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Article

Comparative Profitability Assessment of ECL And CCL Over Ten Years (2012-13 To 2021-22): Lessons for Strategic Management

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Abstract: ***Purpose***: Profitability is a key indicator of a firm's operational efficiency and long-term viability. Failure to do that not only results in loss of creditors' confidence but can be a reason for closure of the firm. This study presents a comparative analysis of the Profitability Strength of two key subsidiary companies of Coal India Limited (CIL) - Eastern Coalfields Limited (ECL) and Central Coalfields Limited (CCL) with respect to the industry (CIL) over a ten-year period from 2012-13 to 2021-22 using profitability ratios, a traditional but most frequently used powerful tool. Using eight selected profitability ratios, including gross profit (GP) ratio, net profit (NP) ratio, operating profit (OP) ratio, cash profit (CP) ratio, EBITDA ratio, employee's benefits to total expenses (EBTE) ratio, return on total assets ratio (ROTA), and return on capital employed (ROCE) ratio, the study evaluates the financial performance of ECL and CCL with benchmarking against the industry. The cross-sectional analysis between ECL and CCL indicates the relative operational efficiency, while benchmarking against CIL provides insights into their financial standing. Data has been collected mainly from company's annual reports, supplemented with managerial insights. Further, we have used some statistical measures namely Mean, Standard Deviation (S.D), Co-efficient of Variation (C.V.) etc. for proper analysis of the data. The findings indicate that in all most all the cases ECL consistently underperformed compared to CCL and the industry average, with extreme volatility and negative profitability in key years such as 2017-18, 2020-21 and 2021-22. Despite a land mark turnaround in 2014-15, it has failed to continue the rhythm specially after the year 2015-16 over our study period. The various factors impacting the profitability of ECL includes a high operating costs, excessive workforce, large actuarial provisions, production setbacks, and impact of COVID- 19 pandemic during our study period. CCL, on the other hand, demonstrated stronger financial resilience and operational consistency. The study discussed what happened to ECL aftermath of turnaround that caused again declining performance specially after 2015-16 and concludes with strategic recommendations to improve ECL's profitability through operational restructuring, cost rationalization, and better capital utilization. The scope of the study is confined to the issues especially related to the financial performance of the ECL, CCL and CIL in terms of profitability. However, this study would offer a foundational reference for future research in this domain.

Keywords— Profitability, Ratio Analysis, Operating Efficiency, Financial Volatility, Coal Industry.

INTRODUCTION

Profitability of a company refers to its ability to generate consistent surplus over its costs and a key indicator of long-term sustainability. It not only signifies financial health of a company but also serves as an indicator of operational efficiency and strategic effectiveness. In a capital intensive and regulated industries like coal mining, profitability even

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becomes more critical due to rising input costs, environmental compliance, and wage obligations. Thus, profitability of a company is extremely significant and essential for smooth running of the business.

In this study, we have mainly concentrated on a comparative study of Profitability Strength of Eastern Coalfields Limited (ECL) and Central Coalfields Limited (CCL), the two important subsidiaries of Coal India Limited (CIL) over a ten-year period (2012-13 to 2021-22). We have also used cross-sectional analysis and industry analysis using eight profitability indicators including both earnings and cost-related metrics. For this purpose, we have used financial data from annual reports and applied statistical tools such as mean, standard deviation, and coefficient of variation to evaluate performance volatility.
The objective of the study is to assess the relative operational and financial strengths of ECL and CCL and to identify the underlying causes behind their performance deviations. Particular attention is given to ECL's performance trajectory post its turnaround in 2014-15 and its subsequent decline after 2015-16. The study also offers certain recommendations for performance improvement, especially for ECL.

1. Profile of ECL and CCL

Formed on 1st November 1975, Central Coalfields Limited (CCL) and Eastern Coalfields Limited (ECL) are two important subsidiaries of Coal India Ltd (CIL), the country's first holding company for coal.
Eastern Coalfields Limited (ECL) was incorporated on 1st November 1975, by taking over 414 mines vested with Eastern Division of Coal Mines Authority Limited (CMAL) and the company commenced its commercial operation from that date. Corporate office of ECL is at Sanctoria, Asansol, WB. Its command area is 1620 sq km situated in two states, West Bengal and Jharkhand. As on 31.03.2022, ECL was having reserve of 55.147 BT, comprising of 33.856 BT in the command Areas of West Bengal and 21.291 BT in the state of Jharkhand. There are 13 numbers of operating Areas with 80 numbers of working mines, 48 being underground mines, 23 opencast mines and 9 mixed mines. ECL is one of the best quality coal producing companies in India. During 2021-22, its production was 32.428 million tone and net sales of Rs. 14,453.63 crore with 52,935 employees as on 31-03-22. It has been able to achieve 36.100 million tones raw coal off take, and 118.989 million CuM overburden removal. The company's net worth as on 31.03.22 stood at Rs. 1813.71 crore against a paid-up capital of Rs. 4,269.42 crore.

The coal reserve of ECL is very significant because of the following facts:

i) Raniganj Coalfield in West Bengal contains reserves of special type of non-coking coal called premium grade coal with average ash percentage of less than 20% which is most suited to Power Utilities to replace the import quantity.
ii) Coal of Barakar measures lies at Jharkhand which is very suitable for modern power houses & other small-scale industries and easily extractable by open cast mining because of shallow depth.

In contrast, the corporate office of CCL is at Darbhanga House, Ranchi, Jharkhand. As on 31.03.22 it had 52 operating mines (11 underground, 41 Opencast) in Six Operating Coalfields. Facilities include 5 coal preparation plants (washeries) - 4 coking coal and 1 non-coking coal. As on 31.03.2022, CCL had proven coal reserve of 25 BT in command areas up to 1200 meters. It is a Category-I Mini-Ratna Company since October 2007. During 2021-22, coal production of the company reached at 68.846 million tones, the highest ever since its inception. It has been able to achieve 71.81 million tones in raw material off take, and 100.066 million CuM overburden removal. The company's net worth as on 31.03.22 stood at Rs. 8,411.98 crore against a paid-up capital of Rs.940 crore. Existing manpower in CCL as on 31.03.22 was 35,861.

2. Literature Review

Only a few studies have been conducted in finance, and most of the works relate to technical areas of the coal industry. Thus, we have tried to present the essence of a few important and related research works in our Literature Review part:

Dey, A. K. (1993) in his study pointed out that ECL mostly suffered due to shortage of working capital, poor inventory management system, shortage of cash balances due to continuous loss from operating activities. Chakraborti, U. K. (1997) revealed that there is irregular trend of coal production and productivity of labour in ECL during the period 1973 to 1996, no matching between average costs of production and price of coal, underutilization of new technologies and huge operating loss for significant increase in money wage. Beynon, H.C. (1999) described how coal which once commonly defined as 'King Coal' in the post war period, is reduced far below regal status in British society since 1945 for passing of Clean Air Acts in 1956 and 1968 and further for privatizations. Dutta, R. (2000) found that growth of ECL as compared to WCL was affected due to decreasing trend in production and productivity for underutilization of assets, unfavorable technologies, very poor relationship between executives and workers, excess of operating costs over sales revenue etc. Pan, S.K. (2003) observed financial incentive scheme is the most powerful motivating tool. Study reveals whenever incentive

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schemes are introduced, ECL has a favorable effect on cost of production and performance. Mehta & Dasgupta (2003) in their study "Why Long wall in India has not succeeded as in other developing country like China" concluded that in India the basic factor is the difference in attitude and determination to go ahead with this globally accepted technology. Kumar, V. et al. (2003) in their article "Hydraulic Stowing of Pond Ash in Underground Mines of Manuguru, India" indicated that pond ash was a cost effective and a good substitute of sand for stowing into underground coal mines. Lahiri-Dutt, K. (2007) stated that the causes of illegal coal mining in Eastern India were buried under the layers of complexities of outdated colonial laws of land acquisition and state-ownership of coal resources, lack of safeguards and protection of poor people, and disregard for social impacts by mining engineers and technologists. Singh, G. (2008) has concluded that coal is the only natural resource and fossil fuel, which is available in abundance in India. Thus, the challenge is to apply the right technology in the most efficient and environmentally friendly way. Rai, S.K. (2010) investigated the cost structure of coal production in SECL's Gevra Area and achieved around 30 % cost reduction mainly by optimizing stores cost through systematic material budgeting particularly in opencast mines, which led to improved profitability. Tadeusz and Gregory (2010) forecasted a global coal production peak around 2011 using Hubbert cycle analysis and stressed the need to upgrade coal power plants for efficiency and warned of challenges in a resource- constrained world. They also recommended reforestation as a vital step to reduce atmospheric CO_2.

Recent research has explored various causes of operational and financial challenges in the mining sector. Jones et al. (2022) emphasized that strict environmental regulations have expressively increased operational costs for coal mining companies in the U.S., escalating financial strain during market downturns. Lee and Kim (2023) highlighted the role of strong corporate governance—such as board oversight, transparency, and accountability—in reducing operational risks and promoting long-term resilience. Furthermore, Smith et al. (2023) examined the social impact of coal mining on rural Australian communities, stressing the importance of community engagement, fair resource allocation, and sustainable development to reduce negative effects and social tensions.

3. Objectives of the Study

Following are the objectives of the study:

i) To conduct a comparative analysis of Profitability Strength of ECL and CCL - a competing firm with a similar operational profile and Coal India Limited (CIL), representing the industry benchmark over the period from 2012-13 to 2021-22.

ii) To identify the relative strengths and weaknesses in various aspects of Profitability among the selected companies to suggest for future improvement.

4. Hypothesis of The Study

The present study is of empirical type mainly based on the published data to examine the profitability strength of the selected companies and thus we have not formulated any hypothesis. However, we have interpreted the facts and data collected to reach the conclusion.

5. Research Methodology

We have mainly used secondary data collected from the Annual Reports, publications and the like of the selected companies for a period of ten years from 2012-13 to 2021-22. However, certain opinions are collected from officials for justification. Moreover, we have done editing, classification and tabulation of financial data as per the need of the study.

For analyzing the data two types of tools are used; i) Accounting tools and ii) Statistical Tools. Under accounting tools, we have mainly used ratio analysis, which is universally accepted tool for judging financial performance of a company and under statistical tools we have used Average, Standard Deviation and Co-efficient of Variation for analyzing the profitability strength of the company.

6. Limitation of the Study

i) The scope of the study is confined to the performance of the selected companies over the period, from 2012-13 to 2021-22.

ii) The data are primarily collected from published annual report and as per analytical requirements certain data are grouped or sub-grouped.

- Financial ratios serve as useful tools for analysis and interpretation; however, they are not substitutes for sound thinking. Thus, expertise and discretion of the financial analyst play a crucial role in drawing meaningful conclusions..

7. Analysis of Profitability Ratios of CCL and ECL

Under Profitability Ratios shown in **Table 1** we have considered gross profit (GP) ratio, net profit (NP) ratio, operating profit (OP) ratio, cash profit (CP) ratio, EBITDA ratio, employee's benefits to total expenses ratio (EBTE), return on total assets ratio (ROTA) and return on capital employed (ROCE) ratio which are considered more relevant here to make a comparative study of Profitability Strength of the selected companies during our study period. The analysis is carried out after presenting these ratios.

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Selected raw data supporting the calculation are provided in the Annexure section at the end of the paper

Table 1: Comparative Profitability Ratios of ECL, CCL and CIL during 2012-13 to 2021-22

Year	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Mean	SD	|CV|
1. Gross Profit (GP) Ratio = (Gross Profit / Net Sales) *100													
ECL	22.89	13.48	15.55	9.22	- 4.53	-17.44	7.96	9.02	-10.34	-14.23	3.16	13.79	436.56
CCL	31.24	29.13	28.59	32.85	25.79	12.91	24.72	25.37	18.36	17.32	24.63	6.49	26.36
CIL	28.89	26.92	24.01	23.75	18.05	10.49	26.20	24.34	21.96	22.57	22.72	5.22	22.97
2. Net Profit (NP) Ratio = (Profit Before Tax / Net Sales) *100													
ECL	20.64	14.62	17.79	11.69	0.16	-14.00	10.05	11.71	-8.85	-13.95	4.99	13.13	263.28
CCL	31.36	29.52	28.92	29.40	22.74	12.83	23.88	25.19	17.76	16.96	23.86	6.27	26.30
CIL	36.57	33.25	29.97	28.34	19.11	13.28	29.20	26.93	21.77	23.47	26.19	6.91	26.39
3. Operating Profit (OP) Ratio = (Operating Profit / Net Sales) * 100													
ECL	14.76	9.09	11.08	7.63	-3.24	-17.55	7.77	8.19	-10.72	-14.48	1.25	11.72	935.10
CCL	23.49	22.31	22.63	22.46	18.04	9.70	21.77	20.64	15.83	14.92	19.18	4.48	23.34
CIL	26.10	22.91	20.86	21.00	12.60	7.68	23.20	20.28	18.03	20.13	19.28	5.41	28.04
4. Cash Profit (CP) Ratio = (Cash Profit / Net Sales) * 100													
ECL	22.16	19.34	23.71	15.82	1.52	-7.16	17.48	18.08	-3.75	-10.18	9.70	13.08	134.82
CCL	36.87	37.45	33.55	34.80	31.70	18.72	30.85	31.26	26.42	28.10	30.97	5.56	17.94
CIL	45.27	42.61	41.98	36.96	29.57	21.30	38.49	37.54	29.26	31.79	35.48	7.40	20.86
5. EBITDA Ratio = EBITDA/ Net Sales) *100													
ECL	16.97	11.49	13.54	10.94	0.17	-13.31	11.60	11.57	-5.90	-9.34	4.77	10.87	227.68
CCL	26.23	25.28	25.93	25.54	21.62	12.95	24.82	24.85	20.98	20.16	22.84	4.11	18.01
CIL	30.2	28.1	25.8	26.3	18.8	14.2	29.8	27.7	25.2	26.8	25.29	5.02	19.87
6. Employee benefits Expenses to Total Expenditure (EBTE) Ratio = (Salary & Wages / Total Exp.) *100													
ECL	67.97	66.43	64.06	61.56	62.57	65.81	59.07	61.57	64.84	64.35	63.82	2.66	4.17
CCL	53.74	52.73	53.15	48.23	49.10	52.32	52.33	51.30	51.59	46.70	51.12	2.33	4.55
CIL	53.02	50.85	50.54	48.20	48.38	53.65	49.52	50.23	50.94	45.23	50.05	2.43	4.86
7. Return on Total Assets (ROTA) = (PBT / Total Assets) *100													
ECL	22.02	15.03	18.31	10.66	0.14	-11.48	9.77	9.40	-5.85	-9.76	5.82	11.86	203.58
CCL	26.82	23.02	22.10	22.19	17.01	9.20	17.13	17.74	9.86	10.11	17.52	6.17	35.22
CIL	22.65	21.95	19.53	19.00	12.26	8.58	20.39	16.01	11.13	13.10	16.46	4.94	29.99
8. Return on Capital Employed (ROCE) = (PBIT / Capital Employed) *100													
ECL	65.63	41.18	34.62	22.32	2.84	-22.79	23.34	21.98	-9.60	-19.70	15.98	28.25	176.76
CCL	44.94	37.71	33.35	35.51	34.97	20.40	30.19	26.94	15.31	15.36	29.47	9.88	33.52
CIL	29.83	28.74	26.29	26.79	20.13	14.52	31.51	24.27	16.77	19.67	23.85	5.79	24.27

Source: Computed from the data given in Annual Reports and Accounts of ECL, CCL & CIL

Analysis of the Profitability Strength based on Profitability Ratios:

i) Gross Profit Ratio (GPR): This ratio is calculated based on the following formula:

Gross Profit Ratio = (Gross Profit / Net Sales) * 100.
This ratio indicates the proportion of cost of production to sales. A high gross profit margin is a sign of efficient management implying that cost of production of the firm is relatively low. Alternatively, a low margin is a danger signal.

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Table 1 shows that Gross Profit ratio of the ECL is not satisfactory as compared to the industry average as well as CCL. When, on an average, industry maintains 22.72 % of sales as gross profit and CCL maintain 24.63 %, ECL has a ratio of 3.16 % of sales. It implies that cost of production of ECL is too high as compared to CCL and the industry. Further, we observe that GP ratio of ECL especially aftermath of turnaround has deteriorated drastically. Particularly, in the year 2017-18, 2020-21 and 2021-22 it has performed very poorly. Since its inception in 1975, ECL has faced a structural challenge for its excessive large underground work force, which is inherently linked to higher operational costs, particularly in the form of elevated employee benefit expenses, including post-employment liabilities, in comparison to other CIL subsidiaries that predominantly operate more cost-efficient opencast mines.

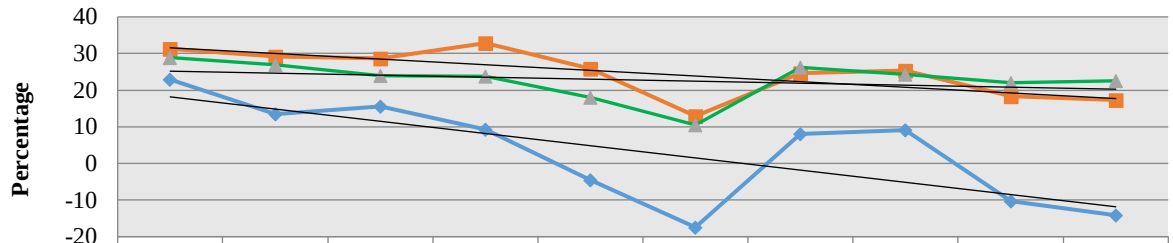
For ECL, a significant setback occurred in 2017-18 when it had to make a one-time actuarial provision of Rs. 1409.11 crore. This was due to the retrospective implementation of the 10th National Coal Wage Agreement (NCWA- X), which mandated revised provisions at higher rates for gratuity, leave encashment, post-retirement medical benefits, and pension facilities for non-executive employees. That was a non-recurring huge liability, which imposed a severe strain on the company's profitability for that fiscal year.

In 2020-21, ECL's financial performances was affected by the COVID – 19 pandemics, which disrupted production, logistics, and coal dispatches across the sector. This situation worsened in 2021-22, primarily due to sharp decline in production at the Rajmahal Project following a deadlock at the Taljhari mine. This disruption severely reduced overall coal production of ECL, which affected its ability to meet supply commitments to the power sector, especially to pit head power plants of NTPC. To mitigate the shortfall, the company was compelled to divert higher – grade coal from the Raniganj Coalfields to NTPC in place of the originally planned lower-grade coal, which otherwise could have commanded premium prices in the open market to alleviate the stressed financial position of the company. That had dual impact of operational disruption and constrained pricing flexibility. The analysis also reveals that while CCL demonstrated greater resilience and efficiency in managing the operational disruptions caused by the COVID-19 pandemic, ECL faced significant challenges in mounting an effective response.

Further, the higher value of C.V. of gross profit ratio (436.56 %) of ECL indicates that gross profit ratio of ECL has higher degree of volatility as compared to CCL (26.36%) and the industry (22.97%).

Figure 1 showing graphical view of this ratio reflects that CCL and the industry have a slightly downward trend. However, ECL has a very stepper downward trend in GP ratio after a great turnaround in 2014-15.

Fig 1: Graphical view of Gross Profit (GP) Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	22.89	13.48	15.55	9.22	-4.53	-17.44	7.96	9.02	-10.34	-14.23
CCL	31.24	29.13	28.59	32.85	25.79	12.91	24.72	25.37	18.36	17.32
CIL	28.89	26.92	24.01	23.75	18.05	10.49	26.2	24.34	21.96	22.57

ii) Net Profit Ratio (NPR): This ratio is calculated based on the following formula:

Net Profit Ratio = (Profit before Tax / Net Sales) * 100.

The net profit margin, usually, reflects the management's ability to generate surplus after covering all expenses, taxes, and interest. However, in this study we have considered Profit before Tax (PBT) instead of PAT to better assess the operating efficiency of the company. This is particularly relevant for a company like ECL which at times does not pay tax due to negative profits. Moreover, using PBT also aligns with industry practices followed by CIL.

Table 1 exhibits similar to the gross profit ratio, Net Profit ratio of ECL is also unsatisfactory. While CCL maintains 23.86 % and industry average is 26.19 %, ECL records only 4.99 %, indicating significantly higher expenses of ECL as compared to the industry average and even CCL. Notably, ECL recorded negative net profits in 2017-18, 2020-21 and 2021-22. However, the primary reason for those poor outcomes of ECL is mainly due to higher operating costs for more underground mines including higher employee benefits cost due to larger workforce compared to peers and for not being able to meet covid 19 challenges appropriately in 2020-21, 2021-22. Other reasons like huge actuarial provisions in 2017- 18, less production from Rajmahal project in 2021-22 etc. are already mentioned

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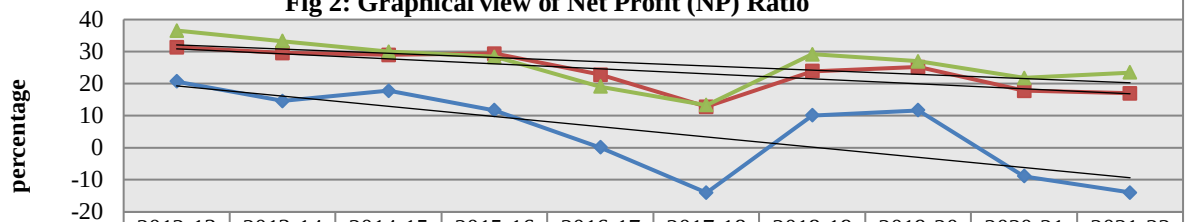
earlier.

Further, the higher value of Coefficient of variation (263.28 %) in net profit ratio of ECL suggests that net profit ratio of ECL has more volatility as compared to the more stable performance of CCL (26.30%) and the industry (26.39%). Interestingly, the comparison between Gross Profit Ratio and Net Profit Ratio indicates that major portion of production cost of the coal industry in general is direct in nature.

Figure 2 showing graphical view of the net profit ratio exhibits that ECL has extremely downward trend as compared to CCL and the industry.

Fig 2: Graphical view of Net Profit (NP) Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	20.64	14.62	17.79	11.69	0.16	-14	10.05	11.71	-8.85	-13.95
CCL	31.36	29.52	28.92	29.4	22.74	12.83	23.88	25.19	17.76	16.96
CIL	36.57	33.25	29.97	28.34	19.11	13.28	29.2	26.93	21.77	23.47

iii) Operating Profit Ratio (OPR): This ratio is calculated based on the following formula:

Operating Profit Ratio = (Operating Profit / Net Sales) * 100

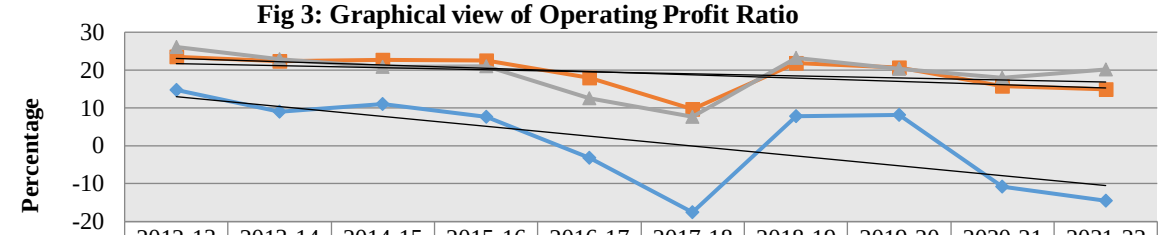
The Operating Profit Ratio is a vital measure of a company's core efficiency. This reflects the percentage of profit a company produces from its core operations before interest and taxes, serving as a key indicator of operational efficiency and long term viability for survival and growth of a company.

As shown in Table 1, ECL's performance in this regard is notably poor (1.25 %) compared to CCL (19.18%) and the industry average (19.28%). ECL has consistently reported either low operating profits or operating losses, primarily due to higher employee benefit costs and a greater reliance on underground mining operations. While ECL reported negative operating ratios in 2016-17, 2017-18, 2020-21 and 2021-22, CCL and the industry maintained positive ratios throughout the study period. Notably, all companies reported lower operating profits in the recent years of our study period. This was, in general, the impact of COVID-19 Pandemic, which disrupted production, dispatches and demand of coal and further increased huge safety and maintenance costs of the company. However, other specific reasons have already been mentioned earlier.

Further, ECL's extremely high volatility (C.V. 935.10 %) in this ratio highlights severe instability, while CCL (23.34%) and broader industry (28.04%) maintained relatively consistent profitability.

Figure 3 showing graphical view of the operating profit ratio exhibits that this ratio for ECL has deteriorated significantly during our study period compared to CCL and CIL.

Fig 3: Graphical view of Operating Profit Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	14.76	9.09	11.08	7.63	-3.24	-17.55	7.77	8.19	-10.72	-14.48
CCL	23.49	22.31	22.63	22.46	18.04	9.7	21.77	20.64	15.83	14.92
CIL	26.1	22.91	20.86	21	12.6	7.68	23.2	20.28	18.03	20.13

iv) Cash Profit Ratio (CPR): This ratio is calculated based on the following formula:

Cash Profit Ratio = (Cash Profit / Net Sales) * 100.

This ratio is more reliable indicator of performance in terms of cash generation as it is not affected by the method of depreciation and amortization. It is very essential for a company to earn cash profit from operations for smooth running of its day-to-day operating activities and for its survival.

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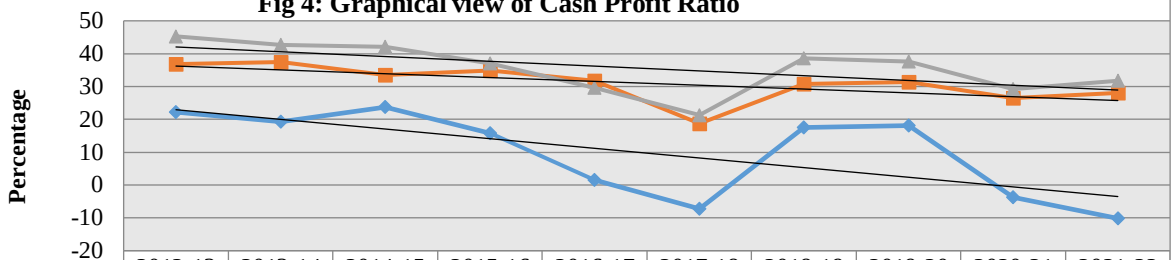
Table 1 clearly reveals that Cash Profit ratio of ECL is significantly lower than both the industry average and that of CCL and thus it is very unsatisfactory. While industry maintains an average of 35.48 % of net sales as cash profit and CCL records 30.97 % of sales as cash profit, ECL lags with an average of only 9.70 % during the study period. Although, ECL showed improvement in this ratio up to 2014-15 and even in 2015-16, it failed to sustain the rhythm and even reported cash losses in 2017-18, 2020-21 and 2021-22. The main reasons have already been mentioned earlier under the interpretation of the Gross Profit ratio. However, actuarial provisions have no impact on cash profit.

Furthermore, the higher coefficient of variation (134.82 %) in ECL's cash profit ratio indicates greater volatility, unlike the more stable ratios as observed in CCL (17.94 %) and the industry (20.86%).

Figure 4, showing the graphical trend of cash profit ratio, clearly exhibits a noticeable downward trajectory for ECL in comparison to both CCL and CIL.

Fig 4: Graphical view of Cash Profit Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	22.16	19.34	23.71	15.82	1.52	-7.16	17.48	18.08	-3.75	-10.18
CCL	36.87	37.45	33.55	34.8	31.7	18.72	30.85	31.26	26.42	28.1
CIL	45.27	42.61	41.98	36.96	29.57	21.3	38.49	37.54	29.26	31.79

EBITDA Ratio: This ratio is calculated based on the following formula**:**
EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization) Ratio
= (EBITDA / Net Sales) * 100.
This ratio measures the company's operating performance. It focuses on earnings derived from core operations which is free from the impact of financing expenses such as interest paid and received on long-term and short-term loan, unwinding of discounts on long-term provisions and non-cash accounting expenses like depreciation and amortization in line with Ind AS 116. It indicates how efficiently a company is generating earnings from its operations. A higher ratio indicates better operational efficiency and profitability before accounting for financial and non-operational factors and vice-versa.

Table 1 clearly reveals that ECL's performance is very unsatisfactory as it has again reported a significantly poor average of EBITDA ratio (4.77%) indicating a very weak operational performance compared to CCL (22.84%) and the industry (25.29%). The highest ratio of the industry (CIL) represents the robust operational efficiency and consistent profit generation from its core operations, whereas CCL represents a commendable picture though lagging the industry. This huge gap of ECL indicates high input costs, lower productivity due to more U/G mines or operational inefficiencies, negative impact due to less production from Rajmahal Project etc. in details have already been mentioned earlier.

Furthermore, the ECL's extremely high coefficient of variation (227.68%) confirms its highly inconsistent performance indicating poor control over cost structure. In contrast much lower C.V. values of CCL (18.01%) and the industry (19.87%) demonstrated much stable consistency in EBITDA ratios. This again indicates ECL's performance is erratic and potentially concerning from the investors point of view.

Figure 5, showing the graphical trend of EBITDA ratio, clearly exhibits a noticeable downward trajectory for ECL in comparison to both CCL and CIL.

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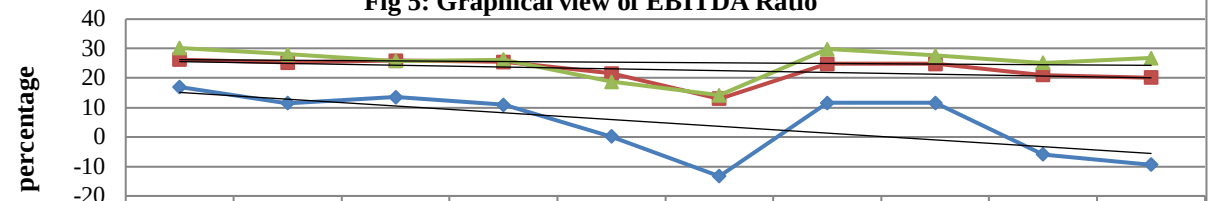
Fig 5: Graphical view of EBITDA Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	16.97	11.49	13.54	10.94	0.17	-13.31	11.6	11.57	-5.9	-9.34
CCL	26.23	25.28	25.93	25.54	21.62	12.95	24.82	24.85	20.98	20.16
CIL	30.2	28.1	25.8	26.3	18.8	14.2	29.8	27.7	25.2	26.8

vi) **Employees benefits expenses to Total Expenses (EBTE) Ratio:** This ratio is calculated below:

Employees benefits expenses to Total Expenses Ratio =

(Total employees' benefits expenses for the period / Total Expenses) * 100.

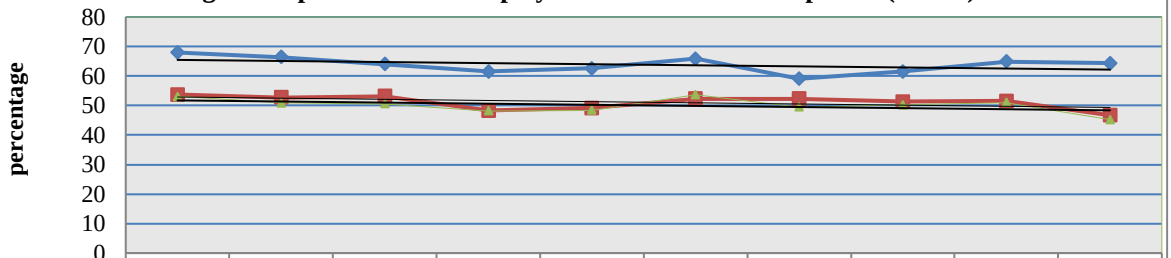
This ratio indicates the portion of total expenses which is represented by salary and wages and other benefits. A high ratio which is above the standard or industry average is a cause of concern for a company.

Table 1 exhibits that ECL's performance is very unsatisfactory with respect to this ratio. Total employees' benefits expenses ratio of ECL (63.82%) is much higher than the industry average (50.05%) as well as CCL (51.12%). However, this ratio has always been unsatisfactory for ECL since its formation in November 1975, compared to other subsidiaries of CIL because of its higher underground workforce and hence the higher operating costs. The position of CCL is much better than ECL, but poorer to the industry average. On an average, ECL is spending at around 13 % higher than the CCL and around 14 % more than the industry average. However, in general though number of employees has reduced over the years for all the coal companies, ratio of employees' benefits expenses to total expenses has not reduced to that extent owing to enhancement and revision in pay structure as per different wage negotiations (i.e. National Coal Wage Agreements) for the industry.

Further, ECL's Coefficient of variation (4.17 %) in this ratio indicates that the proportion of employees benefits cost to total expenses for ECL is more consistent compared to CCL (4.55 %) and the industry (4.86%). This is a cause of concern and one of the main reasons for poorer profitability ratio of ECL irrespective of declining workforce year by year.

Figure 6 exhibits that though the ratio for ECL has a declining trend; it is always higher than the CCL and the industry average. When this ratio for ECL has varied between 67.97 % and 59.07 % over our study period, it has varied between 53.73 % and 46.7% for CCL and between 53.02% to 45.23% for the industry.

Fig 6: Graphical view of Employee Benefits to Total Expenses (EBTE) Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	67.97	66.43	64.06	61.56	62.57	65.81	59.07	61.57	64.84	64.35
CCL	53.74	52.73	53.15	48.23	49.1	52.32	52.33	51.3	51.59	46.7
CIL	53.02	50.85	50.54	48.2	48.38	53.65	49.52	50.23	50.94	45.23

Return on Total Assets (ROTA): It is calculated based on the following formula:

Return on Total Assets = (Profit before Tax / Total Assets) * 100.

This ratio is used as a comprehensive indicator of how efficiently a company can generate profit before tax from its entire asset base- both current and fixed assets. Thus, it shows an interaction between profitability and assets' utilization. Here, this formula is aligned to the industry (CIL). A higher ratio implies superior efficiency in converting investment in total assets into earnings.

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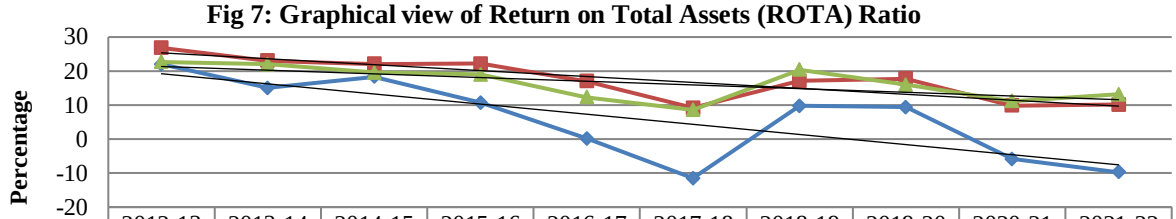
This ratio is used here as a measure of overall profitability and operational efficiency of the companies. It shows an interaction between profitability and activity (assets' utilization) ratio.

Table 1 shows that though ECL has improved this ratio at the earlier years of our study period it has maintained very poor performances in the recent years particularly in the years 2016-17, 2017-18, 2020-21 and 2021-22. While CCL maintained the highest average value (17.52%) and the industry has maintained higher value (16.46%), indicating efficient use of total assets and strong productivity of assets, ECL has maintained a poor average (only 5.82 %) and further failed to catch the rhythm and even incurred losses in 2017-18, 2020-21 and 2021-22. The reasons have already been mentioned earlier. Therefore, the overall profitability ratio (ROTA) of ECL at the present situation is not at all satisfactory. However, at the present situation even CCL is performing poorer than the industry.

Further, higher C.V. (203.58 %) in this ratio indicates that ECL has the severe inconsistency indicating underutilization or inefficiency of its assets with other reasons mentioned earlier, particularly after 2015-16 compared to the industry (approx. 30%) and CCL (35.22 %). Significantly, lower, and erratic ROTA of ECL implies that there are structural inefficiencies such as idle assets, high operating costs, and insufficient revenue generation relative to its asset holdings. Empirical analysis indicates that investments in assets have contributed significantly to the profitability of both CCL and ECL.

Figure 7 showing graphical view of the 'return on total assets' ratio reflects that though this ratio for all the companies have declined over the study period, it has declined very sharply for ECL as compared to CCL and the industry.

Fig 7: Graphical view of Return on Total Assets (ROTA) Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	22.02	15.03	18.31	10.66	0.14	-11.48	9.77	9.4	-5.85	-9.76
CCL	26.82	23.02	22.1	22.19	17.01	9.2	17.13	17.74	9.86	10.11
CIL	22.65	21.95	19.53	19	12.26	8.58	20.39	16.01	11.13	13.1

v) Return on Capital Employed Ratio (ROCE): This ratio is calculated based on the following formula:

ROCE Ratio = (Profit before interest and tax / Capital employed) * 100.
This ratio is more useful to evaluate how efficiently the long term funds (both debt and equity) is used to generate pre-tax operating profits from the capital deployed in the business. It is very important, particularly for a mining sector where capital employed is high due to mining infrastructure. Unlike ROTA, which considers total assets, ROCE considers only long-term funds of the company excluding short-term liabilities. It provides a clearer measure of core operational efficiency of a firm in utilizing invested capital. It further implies that the performance of a firm can be improved either by generating more sales volume per rupee of investment or by increasing the profit margin per rupee of sales.

Table 1 clearly reveals that this ratio of ECL at the present situation is very unsatisfactory. ECL once again significantly underperformed compared to CCL and the industry. This also highlights CCL as the most efficient company in terms of capital utilization to generate pre-tax operating profits. We observe, on an average, when CCL maintains the highest value of ROCE (29.47%) and the industry maintains second best average value (23.85%) indicating superior capital utilization and profitability, ECL has maintained very poor average value which is only 15.98 %, suggesting serious challenges in capital efficiency and operational profitability. The negative ROCE values in 2017-18, 2020-21 and 2021-22 for ECL further pull down the average value which reflets unsuitable capital utilization in those years though the company performed much better than CCL and the industry (CIL) up to 2014-15. However, at the present situation even CCL is performing poorer than the industry. Empirical analysis indicates that long-term capital investments have contributed significantly to the profitability of both CCL and ECL.

Furthermore, the ECL's extremely high coefficient of variation (176.76 %) confirms its extreme fluctuations and inconsistency in its returns, which raises concerns about its reliability as a capital- efficient enterprise, unlike very less volatility in this ratio for CCL (33.52%) and the lowest volatility in case of the industry (24.27%).

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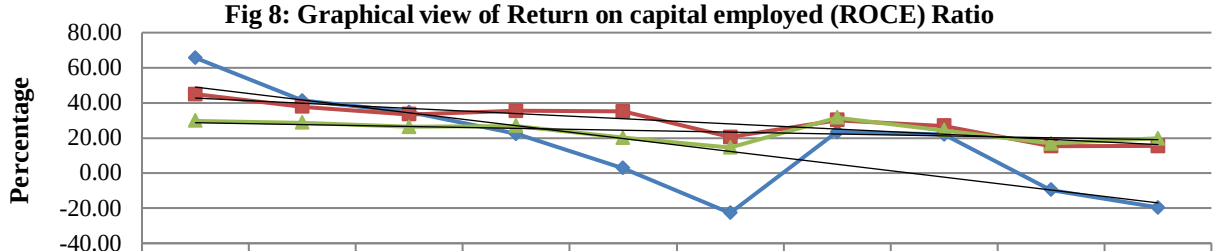
Figure 8, showing the graphical trend of ROCE ratio, clearly exhibits a noticeable downward trajectory for ECL though it maintained higher ratio up to 2014-15 compared to both CCL and CIL.

Fig 8: Graphical view of Return on capital employed (ROCE) Ratio



	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
ECL	65.63	41.18	34.62	22.32	2.84	-22.79	23.34	21.98	-9.60	-19.70
CCL	44.94	37.71	33.35	35.51	34.97	20.4	30.19	26.94	15.31	15.36
CIL	29.83	28.74	26.29	26.79	20.13	14.52	31.51	24.27	16.77	19.67

9. Findings of the Study:

The study reveals that ECL's profitability has been consistently poor and very unsatisfactory and further highly volatile across all key financial ratios whereas overall profitability strength of CCL is very satisfactory. However, our detailed findings based on the above analysis are presented below:

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1) Eastern Coalfields Limited's (ECL) profitability performance during the study period 2012-13 to 2021-22, is very weak and highly volatile. Across all profitability ratios (GPR, NPR, OPR, CPR, EBTER, EBITDA, ROTA and ROCE), ECL has underperformed compared to CCL and the industry (CIL) average. Major causes include higher operating cost structure, dominance of underground mining, and excessive employee benefit expenses.
2) Actuarial provisions in 2017-18 have severely impacted ECL's profitability. A one-time provision of Rs. 1409.11 crore for wage revision due to the retrospective impact of 10th National Coal Wage Agreement (NCWA- X) has led to a major loss in financial year 2017-18.
3) The COVID- 19 pandemic has impacted operations of ECL severely in 2020-21 and 2021-22. ECL has failed to manage disruptions effectively compared to CCL and the industry. The study reveals that CCL demonstrated greater resilience and efficiency in managing the operational disruptions.
4) The sharp decline in production at the Rajmahal Project following a deadlock at the Taljhari mine under this project in 2021-22 and forced diversion of premium-grade coal from Raniganj Coalfields to NTPC in place of originally planned lower-grade coal to meet supply commitment to NTPC further stressed ECL's finances.
5) Poor Cash profit ratio (9.70%) and EBITDA ratio (4.77%) of ECL indicate weak operational health of the company. These ratios are far below the CCL and the industry average over the study period. ECL also reported cash losses and operating losses in 2017-18, 2020-21 and 2021-22.
6) Structural issue and high employee benefit expenses of ECL due to more underground mines is a cause of concern since its inception in November 1975. ECL's employee benefits expenses to total expenses ratio (63.82%) is much higher than CCL (51.12%) and the industry (50.05%), highlighting a structural cost disadvantage and its adverse impact on profit.
7) ECL's low asset and capital efficiency particularly after 2015-16, over the study period has significantly affected the profitability of the company. ROTA (5.82%) and ROCE (15.98%) of ECL are far below the CCL and the industry benchmarks, which indicates under - utilization of assets, operational inefficiencies, and weaker returns on capital deployed for ECL.
8) Extremely high Coefficient of Variation in almost all profitability ratios for ECL suggests instability, erratic financial outcomes, and poor cost control in comparison with CCL and the industry. Higher values of C.V. in Operating Profit Ratio (935.10%) and in EBITDA ratio (227.68%) are the important examples.
9) We have also observed that all the companies, including ECL, posted profits in the last two financial years- 2022-23 and 2023-24, indicating a notable improvement in ECL's overall performance.

10. Suggestions

Based on the empirical findings, it is recommended that Eastern Coalfields Limited (ECL) and Central Coalfields Limited (CCL) undertake well-structured strategic reforms to improve their profitability and long-term sustainability. With a widening demand-supply gap of the coal in the country, the opportunities exist for both companies to augment profits further by leveraging their high production potential and skilled manpower.

CCL, being a financially strong Mini-Ratna Category-I company, should focus on expanding its clean coal

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production by setting up more washeries and even acquire new mines abroad to enhance profits. In contrast, ECL, which faces structural cost challenges, should expand open cast mining, particularly in the Raniganj Coalfields, which hold premium grade low ash coal that can command premium prices and can be blended with high ash coal from other subsidiaries to meet environmental blending requirements as per the Ministry of Environment, Forest, and Climate Change (MoEFCC), GOI, stipulations. Further, shallow-depth coal reserves in Jharkhand also offer scope for efficient extraction by open cast mining. Presently, it is very urgent for ECL to optimize utilization of assets and invested capital to improve return.

Further, both the companies should simultaneously invest in modern technology, mechanization, and workforce rationalization to reduce operational inefficiencies. They should also improve crisis preparedness and build robust contingency plan to respond better to disruptions like pandemics or local conflicts. These strategic actions will help address cost pressure, improve capital productivity, and position the companies to meet rising energy demands while maintaining financial resilience.

CONCLUSION

This study provides a comprehensive comparative analysis of profitability of Eastern Coalfields Limited (ECL) and Central Coalfields Limited (CCL) over the period 2012–13 to 2021–22, using eight key profitability ratios benchmarked against the industry average represented by Coal India Limited (CIL).

The findings reveal that ECL has consistently underperformed across all key financial ratios, especially in the post turnaround period but after 2015-16 compared to CCL and the industry (CIL) average. Its profitability remained weak and extremely volatile, mainly due to a structural cost disadvantage arising from a disproportionately large underground workforce and persistently high employee benefit expenses. Despite achieving a remarkable turnaround in 2014-15, ECL failed to sustain its performance due to persistent structural challenges, including high-cost underground workforce, excessive employee benefit liabilities, and inadequate capacity to withstand external disruptions such as the COVID- 19 pandemic. Notably, ECL reported negative or poor profitability in the fiscals 2017–18, 2020–21, and 2021–22 due to a combination of high actuarial provisions due to the retrospective impact of 10th National Coal Wage Agreement (NCWA- X) in 2017-18, operational disruptions due to COVID- 19 pandemic mainly in 2020-21, and sub-optimal production levels, especially from the Rajmahal Project in 2021-22. The analysis underscores that ECL's challenges are both structural and strategic, and require deep-rooted reforms to restore financial stability and long-term sustainability. Interestingly, the good news is that ECL with the other companies posted healthy profits in 2022-23 and 2023-24, though beyond our study period.

In contrast, CCL demonstrated greater resilience and operational adaptability during the COVID- 19 pandemic and further it has always maintained better operational consistency and profitability over the study period.

The study concludes that profitability in the coal sector is strongly influenced by cost structures, operational efficiency, capital utilization, and crisis management capabilities. With rising energy demands and evolving environmental regulations, coal companies must adopt strategic reforms, continuous technological upgrades, and disciplined financial planning to remain competitive and sustainable. The insights from this study may serve as a reference point for policymakers, company management, and future researchers seeking to enhance performance of the coal sector in India

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Annexure I. Comparative Profit figures of the selected companies for the last two years

COMPANIES	F.Y- 2022-23		F.Y- 2023-24	
	PBT	PAT	PBT	PAT
Eastern Coalfields Limited (ECL)	1280.42	892.80	213.49	251.59
Central Coalfields Limited (CCL)	4601.04	3393.30	4726.42	3658.53
Central Coalfields Limited (CIL)	43274.60	31722.98	48812.61	37369.13

Annexure II: Formula Used for Computation of different forms of Profits and others

1. Gross Profit = PBT+ CSR Exp + Prov & W/O loss + Financial Exp Paid - Interest Received
2. Cash profit = PBT+ Dep & Amortization + OBR Adj + Prov & W/O loss

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3. Operating Profit = PBT + Non-operating Exp - Non-operating Income
4. PBIT (EBIT) = PBT + Interest Paid
5. EBITDA = Operating Profit + Depreciation & Amortization
6. Capital Employed = Total realizable assets - Current Liabilities

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