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# AN ANALYSIS OF FINANCIAL PERFORMANCE OF PUBLIC SECTOR TEXTILE UNITS IN MAHARASHTRA USING MULTIPLE REGRESSION MODEL

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**Abstract-**Indian Textile Industry is one of the leading textile industries in the world. The economic liberalization of Indian economy in 1991 gave the much needed thrust to the Indian textile industry, which has now successfully become one of the second largest in the world. There are many states like West Bengal, Tamil Nadu, Gujarat, Kerala and Maharashtra which are textile hub of the Country. Among them Maharashtra is one of the giants in the textile manufacturing and also the one to owe highest industrial outputs in the textile sector. There are abundant natural resources, skilled manpower and premiere R&D centers. Additionally bulk of raw material available is all responsible for pushing down the cost of textile industry. Due to all these favorable factors, it contributes highest FDI in the country and highest contribution to India's GDP. This industry comprises of both Public and Private sector textile units. Though it is leading textile producing state but it is struggling hard to uphold and maintain its position. Therefore, it is important to check the impact of Solvency, liquidity and turnover on the financial performance of Public sector textile units in Maharashtra. In the present study researcher has identified various significant ratios to study the impact of firm's specific independent variables on financial performance of selected public textile units using multiple regression model.

**Keywords:** Indian Textile Industry, Maharashtra's Textile Industry, financial performance, multiple regressions Analysis

## 1. INTRODUCTION

The term Textile comes from the Latin word "Texere" meaning "to weave". The art of textile making started to develop in the Stone Age. Weaving is a craft developed initially in a very crude and under developed form with the advent of agriculture. The art of weaving yarn into fabric slowly developed from the weaving of strips into mats and baskets. (Ghosh and shukla,n.d) Today, Indian Textile Industry is one of the leading textile industries in the world. After the economic liberalization of Indian economy in 1991, the opening up of economy gave the much needed thrust to the Indian textile industry, which has now successfully become one of the second largest in the world. It plays a major role in the economy of the country as it earns about 27% of the total foreign exchange. Further, the textile industry of India contributes nearly 14% of the total industrial production and also contributes around 4% to the GDP of the country. The industry is the largest in the country in terms of employment generation. (International Trade Division, 2014)

## 2. MAHARASHTRA & ITS TEXTILE SECTOR

Maharashtra has a booming economy which is based on the edifice of a strong infrastructural foundation. The state has a well balanced economic and social structure and is rich in two main industries i.e. Sugar and Textile. This state is one of the giants in the textile manufacturing and also the one to owe highest industrial outputs in the textile sector. It accounts for about 65 million kg of cotton production which is 25% of the country's total. The textile industry of the State holds a strategic importance in the country as it is the single largest employer and contributes around 27% of India's total exports. The state contributes 10.4 per cent to the country's textile and apparels output. Also, the state accounts for 10.2 per cent of the country's employment in the sector. It produces 12 per cent of India's total production and has an installed capacity of 1.66 million spindles, equivalent to 17 per cent of the country's capacity. (Doing Business in Maharashtra, n.d)

Maharashtra is also one of the largest producers of cotton in India. Furthermore, there are abundant natural resources, skilled manpower and premiere R&D centers. Additionally bulk of raw material available is all responsible for pushing down the cost of textile industry. Due to all these favorable factors, it contributes highest FDI in the country and highest contribution to India's GDP.

Maharashtra Textile Industry basically comprises of both private as well as public textile units. Both these sectors deal in Spinning and Composite (Non SSI & SSI).In order to check the financial performance of Public sector textile

units in Maharashtra, the researcher has selected four public sector textile units, deals in Spinning and Composite (Non SSI & SSI) that have greater influence on the overall economic performance of the state. For the purpose of critical financial analysis, some of the key units of public textile units in Maharashtra were selected. A brief profile of the selected textile firms of the state which deals in Spinning and Composite (Non SSI & SSI) are:

**Table-2.1 Selected Public Textile Units in Maharashtra**

| Company | Product Portfolio |
|---|---|
| Barshi Textile Mills, Barshi- Maharashtra | Yarn, Polyester Filament Yarn, Aloe Yarn, Hemp Yarn, Texturized Yarn |
| India United Mills No 5,Mumbai- Maharashtra | Yarn Manufacturers, Textile Mills |
| Podar Mills, Mumbai- Maharashtra | Textile Manufacturers, Yarn Manufacturers. |
| Tata Mills, Mumbai- Maharashtra | Cotton fabric, synthetic fabric, silk fabric, georgette fabric, embroidered yarns, synthetic yarns, |

**Source: Government of Maharashtra, Co-operation, Marketing and Textile Department Government of Maharashtra**

## 3. REVIEW OF LITERATURE

The review of literature is being done to find out available literature in the field of financial performance analysis and also to find out the gap of such performance in public textile units in Maharashtra. The researcher has presented some of the excerpts of various studies conducted by the financial analysts in the past. Some studies are directly related and some are indirectly. The available literature has helped the researcher to find out the research gap.

**Kumar and Kulkarni (2012)** had conducted analysis of the Gujarat textile industry with reference to working capital evaluation on selected five company for the eleven years and performed ratio analysis, descriptive statistics etc. Various ratios like current and quick ratio, current asset on total asset, sales, turnover etc. were analyzed with the help of ANOVA and the study concluded that the financial performance of all the selected companies was sound and effective.

**Channar and Ram (2011)** concludes that overall performance of the textile sector was adversely affected by crisis due to various factors like obsolete technology, unavailability of high quality raw material, unskilled labor etc. Financial analysis of income statement was done to know the current position of debt payment ability, management and inventory sales, receivables, productivity, fixed assets, etc.

**Charumathi (2012)** has made an attempt to examine various factors that determine the profitability of life insurers operating in India. The study was based on data of 3 years of 1 public company and 22 private companies working in this industry. Regression analysis reveals that there was direct relationship of profitability with size and liquidity whereas negative relationship of profitability with the leverage, premium and equity capital.

**Venkataramana and Ramakrishnan (2012)** measured the profitability and financial position of selected cement companies in India through various financial ratio and applied correlation, mean, standard deviation and variance. The study uses liquidity and profitability ratios for assessment of impact of these ratios on profitability. Further financial performance was checked by regression analysis of selected cement companies.

## 4. STATEMENT OF THE PROBLEM

The Indian textile in general and Maharashtra's textile industry in particular has in-born strengths like availability of all types of fibres in the textile value chain, huge geographical infrastructure, recognition of India in its design capabilities, rising exports and support of the various Ministries of the Government. Even then this industry lags behind its competitors at global front and is struggling hard with some structural problems like infrastructure, fragmented industry structure, and high transaction cost affecting the global competitiveness of the industry. Therefore the question arises:

- What are the factors responsible for slower growth rate of Public sector textile units in Maharashtra?
- What is the reason behind unsatisfactory performance of public sector textile units in Maharashtra?

Keeping the above issues in mind it becomes necessary to analyze the financial performance for a comprehensive evaluation of public textile units in Maharashtra in order to find out actual problem of these sectors. The main thrust of the present study is to find out the main reason behind the suffering and losses of public textile units in Maharashtra.

## 5. RESEARCH GAP

Review of literature done above highlights that very few studies till date have been conducted to analyze financial performance of public sectors of Indian textile Industry in general and public sectors of textile units of Maharashtra in particular.

## 6. SCOPE OF THE STUDY

Financial analysis of public sectors of textile mills in Maharashtra is done for the period of 10 years staring from F.Y 2006-07 to F.Y 2015-16. Financial performance of the sector is measured on the basis of liquidity, solvency, turnover and profitability. For the purpose of study 4 public units of textile in Maharashtra are taken into consideration.

## 7. IMPORTANCE OF THE STUDY

Public sector of this industry is unable to perform satisfactorily though they have various benefits at their side. Therefore, it is the need of the hour to investigate and find out the possible reasons for poor performance of public sector and also figure out the causes for the slow pace of growth of textile industry in Maharashtra.
Findings of this study will be beneficial to different groups like

- Management in financial planning
- Financial projections and business forecast
- Government and policy makers
- Bankers, the other financial institutions
- Investors and other market participants

## 8. OBJECTIVES OF THE STUDY

The objective of the study is to:

- To find the impact of liquidity, solvency and Turnover on Profitability of public textile units of Maharashtra.
- Draw conclusions using appropriate statistics tools and make recommendations for further growth & development of the sectors.

## 9. HYPOTHESIS OF THE STUDY

Testing the significant impact of Turnover, Liquidity and Solvency on Profitability of Public Textile units in Maharashtra
$H_1$ There is no significant impact of Total assets turnover ratio on the ROCE of Public Textile units in Maharashtra.
$H_2$ There is no significant impact of Current ratio on the ROCE of Public Textile units in Maharashtra.
$H_3$ There is no significant impact of Debt–equity ratio on the ROCE of Public Textile units in Maharashtra.

## 10. RESEARCH METHODOLOGY

The research is based on secondary data. The collection of the quantitative data is done through the sources such as publish annual reports of the companies published, data from Ministry of textile, books, journals, CMIE prowess database etc.

## 11. RESEARCH DESIGN FOR FINANCIAL ANALYSIS

During the study the researcher has found that only 5 textile units in public sectors are operating in Maharashtra, out of which data of one unit is not available. Therefore remaining four has being selected for the study.

## 12. DATA ANALYSIS & INTERPRETATION

The main objective is to check the significant difference in the financial performance among the selected Public textile units in Maharashtra. Various ratios are used for the study. The data of ten years have been analyzed with the help of STATA software.
The Multiple Regression Model for analyzing the impact of Firm Specific Variables; Turnover, Solvency and Liquidity on financial performance of the public textile units. Panel data econometric technique is employed for the study. The Pooled Ordinary Least Squares (OLS) model, Fixed Effect Model and Random Effect Model are used for the analysis. Total Assets turnover ratio, Debt –Equity ratio and Current ratio are taken as proxies for

the independent variables based on previous studies done. Financial performance is represented by Return on Capital Employed (ROCE) which is also a proxy measure for dependent variable. (Johri, 2016)

## 13. IMPACT OF FIRM SPECIFIC VARIABLES ON THE FINANCIAL PERFORMANCE OF SELECTED PUBLIC TEXTILE UNITS IN MAHARASHTRA BY USING MULTIPLE REGRESSIONS ANALYSIS

The researcher has used Multiple Regression Analysis for analyzing the impact of firm specific factor on the financial performance of Selected Public Textile units in Maharashtra. For the purpose of study, assumptions of Multiple Regression Analysis i.e. Normality, Multicollinierity, Autocorrelation and Heteroscedasticity have been taken into consideration and the problems thus found during the analysis have been corrected. The variables occurring in the models and their measurement are described as under.

**Table-13.1 Description of Dependent and Independent Variable Used in Multiple Regression Model**

| Dependent Variable | | |
|---|---|---|
| **Variable Name** | **Proxy** | **Formula** |
| Financial Performance | ROCE | EBIT / Average Total Assets |

| Independent Variable | | |
|---|---|---|
| **Variable Name** | **Variable Name** | **Variable Name** |
| Turnover | TATR | Sales / Total assets |
| Solvency | DER | Debt / Equity |
| Liquidity | CR | Current assets / current liability |

Source: Compiled by Researcher from various sources

## 14. ASSUMPTIONS OF REGRESSION ANALYSIS

The important assumptions that need to be fulfilled while using regression analysis are as follows.

### 14.1 Normality

To check the Normality, the researcher has applied shapiro-wilks tests on the model of multiple regression analysis. The result of shapiro-wilks tests on the model of multiple regression analysis shows that the data is normally distributed.

### 14.2 Multicollinearity

It was analyzed that all the calculated values of dependent and independent variables are less than 0.8 in case of correlation analysis and for VIF, the value of independent variables are less than the threshold limit of 10. (Gujrati, et.al. 2012)

### 14.3 Auto-correlation

To check the problem of autocorrelation, the researcher has applied woolridge test on the model of multiple regression analysis. The result shows that there is a problem of autocorrelation among errors in OLS model. It has been resolved with the help of Praise- Winsten test.

### 14.4 Hetroscedasticity

In the present study the researcher has applied White's General Hetroscedasticity test and Breusch pagan test on the model of multiple regression analysis. The result indicates that the data is hetroscedastic. It has been removed with the help of Robust Standard error.

**Table-14.1 Pearson correlation Coefficient between Dependent and Independent Variables of Selected Public Textile Units in Maharashtra**

| Variable | ROCE | CR | DER | TATR |
|---|---|---|---|---|
| **ROCE** | 1 | | | |
| **CR** | 0.27767 | 1 | | |
| **DER** | -0.52892 | -0.06125 | 1 | |
| **TATR** | -0.21418 | 0.084787 | 0.145929 | 1 |

Source: STATA output

ROCE = Return on capital employed, CR = Current ratio, DER = Debt to Equity ratio, TATR = Total assets turnover ratio

**Table-14.2 Variance Inflation Factor of Independent Variables of Selected Public Textile Units in Maharashtra**

| Independent Variable | Variance Inflation Factor |
|---|---|
| CR | 1.01 |
| DER | 1.03 |
| TATR | 1.03 |

**Source:** STATA output

This result assures that the regression coefficient will be fairly estimating the model.

## 15. SPECIFICATION OF MULTIPLE REGRESSION ANALYSIS USING PANEL DATA ECONOMETRIC TECHNIQUES

The impact of independent variables is analyzed for both the sector of textile industry in Maharashtra under the study. The researcher has developed following regression model for the estimation of current study.

$$FP = \beta_0 + ß_1 (TR) + ß_2 (SL) + ß_3 (LQ) + \varepsilon$$

**Where,**
**FP = Financial Performance (ROCE)**
**TR = Turnover**
**SOL = Solvency**
**LQ = Liquidity**
**ε = Error Term**

## 16. REGRESSION MODEL ESTIMATES OF SELECTED PUBLIC TEXTILE UNITS IN MAHARASHTRA.

Researcher has developed Model 2 with the help of which, the multiple regression analysis is conducted on selected Public textile units in Maharashtra

Model 2: $ROCE = \beta_0 + \beta_1 CR + \beta_2 DER + \beta_3 TATR + e$

**Table-16.1 Regression Model Estimates: Liquidity (CR), Solvency (DER) and Turnover (TATR) as Independent Variable and Profitability (ROCE) as Dependent Variable**

| Variable/ results | Pooled | Fixed | Random |
|---|---|---|---|
| **Liquidity Ratio – CR** | | | |
| Coefficient | 3.5324 | 3.3739 | 3.5324 |
| t – value | 1.96 | 1.78 | 1.96 |
| **P – value** | **0.058** | **0.085** | **0.048** |
| Standard Error | 1.8018 | 1.8974 | 1.8018 |
| | | | |
| **Solvency ratio – DER** | | | |
| Coefficient | -13.0725 | -12.5920 | -13.0725 |
| t – value | -3.64 | -3.20 | -3.64 |
| **P – value** | **0.001** | **0.003** | **0.000** |
| Standard Error | 3.5958 | 3.9359 | 3.5959 |
| | | | |
| **Turnover ratio - TATR** | | | |
| Coefficient | -26.2667 | -20.8349 | -26.2667 |
| t – value | -1.23 | -0.86 | -1.23 |
| **P – value** | **0.228** | **0.396** | **0.220** |
| Standard Error | 21.4373 | 24.2523 | 21.4372 |
| | | | |
| **Constant** | | | |
| Coefficient | -20.9516 | -24.3924 | -20.9516 |
| t – value | -1.00 | -1.08 | -1.00 |
| P – value | 0.322 | 0.287 | 0.315 |
| Standard Error | 20.8598 | 22.5228 | 20.8598 |
| | | | |
| R- square | 0.3667 | 0.3658 | 0.3667 |

| | | | |
|---|---|---|---|
| Adjusted R square | 0.3138 | 0.3245 | 0.3240 |
| Probable F – statistics | 0.0008 | 0.0001 | 0.0001 |
| Hausman Test | | | 0.8363 |
| Breusch and Pagan Lagrangian Multiplier Test | | | 1.00 |
| Cross section included | 4 | 4 | 4 |
| No. of Observations | 40 | 40 | 40 |

Source: Annual reports of selected Public textile units in Maharashtra from 2006-07 to 2015-16 with the help of STATA

In multiple regression analysis using panel data econometric technique, value of $R^2$ shows joint significance test of Independent variables within the sample and value of F (statistics) talks about joint significance test of Independent variables within the population at 5 % level of significance.

In the present study, the value of $R^2$ in all the three estimation is 0.3667, 0.3658 and 0.3667 respectively. This means that 36 % variation in profitability (ROCE) can be explained by the selected independent variables in all the three estimation techniques. Furthermore, probability value of (F-statistics) in all the three estimations is 0.0008, 0.0001 and 0.0001 respectively which is less than .05 hence shows that the independent variables can jointly influence the variation in Profitability in the population. On the basis of Probability value of (F statistics) it can be concluded that the regression model is nicely fitted and significant

The outcome of the Hausman's specification test in the study accepts the hypothesis regarding the absence of correlation between individual unobservable effects and explanatory variables as the probability value is more than .05 and therefore, the choice should be the random effects.

The Hausman test indicates that the random effect model should be used. Furthermore, to choose better model between Hausman result & Pooled OLS, Breusch and pagan Lagrangian multiplier test is applied. The outcome shows that the P value is more than 0.05 therefore; the choice should be the Hausman result i.e. Random effects model. Therefore the researcher has used Random effects model to check the impact of Independent variable on dependent variable.

### 16.1 Liquidity Ratio

From table no. 16.1, it can be seen that in case of CR, the probability value of t statistics is less than .05. Therefore, the Null hypothesis is rejected and alternate hypothesis is accepted.

### 16.2 Solvency Ratio

From table no. 16.1, it can be seen that in case of DER, the probability value of t statistics is less than .05. Therefore, the Null hypothesis is rejected and Alternate Hypothesis is accepted.

### 16.3 Turnover Ratio

From table no. 16.1, it can be seen that in case of TATR, the probability value of t statistics is more than .05. Therefore, the Null hypothesis is accepted.

## 17. FINDINGS AND CONCLUSIONS FROM MULTIPLE REGRESSION MODEL

During the study it was observed that regression coefficient of TATR is statistically insignificant (Sig.> .05) while regression coefficient of DER and CR are statistically significant (Sig. < .05) at 5 % level of significance. It implies that TATR has insignificant impact while DER and CR has significant impact on ROCE of selected public textile units in Maharashtra.

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