



## "UNRAVELING LEVERAGE STRATEGIES: A STUDY OF PROFITABILITY IN THE INDIAN TIRE MANUFACTURING SECTOR"

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### **Abstract:**

*Tyre manufacturers employ various methods of leverage to enhance their efficiency, financial status, and market presence. This involves using borrowed capital to enhance operations, upgrade technology, and expand, aiming for profits that exceed borrowing costs. They also manage a balance between debt and equity to decrease expenses and maximize shareholder returns. Moreover, they enhance efficiency and reduce costs by scaling up production. Embracing state-of-the-art technologies aid in boosting efficiency and reducing waste. Additionally, they innovate by developing novel materials and processes to meet market needs and environmental standards. For risk reduction and revenue enhancement, they diversify products and enter new markets. They also concentrate on cultivating robust supplier relationships and streamlining logistics to cut costs and stay competitive.*

*While leveraging strategies present prospects for increased profits during favorable periods, they also expose companies to elevated risks during economic downturns or market fluctuations. Therefore, effective management requires evaluating risks, understanding market patterns, and devising a clear strategy to capitalize on opportunities while mitigating potential downsides.*

### **Introduction**

Financial management involves decision-making about money to benefit shareholders, aiming to raise funds, allocate investments, and distribute profits. One critical aspect is "capital structure," reflecting how a company uses a blend of borrowing and shareholders' funds. Borrowing resembles a loan, while shareholders contribute through company ownership, known as shares. The balance between borrowing and ownership is key, impacting shareholders' satisfaction. Companies borrowing more carry higher debt, while less borrowing implies more ownership, a decision influenced by risk, borrowing costs, and profit potential.

Businesses experience leverage, amplifying gains or losses by including borrowed funds in total investments. This amplification heightens returns but also risks greater losses, as borrowed funds must be repaid regardless of investment outcomes, possibly leading to financial strain or insolvency.

Financial leverage involves using debt and preference shares alongside shareholders' equity, amplifying returns when exceeding borrowing costs. This method enhances returns on equity but remains unfavorable if returns don't surpass borrowing expenses.

Operating leverage measures how operating income fluctuates concerning sales variations. Industries with high operating leverage must carefully manage costs and sales volume to offset risks from fluctuations.

Earnings Per Share (EPS) allocates a company's profit to each outstanding share of common stock, serving as a vital indicator for profitability, compared across industries for evaluating financial performance and monitoring a company's earnings growth over time.



## Literature Review

1. **C. Balakrishnan (2016)** suggested in his study on the financial performance of the Indian steel industry that while the current ratio was satisfactory overall, one company had a better quick ratio compared to the others. Additionally, this particular company showed superior inventory and debtors turnover ratios among the selected companies, and it had a higher net profit margin ratio than the others.
2. **Krishna Murti (2012)** observed in their study on long-term solvency (leverage) analysis of chosen steel companies in India that there was a rise in debt mean and a decrease in standard ratio. All selected companies reduced their proprietary ratio, while there was an increase in the interest coverage ratio and a decrease in its mean value.
3. **V. Kalpana (2012)** noted that one company stood out with the highest mean and standard deviation among others, signaling greater risk in covering operating expenses. She revealed a strong correlation between changes in Degree of Operating Leverage (DOL) and Earnings Per Share (EPS) during the study period, signifying the substantial influence of operating leverage on these companies' financial performance.
4. S Ramya (2018) observed in her analysis of Apollo Tyres' financial performance that higher combined leverage indicates higher risk compared to lower combined leverage due to less fixed costs. Over 2013 to 2017, there was a decrease in total leverage. The company exhibited high liquidity in 2013, which decreased in subsequent years. The proprietary ratio showed stability in long-term solvency in 2014 but began to change from 2015. In 2016, the net profit ratio indicated good profits, reflecting effective management of the company's activities.
5. Govi Shankar (2022) found in his study on selected companies in India before COVID-19 that both financial leverage and operating leverage increased over time, peaking in 2018-2019. The combined leverage, a product of financial and operating leverage, also rose, reaching its highest in 2018-2019 and lowest in 2014-2015. All companies showed a satisfactory level of leverage.
6. P. Chellasamy (2019) highlighted in his research on select steel companies in India that focusing on increasing profitability through sales, investments in fixed assets, and cost reduction is crucial. Additionally, directing attention towards refining production processes and adopting advanced technologies can enhance efficiency and reduce costs.
7. M. Krishnamoorthi (2016) his study showed different liquidity ratios among Indian steel companies: small-cap firms had stronger financial health, seen in higher current asset-to-liability ratios. In contrast, large-cap companies had lower ratios below average, while mid-cap firms surpassed the average. Krishnamoorthi suggested improving debt equity and quick ratios for large-cap firms to boost liquidity and highlighted the need for high interest coverage ratios to manage debts, emphasizing the importance of focusing on production costs, fixed asset investments, and sales to enhance profitability.
8. Dr. E. B. Khedkar(2015), in his analysis titled "Leverage Analysis and Profitability for Dr. Reddy's Laboratories," emphasizes that the company's long-term financial performance is signified by leverage. The study indicates a sharp increase in Dr. Reddy's leverage ratio, reaching 3.42 in 2013, indicating less than ideal combined leverage, with an average financial leverage ratio of 1.90. However, the firm's total assets turnover ratio showed fluctuation, indicating inefficient utilization of assets, signaling less exceptional managerial effectiveness.
9. Manoj Kumar Vishnubhai Patel's(2016) research, "Financial Performance of Public Sector Steel Companies in India," highlights the good liquidity performance across these companies, ensuring their ability to meet current liabilities annually. Although debt equity performance is commendable, there are heightened operating and financial risks. Despite overall satisfactory



performance, inventory management remains unsatisfactory due to market demands, fluctuating prices, and inflation rates. Operating and net profit margins are unsatisfactory, yet the return on investment remains satisfactory.

10. Shrabanti Pal's(2012) article, "Comparative Financial Performance of Indian Steel Companies under Globalization," suggests that both public and private sector steel companies should focus on creating a detailed working capital management policy, influencing the company's profitability. While maintaining numerous current assets secures solvency, it negatively impacts profitability. The study emphasizes the adverse effects of debtor turnover ratios on profitability within these companies.
11. Ashok Panigrahi (2012) stated in his article, "A study on capital structure and leverage analysis of Steel Authority of India Ltd," that the company's losses aren't solely because of loan interest payments. Various factors like high input costs, reduced sales revenue from iron and steel products, lower productivity, unfavorable product mix, and losses from mergers and acquisitions have also played a role in the company's losses.
12. T. Venkatesan (2013) in his article, "A study on working capital and profitability analysis of select steel companies in India," found that among the studied steel companies, one had the highest operating profit. This higher operating profit was achieved by reducing indirect expenses and increasing sales. The debt-to-equity ratio for these steel companies was generally high, indicating heavy reliance on debt for financing. However, one specific steel company had a lower debt-to-equity ratio compared to others, implying a stronger capital structure and lower risk.
13. Biswajit Prasad Chhatoi (2015) concluded in his article, "A study on relationship between profitability and dividend payment in iron and steel industries in India," that a firm's profitability greatly influences its dividend choices. Making optimal dividend decisions is crucial for shareholders, as it directly links to financial and investment choices. Moreover, this balance also ensures both shareholder contentment and staff retention.
14. Hamidah Ramlan (2020) expressed in their article, "An investigation into the influence of leverage and liquidity on corporate performance," that the correlation between the leverage and liquidity of the chosen steel companies' performance is positive. This indicates that liquidity and leverage exert a significant influence on the company's overall performance.
15. Soni Bindiya (2013) conducted an examination into the influence of operating leverage and financial leverage on EPS through correlation analysis. Additionally, the study explored how the debt-equity ratio affects the EPS of these firms, aiming to understand the impact of debt on the companies' wealth. The results indicate that while financial leverage did not show a substantial connection to profitability, operating leverage demonstrated a significant association with profitability, aligning with some expectations.
16. H. Chandra (2012) highlighted in his article "A study on profitability in selected Indian steel companies" that effective working capital management greatly impacts the profitability of these steel companies. He found no connection between financial and operating leverage with earnings per share. However, managing fixed assets, inventory, and debtors has a significant impact on profitability. Chandra suggested that these companies need to restructure their capital setup to enhance future profitability and manage both operating and financial leverage effectively.
17. Konda Hari Prasad Reddy (2020) in his article, "Performance analysis of iron & steel companies in India based on financial status and efficiency using PBT Margin ratio," noted that one company exhibited better performance compared to the others based on PBT margin. This company prioritizes sales and demonstrates higher earnings per share (EPS). Additionally,



it outperformed another industry concerning return on capital employed ratio. Moreover, in terms of net profit per share, it showcased the highest among the selected companies. Lastly, this particular industry displayed superior performance in comparison to the other chosen companies based on return on net worth ratio.

18. Harsha C. Mathad (2012) emphasized in his study on "The impact of leverage on the profitability and risk of Indian steel companies" the significance of financial, operating, and combined leverage values in comprehending industrial risk. He noted that industries need to prioritize sales growth if their leverage values are low to minimize risk. Moreover, if sales are low and substantial investments in fixed assets are made, it can increase the company's risk.
19. Safieddine and Titman (1999) conducted a study titled "Leverage and its determinants," yielding results consistent with the positive association of debt usage with an alignment of interests between shareholders and managers. This alignment led to higher leverage ratios and subsequently better performance for companies. Their analysis, using pooled regression, summarized theories related to debt maturity and selection, encompassing debt costs, signaling effects, and tax impacts.
20. Debasish Sur, Kaushik Chakraborty, and Parveen Begam (2009) conducted research on "Financial leverage and owners' return: A study on their relationship with reference to selected Indian companies." Their study found that companies can boost EPS by using more debt funds in their capital structure. Effective management of financial leverage is crucial for creating shareholder value, as their study has demonstrated.

#### **Statement of the problem:**

The study on leverage analysis in the tyre industry aims to assess the financial risk associated with companies in this sector, particularly related to their use of debt for financing. It seeks to determine how much leverage tyre companies employ and how it impacts their financial performance, profitability, and long-term viability. Additionally, the study aims to investigate factors influencing companies' decisions to use debt, including economic conditions, industry trends, and market competition. Through analyzing the leverage levels of tyre companies, this research aims to offer insights into the industry's financial well-being and stability, highlighting areas where financial management practices could be enhanced.

#### **The study's objectives are:**

1. Assessing the profitability of chosen tire manufacturers in India.
2. Analyzing both operating and financial leverage.
3. Investigating how leverage influences profitability through correlation analysis.

#### **Data**

Financial data of select companies have a taken from companies published source using secondary. It covers five years data from 2018-19 to 2022-23. Data is analyzed by using financial tools and techniques such as ratio analysis, mean, and correlation coefficient to provide a meaningful conclusion.

#### **Methodology:**

##### **Leverage analysis**

The following leverages are calculated

1. Operating leverage
2. Financial leverage



**Profitability ratios** are calculated to determine the profitability position.

**The following are the ratios**

1. Return on Investment (ROI)
2. Return on Equity (ROE)
3. Operating Profit Margin
4. Net Profit Margin
5. Earnings per share (EPS)

**Statistical tools**

Correlation method is employed to study the relationship between operating and financial leverages.

**Formulae**

- Return on Investment (ROI) = Net operating profit after tax ÷ Investment
- Return on Networth (RONW) = PAT ÷ Equity fund
- Operating Profit Margin = EBIT ÷ Sales
- Net Profit Margin = Net Profit ÷ Sales
- Earnings per share (EPS) = PAT/ No's of Equity Shares.
- Operating Leverage (OL) = Contribution ÷ EBIT
- Financial Leverage (FL) = EBIT ÷ EBT
- 8. Mean:  $\bar{x} = \sum x_i / n$
- Correlation co-efficient:

$$r = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sqrt{[\sum(x-\bar{x})^2 \sum(y-\bar{y})^2]}}$$

**Analysis and Interpretation**

**Calculation of EBT:** The following statement shows the amount of sales, contribution, EBIT, and EBT during the year 2018-19

Particulars	Sales	Variable cost	Contribution	Fixed cost	EBIT	Interest	EBT
<b>MRF</b>	15,994.21	10,292.57	5,701.64	5,122.67	578.97	267	311.97
<b>Apollo</b>	12,089.58	7,583.84	4,505.74	3,400.94	1,104.80	181	923.80
<b>CEAT</b>	6,800.06	4,273.64	2,526.42	2,292.28	234.14	88	146.14
<b>JK</b>	7,512.12	4,071.30	3,440.82	2,222.49	1,218.33	521	697.33
<b>TVS</b>	2,375.36	1,512.96	862.40	792.06	70.34	35	35.34

Sources: computed using annual reports

**Interpretations**

The table shows calculation of EBT for 5 tyre manufacture companies during the year 2018-19. Jk shows higher sales and profitability. MRF and Apollo show relatively higher sales and profitability, while CEAT and TVS shows lower sales and profitability.



The following statement shows the amount of sales, contribution, EBIT, and EBT during the year 2019-20

Particulars	Sales	Variable cost	Contribution	Fixed cost	EBIT	Interest	EBT
MRF	16,162.15	9,577.04	6,585.11	5,523.46	1,061.65	274	769.65
Apollo	10,832.51	6,072.95	4,759.75	3,678.05	1,081.70	280	801.70
CEAT	6,680.37	3,872.96	2,807.41	2,551.07	256.34	150	106.34
JK	6,039.73	3,157.83	2,881.90	2,141.64	740.26	548	192.26
TVS	2,047.13	1,186.62	860.91	796.3	64.61	37	27.61

Sources: computed using annual reports

**Interpretations:** The table shows the calculation of EBT for 5 tyre manufacture companies during the year 2019-20. The sales and profitability of MRF and Apollo are greater, while JK shows average performance. Compared to other companies, TVS has lesser sales and profitability.

The following statement shows the amount of sales, contribution, EBIT, and EBT during the year 2020-21

Particulars	Sales	Variable cost	Contribution	Fixed cost	EBIT	Interest	EBT
MRF	16,076.67	8,952.10	7,124.57	5,313.79	1,810.78	274	1,536.78
Apollo	11,354.51	6,238.32	5,116.19	3,851.8	1,264.39	442	822.39
CEAT	7,541.69	4,173.76	3,367.93	2,860.35	507.58	175	332.58
JK	6,088.16	3,255.87	2,832.29	2,003.73	828.56	465	363.56
TVS	1,870.97	982.89	888.08	777.44	110.64	32	78.64

Sources: computed using annual reports

**Interpretations:** The table shows the calculation of EBT for 5 tyre manufacture companies during the year 2021-21 MRF and Apollo have higher sales and profitability. CEAT and JK have slightly lower sales and profitability, while TVS have very lower sales and profitability.

The following statement shows the amount of sales, contribution, EBIT, and EBT during the year 2021-22

Particulars	Sales	Variable cost	Contribution	Fixed cost	EBIT	Interest	EBT
MRF	19,316.72	13,419.57	5,897.15	6,145.04	-247.89	253	-500.89
Apollo	14,306.79	9,493.77	4,816.02	4,432.77	380.25	444	-63.75
CEAT	9,146.31	6,185.90	2,959.41	3,238.55	-279.14	206	-485.14
JK	7,918.44	5,099.09	2,819.35	2,260.92	558.43	419	139.43
TVS	2,438.30	1,569.62	868.68	941.1	-72.45	31	-103.42

Sources: computed using annual reports



### Interpretations

The table shows calculation of EBT for 5 tyre manufacture companies during the year 2021-22. JK have a higher profitability and sales, with positive EBT. MRF, Apollo, CEAT are experiencing losses, with negative EBT. TVS is also facing a loss, with negative EBT.

The following statement shows the amount of sales, contribution, EBIT, and EBT during the year 2022-23

Particulars	Sales	Variable cost	Contribution	Fixed cost	EBIT	Interest	EBT
<b>MRF</b>	23,008	15,751	7,257.41	6,751.85	505.56	319	186.56
<b>Apollo</b>	17,301.02	10,693.77	6,607.25	4,862.24	1,745.01	531	1,214.01
<b>CEAT</b>	11,263.26	7,350.74	3,912.52	3,638.64	273.88	242	31.88
<b>JK</b>	9,617.92	5,707.01	3,910.91	2,581.45	1,329.46	454	875.46
<b>TVS</b>	2,865.30	1,722.39	1,143.00	1,075.55	67.45	39	28.45

Sources: computed using annual reports

### Interpretations

The table shows the calculation of EBT for 5 tyre manufacture companies during the year 2022-23. Apollo have higher sales and profitability, with positivity EBT. Whereas MRF and JK have slightly lower sales and profitability. CEAT and TVS have with a relatively low sales and profitability.

### Analysis of operating leverage

The following table shows operating leverage of 5 tyre companies

Particular	2018-19	2019-20	2020-21	2021-22	2022-23	Average
<b>MRF</b>	9.85	6.20	3.93	-23.78	14.35	2.12
<b>Apollo</b>	4.08	4.40	4.05	12.66	3.79	5.796
<b>CEAT</b>	10.79	10.95	6.63	-10.60	14.28	6.41
<b>JK</b>	2.82	3.89	3.41	5.04	2.94	3.62
<b>TVS</b>	12.26	13.32	8.02	-11.99	16.94	7.71

Sources: computed using annual reports

**Interpretation:** The table shows the analysis of operating leverage for the five companies MRF, Apollo, CEAT, JK, TVS over the five year period from 2018-19 to 2022-23, along with the mean growth rate. TVS and CEAT have highest average growth rates. Whereas Apollo have relatively lower average growth rates. Compared to other, the JK and MRF have lower average growth rates.

### Analysis of financial leverage

The following table shows financial leverage of 5 tyre companies

Particular	2018-19	2019-20	2020-21	2021-22	2022-23	Average
<b>MRF</b>	1.85	1.37	1.17	0.49	2.70	1.516
<b>Apollo</b>	1.19	1.34	1.53	-5.96	1.43	-0.094
<b>CEAT</b>	1.60	2.41	1.52	0.57	8.59	2.938
<b>JK</b>	1.74	3.85	2.27	4.00	1.51	2.674
<b>TVS</b>	1.99	2.34	1.40	0.70	2.37	1.76

Sources: computed using annual reports



### Interpretation

The table shows the analysis of financial leverage for the five companies MRF, Apollo, CEAT, JK, TVS over the five-year period from 2018-19 to 2022-23, along with the mean growth rate. CEAT and JK has a highest average growth rate. MRF and TVS have a slightly lower average growth rate. Whereas Apollo have a fluctuations and negative average growth rate.

### Analysis of profitability

#### 1. Return on Investment

**Showing profitability ratios of Return on investment**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	Average
MRF	8.32	7.21	13.13	12.17	14.79	11.106
Apollo	8.01	4.70	8.33	6.74	10.00	7.556
CEAT	11.43	9.26	12.92	5.20	9.50	9.662
JK	13.18	9.73	14.12	10.89	12.90	12.164
TVS	20.37	12.51	12.36	6.22	10.07	12.306

Source: Collected from money control

**Interpretation:** The table shows the return on investment of five companies in the tire manufacturing industry over a period of five years, from 2018-19 to 2022-23. The table shows the average performance of each company. JK and TVS had the highest growth average rate, while MRF had some improvement in average rate. Apollo and CEAT shows lower growth average rate.

#### 2. Return on Network

**Table Showing profitability ratios of Return on network**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	Average
MRF	10.43	11.64	9.52	4.76	5.22	8.314
Apollo	7.74	6.61	7.63	2.74	5.84	6.112
CEAT	10.50	8.13	13.07	1.72	6.16	7.916
JK	10.24	10.57	10.69	7.24	6.36	9.02
TVS	13.88	11.07	8.65	4.22	6.73	8.91

Source: Collected from money control

### Interpretation

The table represents the profitability ratio of five companies based on their return on network over a five-year period, 2018-19 to 2022-23. The table shows the average RONW for each company. JK had the highest average RONW among the five companies. MRF and TVS had relatively stable average growth rate, while Apollo and CEAT had the lowest average growth rate.





**3. Operating Profit Margin : Table showing profitability ratios of Operating profit margin:**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	Average
<b>MRF</b>	14.17	14.53	18.18	10.59	10.35	13.564
<b>Apollo</b>	11.97	12.59	17.33	9.76	12.20	12.77
<b>CEAT</b>	9.33	10.63	12.85	1.52	8.67	8.6
<b>JK</b>	9.60	10.66	13.87	8.72	8.05	10.18
<b>TVS</b>	10.88	10.42	11.91	6.60	7.51	9.464

Source: Collected from money control

**Interpretation:**The table shows the profitability ratios of five companies based on their operating profit margin over a five-year period, from 2018-19 to 2022-23. In the table shows the average average OPM for each company. MRF had the highest average growth rate. Apollo, JK, TVS showed some slightly lower average growth rate, while CEAT had the lowest average growth rate.

**4. Net Profit Margin :Table showing profitability ratios of Net profit margin**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	Average
<b>MRF</b>	7.03	8.76	7.90	3.46	3.34	6.098
<b>Apollo</b>	4.79	4.59	6.16	1.78	3.34	4.132
<b>CEAT</b>	4.22	3.32	5.46	0.58	1.83	3.082
<b>JK</b>	2.68	3.75	4.18	2.27	1.91	2.958
<b>TVS</b>	4.33	4.11	3.87	1.69	2.44	3.288

Source: Collected from money control

**Interpretation:** The table represents the profitability ratios of five companies based on their net profit margin over a five year period, from 2018-19 to 2022-23. In the table shows the average for each company. MRF had highest average growth rate. Apollo, CEAT and TVS had slightly lower average growth rate, while JK had the lowest average growth rate.

**5. Earing per Share :Table showing profitability ratios of EPS**

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23	Average
<b>MRF</b>	2,665.10	3,354.20	3,011.14	1,577.97	1,813.10	2484.30
<b>Apollo</b>	11.88	8.33	5.68	10.06	17.39	10.664
<b>CEAT</b>	62.35	57.17	106.81	17.60	46.02	57.99
<b>JK</b>	7.77	6.12	12.97	8.53	10.64	9.206
<b>TVS</b>	134.43	107.53	96.54	56.77	101.85	99.42

Source: Collected from money control

**Interpretation:** The table shows the profitability ratios of five companies based on their earnings per share over a five -year period, from 2018-19 to 2022-23. In table represents the average for each company. MRF had the highest average growth. Apollo, TVS, and CEAT showed slightly lower average growth, while JK had the lowest average growth.



**Analysis of correlation:** Table showing correlation between operating and financial leverage of the year 2018-19

Company	Operating leverage	Financial leverage
MRF	9.85	1.85
Apollo	4.08	1.19
CEAT	10.79	1.60
JK	2.82	1.74
TVS	12.26	1.99
<b>Correlation</b>	0.583242	

**Interpretation:** The correlation between the operating and financial leverage is at 0.583, which is less than 1 and they have positive correlation. It can be further stated that, all tyre manufactures leverage has not so big differences as far as their leverages are concerned.

**Table showing correlation between operating and financial leverage of the year 2019-20**

Company	Operating leverage	Financial leverage
MRF	6.20	1.37
Apollo	4.40	1.34
CEAT	10.95	2.41
JK	3.89	3.85
TVS	13.32	2.34
Correlation	-0.04385	

**Interpretation:** The correlation between the operating and financial leverage is at -0.043, which is less than 1 and they have negative correlation. It can be further stated that, all the tyre manufactures leverage has not so big differences as far as their leverages are concerned

**Table showing correlation between operating and financial leverage of the year 2020-21**

Company	Operating leverage	Financial leverage
MRF	3.93	1.17
Apollo	4.05	1.53
CEAT	6.63	1.52
JK	3.41	2.27
TVS	8.02	1.40
<b>Correlation</b>	-0.37668	

### Interpretation

The correlation between the operating and financial leverage is at -0.376, which is less than 1 and they have a negative correlation. It can be further stated that, all the tyre manufactures leverage has not so big differences as far as their leverages are concerned



**Table showing correlation between operating and financial leverage of the year 2021-22**

Company	Operating leverage	Financial leverage
MRF	0.49	0.49
Apollo	-5.96	-5.96
CEAT	0.57	0.57
JK	4.00	4.00
TVS	0.70	0.70
Correlation	-0.39206	

**Interpretation**

The correlation between operating and financial leverage is at -0.392, which is less than 1 and they have negative correlation. It can be further stated that, all the tyre manufactures leverage has not so big difference as far as their leverages are concerned.

**Table showing correlation between operating and financial leverage of the year 2022-23**

Company	Operating leverage	Financial leverage
MRF	14.35	2.70
Apollo	3.79	1.43
CEAT	14.28	8.59
JK	2.94	1.51
TVS	16.94	2.37
Correlation	0.479694	

**Interpretation:** The correlation between the operating and financial leverage is at 0.479, which is less than 1 and they have positive correlation. It can be further stated that, all tyre manufactures leverage has not so big differences as far as their leverages are concerned.

**Findings**

1. It is found from the study that, the analysis of EBIT for year 2018-19 the JK shows higher sales and profitability compared to the other companies.
2. It is found from the study that, the analysis of EBIT for the year 2019-20 it appears that MRF and Apollo are performing better in terms of sales and profitability compared to JK. They have higher sales and profitability, indicating stronger financial performance.
3. It is found from the study that, the analysis of EBIT for the year 2020-21 MRF and Apollo have higher sales and profitability, indicating strong financial performance. CEAT and JK, on the other hand, have slightly lower sales and profitability. TVS, however, has significantly lower sales and profitability compared to the other companies mentioned.
4. It is found from the study that, the analysis of EBIT for the year 2021-22 JK has higher profitability and sales, with positive earnings before taxes (EBT). On the other hand, MRF, Apollo, CEAT, and TVS are experiencing losses, with negative EBT.
5. It is found from the study that, the analysis of EBIT for the year 2022-23 Apollo has higher sales and profitability, with positive earnings before taxes (EBT). MRF and JK have slightly lower sales and profitability compared to Apollo. CEAT and TVS have relatively low sales and profitability.



6. Operating leverage ratio are recorded as TVS and CEAT have highest average growth rates. Whereas Apollo have relatively lower average growth rates. Compared to other, the JK and MRF have lower average growth rates.
7. Financial leverage ratio are recorded as CEAT and JK has a highest average growth rate. MRF and TVS have a slightly lower average growth rate. Whereas Apollo have a fluctuations and negative average growth rate.
8. Profitability analysis reveals that all the 5 tyre companies recorded positive returns on investment and sales during five years of the study period.
9. It is found from the study that, the profitability analysis on Return on Networth of five tyre companies for five years have recorded a positive average growth rate.
10. Operating leverage and financial leverage have a negative correlation during the years from 2019-20 to 2021-22, implies that the companies selected for the study not getting the leverage benefits.
11. Operating leverage and financial leverage of the year 2022-23 have a positive correlation, implies that the companies selected for the study are getting the leverage benefits.

### Suggestions

1. It is suggested to JK tyres and MRF tyres that they need to focus on improving their Leverage growth rate.
2. It is suggested to Apollo tyres that, they should work hard to achieve positive leverage growth rate.
3. It is suggested to CEAT tyres that, they should focus on profitability and sales.
4. It is suggested to Apollo tyres that, they should work hard to achieve positive profitability and sales as it was observed to be in earlier year.
5. It is suggested to CEAT tyres that, they should work hard to improve their Return on investment (ROI) to increase a profitability growth rate.
6. It is suggested to Apollo tyres that, they should concentrate to improve their Return on Networth (RONW) to increase its profitability growth rate.
7. It is suggested to CEAT tyres that, they should focus on improving their Operating Profit Margin (OPM) to increase their profitability growth rate.
8. It is suggested to JK tyres that, they should focus on improving their Net Profit Margin to increase its profitability growth rate.
9. It is suggested to JK tyres that, they should concentrate to improve their EPS to increase its profitability growth rate.

### Conclusion

The purpose of the study is to assess how leverage affects the profitability, or EPS, of three particular steel businesses. Leverage is a crucial element that influences the firm's profitability, which in turn impacts the wealth of the shareholders. It has been determined from this investigation that there is a negative correlation. The outcome demonstrates that the use of debt and fixed cost expenses would lower the firms' profitability. It suggests that in order to boost profits, businesses should employ less debt in their capital structures and cut back on fixed expenses. Additionally, there is a strong link. It indicates that using debt and having fixed costs boosts profitability of the firm.

### References

1. Ashok Panigrahi. 2012. "Capital Structure & Leverage Analysis: A Case Study Of Steel Authority Of India Ltd. (SAIL)." 1-19.
2. Assem Safireddine, and Sheridan Titman. 1999. "A Study in Leverage and its Determinants." *National Bureau Of Economic Research* 6068.



3. Chhatoi, Biwajit Prasad. 2015. "A Study on Relationship between Profitability and Dividend Payment in Iron & Steel Industries in India." *Pacific Business Review International* 8 (1): 70.
4. D Sivasakthi, and R Nithya. 2021. "A Study on Financial Performance Of Tata Steel Limited." *EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal* 7 (8): 169.
5. D Sivasakthi, and R Selvapriya. 2021. "A Study on Financial Performance Of Apollo Tyres." *EPRA International Journal of Multidisciplinary Research (IJMR)* 7 (8): 139-141.
6. Debasish Sur, Kaushik Chakraborty, and Parveen Begam. 2009. "Financial Leverage and Owners' Return: A study on their relationship reference to selected Indian companies." *SNS Journal of Finance* 1 (1): 9-19.
7. Govi Shankar. 2022. "Leverage Status Of Select Steel-Making Company In India Before Covid-19." *UGC CARE Journal* 47 (3): 87-90.
8. H Chandra, and A Selevaraj. 2012. "A Study of Profitability in Selected Indian Steel Companies." *The Indian Journal of Commerce* 65 (3): 32-47.
9. Hamidah Ramlan. 2020. "The Effect of Leverage and Liquidity on the Companies' Performance." *Global Business and Management Research: An International Journal* 12 (4): 421-424.
10. Khedkar, E B. 2015. "A Study of Leverage Analysis and Profitability for Dr Reddy's Laboratories." *International Journal of Research in Engineering and Social Sciences* 5 (5): 17-31.
11. M Krishnamoorthi. 2016. "Liquidity Performance Evaluation Of Select Steel Companies In Descriptive Study." *International Journal of Social Sciences and Management* 3 (3): 193-202.
12. Mathad, Harsha C. 2020. "A Study On Impact Of Leverage On The Profitability & Risk Of The Indian Steel Industry." *One Day Online International Conference Organised by IRBE Publications* 4 (1): 223.
13. Moothi, M Krishna, M Ramesh, and N Bhanupriya. 2012. "Long Term Solvency (Leverage) Analysis Of Selected Steel Companies In India-An Empirical Study." *International Journal Of Management Research And Review* 2 (4): 585-538.
14. P Chellasamy, and R Selvakumar. 2019. "Profitability Analysis of Select Steel Companies in India (With special reference to companies listed in BSE)." *Shanlax International Journal of Commerce* 7 (1): 1-12.
15. Patel, ManojKumar Vishnubhai. 2016. "A Study on Financial Performance of Public Sector Steel Companies in India." *International Journal of Research in Humanities & Soc. Sciences* 4 (2): 10-17.
16. Prasad, Konda Hari. 2020. "Performance Analysis on Iron And Steel Companies In India Depending On Financial Status And Efficiency Using Pbt Margin Ratio." *Catalyst – Journal of Business Management (CJBM)* 2 (1): 1-12.
17. S Ramya, Porgeetha Angel R, and Pavitha SR. 2018. "An analysis of financial performance of Apollo Tyres." *International Journal of Advanced Research and Development* 3 (2): 88-90.
18. Shrabanti Pal. 2012. "Comparative Study Of Financial Performance Of Indian Steel Companies Under Globalization." *International Journal of Accounting and Financial Management Research (IJAFMR)* 2 (4): 1-8.
19. T Venkatesan, and S.K Nagarajan. 2013. "A Study on Working Capital Management and Profitability Analysis of Select Steel Companies in India." *IJEMR* 3 (6): 1-17.
20. V Kalpana. 2012. "A Study on Leverage Analyses and its Impact on Profitability of Select Steel Companies Traded in Bse." *Indian Journal of Applied Research* 4 (10): 276-280.