An Empirical Study on Fixed Asset Utilization And Capital Efficiency of Ponlait

Ms. Nandhini.R[1], Mr. Amaresh.S[2]
[1]Dept of Management Studies
[2]Assist.Professor, Dept of Management Studies
[1, 2] Sri ManakulaVinayagar Engineering College (Autonomous), Puducherry

Abstract- *This study examines the fixed asset utilization and capital efficiency of PONLAIT over a five-year period (2020–21 to 2024–25) using analytical research design and financial ratio analysis. Key indicators such as Fixed Asset Turnover Ratio (FATR), Earnings Before Interest and Tax (EBIT), and Return on Capital Employed (ROCE) were evaluated to understand operational efficiency and profitability trends. The results show that FATR increased steadily, indicating consistent improvement in asset utilization, whereas ROCE and EBIT displayed significant fluctuations, reflecting unstable financial performance. The Coefficient of Variation confirmed high stability in asset usage but substantial volatility in returns. The correlation analysis showed a slight positive association (r = 0.22) between FATR and ROCE, suggesting that higher asset efficiency did not proportionately enhance profitability. Overall, the findings highlight that while PONLAIT demonstrates strong operational efficiency through effective use of fixed assets, it requires improved cost control and profitability strategies to achieve long-term financial sustainability.*

Keywords- Fixed Asset Turnover Ratio [FATR], Return on Capital Employed [ROCE], Asset efficiency, Capital productivity.

I. INTRODUCTION

Efficient utilization of fixed assets is essential for ensuring operational productivity and sustainable financial performance in capital-intensive sectors such as dairy cooperatives. PONLAIT, a major dairy union in Puducherry, has made significant investments in processing, chilling, and distribution infrastructure, making asset efficiency a crucial factor in its growth. This study examines the trend of fixed asset utilization and evaluates capital efficiency using indicators such as the Fixed Asset Turnover Ratio (FATR) and Return on Capital Employed (ROCE). By analyzing five years of financial data, the research highlights the extent to which asset usage contributes to profitability and identifies gaps in translating operational efficiency into financial gains.

OBJECTIVES OF THE STUDY

- To identify the trend of fixed asset utilization in PONLAIT from 2020 to 2025
- To examine capital efficiency using ROCE and Asset Turnover Ratio.
- To analyze year-wise variation in asset utilization and its impact on revenue.
- To assess the relationship between asset utilization and financial performance
- To suggest ways to improve the use of fixed assets and capital efficiency.

II. REVIEW OF LITERATURE

Kumar & Bhatia (2025) – Strategic Asset Deployment in Food-Processing Industries

Kumar and Bhatia evaluated fixed asset deployment in capital-intensive food-processing industries. Their study showed that firms using digital equipment-tracking systems achieved higher FATR by minimizing idle time. They emphasized that asset expansion without proportional sales growth leads to inefficient asset utilization. The authors found that balancing asset size and production volume directly influences asset turnover.

Banerjee &Iyer (2025) – Fixed Asset Productivity and ROCE in Indian Dairy Firms

Banerjee and Iyer analyzed how fixed asset productivity influences ROCE in Indian dairy companies. Their findings revealed that integrated supply chain operations improved both FATR and capital efficiency. They explained that strong asset utilization reduces production costs and enhances profitability. The authors concluded that better asset management strategies lead to sustainable capital efficiency in dairy firms.

Chawla & Srinivasan (2025) – Financial Modelling of FATR–ROCE Linkages in Processing Industries.

Chawla and Srinivasan developed a financial model linking FATR to ROCE across processing industries. Their results showed that even small improvements in FATR significantly boost capital efficiency. The study emphasized the importance of forecasting asset usage to optimize capital allocation. The authors concluded that integrating predictive financial models with asset management enhances long-term ROCE**.**

Reddy & Kulkarni (2024) – **Capacity Utilization and Capital Productivity in Agro-Based Firms.**

Reddy and Kulkarni studied the impact of capacity utilization on ROCE in agro-based firms. They found that firms operating near optimal capacity maintained strong capital efficiency. The authors observed that synchronization between procurement and production boosts both FATR and ROCE. They concluded that capital efficiency improves when firms adopt capacity-aligned asset management strategies.

Hassan & Farooq (2024) – Asset-Linked Financial Performance in Asian Dairy Cooperatives

Hassan and Farooq evaluated asset-linked financial performance in Asian dairy cooperatives. Their study showed that efficient asset utilization leads to higher capital productivity and improved ROCE. They found that cooperatives with transparent governance and structured asset policies reported better capital efficiency. The authors recommended professional asset management to sustain capital performance. They further observed that cooperatives implementing preventive maintenance protocols experienced fewer disruptions and smoother production cycles.

Verma& Natarajan (2023) – Asset Productivity and Capital Efficiency in Cooperative Institutions.

Verma and Natarajan explored the relationship between asset productivity and capital efficiency in cooperative organizations. They reported that cooperatives with strong asset management systems exhibited higher ROCE. The study identified governance quality and timely maintenance as key factors influencing capital productivity. They concluded that improved asset utilization directly strengthens capital efficiency in cooperatives**.** The authors further noted that cooperatives implementing digital registers for tracking asset performance experienced fewer **breakdowns** and better cost control.

III. RESEARCH METHODOLOGY

RESEARCH DESIGN:

The study follows an **Analytical Research Design**, which focuses on evaluating PONLAIT's financial performance through systematic examination of numerical data. This design helps in identifying trends, relationships, and variations in fixed asset utilization and capital efficiency over the five-year period. The analysis is entirely objective and based on computed financial indicators, making it suitable for performance evaluation studies.

DATA COLLECTION:

The study is based on **secondary data** collected directly from PONLAIT's official financial records, including audited annual reports, income statements, and balance sheets for the period **2020–21 to 2024–25**. Additional supporting data was obtained from published cooperative dairy reports and related financial documents provided by the organization. The use of authenticated institutional data ensures reliability and accuracy of the analysis.

TOOLS AND TECHNIQUES ADOPTED:

To evaluate PONLAIT's fixed asset utilization and capital efficiency, the study uses the following tools:

- **Financial Tools:**
  - *Fixed Asset Turnover Ratio (FATR)*
  - *Return on Capital Employed (ROCE)*
  - *Earnings Before Interest and Taxes (EBIT)*
- **Statistical Tools:**
  - *Coefficient of Variation (CV)* for stability measurement
  - *Correlation Analysis* to assess the relationship between FATR and ROCE

These tools help in identifying efficiency trends, profitability fluctuations, and the strength of linkages between operational and financial performance.

IV. DATA ANALYSIS AND INTERPRETATION

1. TREND ANALYSIS OF NET FIXED ASSET:

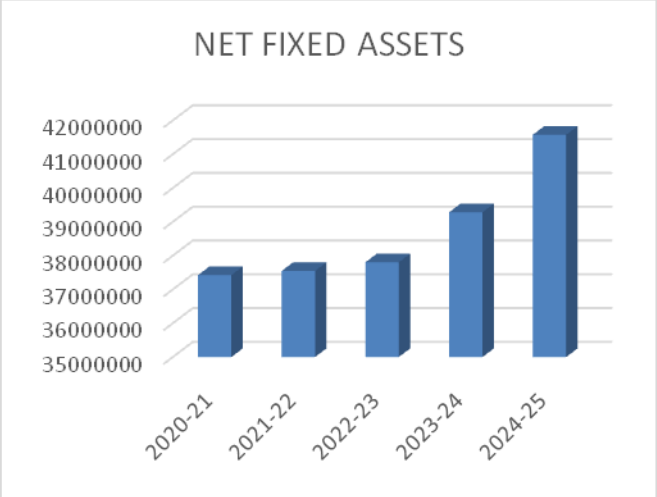
TABLE 4.2.1 TREND ANALYSIS OF NET FIXED ASSET

YEAR	NET FIXED ASSET
2020-21	37,42,25,189.2
2021-22	37,54,62,191.7
2022-23	37,80,05,525.2

2023-24	39,28,16,809.4
2024-25	41,57,40,606.2

SOURCE: Secondary Data

CHART 4.2.1 TREND ANALYSIS OF NET FIXED ASSET



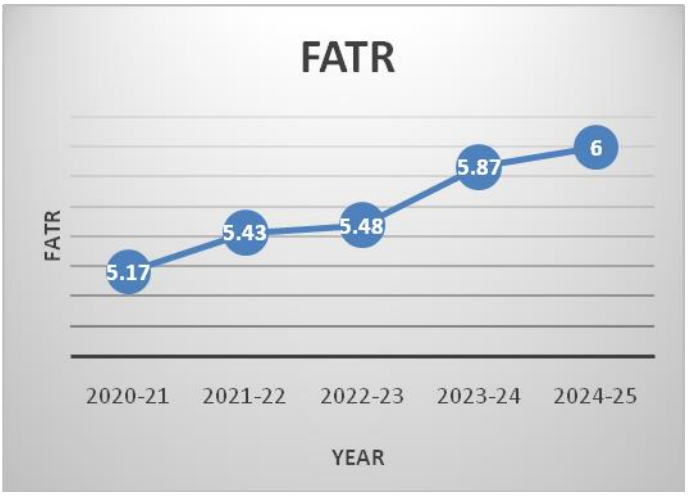
2. FIXED ASSET TURNOVER RATIO:

TABLE 4.2.2 FIXED ASSET TURNOVER RATIO

YEAR	NET SALES	NET FIXED ASSET	FATR
2020-21	1,93,36,69,043	37,42,25,189.2	5.17
2021-22	2,03,94,80,655	37,54,62,191.7	5.43
2022-23	2,07,30,06,253	37,80,05,525.2	5.48
2023-24	2,30,48,37,811	39,28,16,809.4	5.87
2024-25	2,49,63,37,459	41,57,40,606.2	6

SOURCE: Secondary Data

CHART 4.2.2 FIXED ASSET TURNOVER RATIO



INTERPRETATION:

- The Fixed Asset Turnover Ratio of Ponlait shows a consistent upward trend from 5.17 in 2020–21 to 6.00 in 2024–25.
- The gradual increase reflects improving efficiency in generating sales from the existing fixed asset base.
- Higher ratios in the later years (2023–24 and 2024–25) indicate stronger operational performance and better capacity utilization.
- Overall, the trend suggests effective management of fixed assets, leading to enhanced revenue productivity over time.

3. COMPUTATION OF EBIT:

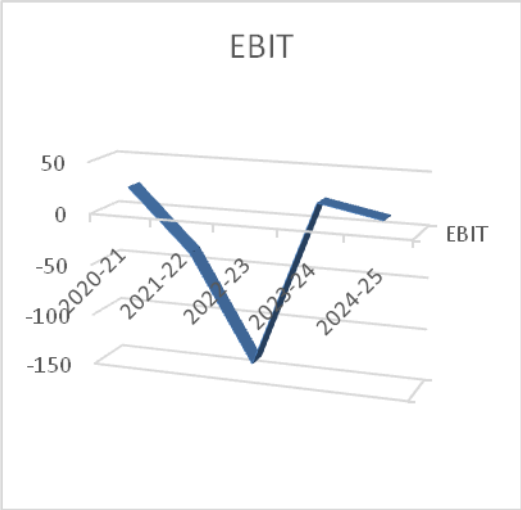
TABLE 4.2.3 STATEMENT SHOWING CALCULATION OF EARNINGS BEFORE INTEREST AND TAX

YEAR	NET PROFIT BEFORE TAX	INTEREST PAID	EBIT
2020-21	2,40,74,459.53	5,96,240.14	2,46,70,699.7
2021-22	-3,58,59,563.55	5,62,811	-3,52,96,753
2022-23	-13,97,88,375.5	13,73,723.47	-13,84,14,652

2023-24	2,12,31,223.9	14,40,506.38	2,26,71,730.3
2024-25	92,55,537.61	16,56,650	1,09,12,187.6

SOURCE: Secondary Data

CHART 4.2.2 EBIT GROWTH PATTERN



- EBIT was positive at ₹24.67 million in 2020–21, showing healthy operational performance.
- It turned negative in 2021–22 and reached the lowest point of ₹–138.41 million in 2022–23, indicating severe inefficiency.
- EBIT recovered to ₹22.67 million in 2023–24, showing significant operational improvement.
- It declined again to ₹10.91 million in 2024–25 but remained positive, reflecting partial but sustained recovery.

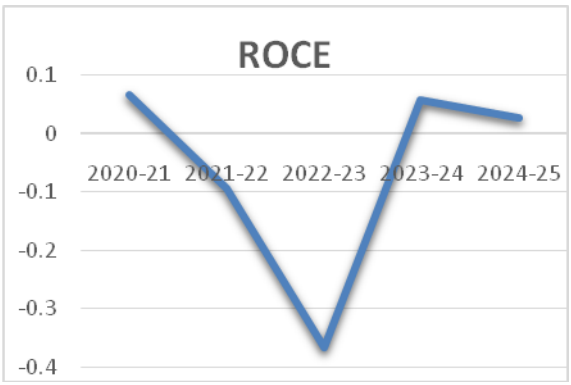
4. RETURN ON CAPITAL EMPLOYED:

TABLE 4.2.4 RETURN ON CAPITAL EMPLOYED

YEAR	EBIT	NET FIXED ASSET	ROCE
2020-21	2,46,70,699.67	3,742,25,189.2	0.06592474
2021-22	-3,52,96,752.55	37,54,62,191.7	-0.0940088
2022-23	-13,84,14,652.1	37,80,05,525.2	-0.366171
2023-24	2,26,71,730.28	39,28,16,809.4	0.05771578
2024-25	1,09,12,187.61	41,57,40,606.2	0.02624759

SOURCE: Secondary Data

CHART 4.2.4 RETURN ON CAPITAL EMPLOYED



INTERPRETATION:

- ROCE was positive at **6.59% in 2020–21**, indicating efficient capital utilization.
- It turned negative in **2021–22 (–9.40%)**, showing operational inefficiency.
- ROCE further declined to **–36.61% in 2022–23**, reflecting severe financial underperformance.
- The ratio recovered to **5.77% in 2023–24**, indicating improved profitability.
- ROCE slightly dipped to **2.62% in 2024–25**, showing weak but stable returns.
- Overall, ROCE shows **high volatility**, signaling inconsistent efficiency in generating returns from capital employed.

5. COEFFICIENT OF VARIATION:

TABLE 4.3 DATA FOR COEFFICIENT OF VARIATION OF FIXED ASSET UTILIZATION AND CAPITAL EFFICIENCY

YEAR	FATR	ROCE
2020-21	5.17	0.0659
2021-22	5.43	-0.094
2022-23	5.48	-0.366
2023-24	5.87	0.0577
2024-25	6.00	0.0262

SOURCE: Secondary Data

3 CALCULATION OF MEAN:

FOR FATR:

$$\text{MEAN} = \frac{5.17 + 5.43 + 5.48 + 5.87 + 6.00}{5}$$

= 5.59

FOR ROCE:

$$\text{MEAN} = \frac{0.0659 + (-0.0940) + (-0.3661) + 0.0577 + 0.0262}{5}$$

= -0.0621

To assess the relative variability of financial ratios, the Coefficient of Variation (CV) has been calculated for both FATR and ROCE. CV helps in understanding the degree of consistency in the data series by relating the standard deviation to the mean. The following table presents the mean, standard deviation, and CV values for the selected ratios.

TABLE 4.3.5 COEFFICIENT OF VARIATION

RATIO	MEAN	SD	CV(%)
FATR	5.59	0.304	5.45%
ROCE	-0.063	0.169	-268.5%

- The CV of **FATR (5.45%)** is very low, indicating that Ponlait's fixed asset utilization has been **highly stable and consistent** over the years.
- The CV of **ROCE (–268.5%)** is extremely high (and negative), showing **very high volatility** in returns.
- This suggests that although fixed assets were used efficiently, the **profitability generated from these assets fluctuated sharply**, even turning negative.
- Overall, Ponlait shows **strong asset utilization but highly unstable returns**, highlighting inconsistency in operational profitability.

4.4 CORRELATION ANALYSIS:

4.4 TABLE FOR CORRELATION ANALYSIS

VARIABLE	FATR(X)	ROCE(Y)
FATR(X)	1.00	0.22
ROCE(Y)	0.22	1.00

INTERPRETATION:

- The correlation between FATR and ROCE is **0.22**, indicating a **weak positive relationship**.
- This shows that improvements in asset utilization contribute only marginally to returns.
- While FATR remained stable, ROCE fluctuated widely, reducing the strength of the relationship.
- The result suggests that profitability depends on factors beyond fixed asset efficiency, such as operational costs and income stability.

V. FINDINGS

- **Fixed Asset Turnover Ratio (FATR)** showed a consistent upward movement from 5.17 to 6.00 during 2020–25, indicating steadily improving asset utilization efficiency.
- **Return on Capital Employed (ROCE)** displayed major fluctuations, shifting from positive values to significant negatives in mid-years, reflecting instability in the firm's profitability performance.
- **EBIT trends** revealed operational inconsistency, with losses in some years due to rising operating expenses and reduced income, followed by partial recovery in later periods.
- **Coefficient of Variation (CV)** showed that FATR remained highly stable across the years, whereas ROCE exhibited extreme variability, indicating unpredictable returns on employed capital.
- **Correlation analysis** recorded a coefficient of **0.22**, signifying only a *slight upward association* between FATR and ROCE, meaning improved asset efficiency did not translate proportionately into higher profitability.

VI. SUGGESTIONS

- Strengthen cost control through periodic cost audits and strict monitoring of procurement and production expenses.
- Optimize plant capacity utilization by minimizing idle time and improving preventive maintenance of equipment.
- Conduct product-wise profitability analysis to focus on high-margin dairy products already offered by PONLAIT.
- Link operational efficiency with profitability by regularly reviewing FATR and ROCE performance indicators.
- Adopt energy-efficient technologies to reduce recurring operational costs and improve sustainability.
- Enhance employee training and accountability to improve cost awareness and operational discipline.

VII. CONCLUSION

The five-year analysis (2020–21 to 2024–25) shows that PONLAIT maintains strong operational efficiency but inconsistent profitability. FATR increased steadily, indicating effective use of fixed assets, while ROCE and EBIT fluctuated significantly, reflecting unstable financial outcomes. The

Coefficient of Variation confirms stability in asset utilization but high variability in returns. The correlation coefficient of 0.22 shows only a mild association between FATR and ROCE, suggesting that efficiency gains did not convert into proportional profitability. Overall, PONLAIT manages its assets well but must strengthen cost control and profit-focused strategies to ensure sustainable growth.

REFERENCES

[1] **Banerjee, S., &Iyer, R. (2025).***Fixed asset productivity and ROCE in Indian dairy firms.* Journal of Dairy Economics and Management, 18(2), 45–59.

[2] **Chawla, A., & Srinivasan, V. (2025).***Financial modelling of FATR–ROCE linkages in processing industries.* International Journal of Financial Modelling and Analytics, 12(1), 33–48.

[3] **Das, P., & Menon, S. (2023).***Determinants of fixed asset utilization in agro-processing industries.* South Indian Journal of Agribusiness Studies, 9(3), 71–84.

[4] **Fernandes, L., & Louis, M. (2025).***Digital monitoring and fixed asset reliability in dairy and agro firms.* Global Journal of Agricultural Technology and Operations, 14(1), 22–39.

[5] **Hassan, T., & Farooq, M. (2024).***Asset-linked financial performance in Asian dairy cooperatives.* Asian Journal of Cooperative Management, 7(4), 58–74.

[6] **Kumar, R., & Bhatia, S. (2025).***Strategic asset deployment in food-processing industries.* International Review of Production and Asset Management, 11(1), 15–31.

[7] **Nair, P., & Joseph, A. (2023).***Asset performance analysis of cooperative dairy units in India.* Journal of Cooperative Agribusiness Research, 5(2), 40–52.

[8] **Reddy, M., & Kulkarni, R. (2024).***Capacity utilization and capital productivity in agro-based firms.* Journal of Agro-Economic Efficiency, 6(1), 27–43.

[9] **Reddy, S., & Thomas, J. (2024).***Capacity utilization and capital efficiency in agro-based firms.* Journal of Rural Production Systems, 8(2), 60–75.

[10] **Sharma, K., & Patel, D. (2023).***Fixed asset utilization and operational efficiency in medium-scale manufacturing firms.* Indian Journal of Industrial Finance, 13(1), 88–102.

[11] **Singh, V., & Mehta, R. (2024).***DEA-based assessment of asset efficiency in Indian dairy cooperatives.* Journal of Productivity & Performance Analytics, 10(3), 54–69.

[12] **Verma, L., & Natarajan, S. (2023).***Asset productivity and capital efficiency in cooperative institutions.* Cooperative Finance and Development Review, 4(3), 19–34.