

ANALYSIS OF SUSTAINABLE PERFORMANCE USING KEY FINANCIAL AND NON-FINANCIAL INDICATORS IN INDIAN TEXTILE INDUSTRY

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Abstract:

Investors generally stay away from Companies which has reported less than zero return on Equity because they perceive that companies have excess debt and significant operating losses. Du-Pont Analysis is the powerful tools of financial analysis. It studies the changes in returns and helps to examine the drivers of performance of companies. ROE is the measure of the rate of return to shareholders, higher the ROE a company renders better Operating Efficiency, better Asset Management efficiencies or employ's high debt. The Ultimate purpose is to determine what causes the measures to fluctuate so that management can address the problems. The paper examines the drivers of ROE and studies the Net profit Margin, Asset Turnover and Equity Multiplier of 20 textiles companies listed in the NSE for the period 2010 to 2020 in India and finds the causes for changes in ROE through regression analysis.

Keywords: Sustainable Financial Performance, Du Pont, Return on Equity, Return on Assets, Net Profit Margin, Total Asset Turnover, Equity Multiplier, Textile Industry.

1.0. INTRODUCTION

India is the second-largest producer of textiles and garments after China and also the second-largest producer of cotton. It is the largest producer of jute in the world. In India places such as Bangalore, Mumbai, New Delhi and Tirupur are the hubs of textile garment industries. The sector contributed 12% to India's export earnings in FY20. It contributed 2.3% to the GDP of India and employed more than 45 million people in FY20. It employs 51 million people directly and 68 million people indirectly. The Indian textile industry is highly fragmented and is being dominated by the unorganized sector and small and medium industries. The changing government policies at the state and central government levels, raising interest rates and labor wages and workers salaries are posing major challenges to the textile industry. The tax structure GST (Goods and Service Tax) makes the garments expensive and there is a higher level of attrition in the garment industry.

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The Indian textile industry has its own limitations such as access to the latest technology and failures to meet global standards in the highly competitive export market. There is fierce competition from China, Bangladesh and Sri Lanka in the low-price garment market. In the global market tariff and non-tariff barriers coupled with the quota are posing a major challenge to the Indian textile Industry. The environmental and social issues like child labor and personal safety norms are also some of the challenges for the textile industry in India. (Satish Kumar R, May 2018).

1.1. CONTEMPORARY ISSUES IN THE TEXTILE INDUSTRY

1) Shortage in supply of raw material

Shutting down of some units in China and Europe due to pollution issues has resulted in an unprecedented rise in prices of basic raw materials in international markets. “Gujarat is the hub of chemical dyestuff manufacturing with about 70% share in production. Prices of basic raw materials of dyestuff have gone up by more than double and because of this small and medium units are not getting new orders” said Bhupendra Patel, President of Gujarat Dyestuffs Manufacturers Association (GDMA). GDMA has urged the Union government to interfere to control prices as price rise is completely unexpected and it is challenging to do business for small players. Availability of quality cotton has also been a major issue for Indian spinning mills due to lower production in India. Ujwal Lahoti, Chairman, Cotton Textile Export Promotion Council (Texprocil), said, “Some spinning mills in the South Indian states including Tamil Nadu have started using manmade fiber again after a wide gap of several years. Traditionally, they were using manmade fiber but had shifted to cotton about a decade ago. They have again switched to manmade fiber.” (Kumar.D., May 2019).

2) Increase in cost of raw material and Lower Efficiency

The rise in prices of raw materials has increased after many units in China were shut down due to pollution norms. The pollution caused by the manufacturing process was the main reason that led to the shutdown of units. Reasons for price rise are due to bad weather reducing global supplies. With the increasing global competition, one of the main factors affecting the growth of garment industry in India is the lower productivity level. India’s apparel factory productivity levels are relatively low compared to countries like Turkey, China and Bangladesh.

3) Compliance: Environmental issue

Textile processing is extremely chemical-intensive and involves the use of numerous environmentally unfriendly, non-biodegradable chemicals. Environmental compliance is not at the top of textile and garment importers concerns. Globally the textile industry has been under increasing pressure to meet stringent social and environmental norms in the international market. But failing to comply with environmental regulations can jeopardy supply chain so textile industry should ensure compliance with environmental protection laws. UNECE cautioned that the fashion industry's practice of churning out increasingly large volumes of cheap and disposable clothing is an "environmental and social emergency." Inefficient production practices and the blatant exploitation of informal and subcontracted workers in developing countries with capital-friendly labor laws allow big fashion companies to produce clothing in bulk at low prices (Bhowmick.S., Feb 2019).

4) Infrastructure bottlenecks

Indian fashion retail industry is hit by infrastructural bottlenecks due to the poor conditions of roads, highways, etc, which creates supply chain constraints and increases lead time, inventory holding cost and inventory carrying cost. The consequences of poor and inefficient infrastructure has resulted in low level of reliability in the fulfillment of delivery deadlines, high transaction costs, high interest rates and low level of direct foreign investments. India has a huge scope of improvement in the basic aspects of infrastructure like the quality of roads, ports, and the quality of electricity supply. The government has launched a public-private program aimed at providing adequate technical, physical and financial resources to establish a basis of efficient infrastructure through the "Committee on Infrastructure". These efforts are developed on both national and provincial levels with roadways, aviation, railways, energy services, sea transport and telecommunication and internet services.

5) Impact of GST and High Costs of Capital

GST is a multi-stage tax levied on every value addition. GST has created distortions in the Textile and Apparel sector in India, impeding its competitiveness. Tax rate under GST would be higher than the current tax rate for the textile industry. Natural fibers (cotton, wool) which are currently exempt from tax, would be taxed under GST. Apart from the policy limitations, system errors, delay in reimbursement of input credit, untimely implementation (while the industry was still feeling demonetization blues) and limited knowledge of GST has hugely impacted the sector in the country. Although in the long-term GST is set to affect the apparel and textile sector of India positively, the short-term impact has brought many small-scale businesses to a

complete halt (Ambastha, M., 2018). Also, compared to its competitors, India has one of the highest costs of capital, which directly affects India's cost of production, and hence the country's competitiveness in the global market. The current lending rate in India is between 11 to 12.5%, while China, Vietnam, and Turkey, offer capital at a rate of 5 to 7% only. To add to this equation, the high-power costs in the country further push India back.

6) Shortage of laborer's due to a mass return and Lack of efficiency due to manual work:

"Mass return of migrant workers from the states has set to reduce India's overall textile output" said R K Dalmia, president, Century Textiles and Industries, a leading player. While large players have employed workers on a regular basis, adhering strictly to labor laws, small and medium-sized units are facing huge problems in terms of labor availability. Moreover, with the employment guarantee schemes, workers also find jobs in their hometowns. Many of them return after their leave period gets over, while a number of skilled workers also get migrated to other industries, including agriculture. The data compiled by the Confederation of Indian Textile Industry shows around 100 million people are employed in the Indian textile industry, directly or indirectly across the country. (India today Oct 2018). Also Unlike in developed countries, textile factories in India are not fully automated and remain labor-intensive.

7) Fall in Apparel export and Unorganized weaving sector:

India's apparel exports have fallen for two years. Estimated at \$16.2 billion in FY19, the country's apparel exports fell by 1.2% from FY18, which in turn was 4% lower than the previous year. The reasons for the slowdown range from issues on the domestic front to slackening global demand. According to Chandrima Chatterjee, an adviser at Apparel Export Promotion Council (AEPC), the time taken by the industry to align to the new goods and services tax (GST) regime, a downward revision of export incentives, and the credit squeeze particularly faced by small and medium enterprises adversely impacted exports. Also, approximately 95% of the weaving sector in India is unorganized in nature.

1.2. INITIATIVES TAKEN TO OVERCOME ISSUES

- 1. Government Initiatives:** Government has allowed 100% FDI in the sector under the automatic route. A National Technical Textiles Mission is proposed for a period from 2020-21 to 2023-24. The New Textiles Policy 2020 for overall development of the sector was released by Ministry of Textiles. Cabinet

Committee on Economic Affairs (CCEA) approved mandatory packaging of food grains and sugar in jute material for the Jute Year 2019-20. Amended Technology Up-gradation Fund Scheme (A-TUFS), estimated to create employment for 35 lakh people and enable investment worth Rs. 95,000 crores by 2022. The Cabinet Committee on Economic Affairs (CCEA), approved a new skill development scheme named Scheme for Capacity Building in Textile Sector (SCBTS) and Scheme for Integrated Textile Parks (SITP), Integrated Skill Development Scheme (ISDS), Technology Mission on Technical Textiles (TMTT), Swarnjayanti Gram Swarozgar Yojana (SGSY), Integrated Processing Development Scheme (IPDS), Merchandise Exports from India Scheme (MEIS), Market Development Assistance (MDA) Market Access Initiative (MAI) provide attractive incentives to the manufacturers.

- 2. New Processes:** The government is introducing several reforms to create possibilities for getting Foreign Direct Investment (FDI) and foster business partnerships. The Government has also taken some initiatives to alleviate the outdated policies and regulations.
- 3. New Infrastructure:** Infrastructure is integral to the growth of any industry. The government intends to develop industrial corridors and build smart cities with state-of-the-art technology and high-speed communication. Innovation and research activities are supported by a fast-paced registration system and improved infrastructure for Intellectual Property Rights (IPR) registrations. The government should remove or at least reduce taxes on the import of modern equipment Government subsidies:
- 4. Training for the skilled workforce:** The training for the skilled workforce for the sectors is also required for abundant supply of labor, flexibility in labor laws and adequate skilling will give a big boost to the textiles industry.
- 5. New Sectors:** ‘Make in India’ has identified 25 sectors to promote with the detailed information being shared through an interactive web-portal. The Government has allowed 100% FDI in Railway and removed restrictions in Construction. It has also recently increased the cap of FDI to 100% in Defense and Pharmaceutical. India has abundant supply of labor, flexibility in labor laws and adequate skilling will give a big boost to the textiles industry.
- 6. New Mindset:** Government in India has always been seen as a regulator and not a facilitator. This initiative intends to change this by bringing a paradigm shift in the way Government interacts with various industries. It will focus on acting as a partner in the economic development of the country alongside the corporate sector.

DuPont Analysis – An Overview

DuPont analysis is a method of performance measurement that was started by the DuPont Corporation in the 1920s. It is developed by DuPont Company for analyzing and controlling financial performance. Donaldson Brown came up with a revolutionary powerful tool for financial analysis and it is still a model valid to use for assessment of the profitability. It is a system of financial analysis which received widespread recognition and acceptance. It is a fundamental framework for Performance Assessment which considers various factors influencing investor's returns. DuPont analysis is a useful technique to break down the different return on equity (ROE) generators. The ROE decomposition helps investors to examine separately the key indicators of financial Performance and identify the strengths and weaknesses and also allows an investor to assess which financial activities contribute the most to the ROE.

2.0. Literature Review

There are a variety of approaches in the literature regarding the study of performance assessing the profitability of the companies. DuPont model is particularly useful in deepening the study of profitability with a number of significant advantages in the field.

- ❖ Moss Charles B (2009) examines the applicability of the DuPont model to study the performance of Agriculture and states that the Total Assets Turnover is less important than the Profit Margin in terms of influence on ROE. The results obtained through the model confirm the company policies working in agriculture.
- ❖ Christina Sheela and K. Karthikeyan (2012) in the study Financial Performance of Pharmaceutical Industry in India using DuPont Analysis examines profitability of Cipla, Dr. Reddy's Laboratories and Ranbaxy by the DuPont model for the period 2003-2012.
- ❖ T. Vanniarajan and C. Vanniarajan and C. Samuel Joseph (2007) in the study An Application of DuPont Control chart in Analyzing the financial performance of Banks examines the performance of the banks on three dimensions namely structural, operational and efficiency factors are given by India Bank Association.
- ❖ Mihaela Herciu, Claudia Ograni & Lucian Belascu (2011) studies that most profitable companies are not the most attractive for investors through Du Pont Analysis method. The study examines top 20 most profitable companies in the world in 2009 (according to Fortune).

- ❖ Dr Ahmed Arif Almazari (2012) measures the financial performance of the Jordanian Arab commercial bank for the period 2000-2009 by using the DuPont system of financial analysis which is based on analysis of return on equity model and return on investment model. The return on equity model disaggregates performance into three components: net profit margin, total asset turnover, and the equity multiplier. It was found that the financial performance of Arab Bank is relatively steady and reflects minimal volatility in the return on equity.
- ❖ Blessing and Onoja (2015) studies profitability, assets, liabilities and equities are significant ways of evaluating performance reports of companies and for making investment decisions.

3.0. RESEARCH METHODOLOGY

The paper examines the drivers of ROE and studies the Net profit Margin, Asset Turnover and Equity Multiplier of 20 textiles companies listed in the NSE for the period 2010 to 2020 in India and finds the causes for changes in ROE through correlation and regression analysis.

Secondary data was gathered from Annual financial statements. The data was collected, edited, coded and fed into excel before being imported to SPSS version 16.0 for analysis. Descriptive statistics was used in terms of mean, standard deviation, frequency, and percentages. The study to find the impact on ROA and ROE was done through simple linear regression analysis. In order to examine the influence of independent variable on the dependent variable of the firm, regression was used. The Financial Variables are Independent Variables such as Net Profit Margin, Total Asset Turnover Ratio, Equity Multiplier and Dependent Variables are ROE and ROA.

3.1. Objectives of the Study

1. To study the Contemporary Issues and Initiatives taken in Indian Textile Industry.
2. To study the financial performance of selected Textile companies using DuPont model.
3. To examine profitability of Textile Companies using ROE and ROA in DuPont model.
4. To study the impact of Net Profit margin, Total Asset turnover ratio and Equity Multiplier on Return on Equity and Return on Assets.

3.2. Research Hypothesis

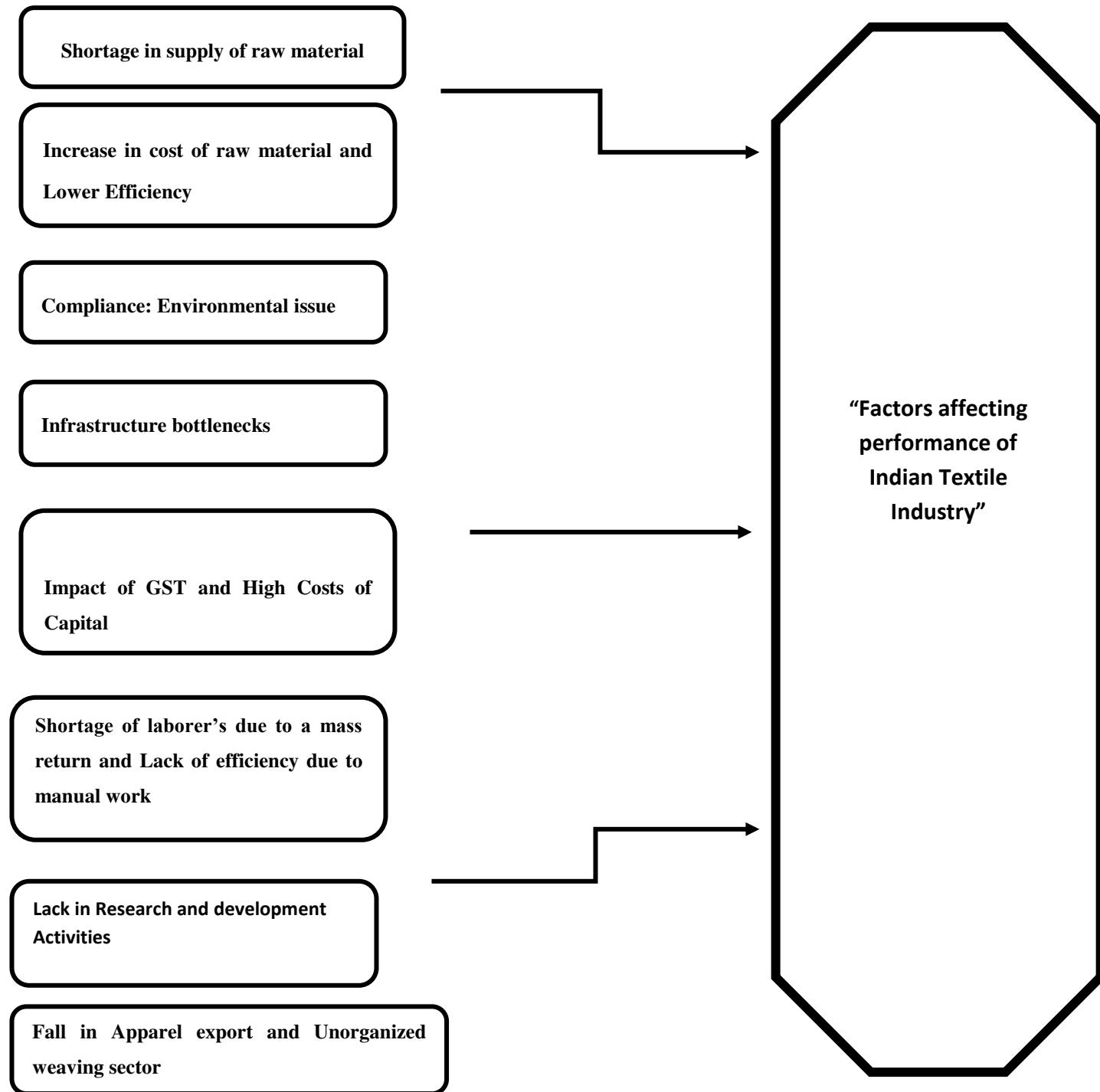
H01: No significant impact of the financial performance indicators of the selected companies on Return on equity.

H02: No significant impact of the financial performance indicators of the selected companies on Return on Assets.

4.0. Analysis & Discussion:

4.1. Impact of Non-Financial Factors

NON-FINANCIAL FACTORS INFLUENCING PERFORMANCE OF TEXTILE INDUSTRY



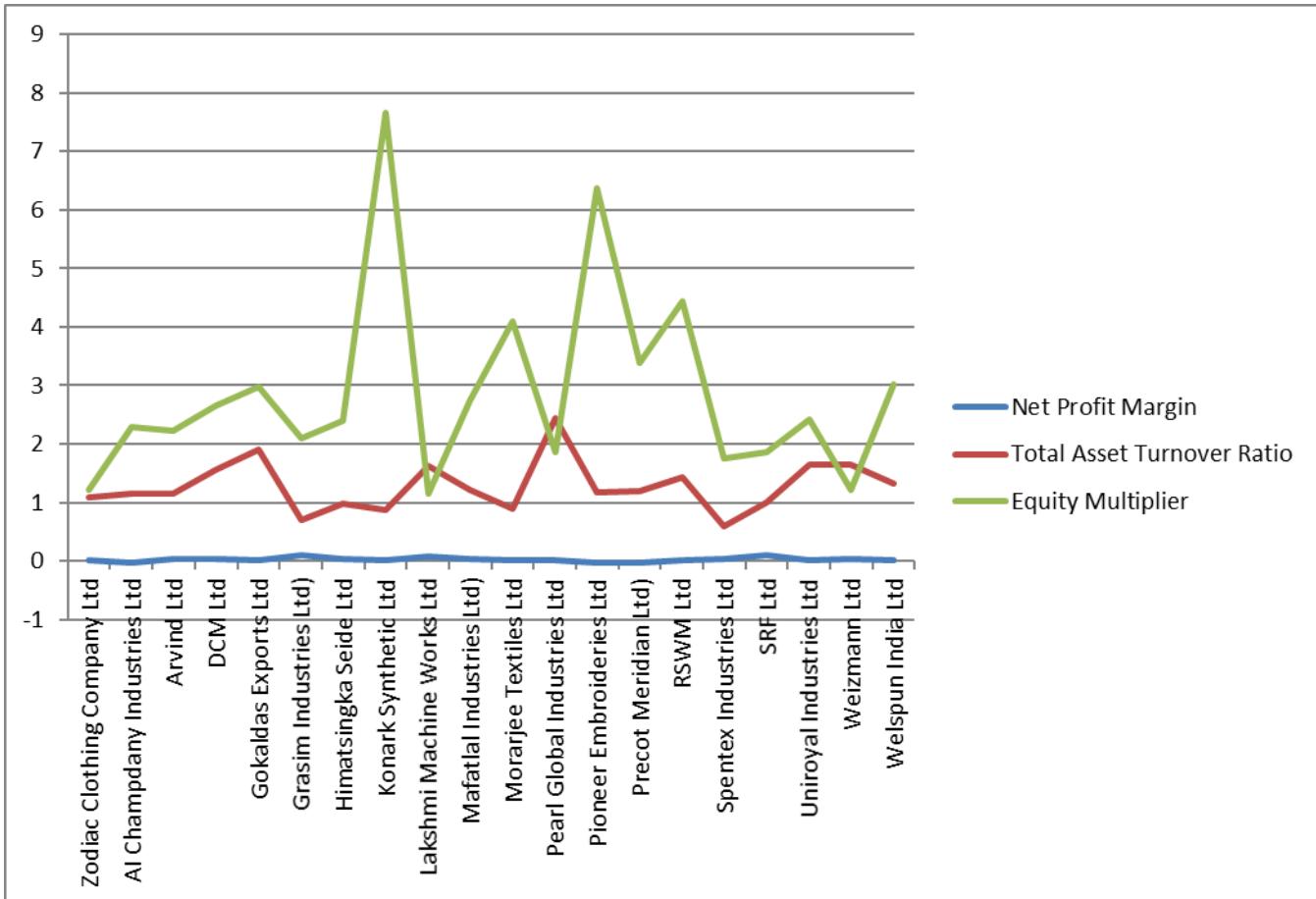
4.2. Descriptive Statistics of Financial Indicators

Results of Descriptive Statistics

Table 1: RESULTS OF DESCRIPTIVE STATISTICS

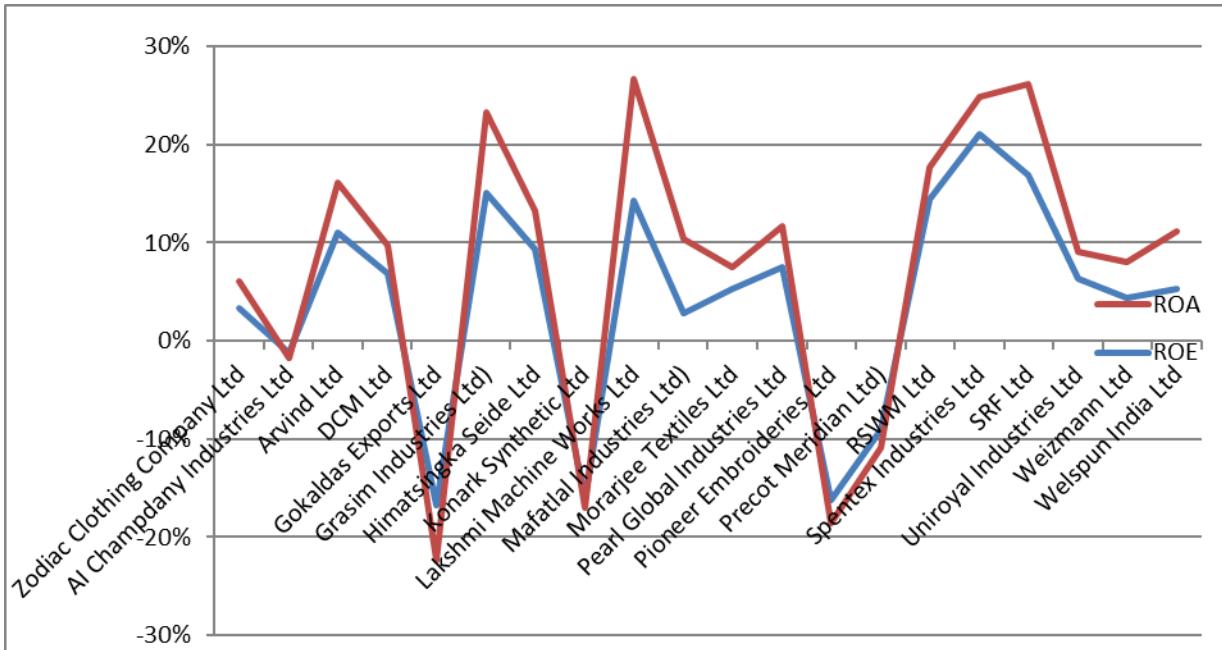
	<i>Net Profit Margin</i>	<i>Total Asset Turnover Ratio</i>	<i>Equity Multiplier</i>	<i>ROE</i>	<i>ROA</i>
Number of Observations	200	200	200	200	200
Mean	2%	128%	289%	4%	3%
Standard Deviation	0.0354	0.4355	1.6721	0.1111	0.0425
Minimum	-3%	59%	115%	-17%	-6%
Maximum	11%	244%	767%	21%	12%

Table -1: Shows that Textiles companies have an average mean of Return on Equity 4% i.e. that indicates low returns available to equity shareholders. Maximum ROE is 21 % and minimum ROE is 17 percent in any of the year in the study. The average mean of NPM is 2 % and maximum is 11% while minimum is -3%. ATR mean is 128% where the maximum is 244% and minimum is 59%. Average EM is 289% with a maximum EM of 767 % and minimum of 115 %. Average ROA mean is 3%, maximum ROA is 12 % while minimum is -6%. There are many reasons attributed to the poor performance of the textile industry for almost the last decades. Some of them are inconsistent government policies, too many players / competition due to low entry barriers and cheap funding available from Banks due to interest/capital subsidy by Government which is an advantage actually becoming an indirect burden. The developed countries, where most of the market is there, squeezing the poor & developing nations. Low labour cost and other factor costs of competitors like China, Bangladesh, Pakistan and Vietnam. The volumes and sales are growing but profits are low or absent and balance sheets are under severe stress as a result the organized sector or new companies that enter this field find it difficult to compete and make profits. They have to compete with the large unorganized sector, which has no real sense of costing/pricing.

FIGURE 1 : Financial Variables in DuPont Analysis of Textile companies


From the above figure, it can be inferred that Textile Industry has low Net Profit margin. According to Rahul Mehta, President Clothing Manufacturing of India (CMAI), the Textile Industry works at a very thin margin of 2-3 percent. Grasim Industries has the highest profit margin of 11% followed by SRF Ltd 9%. Textile Companies has higher Asset Turnover Ratio such as DCM Ltd at 1.56, Gokaldas Exports Ltd at 1.91, Pearl Global Industries Ltd at 2.43, Weizmann Ltd at 1.6380 and Uniroyal Industries Ltd at 1.646 times which means textile companies are using its assets more efficiently. Textile Companies have higher Equity Multiplier which indicates that companies are using higher amount of debt to finance assets. Higher Debt Burden will have higher debt serving costs which means that they have to generate more cash flow to sustain a healthy business.

Figure 2 : DuPont Analysis of Analysis of textiles companies using ROE and ROA



From the above figure, it indicates that ROE of Arvind Ltd, Grasim Industries Ltd, Lakshmi Machine Works Ltd, Himatsingka Seide Ltd, Spentex Industries Ltd, SRF Ltd, RSWM Ltd are higher which means high returns are available to equity shareholders and can enhance the growth of companies. ROA of Arvind Ltd, Grasim Industries Ltd, Lakshmi Machine Works Ltd, Himatsingka Seide Ltd, RSWM Ltd, Spentex Industries Ltd, SRF Ltd, are high which indicates higher returns are generated from better utilization of assets by these companies.

AI Champdany Industries Ltd, Gokaldas Exports Ltd, Konark Synthetic Ltd, Pioneer Embroideries Ltd companies shows a negative ROE and ROA which indicates no returns to shareholders and inefficient use of company assets.

4.3. Correlation Analysis:

Table 2: Correlation among the Financial Variables in DuPont Analysis						
CORRELATION		NET PROFIT MARGIN	ASSET TURNOVER RATIO	EQUITY MULTIPLIER	ROE	ROA
NET PROFIT MARGIN	Pearson Correlation	1	.008	-.345	.313	.321
	Sig. (2-tailed)		.974	.136	.180	.168
ASSET TURNOVER RATIO	Pearson Correlation	.008	1	-.218	-.154	-.093
	Sig. (2-tailed)	.974		.355	.516	.696
EQUITY MULTIPLIER	Pearson Correlation	-.345	-.218	1	-.639**	-.523*
	Sig. (2-tailed)	.136	.355		.002	.018
ROE	Pearson Correlation	.313	-.154	-.639**	1	.798**
	Sig. (2-tailed)	.180	.516	.002		.000
ROA	Pearson Correlation	.321	-.093	-.523*	.798**	1
	Sig. (2-tailed)	.168	.696	.018	.000	

** Correlations - Significant at 0.01 level

* Correlations - Significant at 0.05 level

Applying the methodology of calculating the Pearson Correlation Coefficient, we examine the correlation among NPM, ATR, EM, ROA and ROE. The Net Profit margin is having a very low positive correlation with ATR, ROA and ROE and it is negatively correlated with Equity Multiplier. The ATR is negatively correlated with all the variables except the NPM. The Equity Multiplier is having a low positive correlation with NPM and ATR. But it is having a significant negative correlation with the dependent variables ROA and ROE. Also there exists a significant high positive correlation between the dependent variables ROA and ROE.

4.4. Regression Analysis – Impact on ROE:

Table 3: Summary of the Result of Multiple Regressions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.710 ^a	.505	.412	.08527	.505	5.435	3	16	.009	2.023
a. Predictors: NPM, ATR, EM										
b. Dependent Variable: ROE										

Co-efficients ^a								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		
	B	Std. Error				Lower Bound	Upper Bound	
1	(Constant)	.267	.082	3.264	.005	.094	.440	
	Net_Profit_Margin	.075	.175	.081	.431	.672	-.295	.446
	Total_Asset_Turnover	-.077	.046	-.303	-1.675	.113	-.175	.021
	Equity_Multiplier	-.045	.013	-.677	-3.515	.003	-.072	-.018
b. Dependent Variable: ROE								

The above table summarized the SPSS output of multiple regression analysis. Anova table of this model indicate that the overall model is significant since the p-value is (0.009) less than 0.05, which indicates that the model applied can statistically predict the outcome variable of ROE. This indicates strong evidence against the null hypothesis, so reject the null hypothesis. Even though the model is tested significant, the adjusted R square is low which indicates that the level of impact created by the independent variables is low on the ROE. Hence, there is significant difference exists in the financial performance of selected companies with respect to Return on Equity with moderate impact.

4.5. Regression Analysis – Impact on ROA:

Table 4: Summary of the Result of Multiple Regressions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.581 ^a	.337	.213	.03770	.337	2.712	3	16	.080	1.853

a. Predictors: NPM, ATR, EM

b. Dependent Variable: ROA

Co-efficients^a

Model	Unstandardized Coefficients			Standardized Coefficients		t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.			Lower Bound	Upper Bound
1	(Constant)	.094	.036			2.609	.019	.018	.171
	Net_Profit_Margin	.051	.077	.143		.657	.520	-.113	.215
	Total_Asset_Turnover	-.020	.020	-.208		-.993	.335	-.064	.023
	Equity_Multiplier	-.013	.006	-.519		-2.331	.033	-.025	-.001

a. Dependent Variable: ROA

The above Table summarized the SPSS output of multiple regression analysis. ANOVA table of this model indicates that the overall model is insignificant since the p-value is (0.080) more than 0.05 which indicates that the model applied cannot statistically predict the outcome variable of ROA. The adjusted R square is also at a very low level. This indicates strong evidence that the null hypothesis is accepted. There is no difference exists in the financial performance of selected companies with reference to Return on Assets.

5.0. Conclusion

The Net profit margin of the selected companies in the textile industry seems to be very low and quite similar with all the companies. In spite, of low net profit margins, the ROA represent to be higher compared to ROE for most of the companies which is due to their asset value. The dependent variables ROA and ROE are

having high positive relationship and statistically significant also. But these dependent variables are having an inverse relationship with ATR and EM and a very low positive relation with NPM. The independent variables NPM, ATR and EM are creating a significant impact on the Return on Equity but there is no impact on the Return on Assets.

6.0. REFERENCES

6.1. Works Cited

- ❖ Burja, Vasile & Marginean, Radu. (2014). The Study of Factors that may Influence the Performance by the Dupont Analysis in the Furniture Industry. Procedia Economics and Finance. 16. 10.1016/S2212-5671(14)00794-1.
- ❖ PhD, Wallace. (2020). Analysis of Profitability Using the DuPont Analysis. 3-1-3-14. 10.1002/9781119743217.ch3.
- ❖ Ladvenicova, Jana & Bajusova, Zuzana & Gurcik, Lubomir & Cerveny, David. (2019). Dupont Analysis of Farms in V4 Countries. Visegrad Journal on Bioeconomy and Sustainable Development. 8. 82-86. 10.2478/vjbsd-2019-0016.
- ❖ Peng, Wang. (2021). Comparison of CNPC and SINOPEC Based on DuPont Analysis. 10.2991/aebmr.k.210712.047.
- ❖ Seble, Gursimran & Sahoo, Bibhu. (2021). An evaluation of Indian stressed banks: A Dupont analysis. JIMS8M The Journal of Indian Management & Strategy. 26. 22-32. 10.5958/0973-9343.2021.00009.0.
- ❖ Krishnan, Srinivasan & Rajeswari, Raja. (2021). 6 Financial Performance of Indian Banks Using Dupont Analysis. 11. 56-62.
- ❖ Mahamuni, Pravin & Jumle, Anand. (2021). Profitability Comparison for Automobile companies in India using Dupont analysis. ACADEMICIA: An International Multidisciplinary Research Journal. 11. 779-788. 10.5958/2249-7137.2021.01392.6.
- ❖ Sheela, C.S. and Karthikeyan, K, Financial performance of Pharmaceutical Industry in India using DuPont Analysis, European Journal of Business and Management, 4 (14), 2012 . Available at: <http://www.iiste.org>.
- ❖ Nissim, D. and S.H. Penman. 2001. Ratio analysis and equity valuation: From research to practice. Review of Accounting Studies, 6, 109-154.

- ❖ Md. Nurul Kabir Biplob, Shah Alam, Md. Monzur Hossain, DuPont Analysis of Return on Common Stockholder's Equity in Pharmaceutical Industry of Bangladesh, Global Journal of Management and Business Research, Vol. 18, No 1-C, 2018.
- ❖ Prendergast, P. Financial analysis: how a “modified DuPont approach” to ratio analysis can be used to drill down to the true cause of financial performance problems, Financial Management, Paper P8, May, 2006, pp. 48-49.
- ❖ Soliman, M.T. The use of DuPont analysis by market participants, The Accounting Review, 83 (3), 2008, pp. 823-853.
- ❖ Fairfield, P. M. and T. L. Yohn. 2001. Using asset turnover and profit margin to forecast changes in profitability. Review of Accounting Studies (6): 371-385.
- ❖ Yang SP, Yoon DS (2005). The impacts of financial characteristics on profitability performances in food-service companies. J Foodservice Mgmt 8(1):273-293.