ANNALS OF THE "CONSTANTIN BRÂNCUȘI" UNIVERSITY OF TÂRGU JIU
LETTER AND SOCIAL SCIENCE SERIES

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 *https://alss.utgjiu.ro*

EXAMINING THE FINANCIAL PERFORMANCE OF TYRE MANUFACTURING COMPANIES IN INDIA: A CASE STUDY

Shravan BHAGAV

Department of MBA, Mangalore Institute of Technology & Engineering, Moodabidri, Karnataka, India

Cristi SPULBAR

Department of Finance, Banking and Economic Analysis,
Faculty of Economics and Business Administration, University of Craiova, Craiova, Romania

Ramona BIRAU

University of Craiova, Doctoral School of Economic Sciences, Craiova, Romania,

Kepulaje Abhaya KUMAR

Department of Business Administration, Mangalore Institute of Technology & Engineering, Moodabidri, India

Dumitru CINCIULESCU

University of Craiova, Doctoral School of Economic Sciences, Craiova, Romania,

Abstract: *INDIA IS THE FOURTH BIGGEST TYRE MAKER GLOBALLY AFTER CHINA, EUROPE AND THE UNITED STATES. GROWING DEMAND FOR AUTOMOBILES HAS MADE THE INDIAN TYRE INDUSTRY FUNDAMENTALLY STRONG. EQUITY INVESTORS ARE ALSO INVESTING THEIR MONEY IN THE TYRE SECTOR STOCKS. HOWEVER, MANY SECTORS ARE UNDERPERFORMING DUE TO THE GLOBAL PANDEMIC AND ECONOMIC SLOWDOWN. THIS STUDY USES RATIO ANALYSIS TO EXAMINE THE PERFORMANCE OF TYRE SECTOR COMPANIES IN INDIA. FROM THE ANALYSIS, WE FOUND THAT IN THE YEAR 2020, BECAUSE OF COVID-19 PANDEMIC, THE PERFORMANCE OF MANY COMPANIES HAS AFFECTED, AND THE INDUSTRY'S DEBT INCREASED. DEBT EQUITY RATIOS OF ALL COMPANIES EXCEPT BALAKRISHNA ARE LESS THAN ONE, WHICH IS A GOOD SIGN. THE NET PROFIT AND OPERATING PROFIT RATIO OF*

BALAKRISHNA COMPANY ARE VERY HIGH COMPARED TO OTHER SELECTED COMPANIES. HOWEVER, THE ASSET TURNOVER AND FIXED ASSET TURNOVER RATIOS OF GOODYEAR COMPANY ARE BETTER THAN ALL OTHER SELECTED COMPANIES. REGARDING WORKING CAPITAL, THE INVENTORY TURNOVER OF RUBFILA AND THE DEBTOR TURNOVER RATIO OF APOLLO COMPANY ARE BETTER THAN OTHER COMPANIES.

Keywords: FINANCIAL PERFORMANCE, DEBT EQUITY RATIOS, COVID-19 PANDEMIC, FINANCIAL RATIOS

Contact details of the author(s):

Email: shravanbhagav@gmail.com
cristi_spulbar@yahoo.com
abhaya.kepulaje@gmail.com
cinciulescudumitru@gmail.com

1. Introduction

The Indian tyre market touched a size of 182 million units in 2021. Experts anticipate reaching 221.8 million units by 2027, presenting a CAGR of 3.59% in 2022-2027 (Kumar et al., 2021a). India is the fourth biggest tyre maker globally after China, Europe and the United States. In India, the market is extending the radicalization of tyres, specifically in transport and trucks. Also, the tyre business includes a huge buyer base; they handle complete cabs, including traveller vehicles, transports, military, cruisers, trucks, etc. Chang et al. (2020) argued that the process of tire manufacturing is based on certain essential pillars such as: compounding, mixing, shaping, vulcanizing, and testing. The demand for tyres is fundamentally classified into OEMs (Original Equipment Manufacturers) and the replacement sector. The Replacement market now rules the tyre market in defining the enormous most of the categorical deals.

Demand for one OEM division is compelled by new motor deals pattern, while the replacement market is affiliated to the use instances and replacement phases. The tyre market is filled in India, accompanying the best ten manufacturers defining about 80% of the total market share. MRF, Apollo Tyres, and JK Tyres now address the top performers in this place market. The Indian Tyres market is forecast to reach $192.3 million units by 2026, growing at a CAGR of 3.81% from 2021 to 2026. The tyre is a circular made component of a vehicle, mainly made of synthetic or natural rubber, polyester tyre cords, the thing that picks up, plasticizer, chemical compound, droplet wires, vulcanization vehicle for bestowing charged atoms extreme velocity, and extra parts second-hand for top the rims of a wheel and to ensure the rims. The Indian Tyre market progress is generally authorized to various determinants holding the increase of the Indian automotive production and government conduct in the form of subsidies to help the custom of electric cars. Economic growth in this country and the rise in the skill to purchase steps up the demand for client cars are risking an important responsibility in improving Indian tyre production.

Katarzyna et al. (2020) suggested that car tire manufacturing plays an important role in the possibility of generating a significant number of environmental hazards. For instance LCA method also known as Life Cycle Assessment represents a product life cycle analysis. Chang et al. (2020) discussed about certain aspects on intelligent tire manufacturing practices considering the implications of automated defects detection systems. On the other hand, Naddeo et al. (2021) examined issues about

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 https://alss.utgjiu.ro

non - biodegradable waste related to vulcanized rubber generated by tyre industry and the impact on the environment.

Furthermore, the growing well-being information of the people is establishing a demand for pedal-compelled recreational vehicles that predict tyre advertisements. The wholesaler anticipates the Indian tyre market to manage 211 million units by 2026. The Indian Tyre Industry is an essential piece of the Auto Sector - It increases 3% of the assembling GDP of India and 0.5% of the total GDP. Indian tyre production has nearly combined from 30,000 crores in 2010-11 to 59,500 crores in 2017-18; of that, 90-95% introduced the household business subdivisions. The three main companies - 3 MRF, Apollo Tyres and JK Tyres- have 60 portions of the overall production income. This study examines the financial performance of India's top eleven tyre companies.

2. Data and Methodology

Hawaldar et al. (2017) have used financial ratios to examine the financial performance of banking companies in Bahrain. The performance of manufacturing companies and commodities is unstable because of volatile commodity prices and open market operations (Kumar et al., 2021a; Kumar et al., 2021b; Kumar et al., 2022, Kumar et al., 2021c). We have applied the following ratios analysis to examine the financial performance of tyre companies in India.

- $Asset\ turnover\ ratio = \frac{net\ sales}{average\ tatal\ assets}$
- Fixed assets turnover ratio = $\frac{net\ sales}{average\ fixed\ assets}$
- Inventory turnover ratio = $\frac{cost\ of\ goods\ sold}{average\ inventories}$
- Debtors' turnover ratio = $\frac{net\ sales}{average\ debtors}$
- Creditors turnover ratio = $\frac{cerdit\ purchases}{average\ account\ payable}$
- Operating profit ratio = $\frac{operating\ profit}{net\ sales} * 100$
- Net profit ratio = $\frac{net\ sales - cost\ of\ goods\ sold}{net\ sales} * 100$
- Debt to equity ratio = $\frac{total\ debt}{total\ equity}$
- Interest coverage ratio = $\frac{earnings\ before\ interest\ and\ tax}{interest\ expences}$

3. Data analysis and interpretation

1. Asset turnover ratio

The asset turnover ratio measures the efficiency of assets; specifically it indicates the amount of sales generated for every 100 rupees of assets. It may be used as a measure of how well a business uses its resources to create income.

Table 1: Asset turnover ratio of selected ten Tyre manufacturing companies in India

COMPANY	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	1.13	1.08	1.35	1.24	1.15
MRF	1.21	1.47	1.83	2.07	2.47
APOLLO	0.85	0.98	1.37	1.35	1.56
CEAT	1.4	1.61	2.18	2.32	2.69
JK	1.04	1.08	1.39	1.24	1.28
GOODYEAR	3.36	3.81	5.04	5.17	5.73
TVS	1.82	2.21	2.92	3.23	4.24

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 *https://alss.utgjiu.ro*

PIX	0.98	0.84	0.9	0.84	0.85
RUBFILA	1.68	1.68	1.97	2.35	2.31
GRP	1.17	1.47	1.58	1.36	1.41
AVG	1.464	1.623	2.053	2.117	2.369

Table 1 shows the asset turnover ratio of the top ten tyre companies for five years. Among 11 selected companies, the asset turnover ratio of Goodyear is highest in the study period. The next best performer in the Industry is TVS tyres followed by Rubfila and MRF types. In the Industry the poor performer in terms of asset turnover ratio are PIX and Apollo tyres. The average asset turnover ratio is presented in the last row of Table 1; the ratios reported in the Table imply that the Industry asset turnover ratio is decreasing year on year.

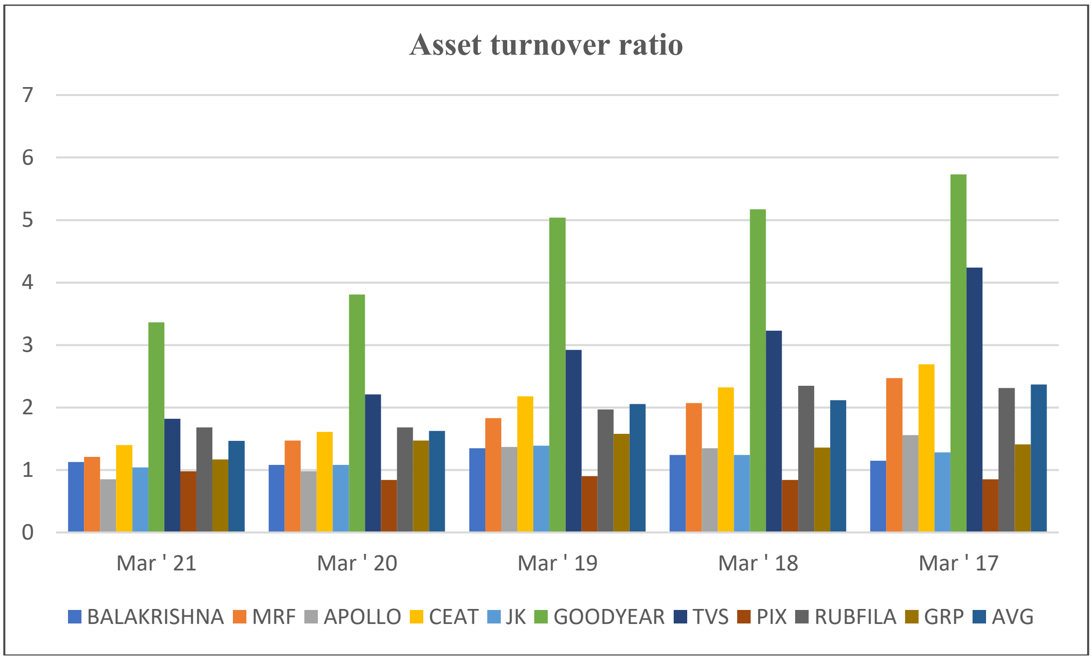

Figure 1: Asset turnover ratio; source authors processing

2. **Fixed asset turnover ratio**

The sales-to-fixed asset ratio measures the efficiency of fixed assets in particular. It measures the sales for every 100 Rs investments in fixed assets. The greater ratio shows that the business employs its fixed assets more efficiently. The fixed assets turnover ratios for the selected top 10 companies are presented in Table 2, and its pictorial graph is shown in Figure 2. The fixed asset turnover ratio of Goodyear Company was high during the study period, followed by TVS, Ceat and Rubfila companies. Balakrishna and PIX Company have the lowest fixed asset turnover ratio compared to other selected companies. The average industry ratio is reported in the last row of Table 2. The companies which have reported a ratio more than the industry average are reported in bold; Ceat, Goodyear, TVS, Rubfila and GRP have reported a fixed asset turnover ratio more than the industry standard in the majority of years. On the other hand, Balakrishna, MRF, Apollo, JK Tyres, and PIX have not touched the industry average during the study period.

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 https://alss.utgjiu.ro

Table 2: Fixed asset turnover ratio of selected ten Tyre manufacturing companies in India

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	0.9	0.83	1.03	0.98	0.88
MRF	1.18	1.27	1.36	1.38	1.36
APOLLO	0.92	0.98	1.23	1.23	1.46
CEAT	**1.66**	**1.57**	**1.97**	**2.04**	**2.01**
JK	1.29	1.2	1.58	1.37	1.39
GOODYEAR	**2.04**	**1.96**	**2.29**	**2.21**	**2.35**
TVS	**1.82**	**1.84**	**2.26**	**2.35**	**2.78**
PIX	1.07	0.9	0.93	0.85	0.81
RUBFILA	**1.56**	**1.6**	**1.74**	**2.16**	**2.23**
GRP	1.35	**1.71**	**1.91**	**1.64**	**1.67**
AVG	1.37	1.38	1.6	1.62	1.69

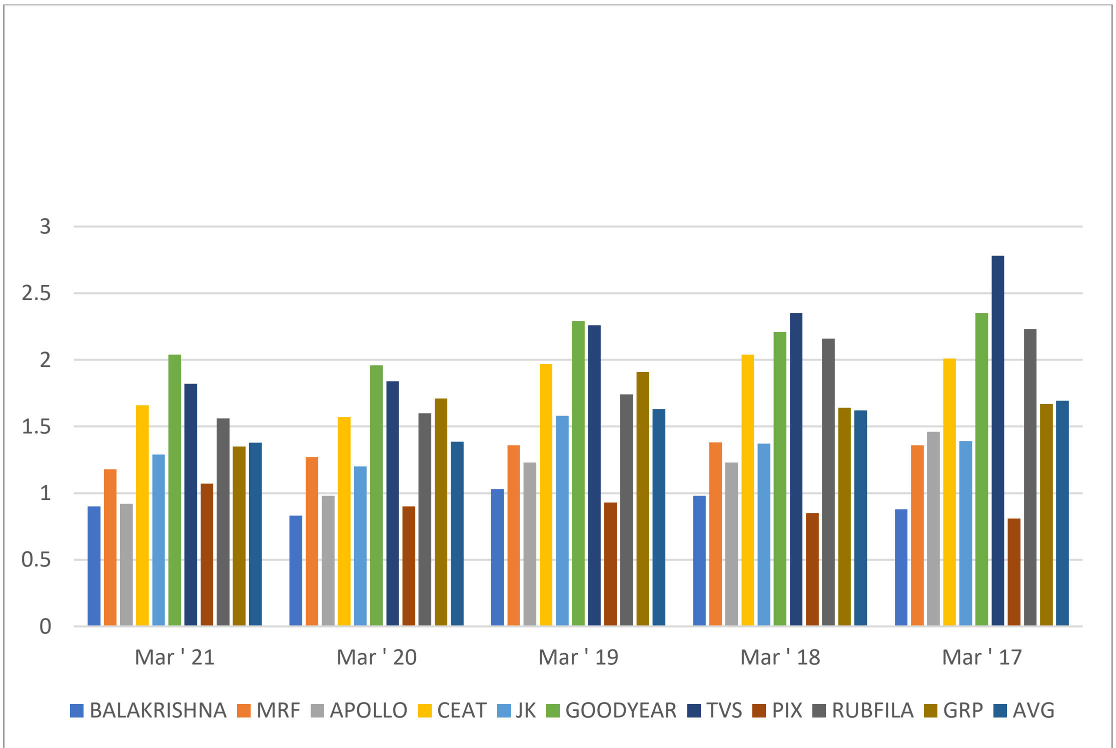

Figure 2: Fixed asset turnover ratio; source: authors processing

3. Inventory turnover ratio

Inventory turnover is a ratio that demonstrates how frequently a business has sold and replaced inventory over a specific period. The inventory turnover ratio is derived by dividing the cost of items by the average inventory for the same time. A larger ratio denotes strong sales and a lower one bad sales; this also depends on the operating cycle of the Industry.

Table 3: Inventory turnover ratio of selected ten Tyre manufacturing companies in India

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	7.73	7.4	8.02	8.47	8.93
MRF	5.55	5.51	6.18	6.65	6.9
APOLLO	6.04	5.74	6.55	6.12	7.22
CEAT	7.43	7.14	7.94	7.6	8.27

JK	5.36	5.46	7.04	6.72	7.91
GOODYEAR	12.66	11.01	11.4	10.12	10.97
TVS	4.54	4.56	5.81	5.93	6.88
PIX	5.59	5.42	5.48	5.66	6.65
RUBFILA	23.61	24.01	21.96	25.22	26.37
GRP	6.64	9.09	11.08	8.02	8.06
AVG	8.515	8.534	9.146	9.051	9.816

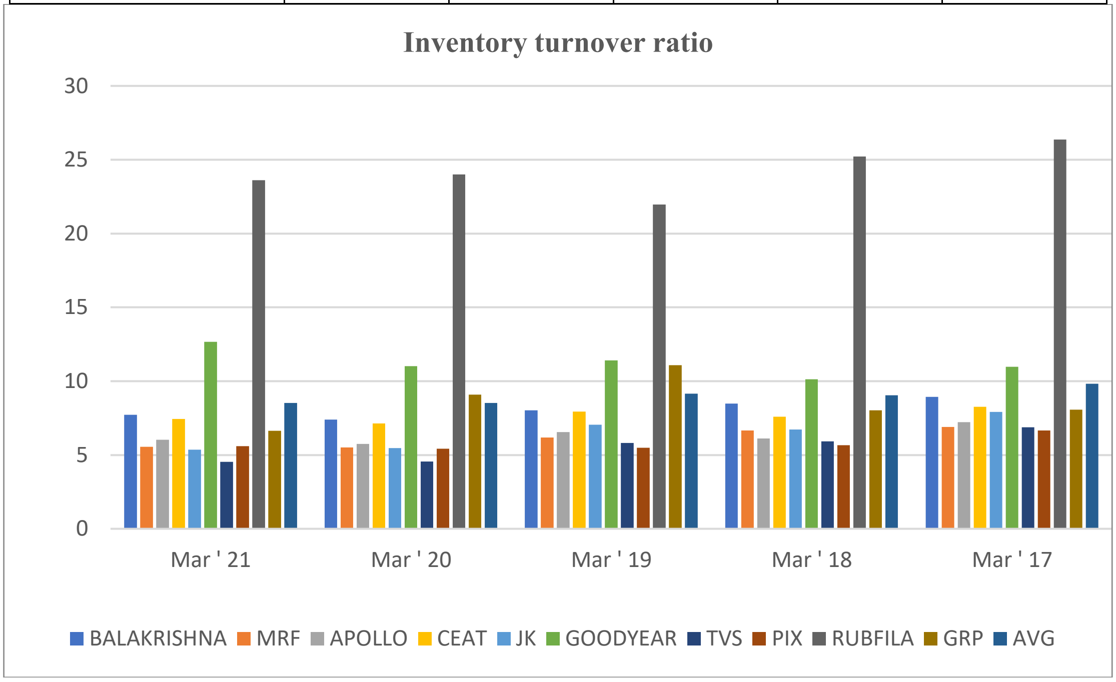

Figure 3: Inventory turnover ratio; source: authors processing

The Inventory turnover ratios for the selected tyre manufacturing companies in India are reported in Table 3. The inventory turnover ratio of Rubfila is the highest compared to other selected companies, followed by Goodyear company. JK tyres and MRF report the lowest inventory turnover ratios; this might be because of the liberal inventory management policies of those companies. A very high ratio of Rubfila and Good year also implies that the liquidity position of the company, inventory, in particular, is not satisfactory.

4. Debtors turnover ratio

The receivable turnover ratio, also known as the debtor's turnover ratio, is an accounting metric used to assess how successfully a business extends credit and collects debts. The receivables turnover ratio is an activity ratio that shows how well a company utilizes its resources. It also gives an idea about the company's collection period from its customers. More the ratio is good for the organization because that implies that the credit collection period is short and vice versa. So, the bigger ratio helps the company reduce the size of its working capital and allows the firm to manage liquidity position with reduced working capital. Company Apollo tyres have reported the highest ratio, followed by Ceat and TVS tyres. On the other hand, JK tyres and GRP tyres have reported low debtors turnover ratio. The industry average of this ratio is reported in the last row of Table 4; except PIX, GRP, JK and MRF, all other selected debtors' turnover ratio is greater than or close to the industry average.

Table 4: Debtors turnover ratio of selected ten Tyre manufacturing companies in India

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	8.35	7.86	9.8	9.77	9.55
MRF	7.11	6.92	7.04	7.41	7.78
APOLLO	19.94	18.08	18.58	22.54	29.22
CEAT	9.55	9.7	9.5	9.79	10.9
JK	4.38	3.97	5.21	4.77	4.93
GOODYEAR	7.3	7.53	8.46	9.33	10.28
TVS	8.74	7.88	8.4	9.85	11.29
PIX	4.29	3.71	3.81	3.47	3.61
RUBFILA	8.81	7.15	6.77	8.46	7.82
GRP	4.62	5.63	6.46	6.32	6.13
AVG	8.309	7.843	8.403	9.171	10.151

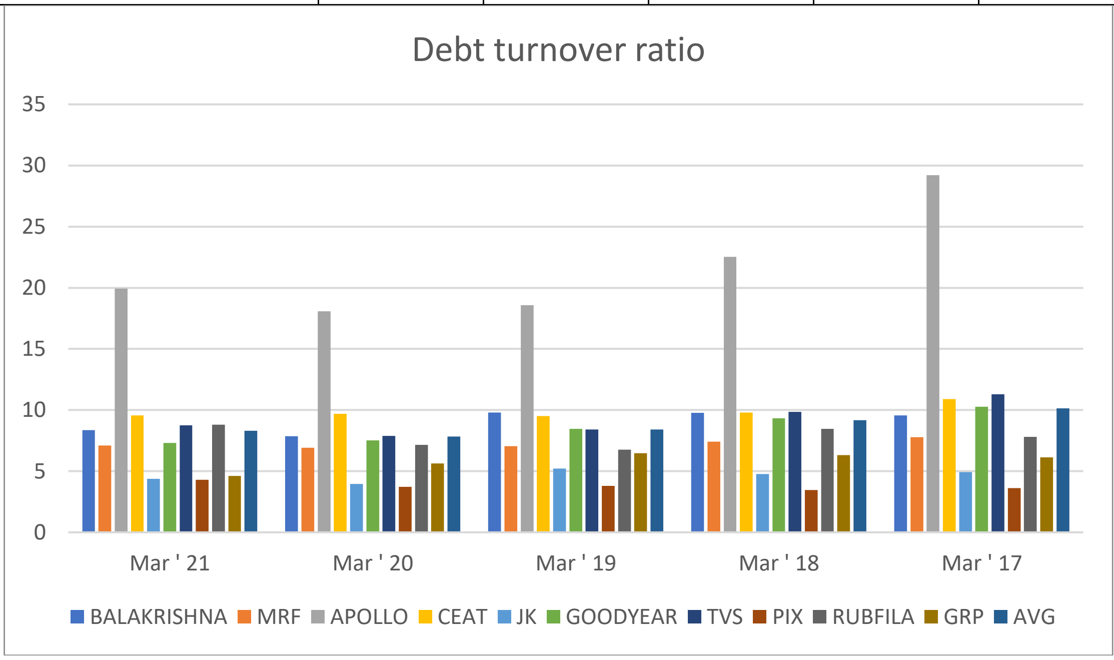

Figure 4: Debtor's turnover ratio; Source: authors processing

5. Operating profit ratio

Table 5: Operating profit ratio of selected ten Tyre manufacturing companies in India

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	33.82	31.36	29.11	32.34	33.64
MRF	19.52	16.64	16.85	16.84	19.83
APOLLO	18.31	12.93	12.9	12.99	14.77
CEAT	12.87	10.69	10.25	10.39	10.91
JK	14.8	11	9.97	7.97	11.65
GOODYEAR	13.36	9.79	10.57	13.97	14.3
TVS	12.26	10.95	11.42	12.2	13.8
PIX	29.66	21.39	22.35	23.99	21.56
RUBFILA	16.76	10.27	12.39	16.63	12.09
GRP	5.89	5.29	6.89	6.41	9.41
AVG	17.725	14.031	14.27	15.373	16.196

Operating profit is made to find the company's performance before deducting any financial costs and taxes; it helps to find the percentage of profit a company makes from its operations. It is

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 https://alss.utgjiu.ro

common practice to report operational, investment and financial transactions in the income statement; however, the stakeholders look for the precise profit from the company's core operations. Hence, the ratio between the operating profit and company's turnover will clarify the firm's margin from its core operations. As the ratio is the measure of profit,more the ratio better the financial position. Balakrishna and PIX companies have reported the highest operating profit ratios compared to the other selected companies; on the other hand, GRP has reported the lowest ratio. Compared to the industry average reported in the last row of Table 5, the operating profit ratio of Balakrishna, MRF, Apollo and PIX are more. Ceat, JK, Goodyear, TVS, Rubfila and GRP have reported operating profits less than the industry average.

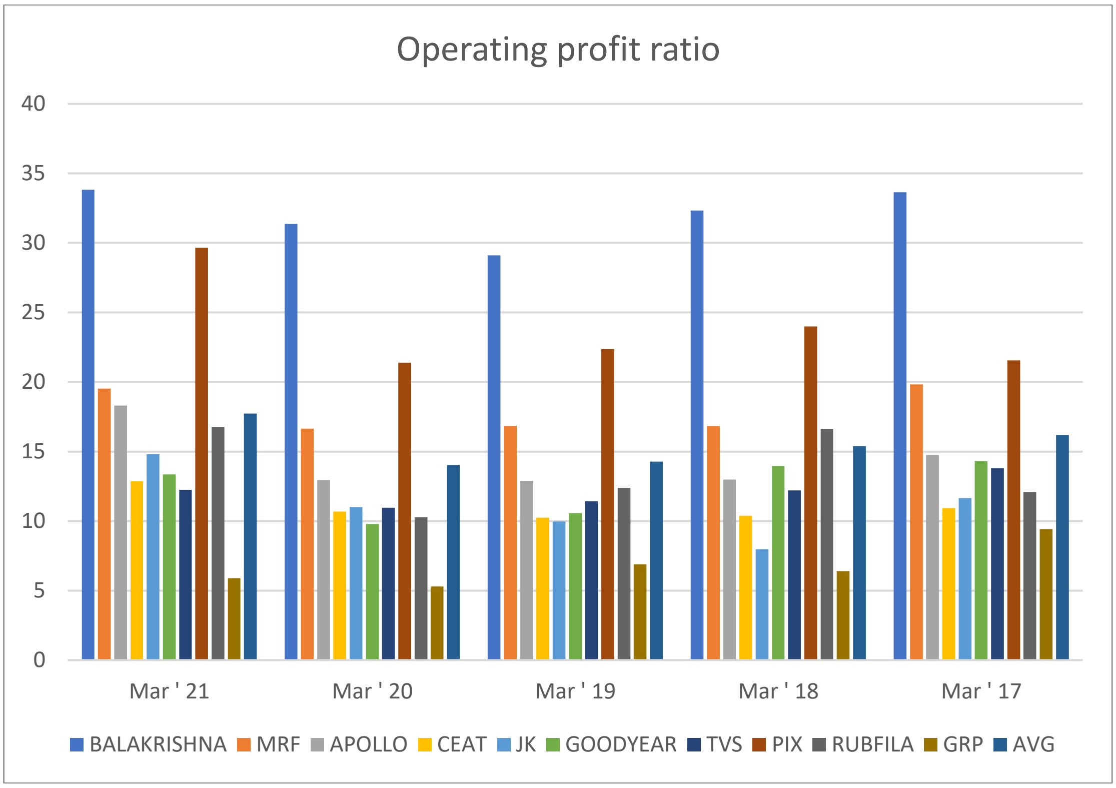

Figure 5: Operating profit ratio; Source: authors processing

6. Net profit ratio

The net profit ratio is the income after taxes to the firm's net sales. All the efforts and decision-making in the enterprise are to obtain a higher net profit margin with an expansion in net profits. The net profit helps to indicate how much the company has earned by making total sales. A higher net profit margin means a company is more efficient at converting sales into actual profit. Table 6 shows the net profit ratio of the ten selected companies over five years and the average of all the companies in the same period. Companies Balakrishna and PIX have reported the highest net profit compared to other selected companies, and on the other hand, Companies GRP and TVS have reported the lowest profit in the study period. Company Rubfila, Balakrishna and PIX have reported profit ratios greater than the Industry average; on the other hand, MRF, Apollo, Ceat, JK, Goodyear, TVS and GRP have reported ratios less compared to the industry average.

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677

2/2022 https://alss.utgjiu.ro

Table 6: Net profit ratios of selected ten Tyre manufacturing companies in India

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	20.07	19.76	14.91	16.56	16.96
MRF	7.85	8.72	6.93	7.2	9.84
APOLLO	6.16	4.6	5.98	5.9	8.09
CEAT	5.46	3.33	4.73	4.37	5.69
JK	4.18	3.75	2.29	0.72	3.79
GOODYEAR	7.61	5.09	5.34	7.62	7.83
TVS	3.88	4.11	4.33	5.34	7.29
PIX	16.38	9.01	9.84	8.56	6.37
RUBFILA	11.2	6.6	7.96	9.68	6.76
GRP	0.23	0.82	1.7	0.31	2.63
AVG	8.302	6.579	6.401	6.626	7.525

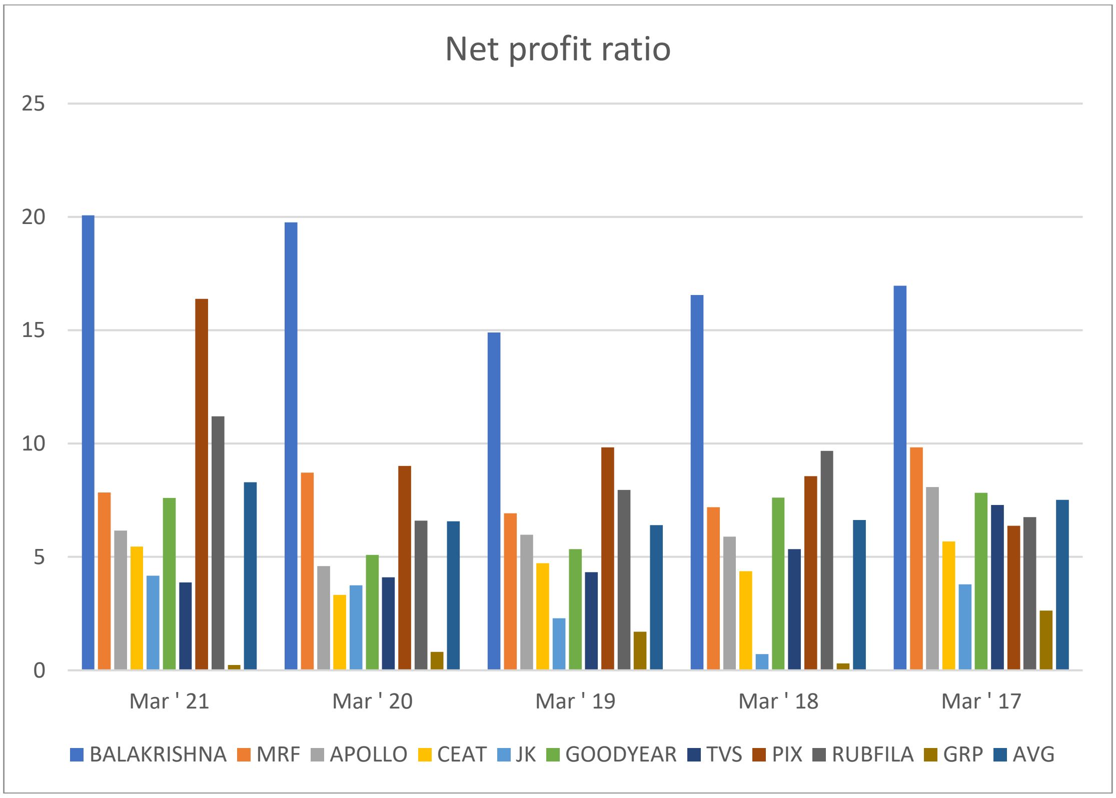

Figure 6: Net profit ratio; Source: authors processing

7. Debt equity ratio

The debt-to-equity ratio is a financial metric that shows how much debt and shareholder equity are utilized to fund a firm's assets. Often known as risk gearing or leverage, the ratio is the close solvency position of the firm. Traditional theories have opined that the standard debt-equity ratio is 2:1; this was with the logic that the cost of equity is always higher than that of debt. Equity trading is one more motive to have debt in the capital structure. However, the experts and managers are talking about the zero debt vision. The debt-equity ratios of selected companies are presented in Table 7. The ratios of all the companies are on decreasing trend; this implies that the companies' motto is to reach zero debt capital structure. Among the selected companies, the debt-equity ratio of JK tyres is the highest, and the ratio of Rubfila is the lowest, zero. All the selected companies have reported a debt-equity ratio of less than 2, which implies that the solvency positions of the companies are better, and

ISSN-P: 1844-6051 ~ ISSN-E: 2344-3677
2/2022 https://alss.utgjiu.ro

all are low-risk companies. Considering the Industry average ratio reported in the last row as standard, the ratios of Apollo, Ceat, JK tyres, and GRP are greater than the standard, and those of the selected companies are less than the industry standard.

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	0.16	0.17	0.19	0.29	0.51
MRF	0.10	0.14	0.18	0.21	0.26
APOLLO	0.51	0.47	0.36	0.35	0.26
CEAT	0.60	0.59	0.36	0.29	0.34
JK	1.22	1.57	1.87	2.07	1.92
GOODYEAR	0.02	0.01	0.00	0.00	0.00
TVS	0.33	0.50	0.52	0.51	0.46
PIX	0.33	0.48	0.54	0.65	0.78
RUBFILA	0.00	0.00	0.00	0.00	0.00
GRP	0.59	0.56	0.46	0.48	0.54
AVG	0.39	0.45	0.45	0.48	0.51

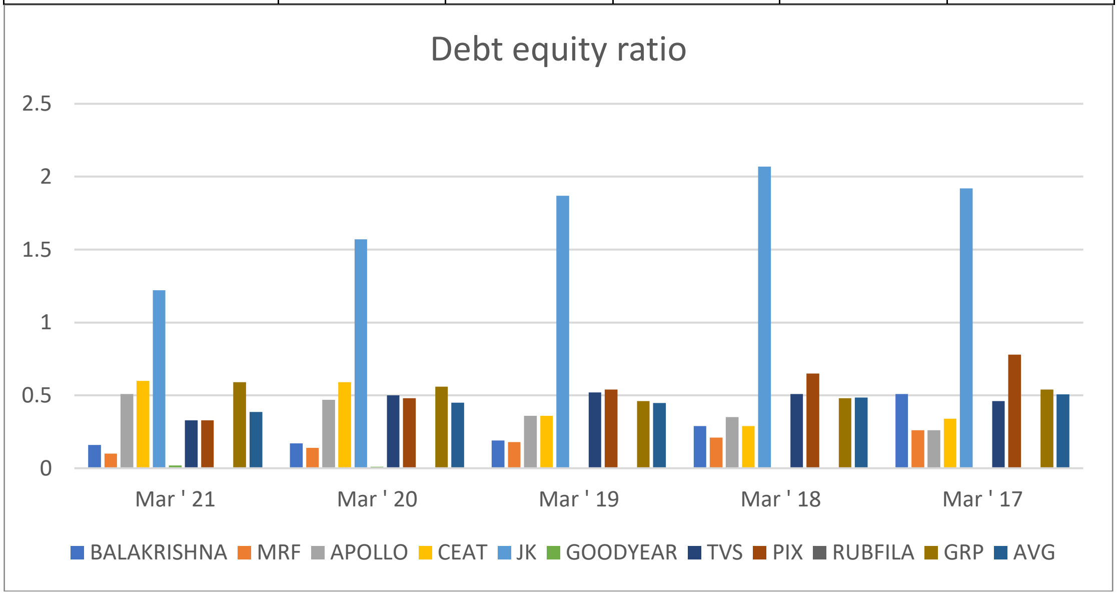

Figure 7: Debt Equity ratio;
Source: authors processing

8. Interest coverage ratio

The interest coverage ratio is examined to determine the company's ability to pay interest on its outstanding debt. The operating profit is the percentage of interest expenses measured by this ratio. Hence, the greater interest coverage ratio implies a better solvency position of the company, or it conveys that the firm has enough operating profit to pay off its interest expenses. A ratio which is less than 0 is not a good symptom, which implies the sign of insolvency. As this ratio is highly correlated with the company's business performance, the ratios reported in Table 8 are unstable. Except for GRP tyres, all other selected companies have favourable interest coverage ratios.

Company	Mar ' 21	Mar ' 20	Mar ' 19	Mar ' 18	Mar ' 17
BALAKRISHNA	151.1	123.58	107.58	80.78	45.2
MRF	7.28	5.98	7.37	7.42	9.27
APOLLO	3.75	3.53	8.1	7.21	12.77
CEAT	3.61	2.93	7.76	5.46	6.38
JK	2.49	1.25	1.8	1.27	2.19

GOODYEAR	54.56	30.43	53.71	69.96	59.22
TVS	3.98	3.4	5.26	6.42	10.97
PIX	10.12	3.85	4.1	3.3	2.48
RUBFILA	1007	0	259.33	272.08	323
GRP	0.92	0.72	2.77	1.57	4.24
AVG	124.481	17.567	45.778	45.547	47.572

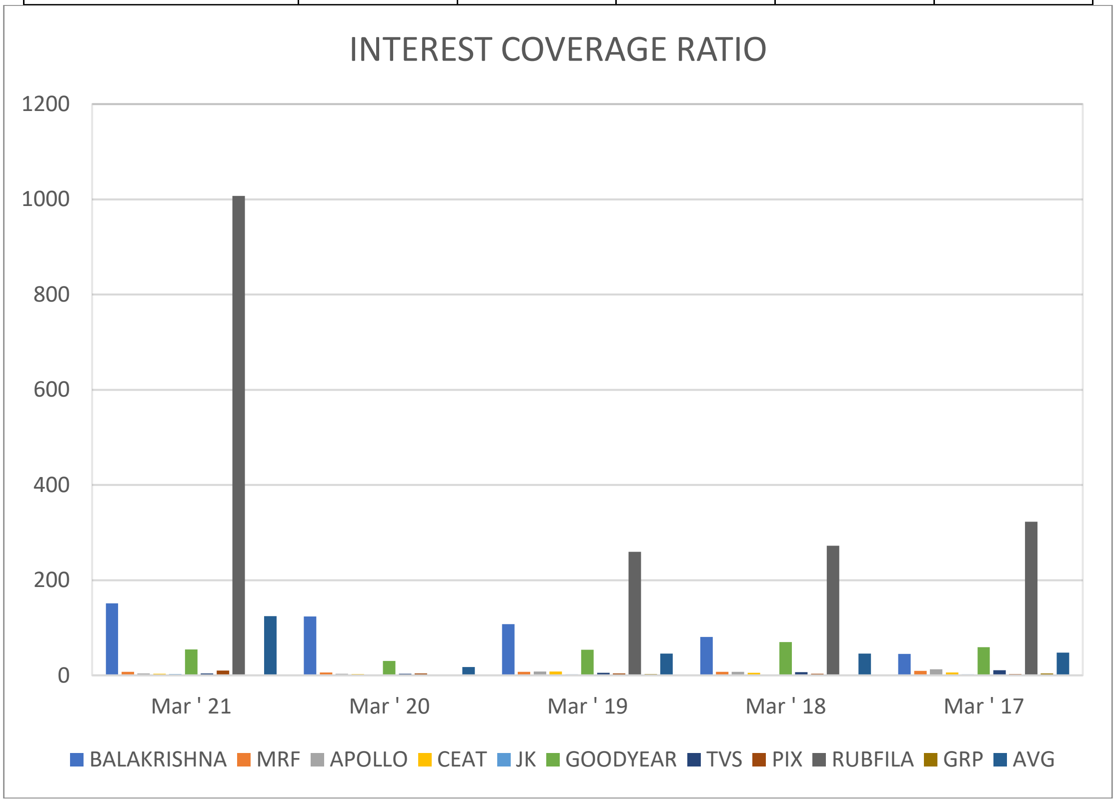

Figure 8: Interest coverage ratio;
Source: authors processing

Conclusion

The top ten tyre manufacturing companies are identified based on their market capitalization, and their financial performance for the past five years is examined. Ratios like assets turnover ratio, inventory turnover ratio, fixed assets turnover ratio, debt to equity ratio, interest coverage ratio, creditors turnover ratio, operating profit ratio and net profit ratio were examined. From the analysis, we found that in the year 2020, because of covid-19, the performance of many companies has affected, and the debt of the Industry increased. Debt equity ratios of all companies except Balakrishna are less than one, which is a good sign. The net profit and operating profit ratio of Balakrishna Company are very high compared to other selected companies. However, the asset turnover and fixed asset turnover ratio of Goodyear Company is better than all other selected companies. Regarding working capital, the inventory turnover of Rubfila and the debtor turnover ratio of Apollo Company are better than other companies.

REFERENCES

1. Chang, C.-Y., Srinivasan, K., Wang, W.-C., Ganapathy, G.P., Vincent, D.R., Deepa, N. (2020) Quality Assessment of Tire Shearography Images via Ensemble Hybrid Faster Region-Based ConvNets. Electronics, 9(1), 45, https://doi.org/10.3390/electronics9010045.
2. Hawaldar, I. T., Lokesha, L., Kumar, K. A., Pinto, P., Sison, S. M. (2017a). Performance Analysis of Commercial Banks in the Kingdom of Bahrain (2001-2015). International Journal of Economics and Financial Issues, 7(3), 729–737. Retrieved from https://www.econjournals.com /index.php/ijefi/article/view/4325.
3. Katarzyna, P., Izabela, P., Patrycja, B.-W., Weronika, K., Andrzej, T. (2020) LCA as a Tool for the Environmental Management of Car Tire Manufacturing, Applied Sciences, 10(20), 7015, https://doi.org/10.3390/app10207015.
4. Kumar, K. A., Pinto, P., Hawaldar, I. T., Ramesh, K. G. (2021a). Can Crude Oil Futures be the Good Hedging Tool for Tyre Equities? Evidence from India. International Journal of Energy Economics and Policy, 11(6), 523–537. Retrieved from https://www.econjournals .com/index.php/ijeep/article/view/11863.
5. Kumar, A.K., Pinto, P. Hawaldar, I.T., Spulbar, C., Birau, R., Minea, E.L. (2021b) Forecasting Areca Nut Market Prices Using The Arima Model: A Case Study of India, Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series, Issue 2/2021, pp.4-18, „ACADEMICA BRÂNCUŞI" PUBLISHER, ISSN 2344 – 3685/ISSN-L 1844 – 7007, https://www.utgjiu.ro/ revista/ec/pdf/2021-02/01_Kumar.pdf.
6. Kumar, K.A., Pinto, P., Hawaldar, I.T., Spulbar, C., Birau, R. (2021c) Crude oil futures to manage the price risk of natural rubber: Empirical evidence from India, Agricultural Economics, 67: 423–434, https://doi.org/10.17221/28/2021-AGRICECON, ISSN 0139-570X (Print), ISSN 1805-9295 (On-line).
7. Kumar, K.A., Spulbar, C., Pinto, P., Hawaldar, I.T., Birau, R., Joisa, J. (2022) Using Econometric Models to Manage the Price Risk of Cocoa Beans: A Case from India. Risks, 10, 115. https://doi.org/10.3390/risks10060115.
8. Naddeo, M., Viscusi, G., Gorrasi, G., Pappalardo, D. (2021) Degradable Elastomers: Is There a Future in Tyre Compound Formulation? Molecules, 26(15), 4454, https://doi.org/10.3390/molecules26154454.