizations over the period of our study. It is evident from the appendix table-1 that amongst the all highest values of net profit ratio, Grasim Industries has achieved 1st place and JCT has achieved last place over the period of our study. However, variability which is measured in

terms of CV is found to be higher in case of JCT and lower in case of Grasim Industries. Moreover, we also find that over the period of our study many companies have suffered from loss. Similarly, in case of ROCE we observe that amongst the all highest values of the selected organizations Bang Overseas have achieved 1st place and JCT again has occupied last position. Again, in case of variability over the period of our study we find that Alps Industries has achieved 1st place and Grassim Industries has occupied last position. However, in case of RONW we find that amongst the highest values of the selected organizations again Bang Overseas has occupied 1st Place and JCT has occupied last place. In case of variability we find that JCT has achieved highest value of CV. However, in case of profitability positions of the Companies several ratios reflect wide fluctuations between high value and low value for each company and variability of the ratios across the companies over the period of over study.

To measure the trends in the liquidity position of the selected companies we use two common ratios namely current ratio and quick ratio. In case of current ratio from the appendix table-1 it is evident that the Bang Overseas has achieved highest value amongst the highest values of all other companies and in case of Grasim Industries it is found to be lowest. Regarding variability in current ratio Lakshmi Mills has achieved highest-variability (i.e. 3977%). However, the degree of variability in case of current ratio across the companies is not much higher as it is observed in case of profitability ratios over the period of our study. In case of quick ratios it is evident from the appendix table that amongst the all highest values across the companies Bang Overseas has occupied 1st place and JCT has occupied last position. However, degree of variability is case of Alps Industries is found to be highest. For the purpose of measuring the effect of efficiency ratios on profitability ratios we have selected four efficiency ratios namely inventory turnover ratio, debtors turnover ratio, fixed assets turnover ratios and total assets turn over ratios. In case of inventory turnover ratios we find Grasim Industries has occupied highest place when we consider highest values of the selected companies over the period of our study and Lakshmi Mills has achieved highest variability (i.e. 66.60%). Again, in case of debtors' turnover ratio we find Lakshmi mills has achieved highest value when we consider only high values of debtors turnover ratio and in case of variability Lakshmi mills also has occupied first place. For fixed assets turnover ratios we find that among all high values across the companies Bang Overseas has occupied highest value and Bombay Rayon has highest variability over the period of our study. However, in case of total assets turnover ratios Lakshmi mills has occupied 1st place if we consider only high values across the companies over the period of our study. Again, Bang Overseas has occupied highest variability.

We consider Debt-equity ratio as a representative of capital structure ratio. If we consider only highest values of the ratio over the period of our study across the companies we find that Alps Industries has occupied first place and Premco Global has occupied last place. In case of variability across the companies we find that JCT has achieved highest variability in this respect.

5. IMPACT OF LIQUIDITY, EFFICIENCY AND CAPITAL STRUCTURE RATIOS ON PROFITABILITY

For the purpose of measuring the impact of liquidity, efficiency and capital structure ratios on profitability positions of the selected companies over the period of our analysis we use a widely used econometric technique commonly known as panel data regression model. We select fixed effects model (FEM) to see the impact of several independent variables on dependent variable. Actually, we select three profitability ratios namely Net Profit ratio, Return on Capital Employed ratio and Return on Net worth ratio. Again, we measure the impact of several independent variables on three dependent variables separately.

Effect of liquidity, efficiency and capital structure ratios on net profit ratio: To measure the impact of liquidity, efficiency and capital structure ratios on net profit ratio our econometric model will be as follows

$$NP_{it} = \alpha_i + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 ITR_{it} + \beta_4 DTR_{it} + \beta_5 FATR_{it} + \beta_6 TATR_{it} + \beta_7 DE_{it} + \varepsilon_{it} \dots \dots \dots Eq (1)$$

Where, i = 1, 2, 3,10 and t = 1,2,3,....10. Here, ε_{it} represents error term which is normally distributed.

The result of our analysis is given in table-1. It is evident from the table that our model specification is statistically significant. Here, current ratio has positive and highly significant impact on net profit ratio. Similarly debtors turnover ratio has also positive and highly significant impact on net profit ratio. Other independent ratios have statistically insignificant effect on net profit ratio.

Table 1: Effect of Independent Variables on Net Profit

Dependant Variable	Net Profit
Independent variable	Coefficient (Probability)
Current Ratio	3.079736 (0.0027)
Quick Ratio	0.010485 (0.9352)
Inventory Turnover Ratio	0.249613 (0.2979)
Debtors Turnover Ratio	0.274137 (0.0464)
Fixed Assets Turnover Ratio	-0.052454 (0.7919)
Total Asset Turnover Ratio	0.059611 (0.9601)
Debt Equity Ratio	0.006163 (0.7776)
Log likely hood	-238.6851
F-Statistic	17.40135
Probability (F-statistic)	0.000000

Effect of liquidity, efficiency and capital structure ratios on return on capital employed: To measure the impact of liquidity, efficiency and capital structure ratios on return on capital employed our econometric model will be as follows:

$$ROCE_{it} = \alpha_i + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 ITR_{it} + \beta_4 DTR_{it} + \beta_5 FATR_{it} + \beta_6 TATR_{it} + \beta_7 DE_{it} + \varepsilon_{it} \dots \dots \dots Eq(2)$$

Where, i= 1, 2, 3,10 and t = 1,2,3,....10. Here, ε_{it} represents error term which is normally distributed.

From table-2 it is evident that our model specification is statistically significant. It is also evident from the table that current ratio has positive and highly significant effect

on return on capital employed whereas, debtors turnover ratio has negative and highly significant impact on return on capital employed. Again, total assets turnover ratio has also positive and highly significant impact on return on capital employed. Other independent variables have insignificant effect on return on capital employed.

Table 2: Effects of Independent Variables on Return on Capital Employed

Dependant Variable	Return on Capital Employed
Independent variable	Coefficient (Probability)
Current Ratio	5.044924 (0.0074)
Quick Ratio	-0.099281 (0.6773)
Inventory Turnover Ratio	-0.545082 (0.2197)
Debtors Turnover Ratio	-1.055462 (0.0001)
Fixed Assets Turnover Ratio	-0.241920 (0.5111)
Total Asset Turnover Ratio	12.30359 (0.0000)
Debt Equity Ratio	0.001547 (0.9694)
Log likely hood	-300.2009
F-Statistic	12.50222
Probability (F-statistic)	0.000000

Effect of liquidity, efficiency and capital structure ratios on return on net worth : To measure the impact of liquidity, efficiency and capital structure ratios on return on net worth our econometric model will be as follows

$$RONW_{it} = \alpha_i + \beta_1 CR_{it} + \beta_2 QR_{it} + \beta_3 ITR_{it} + \beta_4 DTR_{it} + \beta_5 FATR_{it} + \beta_6 TATR_{it} + \beta_7 DE_{it} + \varepsilon_{it} \dots \dots \dots Eq(3)$$

Where, i= 1, 2, 3,10 and t = 1,2,3,....10. Here, ε_{it} represents error term which is normally distributed.

In this case also our model specification is statistically significant. It is evident from the table-3 that the current ratio and debtors turnover ratio have positive and highly significant impact on return on net worth. Again, the total asset turnover ratio has also positive and highly significant impact on return on net worth.

Table 3: Effect of Independent Variables on Return on Net Worth

Dependant Variable	Return on Net Worth
Independent variable	Coefficient (Probability)
Current Ratio	7.662819 (0.0131)
Quick Ratio	-0.070027 (0.8582)
Inventory Turnover Ratio	-0.779805 (0.2849)
Debtors Turnover Ratio	1.289553 (0.0024)
Fixed Assets Turnover Ratio	-0.686316 (0.2579)
Total Asset Turnover Ratio	16.50270 (0.0000)
Debt Equity Ratio	0.012066 (0.8557)
Log likely hood	-349.8954
F-Statistic	7.605357
Probability (F-statistic)	0.000000

6. CONCLUSION

From the above study the following conclusions have emerged. First, our trend analysis of several ratios reflects quite surprising picture. For each ratios as well as for each companies selected for the purpose of our study reflects a

wide variations in their values throughout the period of our study as it is reflected from their highest values, lowest values and mean values. Variability in case of profitability ratios exists at higher level across the companies and it fluctuates widely also across the companies. However, in case of current ratio we find moderate rate of variability for the companies selected for our study. Variability in the area of inventory turnover ratios, fixed asset turnover ratio, total asset turnover ratio and debt equity ratio reveals that for some companies it is moderate and for some companies it exists at higher level. Our econometric analysis also reveals that current ratio and debtors turnover ratio has positive and significant impact on the net profit position of the companies. Current ratio and total asset turnover ratio have positive and significant impact on ROCE and debtors turnover ratio has negative and highly significant impact on the ROCE. Again, we also find that the current ratio, debtors turnover ratio and total asset turnover ratio have positive and highly significant impact on RONW.

7. LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

In this study we actually rely on the data published by Capitaline Neo. Again, we consider only ten companies from the textile industries who are carrying on their operations in India. One may increase the number of companies. Our study also considers ten years for each company. One may consider more than ten years. However, our study will explore many untrodden area.

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