The Seybold Report

ISSN 1533-9211

DOI 10.5281/zenodo.8241275

INVESTIGATION OF FINANCIAL PERFORMANCE PARAMETER OF INVENTORY TURNOVER RATIO, DAY SALES INVENTORY AND WORKING CAPITAL RATIO IN STEEL INDUSTRIES

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Abstract

This abstract provides a brief overview of three important financial ratios used in inventory management: the inventory turnover ratio, day sales of inventory, and inventory to working capital ratio. These ratios help organizations evaluate the efficiency and effectiveness of their inventory management practices, thereby enabling better decision-making and optimizing financial performance. The inventory turnover ratio measures the number of times a company sells and replaces its inventory within a specific period. It is calculated by dividing the cost of goods sold by the average inventory value. A high inventory turnover ratio indicates efficient inventory management, while a low ratio may imply excess inventory or slow sales. This ratio is useful for identifying potential inventory-related issues and optimizing purchasing and production strategies. Day sales of inventory is a metric that indicates the average number of days it takes for a company to convert its inventory into sales. It is computed by dividing the average inventory by the daily cost of goods sold. A lower number of days implies faster inventory turnover and more effective inventory management. Tracking day sales of inventory helps companies identify trends, assess operational efficiency, and manage inventory levels to meet customer demand. The inventory to working capital ratio is a measure of the proportion of a company's working capital that is tied up in inventory. It is calculated by dividing the average inventory by the working capital. A higher ratio may suggest that a significant portion of working capital is allocated to inventory, potentially affecting liquidity and financial stability. Monitoring this ratio helps companies balance inventory investment with available working capital, ensuring optimal financial health. These paper focus on the three ratios provide valuable insights into inventory management. The inventory turnover ratio gauges the efficiency of inventory utilization, day sales of inventory measures the speed of inventory turnover, and the inventory to working capital ratio assesses the proportion of working capital allocated to inventory. By monitoring and analysing these ratios, businesses can make informed decisions to enhance inventory management, improve cash flow, and optimize overall financial performance.

Keywords: Inventory Management, Ratio Analysis, Inventory Turnover Ratio

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ISSN 1533-9211
DOI 10.5281/zenodo.8241275

INTRODUCTION

Inventory can be defined as the process to maintain the stock to avoid interruption between any two operations. It is also found as assets that are projected for sale, or are being in the process of production for sale, or are in producing goods. Inventory is mainly kept due to two reasons - to improve the sourcing cost (where necessity can be predicted) and to restrict the risk of stock out (where requirement cannot be predicted). The lower inventory may lead to interruption in production or unsatisfied customers whereas more the inventory, the more the space requirement, and/or requirement the more the capital blockage. The inventory management is a common issue to all administrations of the budget as the capital of shareholders also lies in the warehouse. Almost 60% of investment is generally being occupied in the inventory. Management of Inventory is primarily concerned with obtaining correct balance between two extremes of under stocking and over stocking so that they are carried on so that they are available at the right quantity, at the right point of time. In perception, management of inventory has a wide scope, its affects a great or number of events in an association. Therefore, management of inventory is very important for every organization.

REVIEW OF LITRATURE

It has seen that stock are essentially load of assets held with the end goal of future creation or deals. Inventories might be viewed as an inactive asset which has a financial worth. Better administration of inventories would help in the arrival of capital for use somewhere else, beneficially by [1]. Sudhindra Bhat [2] in his book 'Monetary Management' clarifies stock administration as a significant area of working capital administration, which assumes an essential part in financial activity of the firm. Support of huge size inventories by a firm expected a lot of assets to be contributed on them. Stock administration must be proficient and compelling to keep away from superfluous speculation and lacking venture. Udhaya Kumar [3] clarifies that by overseeing stock it becomes more straightforward for the association to meet the benefit objectives, assist with shortening the money cycle, keep away from stock lack and stay away from unnecessary conveying costs for unused stock. As indicated by his review, organizations need to get shrewd with regards to stock. Helping monetary execution is an additional advantage that will in general come from better stock administration rehearses.An insightful review was led on “Inventory Management in Commercial Vehicle Industry In India” [4], in his review, presumed that every one of the units in the business have huge connection among Inventory and Sales. Appropriate administration of stock is vital to keep up with and work on the wellbeing of an association. Effective administration of inventories will work on the productivity of the association. Tao Zang and Qipeng P. Zeng [5], optimizing multilevel inventory matching and order planning for steel plant and Non-Linear optimization and swarm optimization. This paper proposes a nonlinear integer programming model which co-optimizes the multi-degree inventory matching and order making plans for metal flora while combining Make-To- Order and Make-To-Stock rules. Stephen M. Malone and Mark J. Weissburg [6], use ecological metrics to observe the change in structure and flows of substances in the Chinese steel enterprise over time by means of a systems-primarily based mass waft analysis. Utilizing to be had records, the consequences of our analysis suggest that the Chinese metal production

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DOI 10.5281/zenodo.8241275

enterprise has elevated its efficiency and sustainable use of resources over time on the unit process level? Used biological system and structure-based statics. Wenqiang Sun and Quing Wang [7], although a whole lot technical work has been achieved to research and optimize material and energy flows, there may be a loss of evaluate of material and strength flows of the iron and steel enterprise. To fill this gap, this painting first affords a top-level view of various metal production routes. Next, the modelling, scheduling and interrelation concerning cloth and energy flows within the iron and steel enterprise are offered through very well reviewing the present literature. In this study used the dynamic assessment, utilization, recovery, scheduling, and optimization and generic algorithms. Silvia Casoda and Manuel Laguna [8], in this observe the production of metal coils within the context of attempting to find businesses of merchandise with similar characteristics as a way to create production batches that limit the value of satisfying manufacturing orders originated through a known formulate the trouble as combined-integer application and broaden a heuristic solution procedure. Farhad Mehmanfazir and Kaveh Khalili [9], this paper gives a technique to discover the metal deliver and call for functions and also to forecast the deliver and call for trends. In step one, through reviewing the historic information at the metal deliver and demand in Iran, the powerful and most crucial variables can be identified. In this paper Identify the steel supply and demand functions. And also, to forecast the supply and demand trends. Boguslaw Bieda [10], the purpose of the paper is to present the results of utility of stochastic technique based on Monte Carlo (MC) simulation for existence cycle stock (LCI) facts of Mittal Steel Poland (MSP) complicated in Kraków, Poland. The results of this observe may be used as the first step in appearing a full LCA evaluation in the metal enterprise. Further, it is concluded that the stochastic method is a effective method for quantifying parameter uncertainty in LCA/ LCI studies and it may be applied to any metal enterprise. Alex L. Riley and John M. MacDonald [11], this paper integrates a variety of spatial statistics to compile a database of iron and metallic slag deposits in mainland United Kingdom (UK) for the primary time and examine the associated useful resource capacity. Over a hundred ninety million tonnes of legacy iron and steel slag are gift throughout modern-day and former Iron and metal operating areas of the UK, with specific concentrations within the north west and north east of England, and crucial Scotland. Qingxin Guo and Laxin Tang [12], his paper investigates a practical order rescheduling trouble to conform numerous modifications that have an effect on the regular production. The problem is formulated as a blended integer programming mathematical model thinking about the authentic objective, the deviation from the preliminary scheduling and the equilibrium of manufacturing capability. Tian Liang and Shanshan wang [13], his ends in high power intake and greenhouse gasoline emissions in China's iron and steel industry. In this examine, the existence cycle evaluation of environmental effect in an iron and metal plant was evaluated by means of the use of software program. Eight evaluation categories have been evaluated to determine direct/indirect contribution, and the results of impact classes have been in addition normalized for assessment amongst different unit strategies. The outcomes indicated that the BF alone contributed greatly to diverse environmental effect categories, or seventy-three% Abiotic Depletion Potential (ADP), fifty-four% Eutrophication Potential (EP), and sixty-nine% Global Warming Potential (GWP). Mohammad P. and Mohammad M. Paydar [14], a multi-objective linear mathematical model under uncertainty is developed to optimize a steel sustainable

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closed-loop deliver chain. The existed uncertainty is modeled through a situation-based technique within the stochastic environment, and the proposed multi-goal model is advanced following a fuzzy purpose programming approach. An actual case takes a look at is explored in one of the active steel supply chains in Iran to validate the model.

State of Art

Sr. no	Author Name	Publication Year	Finding	Methodology	Types of industries	Optimization Technique adopted
1.	Prem Kumar And Asit K. Gosh [1]	1991				
2.	Sudhindra Bhat [2]	2008 (Book)	Stock administration		Steel Industries	
3.	Udaya Kumar T S [3]	2008-2010 (Book)				
4.	Srinivas Rao Kasisomayajula	2014				
5.	Tao Zang and Qipeng P. Zeng [5]	2015	Optimizing multilevel inventory matching and order planning for steel plant.	Encoding scheme	Steel plant	Non-Linear optimization and swarm optimization
6.	Stephen M. Malone and Mark J. Weissburg [6]	2018	Minimize waste and better reflect ecosystem maturity	Structure base matrix	Steel Manufacturing Industries	Used biological system and structure based statics
7.	Wenqiang Sun and Quing Wang [7]	2020	Material and energy flow	Physical models and Mathematical models	Iron and steel industries	Dynamic assessment, utilization, recovery, scheduling, and optimization and generic algorithms.
8.	Silvia Casoda and Manuel Laguna [8]	2020	Optimization of production process, Fulfill of demand of production cost and finding high quality solution.	mixed-integer program and develop a heuristic solution procedure	Steel Manufacturing Industries	Multi start tabu search implementation optimization technique used.
9.	Farhad Mehmanfazir and Kaveh khalili Damghani [9]	2019	Identify the steel supply and demand functions. And also to forecast the supply and	Identifying variables affecting supply and demand, prepared	Steel industries (Iran)	Logarithmic regression analysis.

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			demand trends.	neural network		
10.	Boguslaw Bieda [10]	2014	Stochastic approach and steel production management.	Life cycle Assessment Technique	Steel industries (Poland)	Monte Carlo Simulation methods
11.	Alex L. Riley and John M. MacDonald [11]	2020	Compile data base of iron and steel slag.	Legacy waste identification, volume estimation, Land use analysis and co-location with designated areas, Waste composition and resource projections.	Iron and steel industries (UK)	----------
12.	Qingxin Guo and Laxin Tang [12]	2019	Order rescheduling in steel industries	Discrete differential evaluation (DDE) algorithm method, Local search, selection of strong criteria.	Steel industries	Mixed integer programming mathematical model.
13.	Tian Liang and Shanshan wang [13]	2020	Environmental impact evaluation of iron and steel	Description of iron and steel plant, Life cycle assessment, data inventory.	Steel industries	LCA Methods
14.	Mohammad Pourmehdi and Mohammad Mahdi Paydar. [14]	2020	Increase profit and new design of steel sustainable supply chain and finding the environmental and social effect	Close loop supply chain, Fuzzy goal programming approach	Steel Industries	Multi-objective Linear mathematical model to develop optimize the steel sustainability.

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METHODOLOGY

1. Analysis and interpretation

Table 1: Showing Year Wise Quantity of Raw Materials of VEDANTA Ltd. Company

YEAR	QUANTITY OF RAW MATERIALS (Rs. in Crores)
2016-17	1169.45
2017-18	3008
2018-19	3024
2019-20	1370
20120-21	1464
2021-22	1908

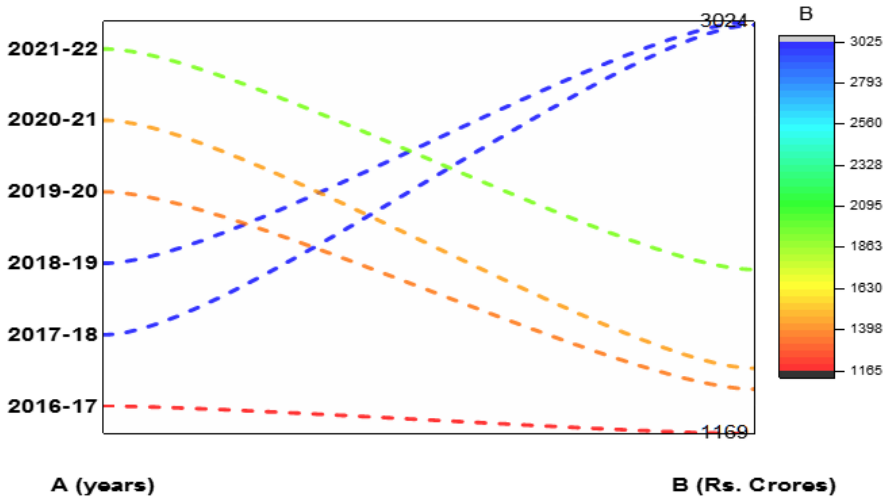

Figure 1: Amount of Raw Materials

From the above data indicates that the in the year 2016-17, 1169.45 (Rs. in crores) of raw materila is used, which increase significatly 3008 (Rs.in crores) in 2017-18 and fruther increase to 3024 (Rs. in crores) n 2018-19. The highest quantity of raw materials was used in the years 2018-19. However in the subseuent year 2019-20 the quantity of raw materials used decrease sharply by 54%, to 1370 (Rs. in crores) In the year 2020-21, there was slight increase in the quantity of raw materials used, which for 1464 (Rs. in crores). Finally in the years it was 2021-22, there was a fruther increase in the quantity of raw material used, which was 1908 (Rs. in crores) . The given data suggested that there has been fluctuation in the used of raw materials over the year, with sharp increasing some years and a significant deacrease in other. However, without fruther information on a industry or sector to wchich the data pertains, it is difficult to draw any conclution about the reasons for this fluctuations.

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DOI 10.5281/zenodo.8241275

Table 2: Showing Year Wise Amount of Stock in process of VEDANTA Ltd. Company

YEARS	AMOUNT OF STOCK IN PROCESS (Rs. in Crores)
2016-17	249
2017-18	284
2018-19	440
2019-20	608
2020-21	399
2021-22	1040

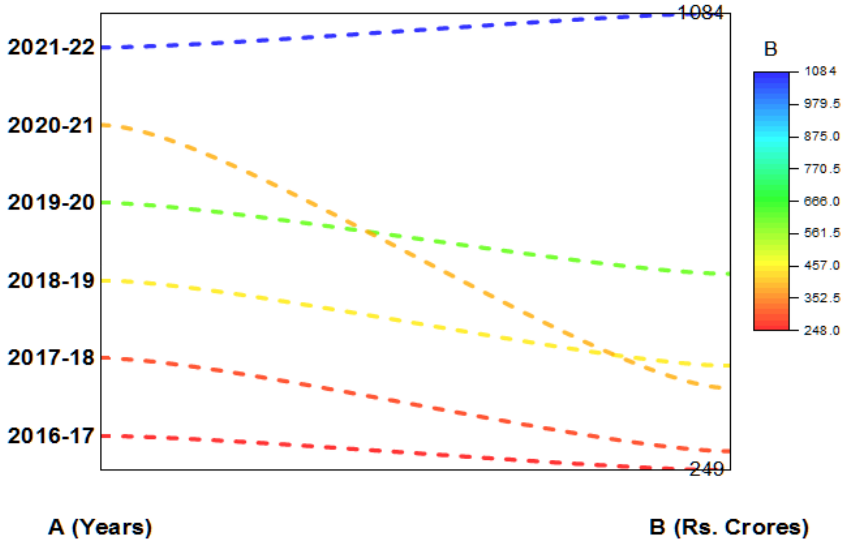

Figure 2: Amount of Stock in Process

From the above table no. (2) And figure no. (2), the data represents the amount of stock in process. Measured in crores of rupees, for each of the given years. The years denote the financial year starting from April 1st of the starting year and ending on March 31st of the following year.

The data shows that in the year 2016-17, the amount od stock in process was 249 crores. It increases to 284 crores in 2017-18 and further rose to 440 crores in 2018-19. This indicates a consistency increase in the amount of stock in process during these years.

In subsequent year 2019-20, there was a significant jump in the amount of stock in process, reaching 608 crores. This represents a substantial increase of approximately 38 % compared to the previous year. However, in the year 2020-21, there was a notable decrease with the amount of stock in process dropping to 399 crores.

Finally, in the latest year of the data, 2021-22, there was a significant surge in the amount of stock in process, reaching 1040 crores. This shows the considerable increase, more than doubling the previous year's amount. It results that the from data revels a fluctuation in the amount of stock in process over the years, with varying levels of increase and decrease. The amount increases consistently from 2016-17 to 2018-19, experienced a sharp increase in 2019-

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DOI 10.5281/zenodo.8241275

20, followed by a decrease in 2020-21 and then a substantial increase in 2021-22. But it can be concluded that there have been significant changes in the amount of stock in process over the given period. The increase in stock in process may indicate higher production or slower sales, while the decrease may suggest improved efficiency of reduction in production. The substantial surge in 2021-22 could be result of increasing demands or changes in production strategies. So that the fluctuation and their impact on the overall business operation.

Table 3: Showing Year Wise Amount of Cost of Stores and Spares of VEDANTA Ltd. Company

YEAR	AMOUNT OF COST OF STORES AND SPARES (Rs. In Crores)
2016-17	368
2017-18	384
2018-19	547
2019-20	557
2020-21	500
2021-22	600

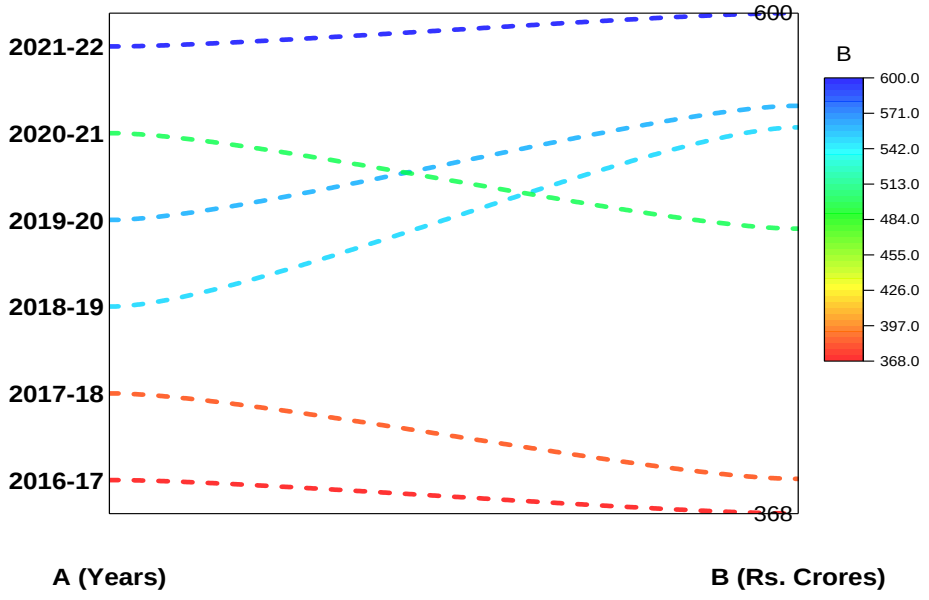

Figure 3: Amount of Cost of Stores and Spares

From the above table no.(3) and figure no.(3) the represent the amount of cost incurred for stores nd spares, measured in crores of rupees for each of the given years. The years denote the finanmcial year, starting from april 1st of the starting year and ending on March 31 st of the following year. The data showes that in the year 2016-17, the cost of stores and spares was 368 crores. It slightly increased to 384 crores in 2017-18 and further rose to 5467 crores in 2018-19. This indicates a consistent increase in the cost of stores and spares during these years.

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In the subsequent year 2019-20, there was a marginal increase , with the cost reaching 557 crores. The following year, 2020-21,saw a decrease in the cost of stores and spares with it dropping to 500 crores. Finally, in the latest year of the data, 2021-22, there was an increase in the cost reaching 600 crores. In the result data reveals a fluctaution in the cost of stores and spares over the years, with varying levels of increase and decrease. There is an overall increasing trend with minor fluctuations.

From the base on data it can be concluded that there have been fluctuation in the cost of store and spare over the given period. The consistence increase in the cost 2016-17 and 2018-19 may indicate increase procurement of higher prices of this items. The marginal increase 2019-20 sugests continued demand or inflactionary pressure. The decrease in 2020-21 could be result of cost saving or efficiant inventory management. The subseuent increase in 2021-22 indicates in potential rebound in spending or expansion of opertaion.

Table 4: Showing Year Wise Amount Semi-Finished / Finished Goods of Vedanta ltd

(Rs. in crores)

YEARS	AMOUNT SEMI-FINISHED/FINISHED GOODS (Rs. in Crores)
2016-17	403
2017-18	364
2018-19	880
2019-20	465
2020-21	548
2021-22	385

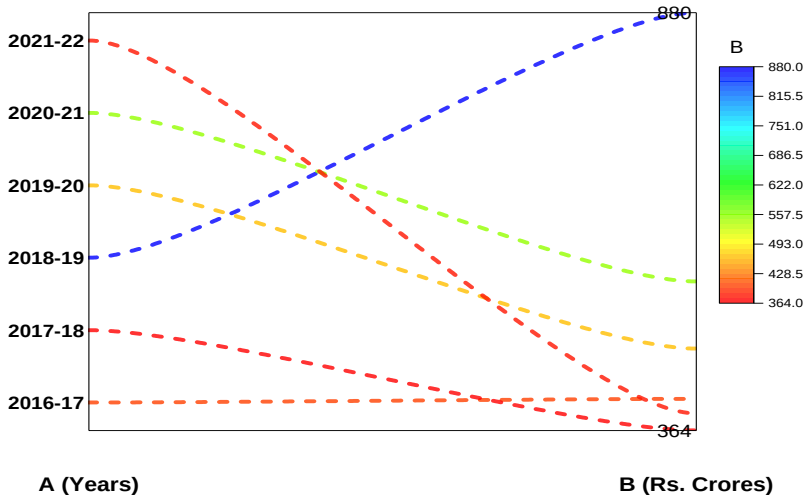

Figure 4: Amount of Semi-Finished/ Finished Goods

From the table no(4) and the figure no(4), the given data represents the amount of semi-finished/ finished goods, measured in crores of rupees, for each of the given years. The years denote the financial year, starting from april 1st of the starting year and ending on Mrch 31st of

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the following year. The data showes that in the year 2016-17, the amount of semi-finished/ finished goods was 403 crores. It decresed slightly to 364 crores in 2017-18 and then experienced a significant jump to 880 crores in 2018-19. This indicates a fluctuation in the amount of semi-finished goods during these years.

In the subsuent year 2019-20, there was a considerable decrease, with the amount dropping to 465 crores. Hpwever, in 2020-21, there was an increase in the amount of semi-finished goods, which rose to 548 crores. Finally, in the latest years of the data, 2021-22, thre was a decrease in the amount, reaching 385 crores.

In the result, the data shows a fluctuatio in the amount of semi-finished / fiished goods over the years, with varying levels of increase and decrease. There is no consistent upward or downward trend observed. It concluded that from the bases on the data, there have been fluctuations a amount of semi- finished/ finished goods over the given period. The singnificat increase in 2018-19 indicates a possible expansion of production or accumulation of inventory. The subseuent decrease in 2019-20 may suggest adjustment in production levels or changes in market demand. The increase in 2020-21 could be a result of improved sales or production efficiency. However, the decrease in 2021-22 indicates a potential reduction in production or changes in the market dynamics. The specific factor are influencing the amount of semi-finished / finished goods, such as market conditions, production capacity, sales performance or inventory management strategies.

2. Ratio Analysis for VEDANTA Ltd. Company

Inventory Turnover Ratio

Inventory turnover is a ratio that shows how many times a company has sold and replaced inventory during a given period. It shows how efficiently the company is managing its production, warehousing, and distribution of product, considering its volume of sales. Inventory Turnover Ratio is important because it analyses two main components of performance. The first component is stock purchasing. If huge amounts of inventory are purchased during the year, the company will have to send greater amounts of inventory to boost its turnover. If the company can't sell these larger amounts of inventory, it will incur carrying costs and other holding costs. The second component is sales. Sales must match inventory purchases or the carrying of inventory will not turn effectively.

Formula to calculate inventory turnover ratio

$$\textbf{\textit{Inventory Turnover ratio}} = \frac{\textbf{\textit{Cost of Goods Sold}}}{\textbf{\textit{Average Inventory}}}$$

Where, Cost of Goods Sold = Sales- Gross Profit and Average Stock = (Opening Stock + Closing Stock) / 2

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Table 5: Table Showing Cost of Goods Sold and Average Stock of VEDANTA Ltd. Company

Year ending March	Cost of goods sold			Average Stock			Inventory Turnover Ratio
	Sales	Gross Profit	Cost of Goods Sold	Opening Stock	Closing Stock	Average Stock	
2016	67992.71	17862.62	50130.09	2017.01	1754.64	1885.825	26.5825779
2017	76171	9873.26	66297.38	2754.64	2166.48	1960.56	33.8155322
2018	92923	13692	79231	2167	2175	2171	36.4951635
2019	90901	9698	81203	20175	2075	11130	7.2958670
2020	83545	4743	78802	2075	2300	1252.5	62.9157684
2021	86863	15032	71831	4593	3868	4230.5	16.9793168
2022	131192	23710	107482	2229	3403	2816	38.1683238

Source: Secondary data (Financial Statements of VEDANTA Ltd. Company)

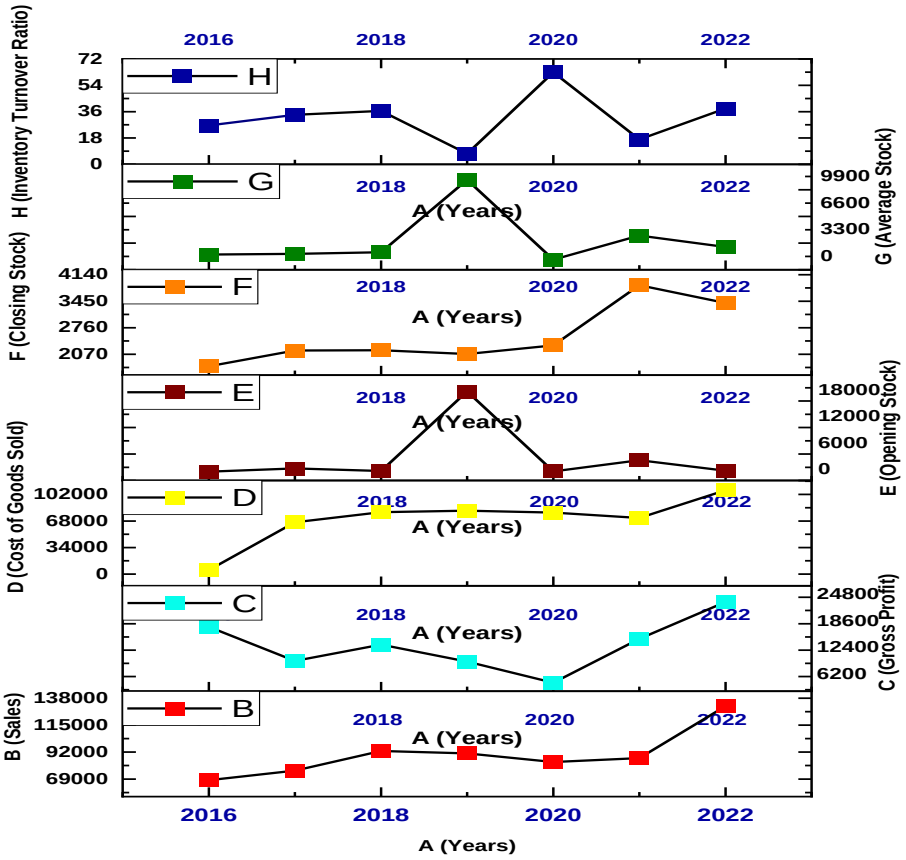

Figure 5: Inventory Turnover Ratio (All unit is Rs. In crores)

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DOI 10.5281/zenodo.8241275

3. Interpretation

In above table no (5) and figure no. (5), the following points are examined that the sales amount fluctuating over the years but generally shoes an increasing trend from 2016-2022. Now the Gross profit also varies each year. However, it does not exhibit a consistent increasing or decreasing trend over the given period. The cost of goods sold fluctuates in varies years. The opening stock, closing stock, and average stock values provide insights into the inventory management. But the inventory ratio represents the percentage of average stock to the cost of goods sold. It varies significantly across the years. Higher inventory ratios may indicate inefficient management or potential liquidity issues. A high inventory turnover ratio may direct better liquidity, but it can also indicate a poor inventory level, which may lead to a loss in business. The average stock level fluctuates over the years. It is important to analysed the reasons behind these fluctuations, as it can indicate changes in inventory management, production levels, or demand patterns.

From the based on data, he concluded that the inventory turnover ratio in 2016 is 26.58258, which means the company is selling its inventory approximately 26.58 times during the year. In 2020, the inventory turnover ratio is significantly higher at 62.91577, suggesting a faster turnover of inventory during that year. The inventory turnover ratio in 2019 is relatively low at 7.29587, indicating that the company might be holding excess inventory or facing challenges in selling its products.

Days Sales of Inventory

The day's sales of inventory (DSI) are a ratio that indicates the average time in days that an organization takes to turn its inventory, including work in progress and spares and consumables into sales.

DSI is also known as Inventory Conversion Period, Average Age of Inventory, Days Inventory Outstanding (DIO), Days in Inventory (DII), Days Sales in Inventory or Days Inventory and is interpreted in various ways. Indicating the liquidity of the inventory, the results represent how many days the inventory of a company will last. Generally, a lower inventory conversion period is preferred as it indicates a shorter period to clear off the inventory, though the average inventory conversion period varies from one to another.

Formula to calculate Days sales of inventory:

$$\textbf{\textit{Days sales of inventory}} = \frac{\textbf{\textit{Average inventory}}}{\textbf{\textit{Cost of Goods sold}}} * \mathbf{365}$$

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Table 6: Table Showing Average Inventory and Cost of Goods Sold of VEDANTA Ltd. Company

Year ending March	Average Inventory			Cost of goods sold			Days Sales of Inventory
	Opening Inventory	Closing Inventory	Average Inventory	Sales	Gross Profit	Cost of goods sold	
2016	8725.02	8079.13	8402.075	67992.71	17862.62	50130.09	61.1759798
2017	8079.13	9627.89	8853.51	76171	9873.26	66297.38	48.7429691
2018	9627.89	11967	10797.445	92923	13692	79231	49.7414828
2019	11967	13198	12582.5	90901	9698	81203	56.5571776
2020	13198	11335	12266.5	83545	4743	78802	56.8167368
2021	11335	9923	10629	86863	15032	71831	54.0098982
2022	9923	14313	12118	131192	23710	107482	41.1517277

Source: Secondary data (Financial Statements of VEDANTA Ltd. Company)

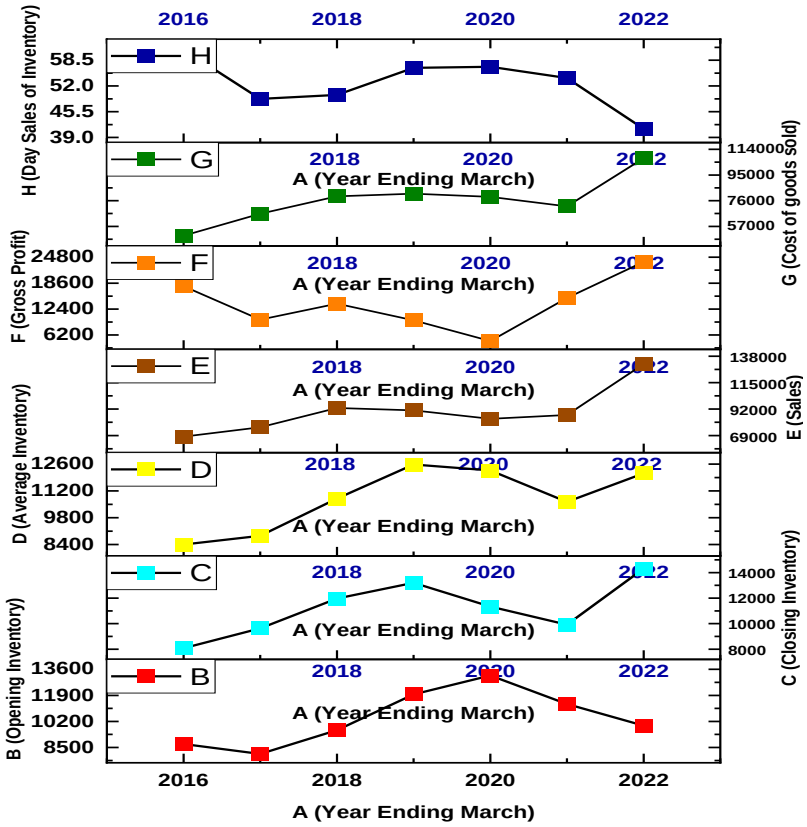

Figure 6: Days Sales of Inventory of (VEDANTA Ltd. Company all unit in Rs. in crores)

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4. Interpretation

In opening and closing inventory, the columns represent the stock levels at the beginning and end of each year, respectively. They show how much inventory the company has on hand at the start and end of each period. In average inventory, the column represents the average inventory level calculated as the average of the opening and closing inventory. It provides insight into the average stock held by the company during the year. In Sales the column represents the total sales made by the company during each year. It indicates the revenue generated from the sale of goods. In gross profit the column represents the profit earned by the company after deducting the cost of goods sold from the sales revenue. It provides an indication of the profitability of the company's operations. Cost of Goods Sold, the column represents the cost incurred by the company to produce or purchase the goods sold during each year. It is subtracted from the sales revenue to calculate the gross profit. But days sales of inventory the column represents the average number of days it takes for the company to sell its inventory. It is calculated by dividing the average inventory by the cost of goods sold and multiplying by the number of days in a year. Based on the provided data, we can draw the following conclusions

The average inventory level fluctuates over the years, indicating variations in inventory management practices. The gross profit varies across the years, suggesting differences in profitability and efficiency in the company's operations.

The days sales of inventory metric shows the number of days it takes for the company to sell its inventory, which can reflect the efficiency of inventory turnover. To gain a more comprehensive understanding, it would be beneficial to compare these figures with industry benchmarks, analyze trends over a longer time period, and consider other factors such as market conditions, pricing strategies, and supply chain management.

Inventory to Working Capital Ratio

Inventory to working capital ratio is the method to show as to what portion of a company’s inventories is financed from the cash that is available. This is essential to businesses such as steel industries where they hold inventory to a greater extent.

Inventory to Working Capital Ratio is the important indicator of the operation efficiency. Note that a low value of 1 or less of this ratio means that a company has high liquidity of current asset but it may also indicate insufficient inventory levels. A high value of this ratio means that a company is carrying too much inventory. Because excessive inventories can place a heavy burden on the cash resources of a company, it is not favourable for management. Working Capital is calculated by subtracting current liabilities from current assets.

Formula to Calculate

Working Capital = Current Assets – Current Liabilities

Inventory to Working Capital Ratio = Inventory / Working Capital

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Table 7: Table Showing Inventory to Working Capital of VEDANTA Ltd. Company

Year ending March	Inventory	Working Capital			Inventory to Working Capital Ratio
		Current Assets	Current Liabilities	Working Capital	
2016	8079.13	66664.54	52780.22	13884.32	0.5818887
2017	9627.89	39377.74	57610.73	-18232.99	-0.5280477
2018	11967	55114	67247	-12133	-0.9863183
2019	13198	21575	7744	13831	0.9542332
2020	11335	57520	63322	-5802	-1.9536366
2021	9923	56192	59124	-2932	-3.3843792
2022	14313	68575	65713	2862	5.0010482

Source: Secondary data (Financial Statements of VEDANTA Ltd. Company)

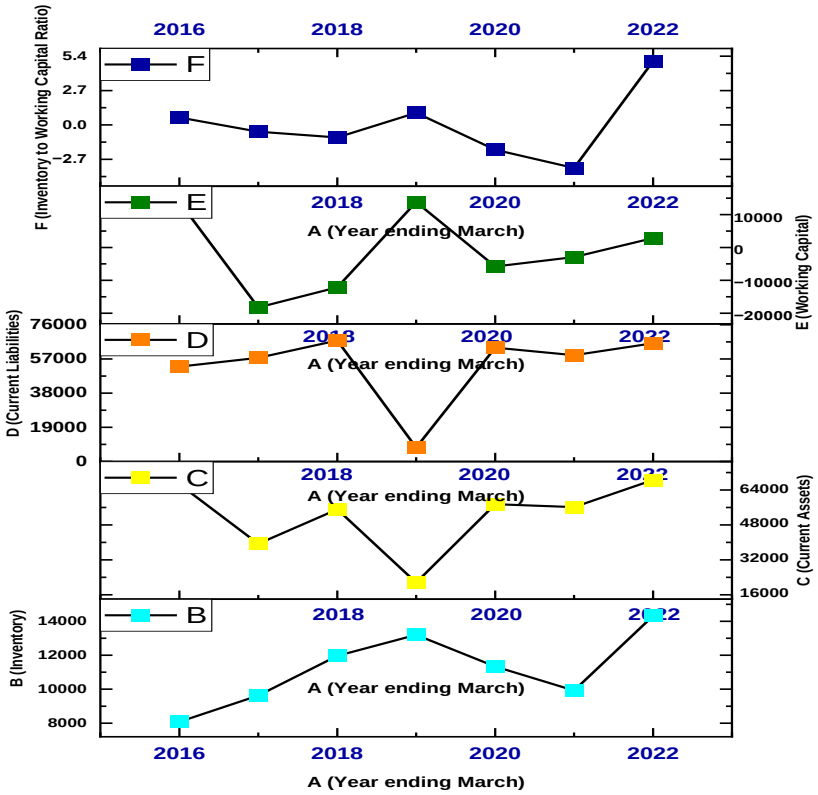

Figure 7: Inventory and Working Capital of VEDANTA Ltd. Company (All unit is Rs. In crores)

From the table no.(7) and figure no.(7) the following factors inventory , current assets and current liabilities and inventory to working capital ratio. In inventory the column represents the value of inventory held by the company during each year. It indicates the amount of inventory

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DOI 10.5281/zenodo.8241275

the company has on hand. In current assets the column represents the total value of current assets, including inventory, held by the company. Current assets typically include cash, inventory, accounts receivable, and other short-term assets. In current liabilities the column represents the total value of current liabilities, which are the company's obligations that are expected to be settled within a year. Current liabilities typically include accounts payable, short-term loans, and other accrued expenses. In working capital, the column represents the difference between current assets and current liabilities. It reflects the company's ability to cover its short-term obligations with its short-term assets. A positive value indicates a surplus of assets, while a negative value indicates a deficit. In inventory to working capital ratio the column represents the ratio of inventory to working capital. It indicates the proportion of working capital that is tied up in inventory. A higher ratio suggests a higher level of inventory relative to working capital. Based on the provided data, we can draw the following results and concluded that, the inventory levels have varied over the years, with fluctuations in the amount of inventory held by the company. The working capital has also shown fluctuations, indicating changes in the company's ability to cover its short-term obligations. The inventory to working capital ratio has fluctuated significantly, suggesting variations in the proportion of working capital allocated to inventory.

Discussion and Conclusion: The data shows that the company's inventory management and working capital position have been inconsistent over the years. Negative working capital values indicate a potential risk of liquidity issues, as current liabilities exceed current assets. The negative and high inventory to working capital ratios in some years suggest an inefficient use of working capital, with a significant portion tied up in inventory. It is important for the company to monitor and manage its inventory levels and working capital to ensure optimal utilization of resources and maintain a healthy financial position. Steps such as improving inventory management practices, optimizing the supply chain, and streamlining operations can help enhance working capital efficiency and reduce liquidity risks.

Further analysis and consideration of other financial and operational factors are necessary to gain a comprehensive understanding of the company's overall financial performance and make informed decisions for improvement.

RESULT AND DISCUSSION

Table 8: Table Showing Inventory turnover ratio, Day sales of inventory and Inventory to Working Capital Ratio in Vedanta Steel

Year ending March	Inventory Turnover Ratio	Days Sales of Inventory	Inventory to Working Capital Ratio
2016	26.5825779	61.1759798	0.5818887
2017	33.8155322	48.7429691	-0.5280477
2018	36.4951635	49.7414828	-0.9863183
2019	7.295867	56.5571776	0.9542332
2020	62.9157684	56.8167368	-1.9536366
2021	16.9793168	54.0098982	-3.3843792
2022	38.1683238	41.1517277	5.0010482

ISSN 1533-9211

DOI 10.5281/zenodo.8241275

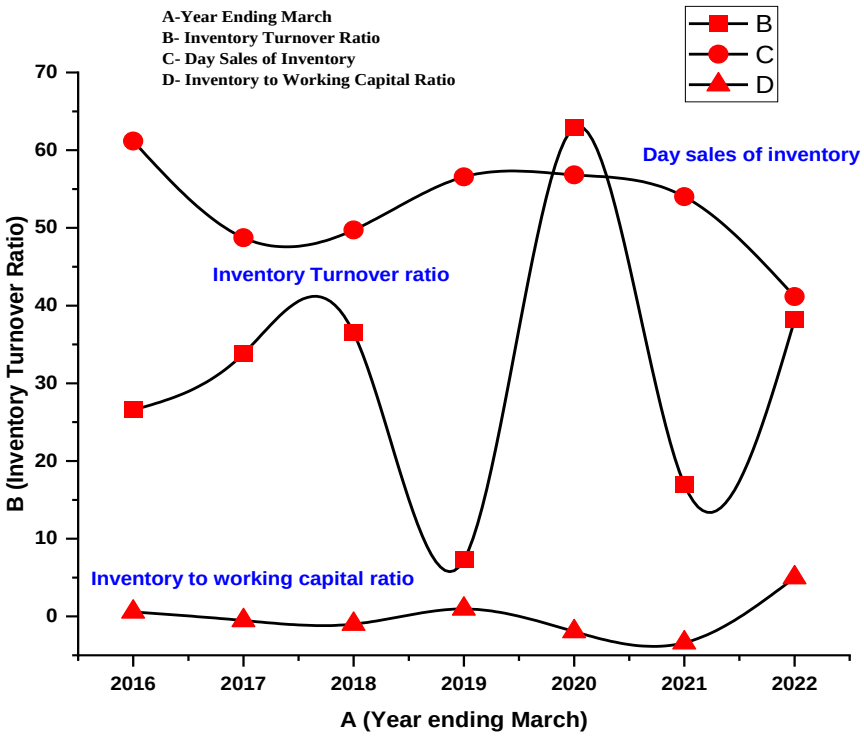

Figure 8: Result of inventory turnover ratio, day sales of inventory and inventory to working capital ratio

Inventory Turnover Ratio

The inventory turnover ratio measures how efficiently a company manages and sells its inventory. The ratio varied significantly across the years, ranging from 7.30 in 2019 to 62.92 in 2020. Higher ratios generally indicate more efficient inventory management, while lower ratios may suggest slower turnover or potential inventory management issues.

Days Sales of Inventory

The days sales of inventory metric represent the average number of days it takes for a company to sell its inventory. The values ranged from 41.15 days in 2022 to 61.18 days in 2016.Lower values indicate faster inventory turnover, while higher values suggest slower sales cycles.

Inventory to Working Capital Ratio

The inventory to working capital ratio assesses the proportion of working capital invested in inventory. The ratio fluctuated significantly over the years, ranging from -3.38 in 2021 to 5.00 in 2022. Positive values suggest a significant portion of working capital tied up in inventory, while negative values may indicate potential liquidity issues.

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ISSN 1533-9211
DOI 10.5281/zenodo.8241275

Based on the provided data, we can conclude the following

- The company experienced fluctuations in its inventory turnover ratio, days sales of inventory, and inventory to working capital ratio over the years.
- There were notable changes in the company's inventory management efficiency, sales cycles, and allocation of working capital to inventory.
- Further analysis is needed to understand the reasons behind these fluctuations, such as changes in market demand, supply chain disruptions, or internal operational factors.

Future Scope

- To gain a deeper understanding of the company's inventory management and identify areas for improvement.
- Comparative Analysis: Compare the company's ratios with industry benchmarks or competitors to evaluate its performance and identify opportunities for improvement.
- Detailed Trend Analysis: Analyze the trends and patterns of the ratios over a more extended period to identify recurring patterns, seasonality, or cyclical fluctuations. This analysis can help in better forecasting and planning.
- Working Capital Optimization: Evaluate the company's working capital management practices, including accounts receivable and accounts payable. Assessing the impact of efficient working capital management on inventory turnover can provide insights into potential areas of improvement.
- Inventory Management Strategies: Explore strategies such as just-in-time (JIT) inventory management, lean principles, or vendor-managed inventory (VMI) to optimize inventory levels and improve turnover ratios.
- Industry Research: Stay updated with industry trends and best practices in inventory management. Investigate emerging technologies or data analytics tools that can enhance inventory control and streamline operations.

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