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An Evaluation of The Efficiency of Working Capital in A Dental Laboratory

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Abstract

Purpose: The purpose of the study was to look at the company's financial performance and determine whether working capital and profitability are related. Components like accounts receivable, accounts payable, and bill collection period were examined to evaluate the efficacy of the company.
Theoretical framework: A major component of raising profitability and financial stability—which eventually benefits stakeholders—was found to be increasing working capital effectiveness. It is therefore advised that to improve overall financial performance, businesses give top priority to streamlining their working capital management procedures.

Design/methodology/approach: The statistical tools known as data analysis tools are employed to measure correlation, which expresses the degree of similarity or variance between two variables without indicating a cause-and-effect link. Financial tools, on the other hand, are accounting ratios or financial ratios that show the relative magnitude of certain numerical values taken out of the financial statements of an organization.

Findings: The results showed a positive relationship between profitability and working capital effectiveness. Companies that showed higher likelihood measures were those with well-managed working capital components. A major component of raising profitability and financial stability—which eventually benefits stakeholders—was found to be increasing working capital effectiveness.

Research, Practical & Social implications: A business has to maintain a minimum amount of working capital in order to guarantee daily operational efficiency and attain long-term growth. Working capital for the company may be obtained from several sources. To evaluate the company's financial condition, liquidity, profitability, risk, solvency, efficiency, operational effectiveness, and judicious use of available money, this research uses ratio analysis. To evaluate the company's past, present, and future performance, a thorough financial assessment is conducted. The primary aim of this investigation was to examine the correlation between working capital and profitability while concurrently evaluating financial performance.
Originality/value: The value of the study therefore advised that to improve overall financial performance, businesses give top priority to streamlining their working capital management procedures.

Keywords: Dental treatment, capital expenditure, Partial Denture, Crown treatment, Dent care

1. Introduction

The idea that cash is a company's lifeblood is one that financial managers usually stress. A company can continue operating even in the absence of revenue, but liquidity is essential to its existence. Working capital management operates within an organization in a manner similar to that of the human heart. Any company's ability to remain viable depends heavily on its ability to obtain and manage working capital. The ideal level of working capital funds and the proper proportion of current assets and liabilities must be determined by the financial manager. It is crucial to guarantee that suitable financial channels are employed for working capital and that short-term commitments are met on schedule. In contrast, dentistry, sometimes referred to as dental medicine, focuses on the examination, diagnosis, treatment, and management of oral health issues. Dental care has developed into a specialist field with its own authorized degree and a range of specializations, originating from the trade of barber surgeons in European history. A dental team, consisting of a dentist

and dental assistants, usually performs dental procedures. When making decisions about topics like fluoride treatments, tooth preservation, and the treatment of systemic and oral disorders, evidence-based dentistry places a strong emphasis on using high-quality scientific research. Now let's go back to the financial realm. Working capital management is managing current assets and obligations in order to reduce risk. For a business to run smoothly and to meet its dual goals of liquidity and profitability, it is imperative that it maintains a sufficient level of working capital. Working capital can be a source of liquidity problems or a source of profitability problems. The variability impacted by business nature, manufacturing cycles, credit rules, raw material availability, and other factors makes estimating the required working capital a difficult assignment for management. Analysis in this area is based on secondary data that is gathered from various sources, including books, journals, websites, annual reports, balance sheets, profit and loss accounts, and financial statements.

1.1 Operating Capital and Administration: It is a metric used in finance that expresses the operational liquidity that is accessible to companies, groups, or entities, including governments. Working capital is defined as the difference between current assets and current liabilities (working capital = current assets - current liabilities) and is recorded as a component of operational capital along with fixed assets like plants and equipment. Working capital management is a strategic method that tracks and maximizes the use of a company's current assets and liabilities to ensure smooth operations. Being able to maintain enough cash flow to cover the company's short-term obligations and operating costs is the basic goal of working capital management.

Because short-term actions can have an impact on long-term financial decisions, working capital management is an essential component of a company's financial management. Investment in current assets and liabilities is directly influenced by the drivers of working capital. Since working capital can take up a large amount of the available funding, managers keep a tight eye on these variables. Managers therefore continuously try to modify operations procedures in order to reduce the amount of working capital that is invested.

2. Literature Review

To sum up, merchants have realized how important it is to manage cash more effectively during this time. To better understand the relationship between working capital and profitability, Rahman Mohammad M. (2011) examined the efficiency of working capital management in several textile enterprises. Using financial ratios and statistical and econometric methodologies, Joshi Lalitkumar, and Ghosh Sudipta (2012) investigated Cipla Ltd.'s working capital performance from 2004–05 to 2008–09. Their results showed a considerable inverse association between profitability and liquidity as well as excellent performance in several ratios. Joseph Jisha (2014) conducted a thorough analysis of Ashok Leyland's working capital management, emphasizing that the company's profitability and liquidity position were inadequate and required improvement for it to fulfill its obligations on schedule. Four pharmaceutical businesses (APSPDCL, APEPDCL, APNPDCL, and APCPDCL) participated in a survey on working capital management by Gurumurthy N. and Reddy Jayachandra K. (2014), which found that the working capital management position was not ideal and required improvement. In 2015, Harsh Pratap Singh and Satish Kumar reviewed the literature on working capital management, pointing up knowledge gaps and suggesting areas for future study. They discovered that most studies concentrated on how working capital practices and business profitability are affected by working capital. They observed that previous literature lacked survey-based methodologies and methodical theory development. In a case study, Banarjee (2015) noted that analyzing financing operations only based on the current ratio was inadequate and emphasized the necessity of comparing it with sales. Mishra N. (2015) covered important topics like working capital size, current asset and liability composition, and financing options in her discussion of the difficulties in managing working capital amid inflation. In his 2016 study, Mehta Bharat J. examined working capital management in an inflationary environment, stressing the necessity for more working capital and offering potential long-term funding options. A positive but non-linear relationship was found by Juan Gallegos Mardones (2016) when he

looked at the effect of working capital investment on the financial performance of businesses in Brazil, Chile, Mexico, Peru, and Chile from 2000 to 2018. In a study on working capital management, Sastry VX (2017) expressed the capital's turnover in terms of a particular number of months. In order to determine the company's financial performance and the connection between working capital and profitability in the dentistry sector, a study was carried out at Dentcare dentistry Lab in Muvattupuzha. The study, which focused on Dentcare dentistry Lab particularly, attempted to close a gap in the body of knowledge regarding the usefulness of working capital in the dentistry business.

3. Products for Dental Treatment

The precision German technology and premium raw materials are the only sources of supply for this biomedical-grade product. World-class innovation in the field of all-ceramic prosthetics, DentCare Zirconia is designed to provide unmatched functionality and ease of use. Its tooth-colored substructure, created using state-of-the-art CAD/CAM processes, distinguishes it from conventional PFM and opaque zirconia restorations by improving both form and natural performance. Significantly, DentCare Zirconia crowns are more translucent than other brands while still retaining remarkable strength. Intriguing fluorescent shades, seven effect shades, and more than forty bright, warm, and natural variations (including every VITA shade) are all offered for the substructures. Because Zirconia is naturally translucent, its precise CAD/CAM design and production guarantee a flawless marginal fit. The translucent substructure that is tooth-colored ensures that the interior framework's natural tooth shade flows from it.

3.1 3M ESPE Lava: It is distinguished by its strong performance and long-lasting durability. With the use of CAD and CAM technologies, it ensures perfect marginal fit and accuracy and offers choices for translucent and non-translucent versions. With important features including implant prostheses, single crowns, splinted crowns, and the capacity to build up to an 8-unit bridge in the anterior region and a 6-unit bridge in the posterior region, it is the recommended option for CAD/CAM-produced Zirconia restorations. A certified system for additive manufacturing of new generation PFMs, DMLS

Fig. 1. Lava Equipment's

Fig. 2. DMLS and CAD

3.2 CareFlex Dent: The semi-flexible removable partial denture from flex is made for maximum comfort and functionality. Its flawless pressure injection molding process allows it to blend in with the gum tissue naturally, improving comfort and movement. With tissue-colored clasps that blend in perfectly with the gums, this creative solution offers exceptional flexibility without the use of metal clasps. It is a resilient against impacts as well, and it is more stain-resistant than other flexible polymers. Made with injection molding technology and without the use of monomers, this is your most trusted and ultimate partner for maintaining your smile. Among polymers, it stands out for its long-lasting stain resistance. The torquing pressures that most abutments are required to absorb from traditional retentive mechanisms are eliminated by using a double tilting method of insertion.

Fig. 3. Flex in Dental

Fig. 4. Full Flex in Dental

Fig. 5. Precision attachment

3.3 Partial Dentures: BegoWironit® LA, a nickel-free Co-Cr alloy framework, provides a strong, unbreakable, and reasonably priced alternative. It effectively transfers feelings of heat and cold, guaranteeing a secure fit and extended life. Titanium and Cr-Co CPD can be incorporated for complete denture bases when Sunflex, BPS, and imported acrylic are combined. It also works well with Sunflex, Valplast, and BPS for partial dentures

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Fig. 6. Precision attachment

4. Proposed Method of Analysis

The statistical tools known as data analysis tools are employed to measure correlation, which expresses the degree of similarity or variance between two variables without indicating a cause-and-effect link. Financial tools, on the other hand, are accounting

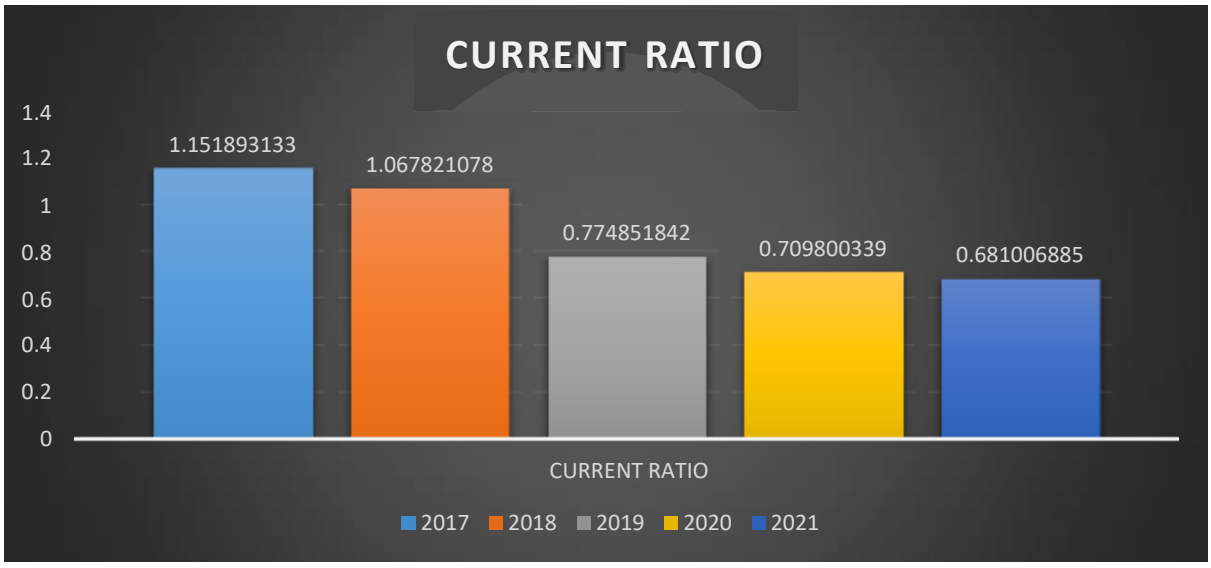
ratios or financial ratios that show the relative magnitude of certain numerical values taken out of the financial statements of an organization. These ratios, which are frequently used in accounting, aid in evaluating the general financial stability of a business or organization. A ratio is described as a quantitative set of data that exhibits the properties of interval data, where each data point has a distinct and equal ratio to an absolute "zero" acting as the origin. Ratio data, in principle, cannot have negative numerical values. The current ratio and the Acid Test Ratio/Quick Ratio are important elements of the Liquidity Ratio Analysis. Metrics include the Inventory Turnover Ratio, Debtors or Receivables Turnover Ratio, Asset Turnover Ratio, Net Working Capital Turnover Ratio, and Cash Conversion Cycle are all included in the analysis of turnover ratios. Return on equity and return on investment are two examples of the metrics used in the operating profitability ratio analysis.

4.1 Analysis of the flow ratio: This is the first category of financial ratio analysis. Its goal is to ascertain if a company can continue to pay its short-term debts and fulfill its short-term financial obligations.

$$Current\ Ratio = \frac{Current\ Assets}{Current\ Liabilities} \quad \text{..... (1)}$$

Table. 1. Current ratio

	2017	2018	2019	2020	2021
Current Assets (In Rs)	255792050	544889032	506479937	443590878	365134227
Current Liability(In Rs)	222062031	510281048	653647458	624951629	536168187
CURRENT RATIO	1.151893133	1.067821078	0.774851842	0.709800339	0.681006885



Graph. 1. Ratio Analysis

In 2017, the current ratio was 1.15:1, which is quite near to the optimal current ratio. This suggests that working capital is being maintained through an increase in current assets. In 2018, the current ratio was 1.06:1, which is close to the optimum current ratio and indicates that current assets and liabilities were managed well. The ideal 2:1 ratio was reached in 2019, while the current ratio fell to 0.92:1 in 2019. This indicates an imbalance with more current liabilities than assets, which reflects insufficient working capital.

With a current ratio of 0.70:1 in 2020 and 0.68:1 in 2021—both below the 2:1 benchmark—this trend persisted. These examples show a continual lack of working capital since there are more current liabilities than assets. It is useful to compare the present ratio with historical ratios to evaluate its relevance and establish if it is high or low for the specified time. To ensure smooth liability repayment, an ideal ratio of 1 indicates current assets twice the current liability. Ratios less than two could make it difficult to pay back debt, which could influence business operations.

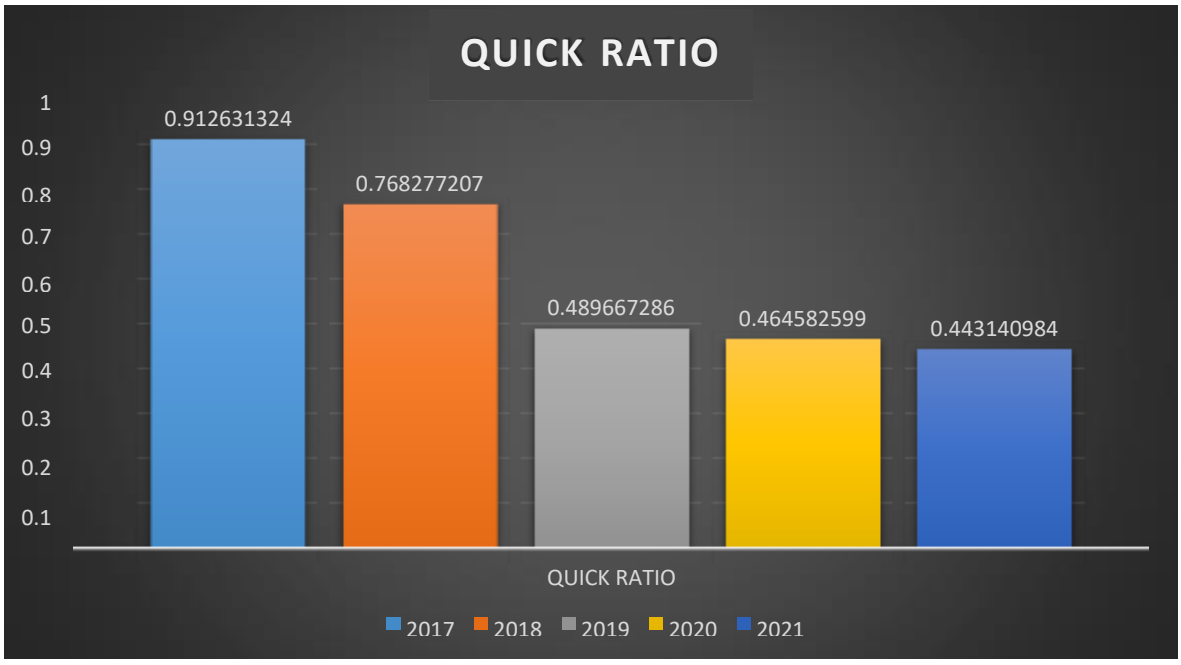
4.2 Rapid ratio: An enterprise's short-term solvency or liquidity condition can be assessed using the Acid Test Ratio, often known as the Quick Ratio. is one can use the current ratio to evaluate an enterprise's short- term solvency or liquidity position.

$$Formula\ Test\ = \frac{(Current\ Assets - Inventory)}{Current\ Liabilities} \quad \text{..... (2)}$$

$$Formula\ Quick\ Ratio = \frac{Quick\ Assets}{Quick\ \ Liabilities} \quad \text{..... (3)}$$

Table. 2. Quick ratio

	2017	2018	2019	2020	2021
Current Assets(In Rs)	255792050	544889320	506479937	443590878	365134227
Inventory(In Rs)	53131030	152851690	186410160	153249226	127536129
CurrentLiability	222062310	510281480	653647458	624951629	536168187
Quick Ratio	0.912631324	0.768277207	0.489667286	0.464582599	0.443140984



Graph. 2. Quick ratio

The quick ratio was 0.91:1, which is less than the optimal 1:1 ratio in 2017. Comparably, the quick ratio was 0.48:1 in 2019 and 0.76:1 in 2018, both of which were below the intended 1:1 norm. Following this pattern, the quick ratio was continuously below the optimal 1:1 ratio in 2020 and 2021, coming in at 0.46:1 and 0.44:1, respectively. This suggests that the business

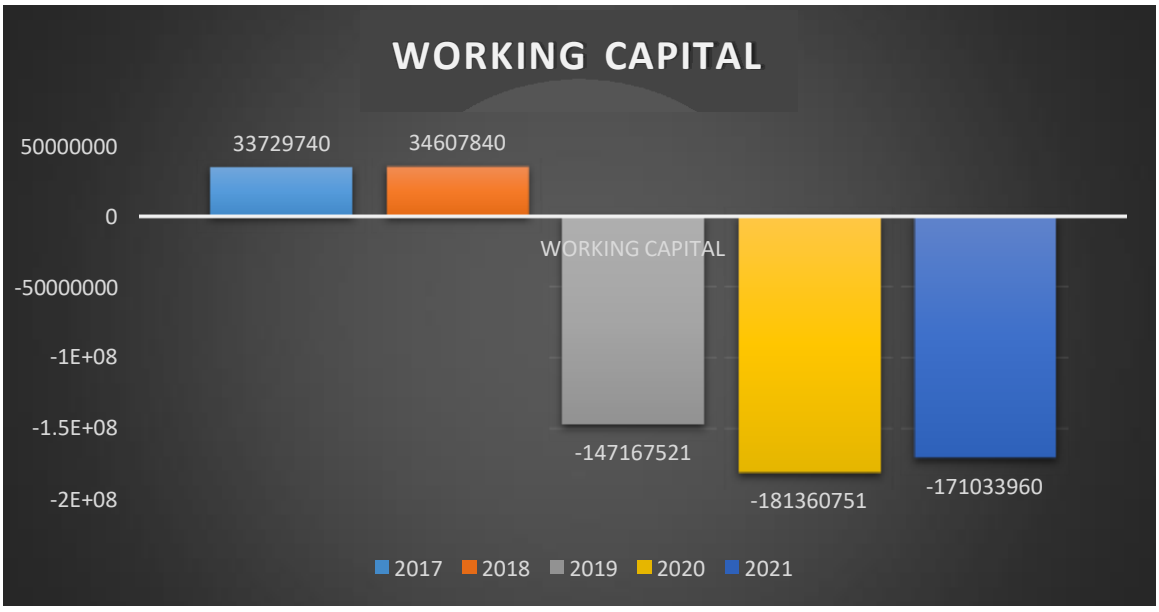
keeps liquid assets at a level that may be marginally below the ideal threshold but is yet adequate to cover working capital needs.

4.3 Operational Investment: A business's ability to convert its working capital into more revenues is measured by an efficiency statistic called a ratio. The net working capital turnover of the company for the year is shown by this ratio.A useful indicator of both excessive and insufficient trading is this. To compute the ratio, use the formula below:

$$Working\ Capital = \frac{Current\ Assets}{Current\ Liabilities} \quad \text{..... (4)}$$

Table. 3. Working capital

Current Assets	255792050	544889320	506479937	443590878	365134227
Current Liability	222062310	510281480	653647458	624951629	536168187
Working Capital	33729740	34607840	-147167521	-181360751	-171033960



Graph. 3. Capital ratio

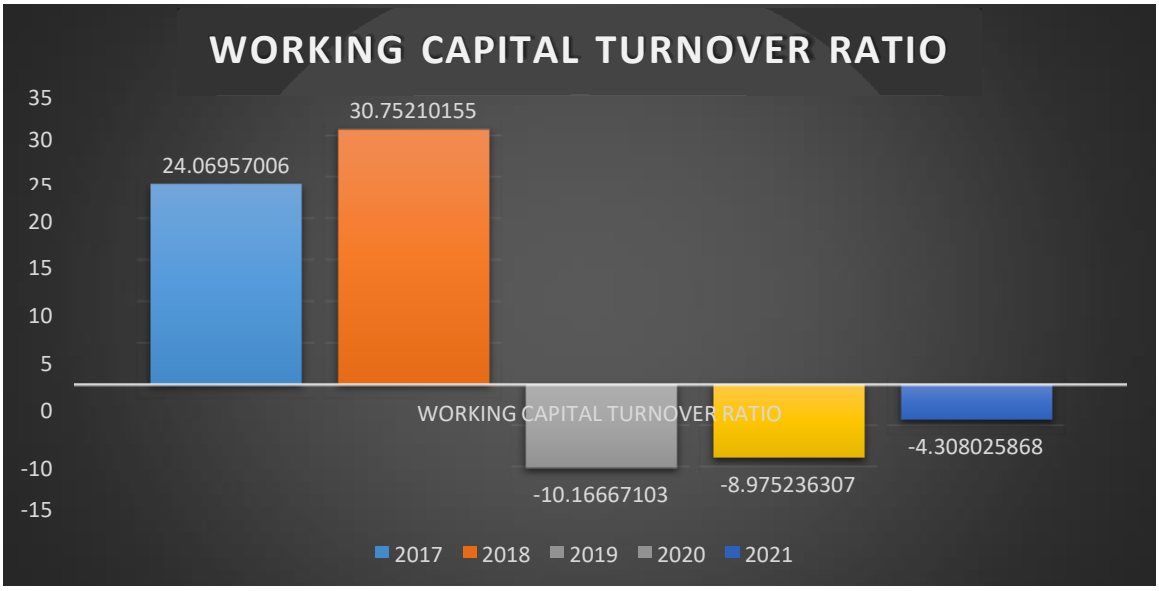
Analysis The working capital of the company is expanding somewhat with a falling tendency, according to the research above.

4.4 Activity Ratio: An efficiency indicator that assesses how well a company converts its working capital into higher revenues is the working capital turnover ratio. Here's how to calculate the ratio:

$$Turnover\ Ratio = \frac{Net\ Sales}{Working\ Capital} \quad \text{..... (5)}$$

Table. 5. Turnover ratio

Year	Sales (in Rs.)	ing Capital(in Rs.)	Working CapitalTurnover Ratio
2017	811860340	33729740	24.06957
2018	1064263810	34607840	30.7521
2019	1496203773	-147167521	-10.1667
2020	1627755597	-181360751	-8.97524
2021	736818724	-171033960	-4.30803



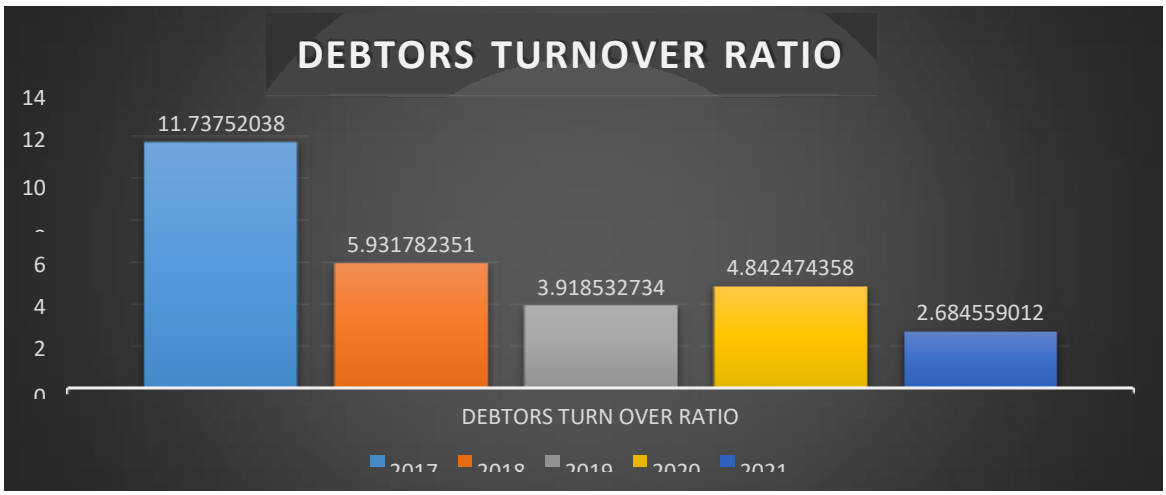
Graph. 4. Turnover calculation

4.5 Ratio of Defaulters' Sales: An accounting metric called the receivables turnover ratio is used to assess how well a business collects payments from customers for its receivables. The ratio demonstrates the efficiency with which a business lends credit to its clients, how successfully it uses that credit, and how quickly short-term debt is gathered and settled. Alternative names for the debtor's turnover ratio include the debtor's velocity or the receivables turnover ratio. Since it would suggest that the debts are being collected promptly, a greater ratio is preferable.

$$Receivable\ ratio = \frac{Net\ Credit\ Sales}{Average\ Accounts\ Receivable} \quad \text{..... (6)}$$

Table. 6. Receivable ratio

YEAR	NET SALES(In Rs)	ACCOUNT RECEIVABLES(In Rs)	DEBTORS TURN OVER RATIO(In Rs)
2017	811860340	691679600	11.73752038
2018	1064263810	179417205	5.931782351
2019	1496203773	381827555	3.918532734
2020	1627755597	336141294	4.842474358
2021	736818724	274465460	2.684559012



Graph. 5. Debtors turnover

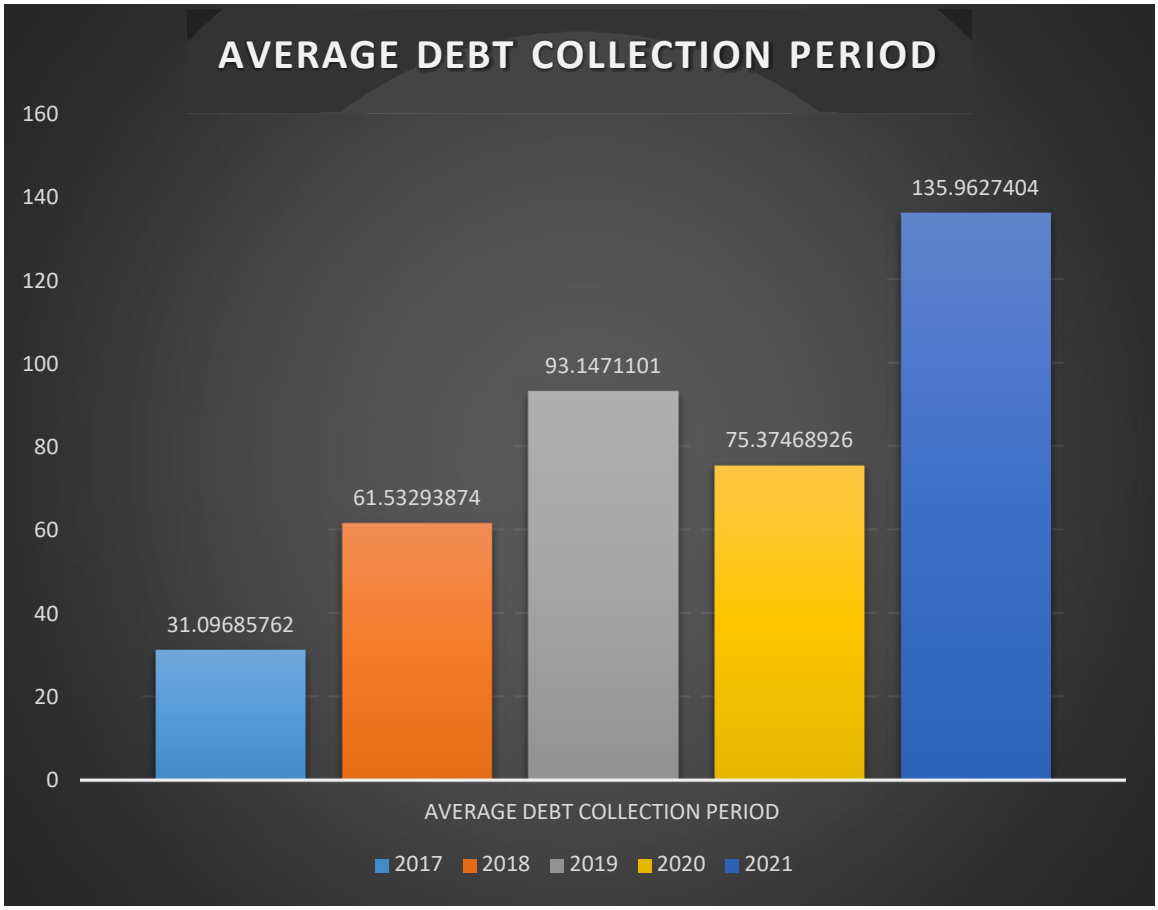
4.6 Average Debit Collection Period: The mean count of days that elapsed from the dates of credit sales to the dates of money collection or receipt from clients. Another name for the average collection period is the days' sales in accounts receivable.

$$Average\ Debit\ Time = \frac{Average\ Accounts\ Receivables}{Net\ Sales * 365} \quad \text{..... (7)}$$

This ratio assesses the caliber of debtors. A shorter collecting period suggests that debtors will pay on time. It lessens the possibility of bad indebtedness. An extended duration of collection indicates ineffective performance in credit collection.

Table. 7. Average Debit Time

YEAR	NET SALES (In Rs)	ACCOUNT RECEIVABLES (In Rs)	*365
2017	811860340	69167960	31.09685762
2018	1064263810	179417205	61.53293874
2019	1496203773	381827555	93.1471101
2020	1627755597	336141294	75.37468926
2021	736818724	274465460	135.9627404



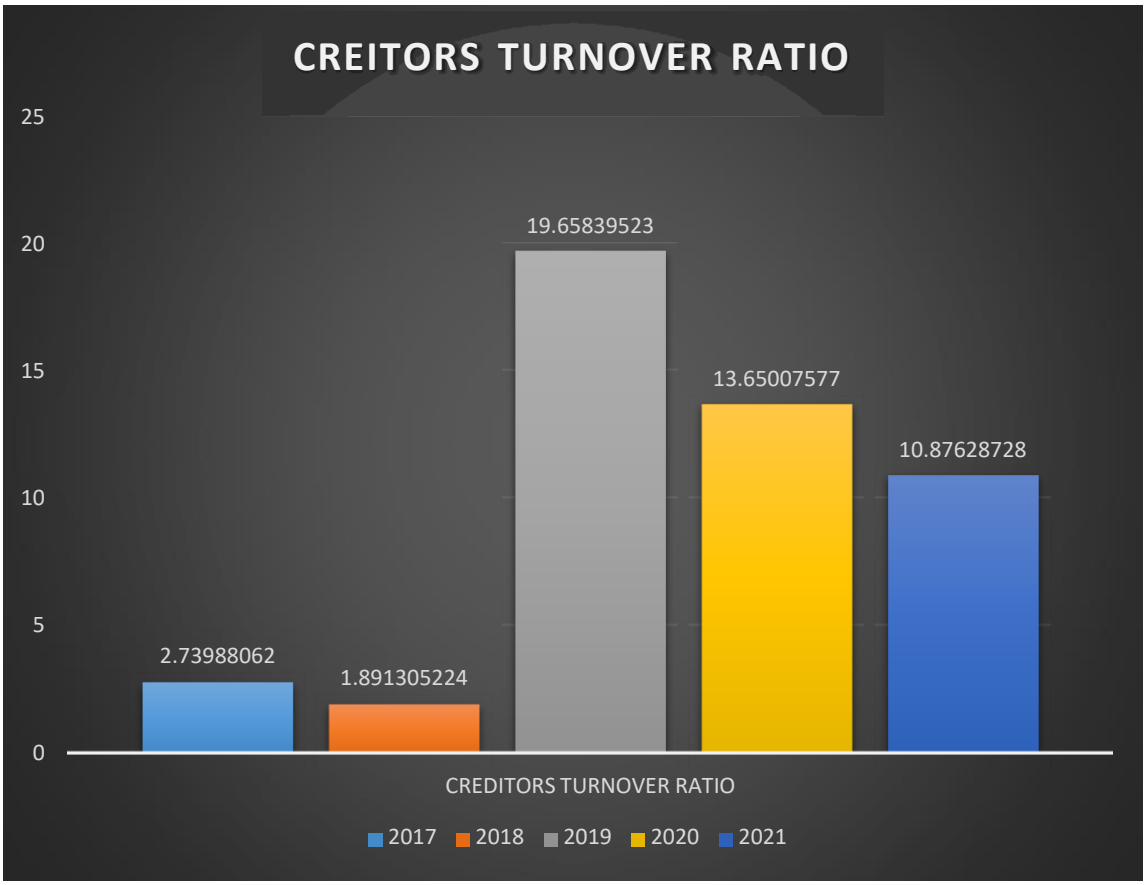
Graph. 6. Average debit collection period

4.7 Credit Turnover Ratio: The average number of times a business pays its creditors throughout the course of an accounting period is measured by the creditors turnover ratio, sometimes referred to as the accounts payable ratio or creditor's velocity. The ratio represents short-term liquidity, and a larger payable turnover ratio indicates a better situation. It represents the amount of time the company has had to pay its creditors.

$$Credit\ Turnover\ Ratio = \frac{Net\ credit\ purchase}{Average\ Accounts\ Payables} \quad \text{..... (8)}$$

Table. 8. Credit Turnover

Year	Purchase(in Rs)	Payables(in Rs)	CTR
2017	164350260	59984460	2.73988062
2018	184971960	97801220	1.891305241
2019	6889213	135430872	19.65839523
2020	9451206	129009678	13.65007577
2021	13908053	151267980	10.87628728



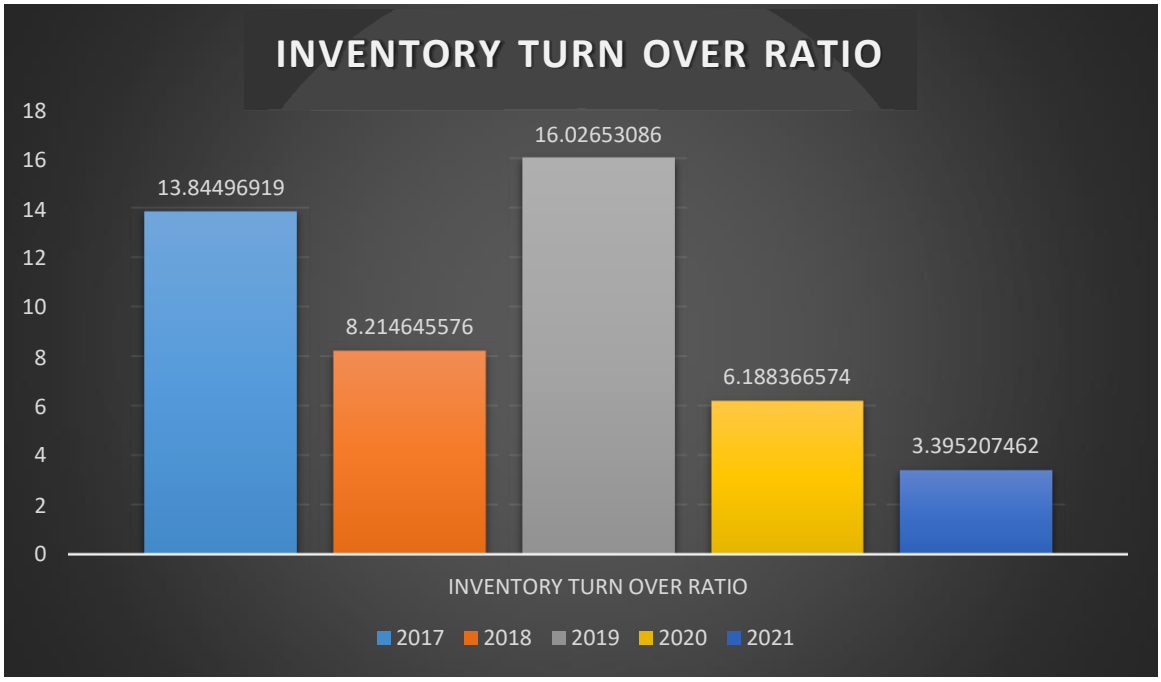
Graph. 7. Credit turnover ratio

4.8 Inventory Turnover Ratio: This efficiency ratio compares average inventory over a certain period of time to the cost of goods sold to demonstrate how well inventory is handled. This indicates the number of times the average inventory is sold or turned over in a certain time frame.

$$Inventory\ Ratio = \frac{Sales}{Average\ inventory} \quad \text{..... (9)}$$

Table. 9. Inventory turnover

YEAR	SALES (In Rs)	AVERAGE INVENTORY (In Rs)	INVENTORY TURNOVVER RATIO
2017	811860340	58639375	13.84496919
2018	1064263810	129556875	8.214645576
2019	1496203773	93357931.69	16.02653086
2020	1627755597	263034773	6.188366574
2021	736818724	217017290.5	3.395207462

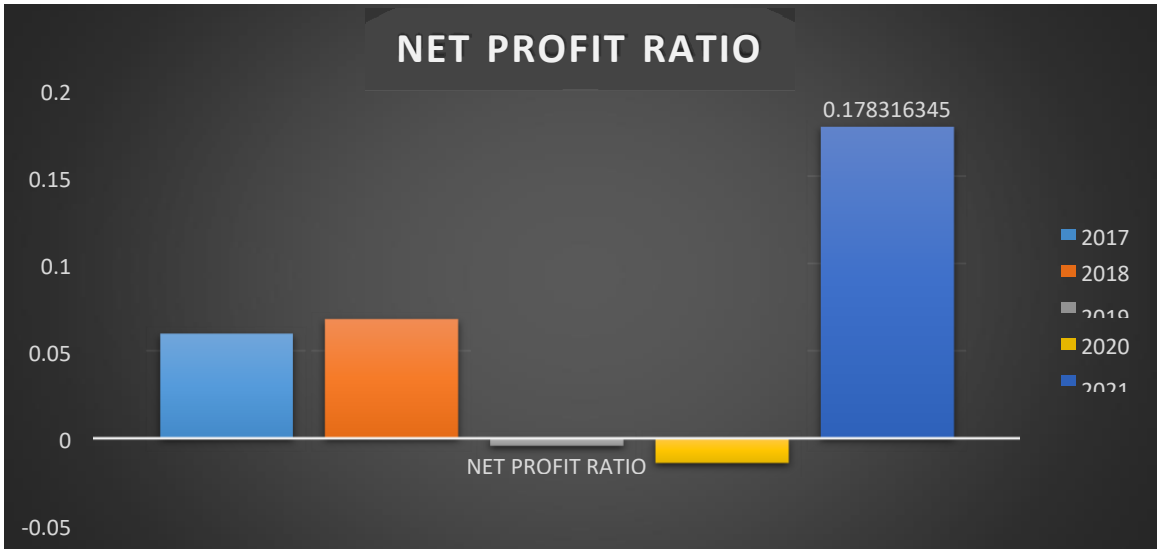


Graph. 8. Ratio of Inventory

Understanding That the company's inventory ratio is unsatisfactory is evident from the accompanying data. With a higher rate of 13.84:1 in 2017, the ratio is higher. In 2018, the rate decreases to 8.21:1, while in 2019, the inventory turnover ratio rises to 16.02:1. Diminished ratio suggests either excessive inventory or cash blockage in the inventory. In comparison to the previous year, 2020 has a lower ratio of 3.395:1, reflecting a fall in the 6.18:1 ratio.

Table. 10. Net profit ratio

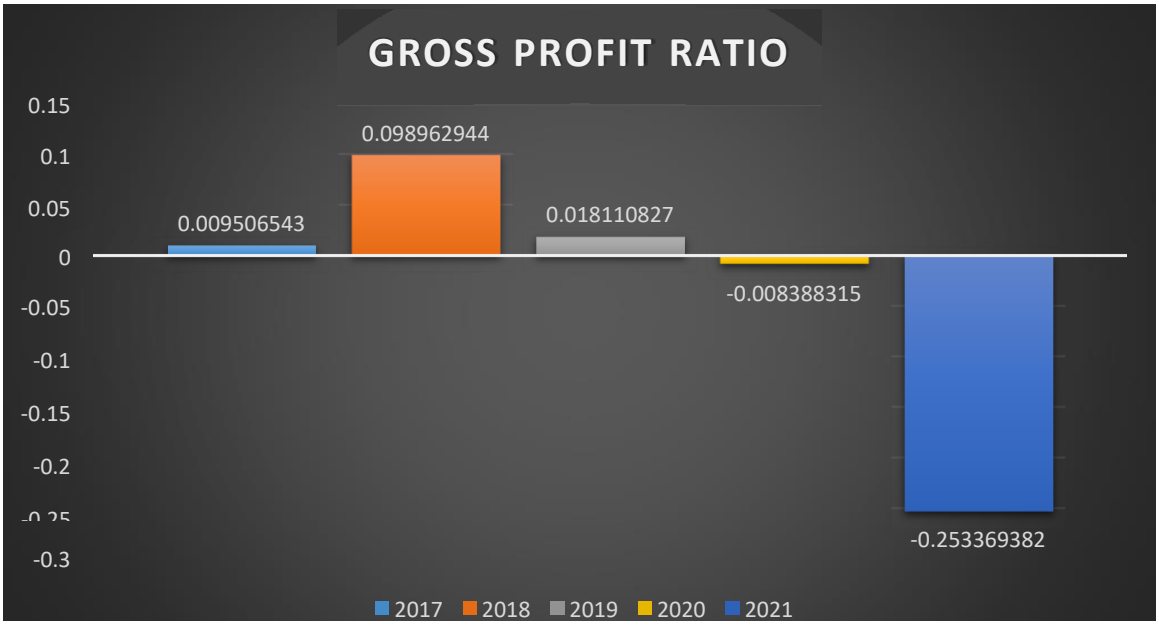
YEAR	NET PROFIT (In Rs)	NET SALES (In Rs)	NP RATIO
2017	48602580	811860340	0.059865691
2018	72616220	1064263810	0.06823141
2019	-6795019	1496203773	-0.004541506
2020	-23376987	1627755597	-0.014361485
2021	131386822	736818724	0.178316345



Graph. 9. Net profit calculations

Table. 11. Gross Profit Ratio

YEAR	NET SALES	GROSS PROFIT	GP RATIO
2017	811860340	77179820	0.0095065426
2018	1064263810	105322680	0.09896294415
2019	1496203773	27097448	0.01811082720
2020	1627755597	-13654127	-0.0083883151
2021	736818724	-186687305	-0.2533693823



Graph. 10. Profit calculation for Gross

Interpreatation there are chances to expect a steady fall in profit margins as well as no growth in dentistry due to production costs exceeding total sales

Table. 12. Correlation between gross profit and working capital using hypothesis testing

YEAR	GROSS PROFIT(In Rs)	WORKING CAPITAL(In Rs)
2017	77179820	33729740
2018	105322680	34607840
2019	27097448	-147167521
2020	-13654127	-181360751
2021	-186687305	-171033960
	CORRELATION	0.736927

Table. 13. Correlation between net profit and working capital

YEAR	NET PROFIT	WORKING CAPITAL
2017	48602580	33729740
2018	72616220	34607840
2019	-6795019	-147167521
2020	-23376987	-181360751
2021	131386822	-1710960
	CORRELATION	0.220941

There is a high connection when the correlation value is between 0.85 and 1, a moderate correlation when it is between 0.5 and 0.85, and a weak correlation when it is between 0.1 and 0.5. H0= There is no connection between profitability and working capital. Working capital and profitability are related, according to H1. Based on the 0.73 correlation between gross profit and working capital, a moderate association may be deduced. Given that there is only a 0.22 connection between net profit and working capital, it may be concluded that there is little link.

5. Conclusion

All businesses must maintain efficient working conditions, and working capital is a critical component of this. A business has to maintain a minimum amount of working capital in order to guarantee daily operational efficiency and attain long-term growth. Working capital for the company may be obtained from several sources. To evaluate the company's financial condition, liquidity, profitability, risk, solvency, efficiency, operational effectiveness, and judicious use of available money, this research uses ratio analysis. To evaluate the company's past, present, and future performance, a thorough financial assessment is conducted. The primary aim of this investigation was to examine the correlation between working capital and profitability while concurrently evaluating financial performance. The recommendations delineated in the analysis possess the capability to augment the organization's overall efficacy. The project was successfully finished despite its inherent limits thanks to the Faculty's leadership and the cooperation of many stakeholders, including the company's employees.

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