

Chapter 4

Data

Analysis

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Sr. No.	Data Analysis	Page No.
4.1	Introduction	143
4.2	Financial Competency of Each Firm	144
4.3	Financial Competitiveness of Ratio wise	275
4.4	Panel Data Regression Model Tools	340

4.1 Introduction

After defining the research problem and also designing the research methodology, the most important task is to collect the data. To study the financial performance of various brass industries, a final accounts tool has been used. The final account collected from direct company, CA & online Sources. After collecting the data, analysis was made by Ratio Analysis, PANEL Data Multiple Regression-test (ANNOVA), T-test technique as it is a multivariate analysis.

Total 15 organizations were selected by the researcher. The sample was selected by convenience sampling.

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DATA ANALYSIS

OF

Financial Competency

Firm wise

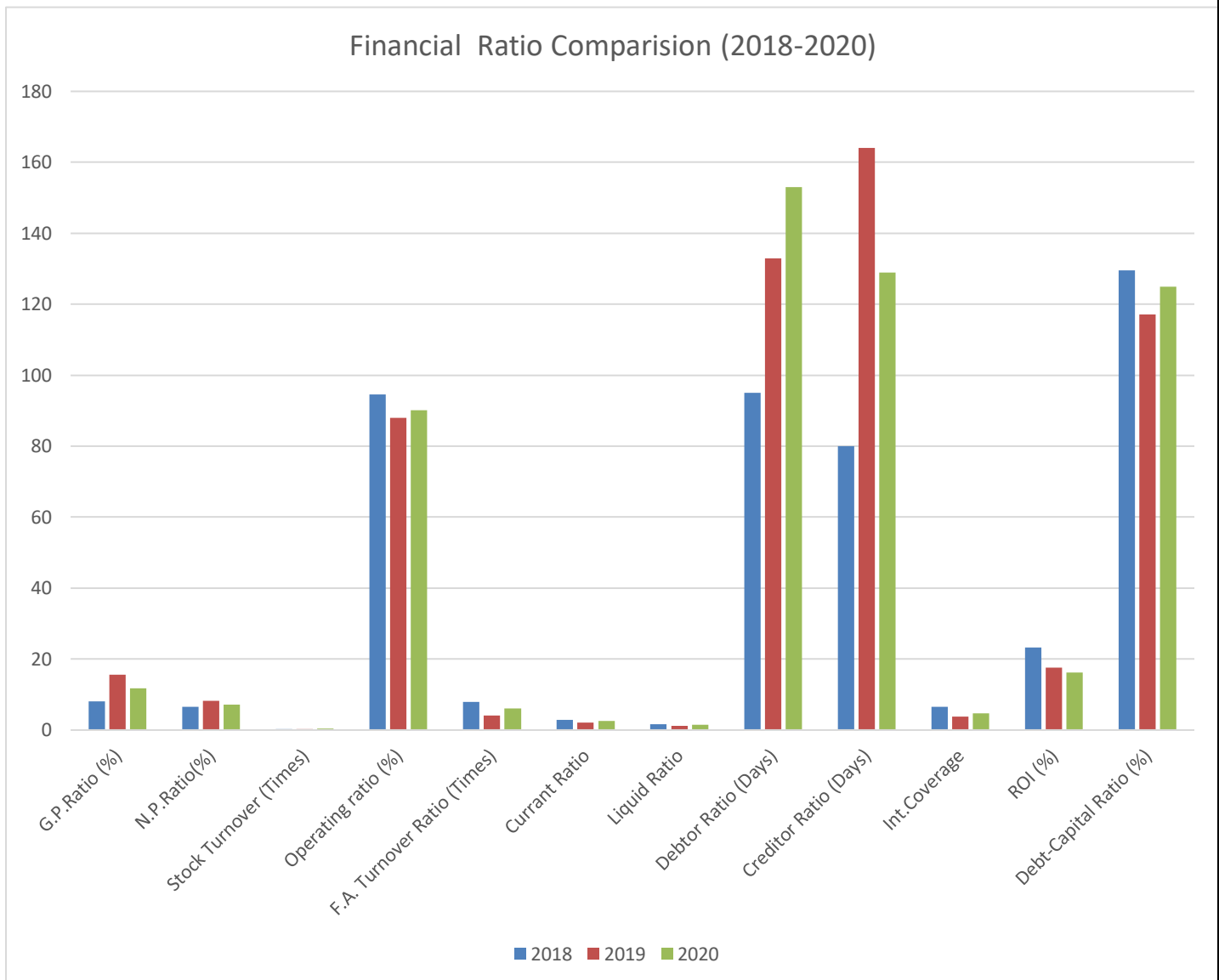
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1st Sample:

Ratio	Year		
	2018	2019	2020
Sales	90,61,390.60	67,42,304.80	83,16,366.85
Gross Profit Ratio (%)	8.05	15.56	11.75
Net Profit Ratio (%)	6.58	8.24	7.1
Stock Turnover Ratio (Times)	0.22	0.34	0.35
Operating Ratio (%)	94.56	88	90.2
Fix Assets Turnover (Times)	7.9	4.15	6.03
Current Ratio	2.85	2.18	2.63
Liquid Ratio	1.59	1.19	1.47
Debtor Ratio (Days)	95	133	153
Creditor Ratio (Days)	80	164	129
Interest Coverage (%)	6.62	3.76	4.67
Return on Investment (%)	23.2	17.55	16.27
Debt-Capital Ratio (%)	129.52	117.12	125

(Table 4.2.1 Financial Data Of Sample 1)

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(Figure 4.2.1 Financial Data Of Sample 1)

❖ Interpretation:

1. Sales:

- **2018:** ₹90,61,390.60
- **2019:** ₹67,42,304.80
- **2020:** ₹83,16,366.85

Interpretation:

Sales declined from ₹90.61 lakhs in 2018 to ₹67.42 lakhs in 2019, reflecting a decrease of around 25%. This could be due to factors such as reduced market demand or operational challenges. However, sales rebounded in 2020, increasing to ₹83.16 lakhs, which represents a growth of approximately 23% compared to 2019. This indicates some recovery, potentially due to improved market conditions or product offerings.

2. Gross Profit Ratio:

- **2018:** 8.05%
- **2019:** 15.56%
- **2020:** 11.75%

Interpretation:

The gross profit ratio improved significantly from 8.05% in 2018 to 15.56% in 2019, suggesting a more efficient cost structure or better pricing strategies that led to higher margins. However, the ratio decreased to 11.75% in 2020, possibly due to higher production costs or reduced sales prices during the year, indicating challenges in maintaining profitability despite the sales increase.

3. Net Profit Ratio:

- **2018:** 6.58%
- **2019:** 8.24%
- **2020:** 7.1%

Interpretation:

The net profit ratio increased from 6.58% in 2018 to 8.24% in 2019, reflecting a better overall profit generation from sales. However, it slightly declined to 7.1% in 2020, indicating a reduction in profitability due to higher expenses or increased competition, despite improved sales.

4. Stock Turnover Ratio:

- **2018:** 0.22
- **2019:** 0.34
- **2020:** 0.35

Interpretation:

The stock turnover ratio improved from 0.22 in 2018 to 0.34 in 2019, suggesting better inventory management and faster movement of goods. The ratio further increased to 0.35 in 2020, indicating continued improvement in managing stock levels and possibly reducing excess inventory costs.

5. Operating Ratio:

- **2018:** 94.56%
- **2019:** 88%
- **2020:** 90.2%

Interpretation:

The operating ratio improved significantly from 94.56% in 2018 to 88% in 2019, suggesting a reduction in operational expenses relative to sales. However, it increased slightly to 90.2% in 2020, possibly due to increased operational costs related to business disruptions or inflationary pressures.

6. Fixed Assets Turnover:

- **2018:** 7.9
- **2019:** 4.15
- **2020:** 6.03

Interpretation:

The fixed assets turnover ratio decreased significantly from 7.9 in 2018 to 4.15 in 2019, suggesting underutilization of assets or new asset acquisitions that were not fully optimized. However, the ratio recovered to 6.03 in 2020, indicating better asset utilization as the company adjusted to operational challenges.

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7. Current Ratio:

- **2018:** 2.85
- **2019:** 2.18
- **2020:** 2.63

Interpretation:

The current ratio decreased from 2.85 in 2018 to 2.18 in 2019, indicating a slight reduction in liquidity. However, it improved to 2.63 in 2020, suggesting a better ability to cover short-term liabilities, possibly due to stronger cash flow or better working capital management.

8. Liquid Ratio:

- **2018:** 1.59
- **2019:** 1.19
- **2020:** 1.47

Interpretation:

The liquid ratio decreased from 1.59 in 2018 to 1.19 in 2019, indicating reduced short-term financial flexibility. The ratio improved to 1.47 in 2020, suggesting better liquidity management, with the company better prepared to meet immediate financial obligations.

9. Debtor Ratio (Days):

- **2018:** 95
- **2019:** 133
- **2020:** 153

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Interpretation:

The debtor ratio increased from 95 days in 2018 to 133 days in 2019, indicating slower collections from customers. The trend worsened further in 2020, reaching 153 days, suggesting that the company faced growing challenges in managing receivables, possibly due to delays caused by the pandemic.

10. Creditor Ratio (Days):

- **2018:** 80
- **2019:** 164
- **2020:** 129

Interpretation:

The creditor ratio increased significantly from 80 days in 2018 to 164 days in 2019, suggesting that the company delayed payments to suppliers, possibly to preserve cash flow. The ratio decreased to 129 days in 2020, indicating a reduction in supplier credit terms and possibly improved cash flow management.

11. Interest Coverage Ratio:

- **2018:** 6.62%
- **2019:** 3.76%
- **2020:** 4.67%

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Interpretation:

The interest coverage ratio decreased from 6.62% in 2018 to 3.76% in 2019, indicating a reduced ability to meet interest payments, likely due to lower operating profits. However, it improved to 4.67% in 2020, suggesting a partial recovery in profitability or a reduction in debt servicing requirements.

12. Return on Investment (ROI):

- **2018:** 23.2%
- **2019:** 17.55%
- **2020:** 16.27%

Interpretation:

ROI declined from 23.2% in 2018 to 17.55% in 2019, reflecting reduced returns from investments. This decline continued in 2020 to 16.27%, indicating that the company's investments became less efficient in generating returns, possibly due to the adverse economic impact of the pandemic.

13. Debt-Capital Ratio:

- **2018:** 129.52%
- **2019:** 117.12%
- **2020:** 125%

Interpretation:

The debt-capital ratio decreased from 129.52% in 2018 to 117.12% in 2019, indicating reduced reliance on debt. However, it increased to 125% in 2020, suggesting the company took on more debt relative to its equity, possibly to fund operations or mitigate losses during challenging times.

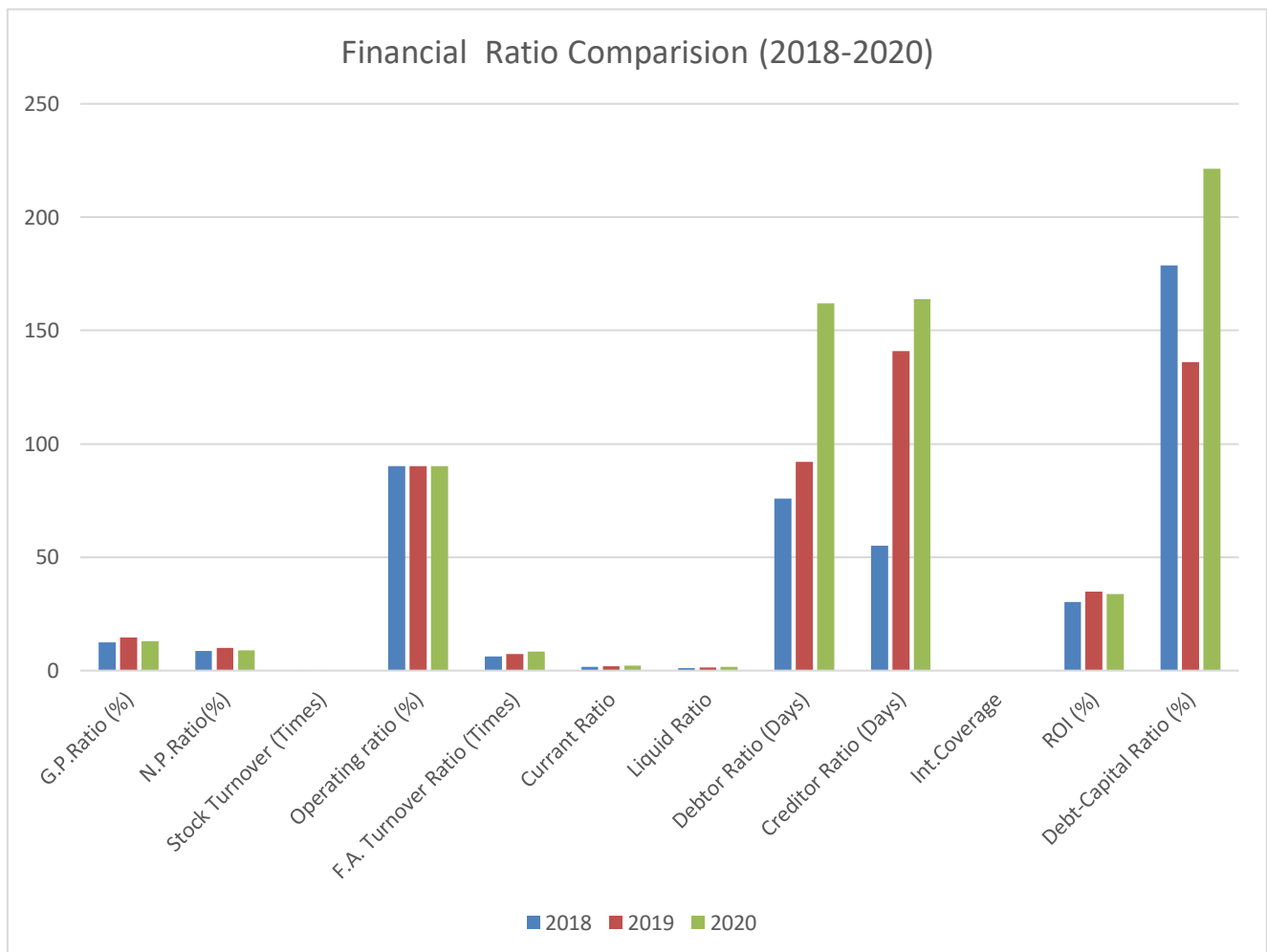
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2nd Sample:

Ratio	Year		
	2018	2019	2020
Sales	13,76,525.66	16,05,946.60	18,27,706.57
Gross Profit Ratio (%)	12.4	14.61	13.08
Net Profit Ratio (%)	8.68	9.93	9.02
Stock Turnover Ratio (Times)	0.17	0.2	0.16
Operating Ratio (%)	90.12	90.2	90.2
Fix Assets Turnover (Times)	6.32	7.38	8.4
Current Ratio	1.6	1.88	2.1
Liquid Ratio	1.12	1.31	1.63
Debtor Ratio (Days)	76	92	162
Creditor Ratio (Days)	55	141	164
Return on Investment (%)	30.28	34.88	33.86
Debt-Capital Ratio (%)	178.82	136.17	221.46

(Table 4.2.2 Financial Data Of Sample 2)

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(Figure 4.2.2 Financial Data Of Sample 2)

❖ Interpretation:

1. Sales:

- **2018:** ₹13,76,525.66
- **2019:** ₹16,05,946.60
- **2020:** ₹18,27,706.57

Interpretation:

Sales increased from ₹13.76 lakhs in 2018 to ₹16.06 lakhs in 2019, reflecting a growth of approximately 17%. In 2020, sales further grew to ₹18.28 lakhs, marking a rise of about 14% compared to 2019. This consistent growth over the years indicates strong demand and a successful business strategy.

2. Gross Profit Ratio:

- **2018:** 12.4%
- **2019:** 14.61%
- **2020:** 13.08%

Interpretation:

The gross profit ratio improved from 12.4% in 2018 to 14.61% in 2019, indicating better cost control or increased profitability in sales. However, it slightly decreased to 13.08% in 2020, suggesting higher production costs or pricing pressures, despite the growth in sales.

3. Net Profit Ratio:

- **2018:** 8.68%
- **2019:** 9.93%
- **2020:** 9.02%

Interpretation:

The net profit ratio improved from 8.68% in 2018 to 9.93% in 2019, reflecting more efficient cost management and profit generation. However, it declined slightly to 9.02% in 2020, possibly due to increased operational costs or market challenges in the year.

4. Stock Turnover Ratio:

- **2018:** 0.17
- **2019:** 0.2
- **2020:** 0.16

Interpretation:

The stock turnover ratio improved from 0.17 in 2018 to 0.2 in 2019, suggesting more efficient management of inventory. However, it decreased to 0.16 in 2020, which may indicate slower sales or a buildup in inventory, potentially due to reduced demand or operational disruptions.

5. Operating Ratio:

- **2018:** 90.12%
- **2019:** 90.2%
- **2020:** 90.2%

Interpretation:

The operating ratio remained relatively stable, hovering around 90% from 2018 to 2020. This indicates that operating expenses consistently accounted for about 90% of sales, reflecting a stable cost structure, although there is little room for improvement in terms of cost efficiency.

6. Fixed Assets Turnover:

- **2018:** 6.32
- **2019:** 7.38
- **2020:** 8.4

Interpretation:

The fixed assets turnover ratio increased from 6.32 in 2018 to 7.38 in 2019, suggesting improved utilization of fixed assets to generate sales. The ratio further improved to 8.4 in 2020, indicating continued efficient asset utilization, possibly due to investments in productive assets.

7. Current Ratio:

- **2018:** 1.6
- **2019:** 1.88
- **2020:** 2.1

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Interpretation:

The current ratio increased from 1.6 in 2018 to 1.88 in 2019, suggesting improved liquidity and the ability to cover short-term liabilities. In 2020, it further increased to 2.1, indicating even stronger liquidity and better financial health in terms of short-term obligations.

8. Liquid Ratio:

- **2018:** 1.12
- **2019:** 1.31
- **2020:** 1.63

Interpretation:

The liquid ratio improved from 1.12 in 2018 to 1.31 in 2019, indicating better immediate financial flexibility. The ratio further improved to 1.63 in 2020, suggesting the company is in a strong position to meet short-term financial commitments without relying on inventory or other less liquid assets.

9. Debtor Ratio (Days):

- **2018:** 76
- **2019:** 92
- **2020:** 162

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Interpretation:

The debtor ratio increased from 76 days in 2018 to 92 days in 2019, indicating a longer time to collect receivables. The trend worsened further in 2020, with the ratio reaching 162 days, suggesting growing issues with delayed payments or reduced customer ability to pay, possibly due to the pandemic.

10. Creditor Ratio (Days):

- **2018:** 55
- **2019:** 141
- **2020:** 164

Interpretation:

The creditor ratio increased significantly from 55 days in 2018 to 141 days in 2019, indicating that the company delayed payments to suppliers. This trend continued in 2020, with the ratio rising to 164 days, reflecting a strategic decision to extend credit terms or cash flow issues.

11. Return on Investment (ROI):

- **2018:** 30.28%
- **2019:** 34.88%
- **2020:** 33.86%

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Interpretation:

The return on investment increased from 30.28% in 2018 to 34.88% in 2019, showing improved profitability from investments. Although it slightly declined to 33.86% in 2020, the ROI remained strong, indicating continued effective use of capital to generate returns.

12. Debt-Capital Ratio:

- **2018:** 178.82%
- **2019:** 136.17%
- **2020:** 221.46%

Interpretation:

The debt-capital ratio decreased from 178.82% in 2018 to 136.17% in 2019, suggesting a reduced reliance on debt. However, the ratio increased significantly to 221.46% in 2020, indicating a higher reliance on debt for financing, possibly to mitigate the impact of the pandemic or to fund growth during uncertain times.

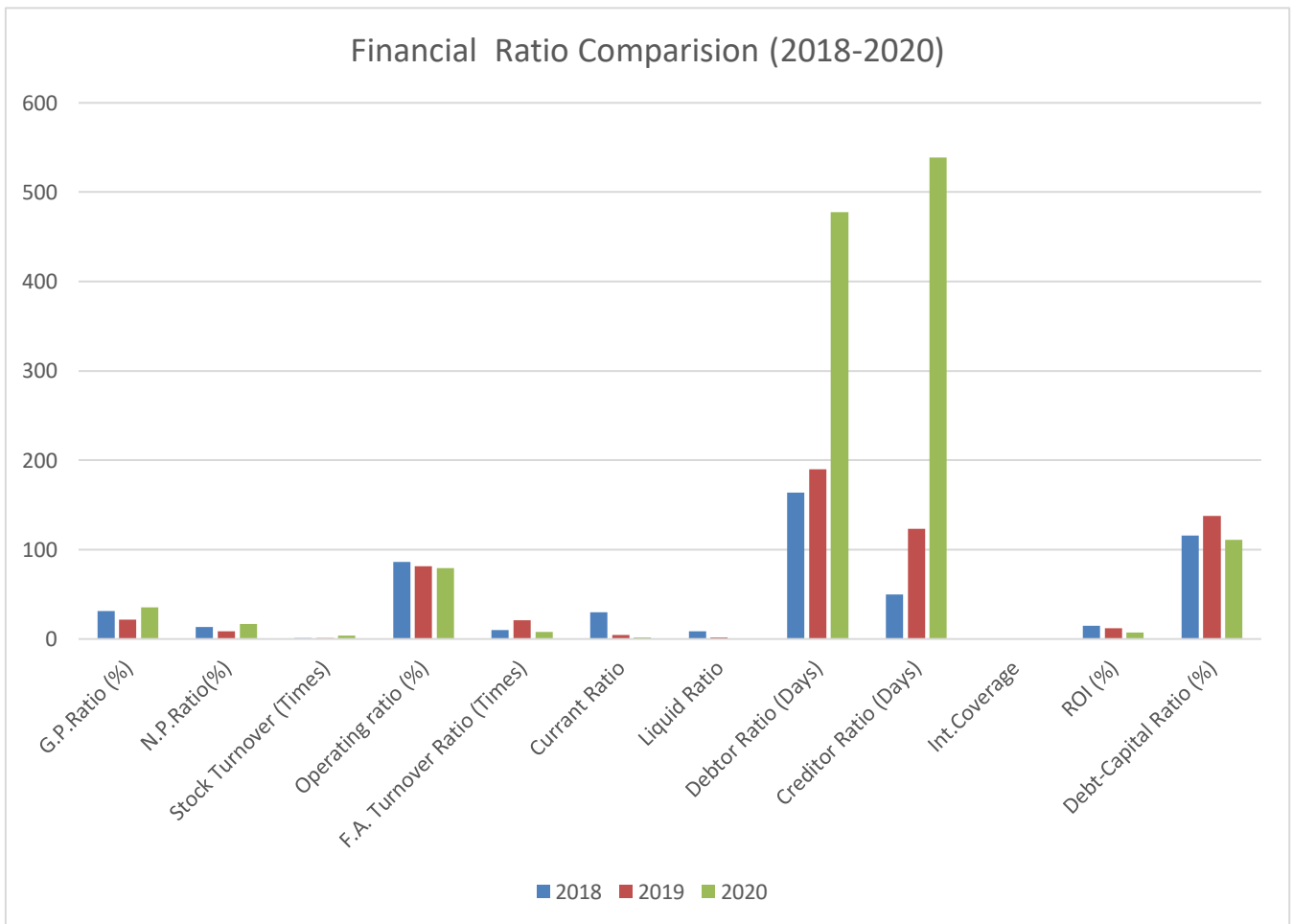
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3rd Sample:

Ratio	Year		
	2018	2019	2020
Sales	89,98,378.39	71,20,745.34	67,39,476.60
Gross Profit Ratio (%)	7.63	10.99	13
Net Profit Ratio (%)	6.74	8.86	9.46
Stock Turnover Ratio (Times)	0.15	0.35	0.29
Operating Ratio (%)	93.77	90.4	88.38
Fix Assets Turnover (Times)	8.68	3.13	2.09
Current Ratio	1.8	2.22	1.99
Liquid Ratio	1.29	1.35	1.28
Debtor Ratio (Days)	349	277	148
Creditor Ratio (Days)	114	155	210
Interest Coverage (%)	24.56	6.8	4
Return on Investment (%)	20.61	19.18	17.87
Debt-Capital Ratio (%)	104.85	176.25	161.33

(Table 4.2.3 Financial Data Of Sample 3)

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(Figure 4.2.3 Financial Data Of Sample 3)

❖ Interpretation:

1. Sales:

- **2018:** ₹89,98,378.39
- **2019:** ₹71,20,745.34
- **2020:** ₹67,39,476.60

Interpretation:

Sales decreased from ₹89.98 lakhs in 2018 to ₹71.21 lakhs in 2019, reflecting a decline of approximately 21%. This trend continued into 2020 with sales falling further to ₹67.39 lakhs, marking a reduction of about 5%. The decline in sales could be attributed to market conditions, operational issues, or external factors like the COVID-19 pandemic.

2. Gross Profit Ratio:

- **2018:** 7.63%
- **2019:** 10.99%
- **2020:** 13%

Interpretation:

The gross profit ratio improved from 7.63% in 2018 to 10.99% in 2019, suggesting better control over production costs or an increase in sales profitability. This upward trend continued in 2020, reaching 13%, indicating that despite lower sales, the company managed to improve its profitability, possibly due to cost-cutting measures or higher pricing.

3. Net Profit Ratio:

- **2018:** 6.74%
- **2019:** 8.86%
- **2020:** 9.46%

Interpretation:

The net profit ratio increased from 6.74% in 2018 to 8.86% in 2019, reflecting better cost management and operational efficiency. This trend continued in 2020, with the ratio rising further to 9.46%, indicating sustained profitability despite challenges such as declining sales or economic uncertainty.

4. Stock Turnover Ratio:

- **2018:** 0.15
- **2019:** 0.35
- **2020:** 0.29

Interpretation:

The stock turnover ratio improved from 0.15 in 2018 to 0.35 in 2019, indicating more efficient management of inventory. However, the ratio decreased slightly to 0.29 in 2020, which could suggest that the company faced slower sales or a buildup of inventory, possibly due to reduced demand during the pandemic.

5. Operating Ratio:

- **2018:** 93.77%
- **2019:** 90.4%
- **2020:** 88.38%

Interpretation:

The operating ratio decreased from 93.77% in 2018 to 90.4% in 2019, indicating improved operational efficiency. This improvement continued in 2020, with the operating ratio dropping to 88.38%, reflecting better control over operating expenses and a more efficient cost structure despite declining sales.

6. Fixed Assets Turnover:

- **2018:** 8.68
- **2019:** 3.13
- **2020:** 2.09

Interpretation:

The fixed assets turnover ratio decreased significantly from 8.68 in 2018 to 3.13 in 2019, suggesting a reduction in the efficiency of utilizing fixed assets. In 2020, the ratio further declined to 2.09, indicating a continued underutilization of assets, which could be due to lower sales and less demand for capacity.

7. Current Ratio:

- **2018:** 1.8
- **2019:** 2.22
- **2020:** 1.99

Interpretation:

The current ratio improved from 1.8 in 2018 to 2.22 in 2019, indicating better short-term liquidity and the ability to cover current liabilities. In 2020, the ratio decreased slightly to 1.99, still indicating good liquidity, but showing a slight drop in the company's ability to meet short-term obligations compared to 2019.

8. Liquid Ratio:

- **2018:** 1.29
- **2019:** 1.35
- **2020:** 1.28

Interpretation:

The liquid ratio increased from 1.29 in 2018 to 1.35 in 2019, suggesting improved immediate financial flexibility. However, it slightly decreased to 1.28 in 2020, indicating that while the company still had sufficient liquid assets to cover its immediate liabilities, its ability to do so declined marginally.

9. Debtor Ratio (Days):

- **2018:** 349
- **2019:** 277
- **2020:** 148

Interpretation:

The debtor ratio decreased significantly from 349 days in 2018 to 277 days in 2019, reflecting a faster collection of receivables. This trend continued in 2020, with the debtor ratio dropping to 148 days, indicating a marked improvement in the company's ability to collect payments, possibly due to more efficient credit management or reduced sales credit terms.

10. Creditor Ratio (Days):

- **2018:** 114
- **2019:** 155
- **2020:** 210

Interpretation:

The creditor ratio increased from 114 days in 2018 to 155 days in 2019, indicating that the company took longer to pay its suppliers. This trend continued in 2020, with the ratio rising to 210 days, suggesting a strategic decision to delay payments, possibly due to cash flow issues or efforts to manage liquidity during a challenging year.

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11. Interest Coverage:

- **2018:** 24.56%
- **2019:** 6.8%
- **2020:** 4%

Interpretation:

The interest coverage ratio significantly declined from 24.56% in 2018 to 6.8% in 2019, suggesting a decrease in the company's ability to cover interest expenses with its earnings. This decline worsened further in 2020, with the ratio dropping to 4%, indicating significant pressure on earnings to meet interest obligations, which could reflect financial stress or higher debt levels.

12. Return on Investment (ROI):

- **2018:** 20.61%
- **2019:** 19.18%
- **2020:** 17.87%

Interpretation:

The return on investment decreased from 20.61% in 2018 to 19.18% in 2019, indicating a slight decline in the profitability of investments. This trend continued in 2020, with the ROI falling to 17.87%, suggesting a further decline in the returns generated from investments, possibly due to lower sales or higher costs during the pandemic.

13. Debt-Capital Ratio:

- **2018:** 104.85%
- **2019:** 176.25%
- **2020:** 161.33%

Interpretation:

The debt-capital ratio increased from 104.85% in 2018 to 176.25% in 2019, indicating a higher reliance on debt for financing. Although the ratio decreased slightly to 161.33% in 2020, it still reflects a significant debt burden, which could be concerning if not managed properly, especially given the declining profitability and sales performance.

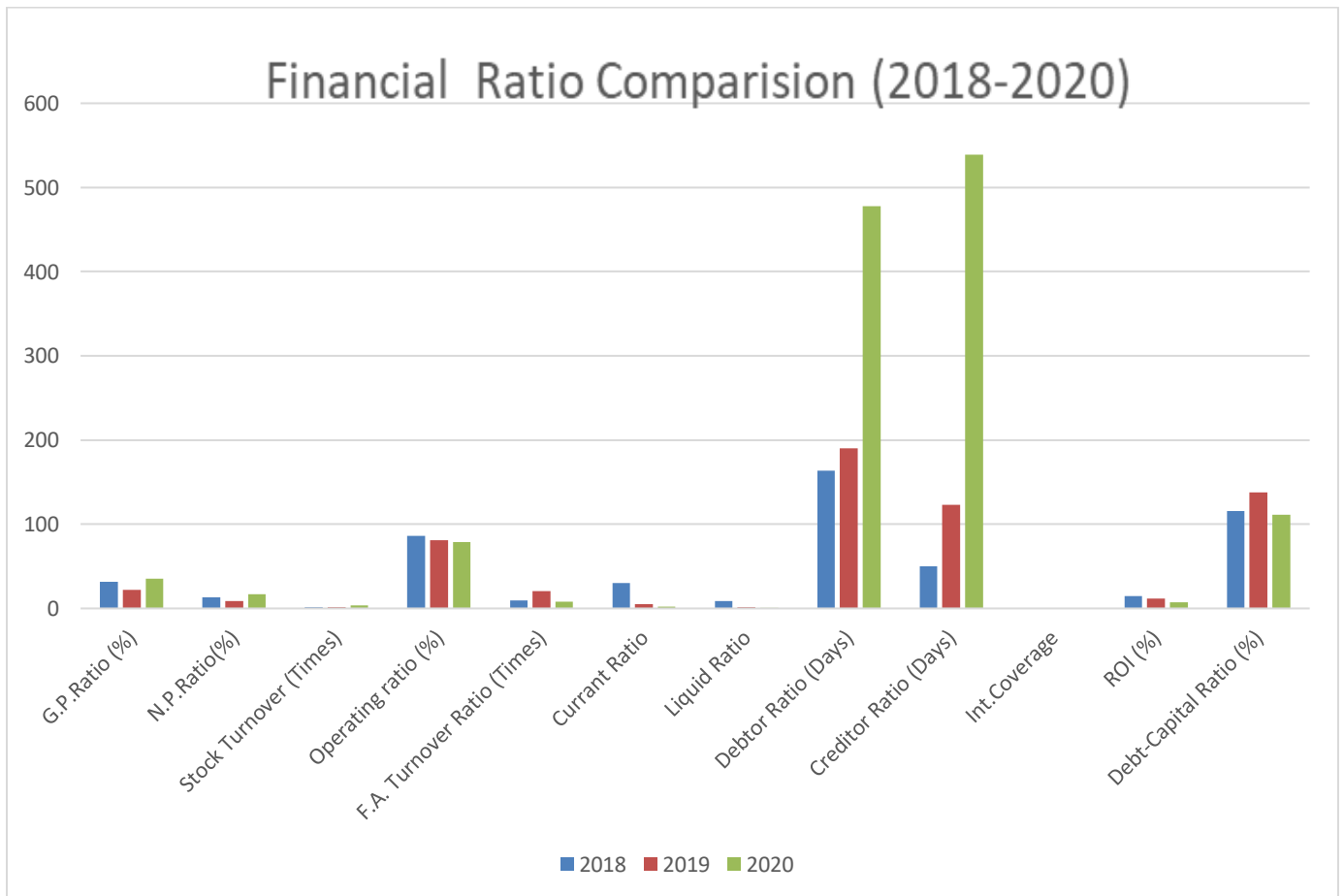
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4th Sample:

Ratio	Year		
	2018	2019	2020
Sales	28,15,763.25	45,58,785.80	14,52,762.10
Gross Profit Ratio (%)	31.84	21.83	35.63
Net Profit Ratio (%)	13.16	8.73	17.10
Stock Turnover Ratio (Times)	1.38	1.12	3.79
Operating Ratio (%)	85.88	81.31	79.08
Fix Assets Turnover (Times)	9.9	20.9	7.76
Current Ratio	29.9	4.77	1.84
Liquid Ratio	8.45	1.56	0.56
Debtor Ratio (Days)	164	190	478
Creditor Ratio (Days)	50	123	539
Return on Investment (%)	14.96	12.08	7.40
Debt-Capital Ratio (%)	115.54	137.83	111.27

(Table 4.2.4 Financial Data Of Sample 4)

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(Figure 4.2.4 Financial Data Of Sample 4)

❖ Interpretation:

1. Sales:

- **2018:** ₹28,15,763.25
- **2019:** ₹45,58,785.80
- **2020:** ₹14,52,762.10

Interpretation:

Sales increased significantly from ₹28.16 lakhs in 2018 to ₹45.59 lakhs in 2019, showing a growth of approximately 62%. However, in 2020, sales drastically declined to ₹14.53 lakhs, reflecting a reduction of around 68% compared to 2019. This sharp decline could be due to factors such as market downturns, operational disruptions, or external challenges like the COVID-19 pandemic.

2. Gross Profit Ratio:

- **2018:** 31.84%
- **2019:** 21.83%
- **2020:** 35.63%

Interpretation:

The gross profit ratio decreased from 31.84% in 2018 to 21.83% in 2019, indicating reduced profitability or higher costs of goods sold. However, it improved significantly to 35.63% in 2020, suggesting that despite the significant drop in sales, the company managed to improve its cost structure, possibly through better cost control or price increases.

3. Net Profit Ratio:

- **2018:** 13.16%
- **2019:** 8.73%
- **2020:** 17.10%

Interpretation:

The net profit ratio decreased from 13.16% in 2018 to 8.73% in 2019, reflecting a drop in overall profitability. In 2020, the ratio rose to 17.10%, which is a significant improvement, indicating that the company became more efficient in managing expenses or had a more favorable cost structure despite the lower sales.

4. Stock Turnover Ratio:

- **2018:** 1.38
- **2019:** 1.12
- **2020:** 3.79

Interpretation:

The stock turnover ratio decreased from 1.38 in 2018 to 1.12 in 2019, indicating a slower movement of inventory. However, the ratio increased substantially to 3.79 in 2020, suggesting that the company managed to improve inventory turnover, possibly due to reduced production or better sales performance, despite overall lower sales.

5. Operating Ratio:

- **2018:** 85.88%
- **2019:** 81.31%
- **2020:** 79.08%

Interpretation:

The operating ratio improved from 85.88% in 2018 to 81.31% in 2019, reflecting better control over operating expenses. This trend continued in 2020, with the operating ratio further decreasing to 79.08%, indicating improved operational efficiency despite the sales slump.

6. Fixed Assets Turnover:

- **2018:** 9.9
- **2019:** 20.9
- **2020:** 7.76

Interpretation:

The fixed assets turnover ratio improved significantly from 9.9 in 2018 to 20.9 in 2019, suggesting efficient use of fixed assets in generating sales. However, the ratio decreased to 7.76 in 2020, indicating a decline in the efficiency of fixed asset utilization, possibly due to lower sales and reduced capacity usage.

7. Current Ratio:

- **2018:** 29.9
- **2019:** 4.77
- **2020:** 1.84

Interpretation:

The current ratio decreased drastically from 29.9 in 2018 to 4.77 in 2019, reflecting a decline in the company's liquidity. This trend continued in 2020, with the ratio dropping to 1.84, indicating that while the company still had adequate liquidity, its ability to meet short-term obligations had been considerably reduced.

8. Liquid Ratio:

- **2018:** 8.45
- **2019:** 1.56
- **2020:** 0.56

Interpretation:

The liquid ratio decreased sharply from 8.45 in 2018 to 1.56 in 2019, indicating a significant reduction in the company's ability to cover immediate liabilities with its liquid assets. In 2020, the ratio further decreased to 0.56, indicating potential liquidity issues and an inability to meet short-term obligations without depending on inventory or other non-liquid assets.

9. Debtor Ratio (Days):

- **2018:** 164
- **2019:** 190
- **2020:** 478

Interpretation:

The debtor ratio increased from 164 days in 2018 to 190 days in 2019, indicating that it took longer to collect receivables. The ratio worsened significantly in 2020, reaching 478 days, suggesting severe issues in credit management and collection processes, possibly due to economic conditions or a slowdown in customer payments.

10. Creditor Ratio (Days):

- **2018:** 50
- **2019:** 123
- **2020:** 539

Interpretation:

The creditor ratio increased from 50 days in 2018 to 123 days in 2019, suggesting that the company took longer to pay its suppliers. This trend continued in 2020, with the ratio rising to 539 days, indicating significant delays in payments to creditors, possibly due to cash flow problems or an effort to conserve liquidity during difficult times.

11. Return on Investment (ROI):

- **2018:** 14.96%
- **2019:** 12.08%
- **2020:** 7.40%

Interpretation:

The ROI decreased from 14.96% in 2018 to 12.08% in 2019, reflecting a decline in the profitability of investments. In 2020, ROI further decreased to 7.40%, suggesting that the returns on investments were significantly impacted, possibly due to the company's poor sales performance and higher operational costs.

12. Debt-Capital Ratio:

- **2018:** 115.54%
- **2019:** 137.83%
- **2020:** 111.27%

Interpretation:

The debt-capital ratio increased from 115.54% in 2018 to 137.83% in 2019, indicating a higher reliance on debt financing. In 2020, the ratio decreased to 111.27%, reflecting a reduction in the company's debt burden, which could be a result of debt repayment or a decrease in overall capital requirements during the year.

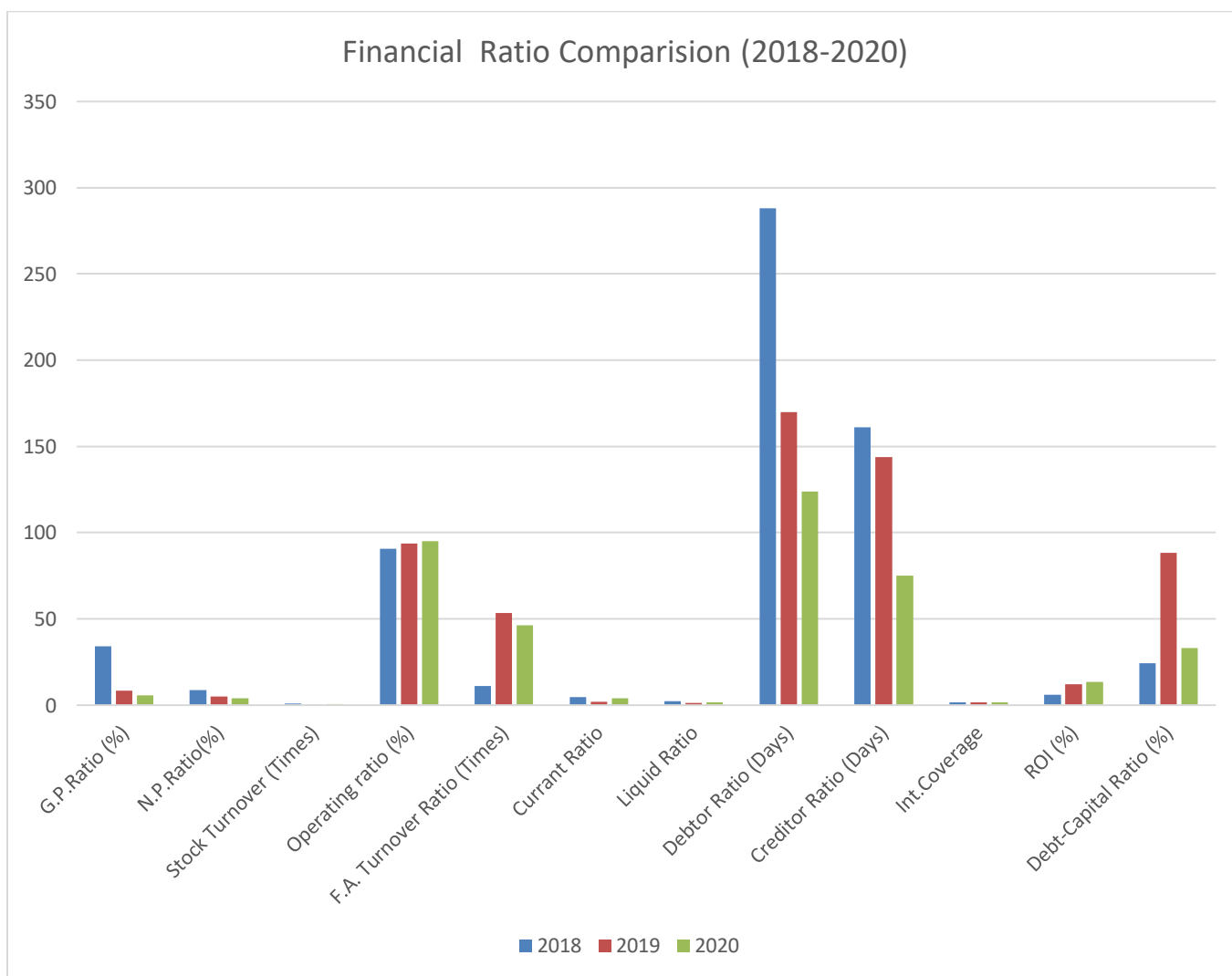
"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

5th Sample:

Ratio	Year		
	2018	2019	2020
Sales	23,21,687.00	94.,24,730.10	69,27,602.59
Gross Profit Ratio (%)	34.16	8.44	5.56
Net Profit Ratio (%)	8.88	5.06	4.17
Stock Turnover Ratio (Times)	1.07	0.29	0.45
Operating Ratio (%)	90.63	93.72	95.08
Fix Assets Turnover (Times)	11.24	53.58	46.24
Current Ratio	4.84	2.07	3.89
Liquid Ratio	2.27	1.28	1.69
Debtor Ratio (Days)	288	170	124
Creditor Ratio (Days)	161	144	75
Interest Coverage (%)	1.65	1.48	1.57
Return on Investment (%)	6.20	12.13	13.62
Debt-Capital Ratio (%)	24.32	88.3	33.28

(Table No. 4.2.5 Financial Data Of Sample 5)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.2.5 Financial Data Of Sample 5)

❖ Interpretation:

1. Sales:

- **2018:** ₹23,21,687.00
- **2019:** ₹94,24,730.10
- **2020:** ₹69,27,602.59

Interpretation:

Sales saw a dramatic increase from ₹23.22 lakhs in 2018 to ₹94.25 lakhs in 2019, reflecting a growth of about 306%. However, in 2020, sales dropped to ₹69.28 lakhs, showing a decline of approximately 26% compared to 2019. The significant dip in 2020 could be attributed to various factors like market conditions or economic disruptions such as the COVID-19 pandemic.

2. Gross Profit Ratio:

- **2018:** 34.16%
- **2019:** 8.44%
- **2020:** 5.56%

Interpretation:

The gross profit ratio decreased sharply from 34.16% in 2018 to 8.44% in 2019, indicating a substantial rise in the cost of goods sold or lower sales profitability in 2019. This downward trend continued in 2020, with the ratio dropping further to 5.56%, highlighting significant challenges in managing production costs or pricing pressures in a tough business environment.

3. Net Profit Ratio:

- **2018:** 8.88%
- **2019:** 5.06%
- **2020:** 4.17%

Interpretation:

The net profit ratio declined from 8.88% in 2018 to 5.06% in 2019, indicating that the company's overall profitability decreased, possibly due to rising operational costs or lower sales efficiency. In 2020, the ratio further decreased to 4.17%, signaling that the company faced further challenges in maintaining profitability amidst declining sales.

4. Stock Turnover Ratio:

- **2018:** 1.07
- **2019:** 0.29
- **2020:** 0.45

Interpretation:

The stock turnover ratio decreased from 1.07 in 2018 to 0.29 in 2019, showing that inventory was moving slower in 2019. Although it improved to 0.45 in 2020, it still reflects a relatively low inventory turnover, suggesting either overstocking or reduced demand, which led to a slower sales cycle.

5. Operating Ratio:

- **2018:** 90.63%
- **2019:** 93.72%
- **2020:** 95.08%

Interpretation:

The operating ratio increased from 90.63% in 2018 to 93.72% in 2019, indicating that the company's operating expenses were rising as a percentage of sales. This trend continued in 2020 with the operating ratio increasing to 95.08%, suggesting further strain on the company's cost management or increasing inefficiencies in operations.

6. Fixed Assets Turnover:

- **2018:** 11.24
- **2019:** 53.58
- **2020:** 46.24

Interpretation:

The fixed assets turnover ratio increased significantly from 11.24 in 2018 to 53.58 in 2019, indicating a substantial improvement in the efficiency of using fixed assets to generate sales. However, the ratio decreased to 46.24 in 2020, reflecting a slight decline in efficiency, likely due to the reduction in sales and underutilization of fixed assets during the year.

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7. Current Ratio:

- **2018:** 4.84
- **2019:** 2.07
- **2020:** 3.89

Interpretation:

The current ratio decreased from 4.84 in 2018 to 2.07 in 2019, indicating a significant drop in liquidity and a reduced ability to cover short-term liabilities with current assets. However, the ratio improved to 3.89 in 2020, reflecting better liquidity management and a healthier position to meet short-term obligations despite a decline in sales.

8. Liquid Ratio:

- **2018:** 2.27
- **2019:** 1.28
- **2020:** 1.69

Interpretation:

The liquid ratio decreased from 2.27 in 2018 to 1.28 in 2019, indicating reduced immediate liquidity to cover liabilities without relying on inventory. In 2020, the ratio improved to 1.69, showing a recovery in liquidity and a better ability to meet short-term obligations with liquid assets.

9. Debtor Ratio (Days):

- **2018:** 288
- **2019:** 170
- **2020:** 124

Interpretation:

The debtor ratio decreased from 288 days in 2018 to 170 days in 2019, indicating an improvement in the company's credit management and faster collection of receivables. This trend continued in 2020, with the ratio dropping to 124 days, reflecting even better performance in receivables collection and improved cash flow management.

10. Creditor Ratio (Days):

- **2018:** 161
- **2019:** 144
- **2020:** 75

Interpretation:

The creditor ratio decreased from 161 days in 2018 to 144 days in 2019, suggesting that the company took less time to pay its creditors. This trend continued in 2020, with the ratio further decreasing to 75 days, indicating an even quicker settlement of payables, possibly due to cash flow management or a strategy to improve supplier relations.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

11. Interest Coverage:

- **2018:** 1.65
- **2019:** 1.48
- **2020:** 1.57

Interpretation:

The interest coverage ratio decreased from 1.65 in 2018 to 1.48 in 2019, indicating a slight reduction in the company's ability to cover interest expenses with operating income. In 2020, the ratio improved to 1.57, suggesting that the company's ability to meet interest payments improved, despite lower profitability.

12. Return on Investment (ROI):

- **2018:** 6.20%
- **2019:** 12.13%
- **2020:** 13.62%

Interpretation:

The return on investment increased from 6.20% in 2018 to 12.13% in 2019, indicating a stronger return from investments. The trend continued in 2020 with an increase to 13.62%, suggesting that despite the challenges faced in sales and profitability, the company was able to generate higher returns on investments, possibly through better asset management or more efficient operations.

13. Debt-Capital Ratio:

- **2018:** 24.32%
- **2019:** 88.3%
- **2020:** 33.28%

Interpretation:

The debt-capital ratio increased significantly from 24.32% in 2018 to 88.3% in 2019, indicating that the company became more reliant on debt financing. However, in 2020, the ratio decreased to 33.28%, reflecting a reduction in debt financing or an increase in equity capital, which helped reduce the company's financial leverage.

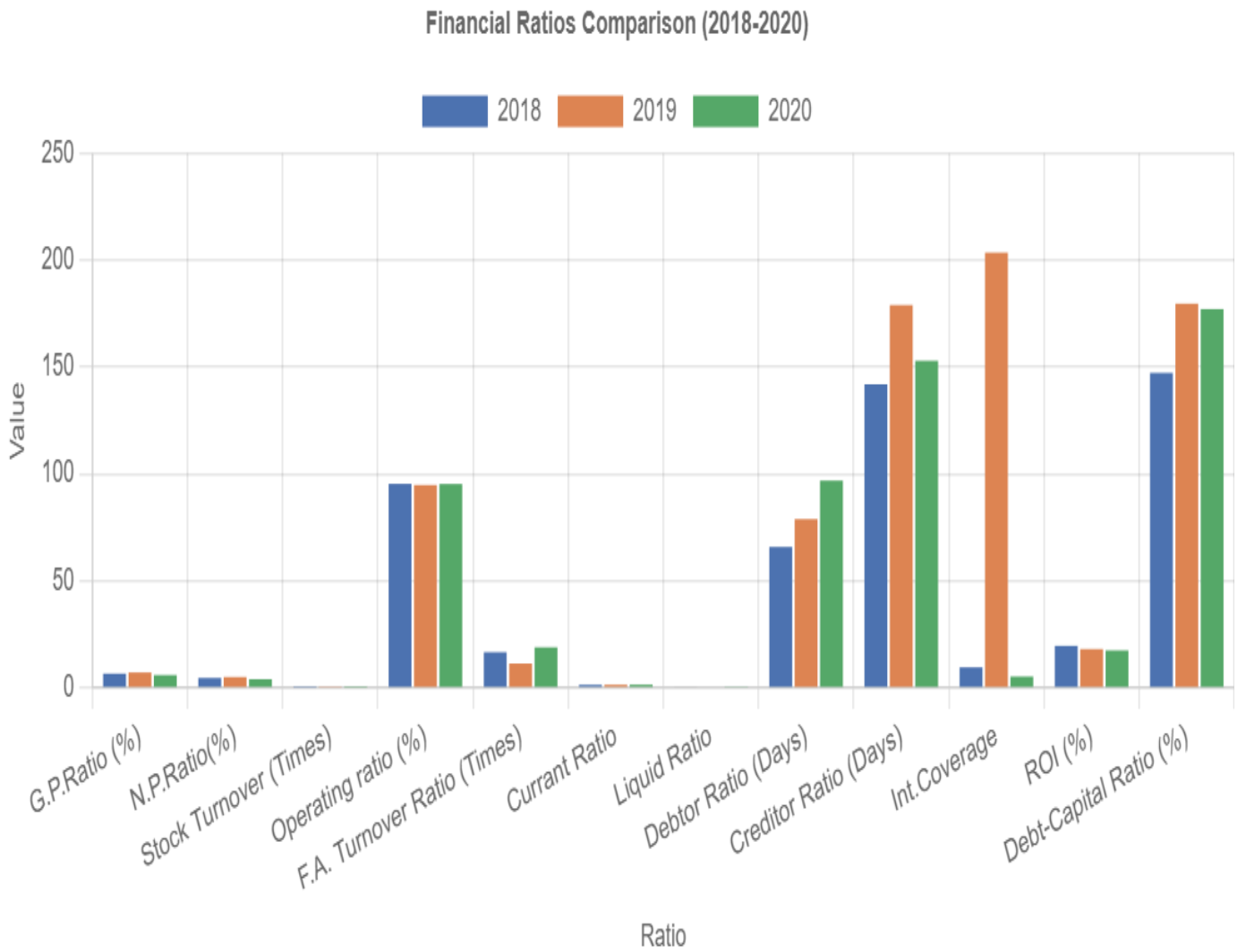
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6th Sample:

Ratio	Year		
	2018	2019	2020
Sales	1,36,90,083.50	1,28,14,697.85	1,81,30,121.08
Gross Profit Ratio (%)	6.79	7.32	6.11
Net Profit Ratio (%)	4.77	5.18	4.18
Stock Turnover Ratio (Times)	0.31	0.42	0.29
Operating Ratio (%)	95.48	94.91	95.41
Fix Assets Turnover (Times)	16.79	11.5	19.08
Current Ratio	1.56	1.59	1.63
Liquid Ratio	0.63	0.61	0.79
Debtor Ratio (Days)	66	79	97
Creditor Ratio (Days)	142	179	153
Interest Coverage (%)	9.72	203.53	5.43
Return on Investment (%)	19.76	18.24	17.63
Debt-Capital Ratio (%)	147.33	179.68	177.15

(Table 4.2.6 Financial Data Of Sample 6)

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(Figure 4.2.6 Financial Data Of Sample 6)

❖ Interpretation:

1. Sales:

- **2018:** ₹1,36,90,083.50
- **2019:** ₹1,28,14,697.85
- **2020:** ₹1,81,30,121.08

Interpretation:

Sales decreased slightly from ₹1.37 crores in 2018 to ₹1.28 crores in 2019, reflecting a decrease of around 6%. However, sales rebounded significantly in 2020, increasing to ₹1.81 crores, which represents a growth of approximately 41%. This could indicate a recovery or expansion in the company's market position or product offerings during 2020.

2. Gross Profit Ratio:

- **2018:** 6.79%
- **2019:** 7.32%
- **2020:** 6.11%

Interpretation:

The gross profit ratio improved from 6.79% in 2018 to 7.32% in 2019, suggesting the company had better control over its cost of goods sold or was able to increase pricing. However, the ratio dropped to 6.11% in 2020, indicating that despite higher sales, the company faced higher costs or competitive pressures that reduced profitability at the gross level.

3. Net Profit Ratio:

- **2018:** 4.77%
- **2019:** 5.18%
- **2020:** 4.18%

Interpretation:

The net profit ratio increased from 4.77% in 2018 to 5.18% in 2019, reflecting better overall profitability despite potentially rising operational costs. However, in 2020, the ratio decreased to 4.18%, suggesting that while sales improved, the company's operating costs or other expenses reduced its overall profit margin.

4. Stock Turnover Ratio:

- **2018:** 0.31
- **2019:** 0.42
- **2020:** 0.29

Interpretation:

The stock turnover ratio improved from 0.31 in 2018 to 0.42 in 2019, indicating that inventory was being sold faster. However, it decreased again to 0.29 in 2020, indicating slower inventory turnover, possibly due to higher inventory buildup or lower sales during the year.

5. Operating Ratio:

- **2018:** 95.48%
- **2019:** 94.91%
- **2020:** 95.41%

Interpretation:

The operating ratio decreased slightly from 95.48% in 2018 to 94.91% in 2019, indicating a slight improvement in cost management or operational efficiency. However, the ratio increased again to 95.41% in 2020, showing that the company's operational costs remained high relative to sales, despite a growth in sales.

6. Fixed Assets Turnover:

- **2018:** 16.79
- **2019:** 11.5
- **2020:** 19.08

Interpretation:

The fixed assets turnover ratio decreased from 16.79 in 2018 to 11.5 in 2019, indicating a reduction in the efficiency of using fixed assets to generate sales. However, the ratio rebounded in 2020 to 19.08, reflecting a significant improvement in the efficiency of asset utilization, likely due to better sales performance or more effective use of assets.

7. Current Ratio:

- **2018:** 1.56
- **2019:** 1.59
- **2020:** 1.63

Interpretation:

The current ratio showed a slight improvement from 1.56 in 2018 to 1.59 in 2019, indicating a stable liquidity position. In 2020, the ratio further improved to 1.63, signaling a healthy ability to meet short-term liabilities with current assets.

8. Liquid Ratio:

- **2018:** 0.63
- **2019:** 0.61
- **2020:** 0.79

Interpretation:

The liquid ratio decreased slightly from 0.63 in 2018 to 0.61 in 2019, suggesting limited liquidity for meeting short-term obligations without relying on inventory. However, the ratio increased to 0.79 in 2020, indicating improved liquidity management and a better ability to meet immediate obligations with liquid assets.

9. Debtor Ratio (Days):

- **2018:** 66
- **2019:** 79
- **2020:** 97

Interpretation:

The debtor ratio increased from 66 days in 2018 to 79 days in 2019, indicating that it took the company longer to collect receivables. This trend continued in 2020, with the debtor ratio increasing to 97 days, suggesting a further delay in collections or increased credit sales that could impact cash flow.

10. Creditor Ratio (Days):

- **2018:** 142
- **2019:** 179
- **2020:** 153

Interpretation:

The creditor ratio increased from 142 days in 2018 to 179 days in 2019, suggesting that the company took longer to pay its suppliers. However, in 2020, the ratio decreased to 153 days, indicating a reduction in the payment period, which could be due to improved cash flow management or strategic negotiations with suppliers.

11. Interest Coverage:

- **2018:** 9.72
- **2019:** 203.53
- **2020:** 5.43

Interpretation:

The interest coverage ratio increased dramatically from 9.72 in 2018 to 203.53 in 2019, suggesting a significant improvement in the company's ability to cover interest expenses with operating income. However, the ratio dropped to 5.43 in 2020, indicating a decline in the company's ability to meet interest payments, likely due to lower profitability and higher interest expenses.

12. Return on Investment (ROI):

- **2018:** 19.76%
- **2019:** 18.24%
- **2020:** 17.63%

Interpretation:

The return on investment decreased from 19.76% in 2018 to 18.24% in 2019, reflecting a slight reduction in the returns generated on the invested capital. The decline continued in 2020, with ROI falling to 17.63%, indicating that the company's efficiency in generating returns from its investments diminished slightly over time.

13. Debt-Capital Ratio:

- **2018:** 147.33%
- **2019:** 179.68%
- **2020:** 177.15%

Interpretation:

The debt-capital ratio increased from 147.33% in 2018 to 179.68% in 2019, indicating that the company became more reliant on debt financing. The ratio decreased slightly to 177.15% in 2020, suggesting a reduction in debt or an increase in equity capital, although the company continued to rely heavily on debt for financing.

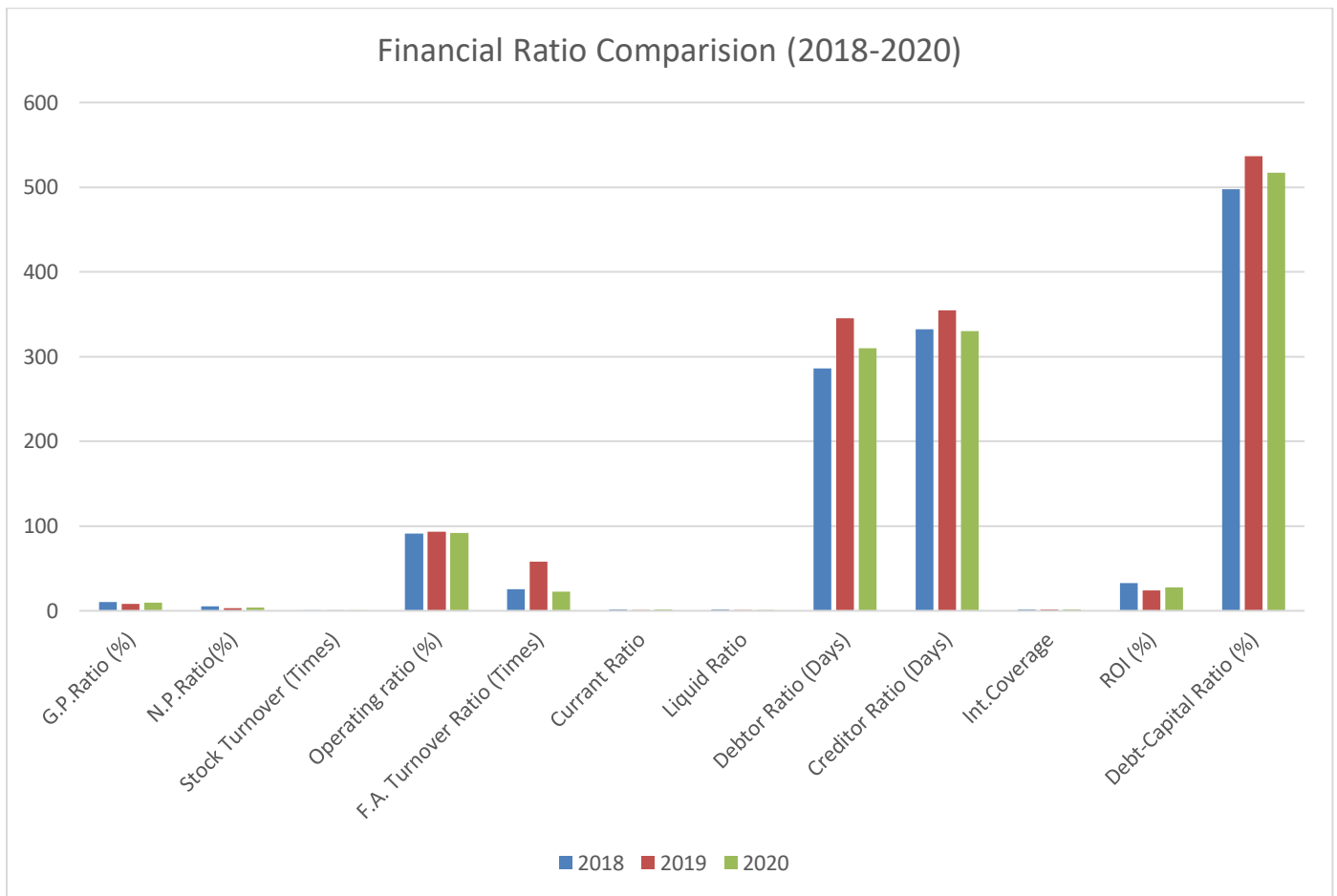
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7th Sample:

Ratio	Year		
	2018	2019	2020
Sales	92.84,829.55	1,30,80,830.94	84,20,502.81
Gross Profit Ratio (%)	10.42	8.08	9.45
Net Profit Ratio (%)	5	3.13	3.66
Stock Turnover Ratio (Times)	0.08	0.38	0.45
Operating Ratio (%)	91.29	93.14	91.84
Fix Assets Turnover (Times)	25.33	58.1	22.97
Current Ratio	1.66	1.16	1.45
Liquid Ratio	1.5	0.83	1.16
Debtor Ratio (Days)	286	345	310
Creditor Ratio (Days)	332	355	330
Interest Coverage (%)	1.65	1.48	1.60
Return on Investment (%)	32.63	24.21	27.43
Debt-Capital Ratio (%)	497.85	536.48	517.16

(Table 4.2.7 Financial Data Of Sample 7)

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(Figure.4.2.7 Financial Data Of Sample 7)

❖ Interpretation:

1. Sales:

- **2018:** ₹92,84,829.55
- **2019:** ₹1,30,80,830.94
- **2020:** ₹84,20,502.81

Interpretation:

Sales increased significantly from ₹92.85 lakhs in 2018 to ₹1.31 crores in 2019, indicating a growth of approximately 41%. However, sales dropped in 2020 to ₹84.21 lakhs, representing a decrease of about 36%. This decline could be attributed to the impact of external factors such as market conditions or the COVID-19 pandemic on the company's operations.

2. Gross Profit Ratio:

- **2018:** 10.42%
- **2019:** 8.08%
- **2020:** 9.45%

Interpretation:

The gross profit ratio decreased from 10.42% in 2018 to 8.08% in 2019, suggesting that the company's cost of goods sold increased or the sales were less profitable in 2019. However, the ratio improved to 9.45% in 2020, indicating better control over production costs or an increase in pricing power despite lower sales.

3. Net Profit Ratio:

- **2018:** 5%
- **2019:** 3.13%
- **2020:** 3.66%

Interpretation:

The net profit ratio decreased from 5% in 2018 to 3.13% in 2019, reflecting a decline in overall profitability. In 2020, the ratio improved slightly to 3.66%, indicating that while profitability remained low, the company managed to recover from some of the challenges faced in 2019.

4. Stock Turnover Ratio:

- **2018:** 0.08
- **2019:** 0.38
- **2020:** 0.45

Interpretation:

The stock turnover ratio improved significantly from 0.08 in 2018 to 0.38 in 2019, indicating a much faster rate of inventory turnover. In 2020, the ratio further improved to 0.45, showing that the company continued to optimize its inventory management and turnover, despite the challenges faced during the year.

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5. Operating Ratio:

- **2018:** 91.29%
- **2019:** 93.14%
- **2020:** 91.84%

Interpretation:

The operating ratio increased from 91.29% in 2018 to 93.14% in 2019, suggesting that the company's operating costs were rising relative to sales. In 2020, the ratio decreased slightly to 91.84%, indicating a marginal improvement in cost efficiency and a better ability to manage operating expenses relative to sales.

6. Fixed Assets Turnover:

- **2018:** 25.33
- **2019:** 58.1
- **2020:** 22.97

Interpretation:

The fixed assets turnover ratio significantly increased from 25.33 in 2018 to 58.1 in 2019, indicating much higher efficiency in utilizing fixed assets to generate sales. However, the ratio dropped sharply to 22.97 in 2020, suggesting a decline in asset utilization efficiency, likely due to reduced sales or underutilization of assets during the year.

7. Current Ratio:

- **2018:** 1.66
- **2019:** 1.16
- **2020:** 1.45

Interpretation:

The current ratio decreased from 1.66 in 2018 to 1.16 in 2019, suggesting a decrease in liquidity and a potential difficulty in meeting short-term obligations. However, the ratio improved to 1.45 in 2020, reflecting a better liquidity position and ability to meet current liabilities.

8. Liquid Ratio:

- **2018:** 1.5
- **2019:** 0.83
- **2020:** 1.16

Interpretation:

The liquid ratio decreased from 1.5 in 2018 to 0.83 in 2019, indicating a significant reduction in the company's ability to cover short-term liabilities with liquid assets. In 2020, the ratio improved to 1.16, signalling better liquidity management and a stronger ability to meet immediate obligations without relying heavily on inventory.

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9. Debtor Ratio (Days):

- **2018:** 286
- **2019:** 345
- **2020:** 310

Interpretation:

The debtor ratio increased from 286 days in 2018 to 345 days in 2019, indicating that it took the company longer to collect payments from its customers. In 2020, the ratio slightly decreased to 310 days, suggesting a small improvement in receivables collection, although the company still faced delays in collecting payments.

10. Creditor Ratio (Days):

- **2018:** 332
- **2019:** 355
- **2020:** 330

Interpretation:

The creditor ratio increased from 332 days in 2018 to 355 days in 2019, indicating that the company took longer to pay its suppliers. However, in 2020, the ratio decreased to 330 days, reflecting an improvement in the company's payment cycle, possibly due to better cash flow management.

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11. Interest Coverage:

- **2018:** 1.65
- **2019:** 1.48
- **2020:** 1.60

Interpretation:

The interest coverage ratio decreased from 1.65 in 2018 to 1.48 in 2019, indicating a decline in the company's ability to cover its interest expenses with operating income. However, the ratio increased to 1.60 in 2020, signalling a slight recovery in the company's ability to service its debt, despite the challenges faced during the year.

12. Return on Investment (ROI):

- **2018:** 32.63%
- **2019:** 24.21%
- **2020:** 27.43%

Interpretation:

The return on investment decreased from 32.63% in 2018 to 24.21% in 2019, reflecting a reduction in returns from invested capital. However, the ROI improved to 27.43% in 2020, indicating a recovery in returns despite lower sales in the year.

13. Debt-Capital Ratio:

- **2018:** 497.85%
- **2019:** 536.48%
- **2020:** 517.16%

Interpretation:

The debt-capital ratio increased from 497.85% in 2018 to 536.48% in 2019, indicating that the company became more reliant on debt financing. In 2020, the ratio decreased slightly to 517.16%, reflecting a small reduction in debt or an increase in equity capital, but the company continued to rely heavily on debt for its capital structure.

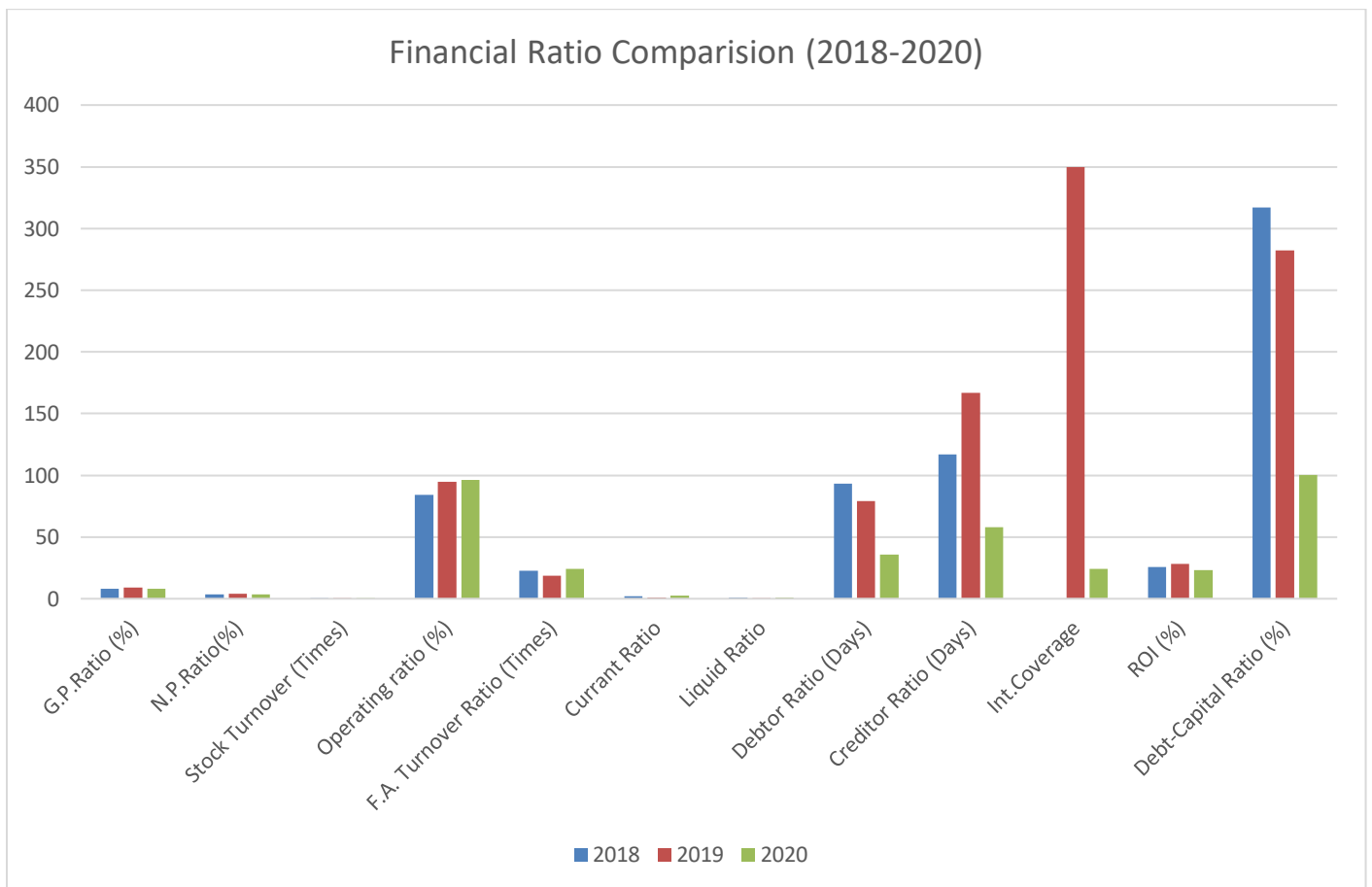
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8th Sample:

Ratio	Year		
	2018	2019	2020
Sales	1,46,34,092	1,21,63,815.58	1,43,10,089.95
Gross Profit Ratio (%)	8.13	9.17	7.95
Net Profit Ratio (%)	3.74	4.22	3.69
Stock Turnover Ratio (Times)	0.14	0.19	0.13
Operating Ratio (%)	84.10	94.86	96.32
Fix Assets Turnover (Times)	22.49	18.7	24.35
Current Ratio	1.93	1.15	2.3
Liquid Ratio	0.90	0.71	1.08
Debtor Ratio (Days)	93	79	36
Creditor Ratio (Days)	117	167	58
Interest Coverage (%)	0	349.64	23.99
Return on Investment (%)	25.65	28.06	23.24
Debt-Capital Ratio (%)	317.24	282.2	100.08

(Table 4.2.8 Financial Data Of Sample 8)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure. 4.2.8 Financial Data Of Sample 8)

❖ Interpretation:

1. Sales:

- **2018:** ₹1,46,34,092
- **2019:** ₹1,21,63,815.58
- **2020:** ₹1,43,10,089.95

Interpretation:

Sales decreased from ₹1.46 crores in 2018 to ₹1.21 crores in 2019, representing a decline of approximately 17%. However, sales rebounded in 2020, increasing to ₹1.43 crores, reflecting a growth of about 18%. This increase in sales in 2020 could indicate recovery from earlier setbacks or improvements in market conditions.

2. Gross Profit Ratio:

- **2018:** 8.13%
- **2019:** 9.17%
- **2020:** 7.95%

Interpretation:

The gross profit ratio improved from 8.13% in 2018 to 9.17% in 2019, indicating better profitability in relation to sales and effective control over direct costs. However, the ratio declined to 7.95% in 2020, possibly due to an increase in cost of goods sold or lower pricing power, despite higher sales.

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3. Net Profit Ratio:

- **2018:** 3.74%
- **2019:** 4.22%
- **2020:** 3.69%

Interpretation:

The net profit ratio increased from 3.74% in 2018 to 4.22% in 2019, indicating improved profitability after accounting for all expenses. In 2020, however, the ratio decreased slightly to 3.69%, suggesting a slight decline in overall profitability, despite the higher sales, possibly due to higher operating or other expenses.

4. Stock Turnover Ratio:

- **2018:** 0.14
- **2019:** 0.19
- **2020:** 0.13

Interpretation:

The stock turnover ratio increased from 0.14 in 2018 to 0.19 in 2019, indicating better inventory turnover and more efficient use of stock. However, in 2020, the ratio decreased to 0.13, suggesting a slowdown in inventory turnover, which may reflect slower sales or overstocking.

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5. Operating Ratio:

- **2018:** 84.10%
- **2019:** 94.86%
- **2020:** 96.32%

Interpretation:

The operating ratio increased significantly from 84.10% in 2018 to 94.86% in 2019, reflecting a rise in operational expenses relative to sales. In 2020, the operating ratio further increased to 96.32%, indicating a further deterioration in cost management and higher operating expenses in relation to the company's sales.

6. Fixed Assets Turnover:

- **2018:** 22.49
- **2019:** 18.7
- **2020:** 24.35

Interpretation:

The fixed assets turnover ratio decreased from 22.49 in 2018 to 18.7 in 2019, suggesting a decrease in the efficiency of utilizing fixed assets to generate sales. However, it rebounded in 2020 to 24.35, indicating improved asset utilization and possibly increased productivity from the fixed assets.

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7. Current Ratio:

- **2018:** 1.93
- **2019:** 1.15
- **2020:** 2.3

Interpretation:

The current ratio decreased from 1.93 in 2018 to 1.15 in 2019, indicating a potential liquidity issue as the company's short-term liabilities surpassed its short-term assets. However, the current ratio improved significantly to 2.3 in 2020, suggesting a strong liquidity position and better ability to meet short-term obligations.

8. Liquid Ratio:

- **2018:** 0.90
- **2019:** 0.71
- **2020:** 1.08

Interpretation:

The liquid ratio decreased from 0.90 in 2018 to 0.71 in 2019, indicating a decrease in the company's ability to cover its immediate liabilities with liquid assets. However, the ratio improved to 1.08 in 2020, signalling a stronger liquidity position and a better ability to meet immediate financial obligations without relying on inventory.

9. Debtor Ratio (Days):

- **2018:** 93
- **2019:** 79
- **2020:** 36

Interpretation:

The debtor ratio decreased from 93 days in 2018 to 79 days in 2019, indicating an improvement in the company's ability to collect receivables. In 2020, the ratio further improved to 36 days, reflecting much faster collections and better management of receivables.

10. Creditor Ratio (Days):

- **2018:** 117
- **2019:** 167
- **2020:** 58

Interpretation:

The creditor ratio increased from 117 days in 2018 to 167 days in 2019, suggesting that the company took longer to pay its suppliers. In 2020, the ratio decreased significantly to 58 days, reflecting an improvement in the company's payment cycle and a more efficient handling of payables.

11. Interest Coverage:

- **2018:** 0
- **2019:** 349.64%
- **2020:** 23.99%

Interpretation:

The interest coverage ratio was 0 in 2018, indicating that the company was unable to cover its interest payments from its operating income. In 2019, the ratio dramatically improved to 349.64%, showing that the company had more than sufficient income to cover its interest expenses. However, in 2020, the ratio decreased to 23.99%, suggesting a significant drop in the ability to cover interest payments, though it was still positive.

12. Return on Investment (ROI):

- **2018:** 25.65%
- **2019:** 28.06%
- **2020:** 23.24%

Interpretation:

The return on investment increased from 25.65% in 2018 to 28.06% in 2019, indicating better returns from the invested capital. However, in 2020, the ROI decreased to 23.24%, reflecting a reduction in returns, possibly due to reduced profitability or operational challenges during the year.

13. Debt-Capital Ratio:

- **2018:** 317.24%
- **2019:** 282.2%
- **2020:** 100.08%

Interpretation:

The debt-capital ratio decreased from 317.24% in 2018 to 282.2% in 2019, suggesting a reduction in the company's reliance on debt financing. In 2020, the ratio further decreased to 100.08%, indicating a major shift towards lower debt usage and a more balanced capital structure with a reduction in financial leverage.

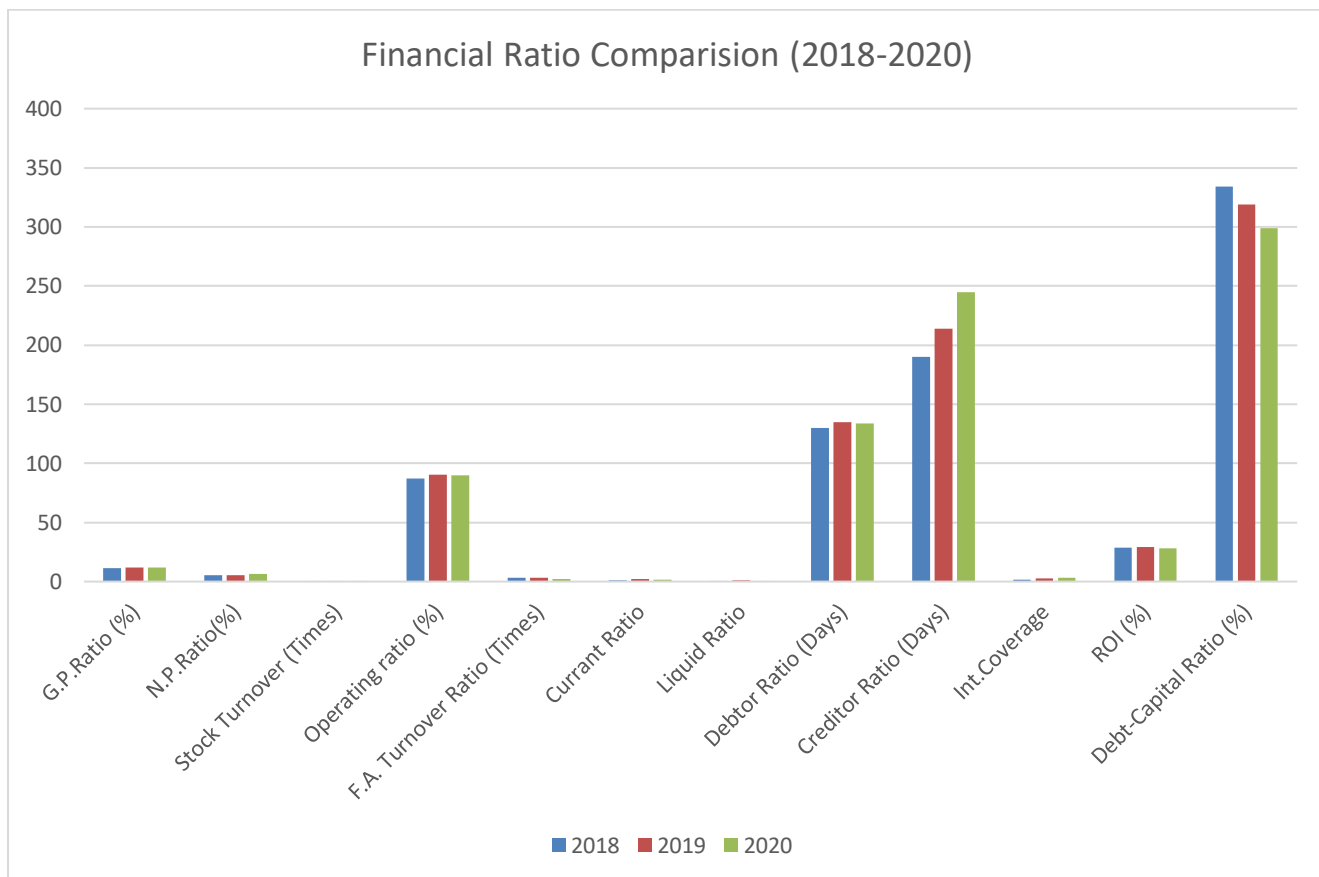
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9th Sample:

Ratio	Year		
	2018	2019	2020
Sales	90,76,912	96,04,805	93,09,128
Gross Profit Ratio (%)	11.2	11.75	11.99
Net Profit Ratio (%)	5.42	5.59	6.27
Stock Turnover Ratio (Times)	0.65	0.58	0.65
Operating Ratio (%)	87.40	90.15	89.88
Fix Assets Turnover (Times)	3.03	3.21	2.24
Currant Ratio	1.15	2.04	1.76
Liquid Ratio	0.33	0.8	0.63
Debtor Ratio (Days)	130	135	134
Creditor Ratio (Days)	190	214	245
Interest Coverage (%)	1.65	2.48	3.1
Return on Investment (%)	28.50	29.06	27.95
Debt-Capital Ratio (%)	334.24	318.84	298.64

(Table 4.2.9 Financial Data Of Sample 9)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.2.9 Financial Data Of Sample 9)

❖ Interpretation:

1. Sales:

- **2018:** ₹90,76,912
- **2019:** ₹96,04,805
- **2020:** ₹93,09,128

Interpretation:

Sales increased from ₹90.77 lakhs in 2018 to ₹96.05 lakhs in 2019, representing a growth of about 5.7%. However, sales decreased slightly in 2020 to ₹93.09 lakhs, reflecting a small decline of around 3.1%. The overall sales trend indicates steady performance despite a minor setback in 2020.

2. Gross Profit Ratio:

- **2018:** 11.2%
- **2019:** 11.75%
- **2020:** 11.99%

Interpretation:

The gross profit ratio improved from 11.2% in 2018 to 11.75% in 2019, indicating a better control over cost of goods sold and improved profitability. In 2020, the ratio increased further to 11.99%, showing sustained growth in gross profit margins despite the slight decline in sales.

3. Net Profit Ratio:

- **2018:** 5.42%
- **2019:** 5.59%
- **2020:** 6.27%

Interpretation:

The net profit ratio increased from 5.42% in 2018 to 5.59% in 2019, indicating improved profitability after considering all expenses. In 2020, the ratio further improved to 6.27%, reflecting better cost control and efficiency in managing expenses relative to sales.

4. Stock Turnover Ratio:

- **2018:** 0.65
- **2019:** 0.58
- **2020:** 0.65

Interpretation:

The stock turnover ratio decreased from 0.65 in 2018 to 0.58 in 2019, indicating slower inventory turnover and potential overstocking or lower sales efficiency. However, it rebounded to 0.65 in 2020, suggesting a return to more efficient inventory management and higher turnover.

5. Operating Ratio:

- **2018:** 87.40%
- **2019:** 90.15%
- **2020:** 89.88%

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Interpretation:

The operating ratio increased from 87.40% in 2018 to 90.15% in 2019, indicating a rise in operating expenses relative to sales. In 2020, the ratio decreased slightly to 89.88%, reflecting a marginal improvement in managing operating expenses, but the overall trend suggests a need for better cost control.

6. Fixed Assets Turnover:

- **2018:** 3.03
- **2019:** 3.21
- **2020:** 2.24

Interpretation:

The fixed assets turnover ratio increased from 3.03 in 2018 to 3.21 in 2019, showing improved efficiency in utilizing fixed assets to generate sales. However, in 2020, the ratio decreased to 2.24, indicating a decline in asset utilization and possibly a need for better management or utilization of fixed assets.

7. Current Ratio:

- **2018:** 1.15
- **2019:** 2.04
- **2020:** 1.76

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Interpretation:

The current ratio improved significantly from 1.15 in 2018 to 2.04 in 2019, indicating an improved ability to cover short-term liabilities with short-term assets. In 2020, the ratio decreased slightly to 1.76, still suggesting a healthy liquidity position, though less favorable compared to 2019.

8. Liquid Ratio:

- **2018:** 0.33
- **2019:** 0.8
- **2020:** 0.63

Interpretation:

The liquid ratio improved from 0.33 in 2018 to 0.8 in 2019, indicating a better ability to meet immediate financial obligations without relying on inventory. In 2020, the ratio decreased to 0.63, suggesting a slight decline in liquidity, though it remained better than in 2018.

9. Debtor Ratio (Days):

- **2018:** 130
- **2019:** 135
- **2020:** 134

Interpretation:

The debtor ratio increased slightly from 130 days in 2018 to 135 days in 2019, suggesting a minor delay in the collection of receivables. In 2020, the ratio remained almost the same at 134 days, reflecting stable but relatively slow collection practices.

10. Creditor Ratio (Days):

- **2018:** 190
- **2019:** 214
- **2020:** 245

Interpretation:

The creditor ratio increased from 190 days in 2018 to 214 days in 2019, indicating that the company took longer to pay its creditors. In 2020, the ratio further increased to 245 days, reflecting an extended payment cycle and potentially worsened cash flow management.

11. Interest Coverage:

- **2018:** 1.65%
- **2019:** 2.48%
- **2020:** 3.1%

Interpretation:

The interest coverage ratio increased from 1.65% in 2018 to 2.48% in 2019, showing improved capacity to cover interest expenses. In 2020, the ratio further improved to 3.1%, indicating a strong ability to meet interest obligations, which suggests better financial stability.

12. Return on Investment (ROI):

- **2018:** 28.50%
- **2019:** 29.06%
- **2020:** 27.95%

Interpretation:

The return on investment improved from 28.50% in 2018 to 29.06% in 2019, indicating better returns from the capital invested. However, in 2020, the ROI decreased to 27.95%, suggesting a slight decline in the returns despite stable sales performance.

13. Debt-Capital Ratio:

- **2018:** 334.24%
- **2019:** 318.84%
- **2020:** 298.64%

Interpretation:

The debt-capital ratio decreased from 334.24% in 2018 to 318.84% in 2019, indicating a reduction in financial leverage. In 2020, the ratio decreased further to 298.64%, suggesting an ongoing reduction in debt relative to equity and a more balanced capital structure, which may indicate a lower financial risk.

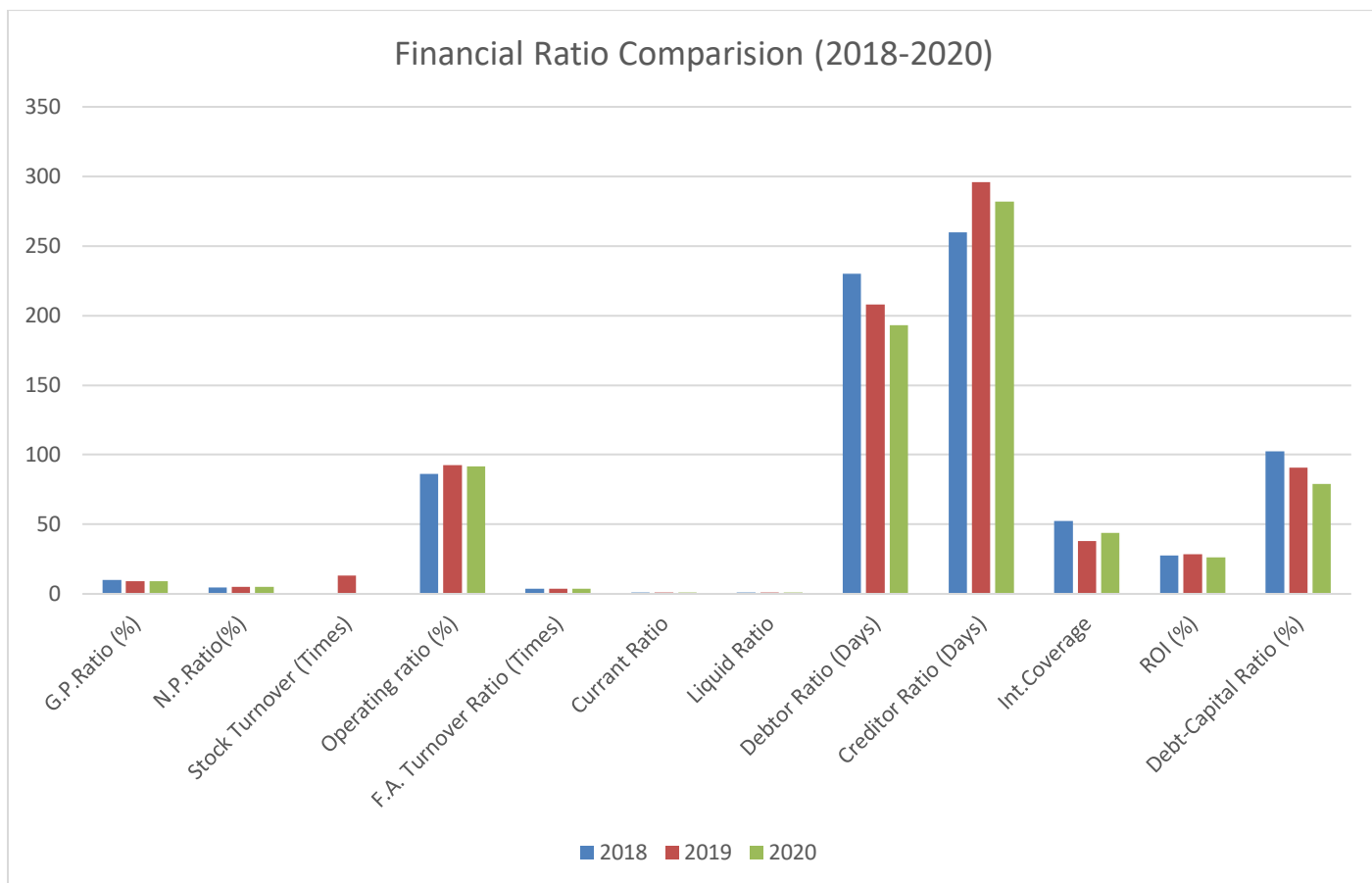
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10th Sample:

Ratio	Year		
	2018	2019	2020
Sales	1,35,61,814	1,28,95,421	1,15,37,947
Gross Profit Ratio (%)	9.79	9.31	9.31
Net Profit Ratio (%)	4.63	4.96	4.96
Stock Turnover Ratio (Times)	0.12	13.31	0.13
Operating Ratio (%)	86.28	92.44	91.81
Fix Assets Turnover (Times)	3.80	3.62	3.74
Current Ratio	0.97	1.07	1.17
Liquid Ratio	0.91	0.87	0.83
Debtor Ratio (Days)	230	208	193
Creditor Ratio (Days)	260	296	282
Interest Coverage (%)	52.35	37.95	43.65
Return on Investment (%)	27.43	28.52	26.34
Debt-Capital Ratio (%)	102.67	90.6	79.22

(Table 4.2.10 Financial Data Of Sample 10)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.2.10 Financial Data Of Sample 10)

❖ Interpretation:

1. Sales:

- **2018:** ₹1,35,61,814
- **2019:** ₹1,28,95,421
- **2020:** ₹1,15,37,947

Interpretation:

Sales decreased from ₹1.36 crores in 2018 to ₹1.29 crores in 2019, reflecting a small decline of about 4.9%. The decrease continued in 2020, with sales dropping to ₹1.15 crores, representing a further decline of around 10.5%. The overall trend indicates a reduction in sales over the three years, which could be due to market conditions or other factors impacting demand.

2. Gross Profit Ratio:

- **2018:** 9.79%
- **2019:** 9.31%
- **2020:** 9.31%

Interpretation:

The gross profit ratio declined slightly from 9.79% in 2018 to 9.31% in 2019, indicating a marginal decrease in profitability after direct costs. The ratio remained constant at 9.31% in 2020, suggesting that despite lower sales, the company managed to maintain its profitability level at the gross level.

3. Net Profit Ratio:

- **2018:** 4.63%
- **2019:** 4.96%
- **2020:** 4.96%

Interpretation:

The net profit ratio improved from 4.63% in 2018 to 4.96% in 2019, reflecting better overall profitability after accounting for all expenses. The ratio remained stable at 4.96% in 2020, showing consistent performance in managing expenses and maintaining profitability despite a decline in sales.

4. Stock Turnover Ratio:

- **2018:** 0.12
- **2019:** 13.31
- **2020:** 0.13

Interpretation:

The stock turnover ratio increased dramatically from 0.12 in 2018 to 13.31 in 2019, indicating a significant improvement in inventory turnover. However, the ratio dropped back to 0.13 in 2020, suggesting that inventory turnover slowed significantly and may have led to higher unsold stock.

5. Operating Ratio:

- **2018:** 86.28%
- **2019:** 92.44%
- **2020:** 91.81%

Interpretation:

The operating ratio increased from 86.28% in 2018 to 92.44% in 2019, indicating that operating expenses grew relative to sales, which may have reduced operational efficiency. The ratio decreased slightly to 91.81% in 2020, but it still suggests a high level of operating costs relative to sales, which could point to a need for better cost control.

6. Fixed Assets Turnover:

- **2018:** 3.80
- **2019:** 3.62
- **2020:** 3.74

Interpretation:

The fixed assets turnover ratio decreased from 3.80 in 2018 to 3.62 in 2019, indicating a slight decline in the efficiency of generating sales from fixed assets. The ratio improved marginally to 3.74 in 2020, suggesting better utilization of fixed assets despite the decline in sales.

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7. Current Ratio:

- **2018:** 0.97
- **2019:** 1.07
- **2020:** 1.17

Interpretation:

The current ratio increased from 0.97 in 2018 to 1.07 in 2019, showing an improved ability to meet short-term liabilities with short-term assets. The ratio further improved to 1.17 in 2020, indicating a stronger liquidity position, though it still remains just above the ideal level of 1, signaling a need for caution.

8. Liquid Ratio:

- **2018:** 0.91
- **2019:** 0.87
- **2020:** 0.83

Interpretation:

The liquid ratio decreased from 0.91 in 2018 to 0.87 in 2019, indicating a slight reduction in the company's ability to meet immediate financial obligations. In 2020, the ratio further declined to 0.83, which suggests a weakening liquidity position and potential challenges in managing short-term obligations without relying on inventory.

9. Debtor Ratio (Days):

- **2018:** 230
- **2019:** 208
- **2020:** 193

Interpretation:

The debtor ratio improved from 230 days in 2018 to 208 days in 2019, showing a faster collection of receivables. The ratio further decreased to 193 days in 2020, indicating an even quicker collection cycle, which is favourable for cash flow management.

10. Creditor Ratio (Days):

- **2018:** 260
- **2019:** 296
- **2020:** 282

Interpretation:

The creditor ratio increased from 260 days in 2018 to 296 days in 2019, indicating that the company delayed its payments to suppliers. In 2020, the ratio decreased to 282 days, showing a slight improvement in payment practices, though still reflecting a relatively slow payment cycle.

11. Interest Coverage:

- **2018:** 52.35%
- **2019:** 37.95%
- **2020:** 43.65%

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Interpretation:

The interest coverage ratio decreased significantly from 52.35% in 2018 to 37.95% in 2019, indicating reduced ability to cover interest payments from earnings. However, it improved to 43.65% in 2020, showing a recovery in the ability to meet interest obligations.

12. Return on Investment (ROI):

- **2018:** 27.43%
- **2019:** 28.52%
- **2020:** 26.34%

Interpretation:

The return on investment increased from 27.43% in 2018 to 28.52% in 2019, indicating better returns on capital employed. In 2020, the ROI decreased to 26.34%, reflecting a slight decline in investment returns, possibly due to lower profitability and reduced sales.

13. Debt-Capital Ratio:

- **2018:** 102.67%
- **2019:** 90.6%
- **2020:** 79.22%

Interpretation:

The debt-capital ratio decreased from 102.67% in 2018 to 90.6% in 2019, indicating a reduction in financial leverage. In 2020, the ratio continued to decrease to 79.22%, suggesting a lower reliance on debt for financing and a more balanced capital structure, which can reduce financial risk.

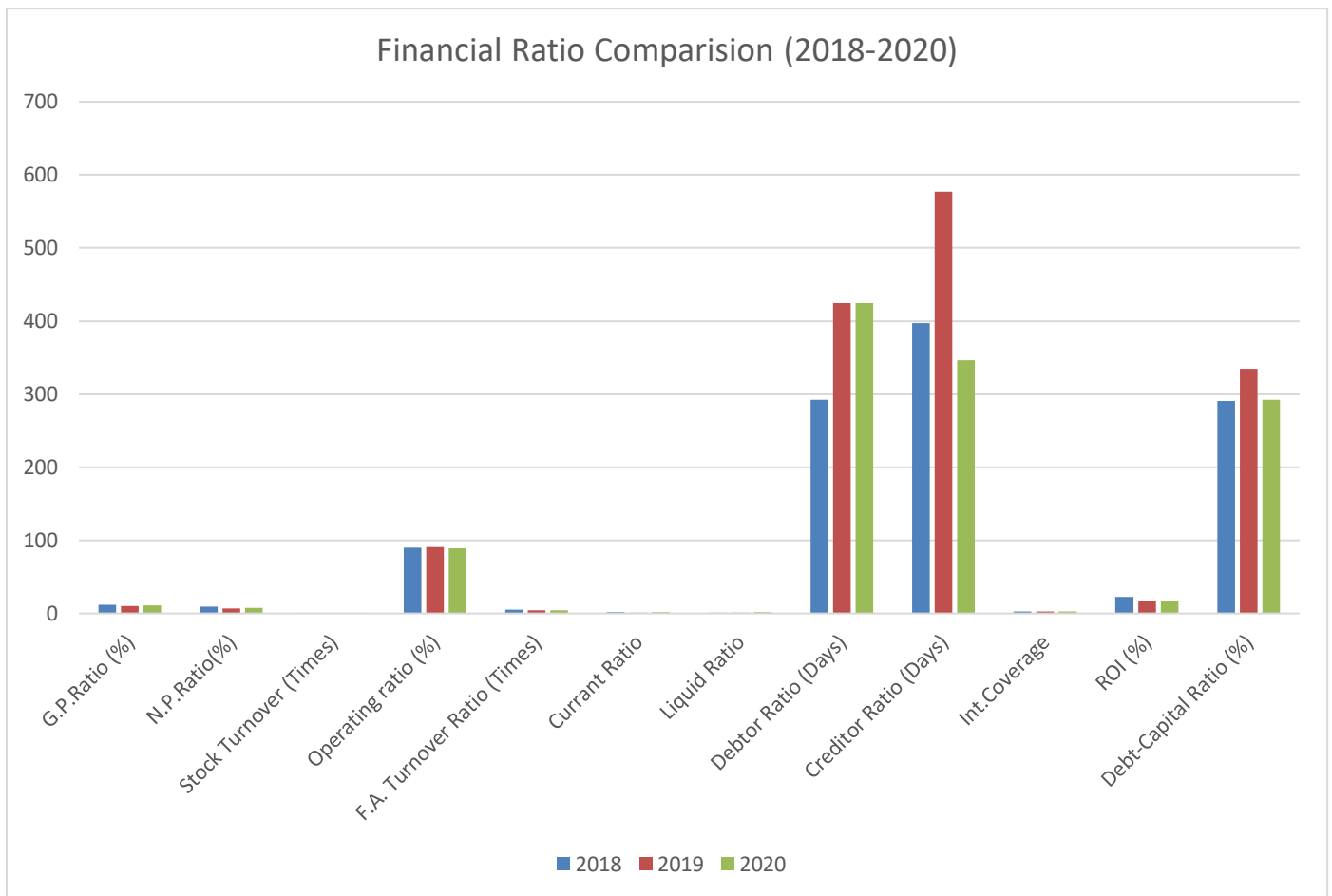
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11th Sample:

Ratio	Year		
	2018	2019	2020
Sales	67,41,111.60	87,66,873	81,39,934
Gross Profit Ratio (%)	11.48	10.47	11.03
Net Profit Ratio (%)	9.2	6.58	7.46
Stock Turnover Ratio (Times)	0.43	0.2	0.35
Operating Ratio (%)	89.68	90.9	89.39
Fix Assets Turnover (Times)	5.27	4.38	4.34
Current Ratio	1.79	1.42	1.87
Liquid Ratio	1.19	1.22	1.45
Debtor Ratio (Days)	292	425	425
Creditor Ratio (Days)	397	577	346
Interest Coverage (%)	2.83	2.7	2.45
Return on Investment (%)	22.39	17.79	16.69
Debt-Capital Ratio (%)	290.34	334.78	292.08

(Table 4.2.11 Financial Data Of Sample 11)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure no. 4.2.11 Financial Data Of Sample 11)

❖ Interpretation:

1. Sales:

- **2018:** ₹67,41,111.60
- **2019:** ₹87,66,873
- **2020:** ₹81,39,934

Interpretation:

Sales increased from ₹67.41 lakhs in 2018 to ₹87.66 lakhs in 2019, marking a growth of about 30%. However, sales decreased slightly in 2020 to ₹81.39 lakhs, representing a decline of approximately 7%. The overall trend shows a healthy sales growth in 2019, with a slight dip in 2020.

2. Gross Profit Ratio:

- **2018:** 11.48%
- **2019:** 10.47%
- **2020:** 11.03%

Interpretation:

The gross profit ratio decreased from 11.48% in 2018 to 10.47% in 2019, reflecting a slight decline in profitability at the gross level. However, it increased to 11.03% in 2020, suggesting a recovery and improved gross profitability despite the drop in sales.

3. Net Profit Ratio:

- **2018:** 9.2%
- **2019:** 6.58%
- **2020:** 7.46%

Interpretation:

The net profit ratio decreased from 9.2% in 2018 to 6.58% in 2019, indicating a decline in overall profitability after considering all expenses. In 2020, the ratio improved to 7.46%, showing better cost control and improved profitability despite the drop in sales.

4. Stock Turnover Ratio:

- **2018:** 0.43
- **2019:** 0.2
- **2020:** 0.35

Interpretation:

The stock turnover ratio decreased from 0.43 in 2018 to 0.2 in 2019, indicating a slower inventory turnover. However, the ratio improved to 0.35 in 2020, showing a slight recovery in inventory movement and more efficient use of stock.

5. Operating Ratio:

- **2018:** 89.68%
- **2019:** 90.9%
- **2020:** 89.39%

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Interpretation:

The operating ratio increased from 89.68% in 2018 to 90.9% in 2019, indicating an increase in operating expenses relative to sales, which could be due to rising costs or declining operational efficiency. The ratio decreased slightly to 89.39% in 2020, suggesting a small improvement in cost management and operating efficiency.

6. Fixed Assets Turnover:

- **2018:** 5.27
- **2019:** 4.38
- **2020:** 4.34

Interpretation:

The fixed assets turnover ratio decreased from 5.27 in 2018 to 4.38 in 2019, showing a slight reduction in the efficiency of generating sales from fixed assets. The ratio remained almost unchanged in 2020, indicating stable but relatively lower utilization of fixed assets.

7. Current Ratio:

- **2018:** 1.79
- **2019:** 1.42
- **2020:** 1.87

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Interpretation:

The current ratio decreased from 1.79 in 2018 to 1.42 in 2019, indicating a reduction in the company's ability to meet short-term liabilities with its short-term assets. However, it improved to 1.87 in 2020, suggesting a stronger liquidity position and better ability to meet current obligations.

8. Liquid Ratio:

- **2018:** 1.19
- **2019:** 1.22
- **2020:** 1.45

Interpretation:

The liquid ratio increased from 1.19 in 2018 to 1.22 in 2019, indicating a slight improvement in the company's ability to meet immediate financial obligations without relying on inventory. The ratio further increased to 1.45 in 2020, suggesting a stronger liquidity position and a safer buffer for short-term obligations.

9. Debtor Ratio (Days):

- **2018:** 292
- **2019:** 425
- **2020:** 425

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Interpretation:

The debtor ratio increased significantly from 292 days in 2018 to 425 days in 2019, indicating a considerable slowdown in the collection of receivables. This sluggish collection continued in 2020, with the ratio remaining at 425 days. This could negatively affect cash flow and working capital.

10. Creditor Ratio (Days):

- **2018:** 397
- **2019:** 577
- **2020:** 346

Interpretation:

The creditor ratio increased from 397 days in 2018 to 577 days in 2019, showing a substantial delay in payments to suppliers. In 2020, the ratio decreased to 346 days, indicating a significant improvement in the company's payment practices, reducing delays in settling accounts with creditors.

11. Interest Coverage:

- **2018:** 2.83%
- **2019:** 2.7%
- **2020:** 2.45%

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Interpretation:

The interest coverage ratio decreased slightly from 2.83% in 2018 to 2.7% in 2019, reflecting a slight reduction in the company's ability to cover interest expenses from earnings. The ratio further decreased to 2.45% in 2020, suggesting a reduced ability to meet interest payments, which may increase financial risk.

12. Return on Investment (ROI):

- **2018:** 22.39%
- **2019:** 17.79%
- **2020:** 16.69%

Interpretation:

The return on investment decreased from 22.39% in 2018 to 17.79% in 2019, showing a decline in the returns on capital employed. The ratio decreased further to 16.69% in 2020, indicating a continued decline in investment returns, likely due to lower profitability and higher expenses.

13. Debt-Capital Ratio:

- **2018:** 290.34%
- **2019:** 334.78%
- **2020:** 292.08%

Interpretation:

The debt-capital ratio increased from 290.34% in 2018 to 334.78% in 2019, indicating a higher reliance on debt financing, which increases financial risk. However, the ratio decreased to 292.08% in 2020, suggesting a reduction in leverage and a more balanced capital structure.

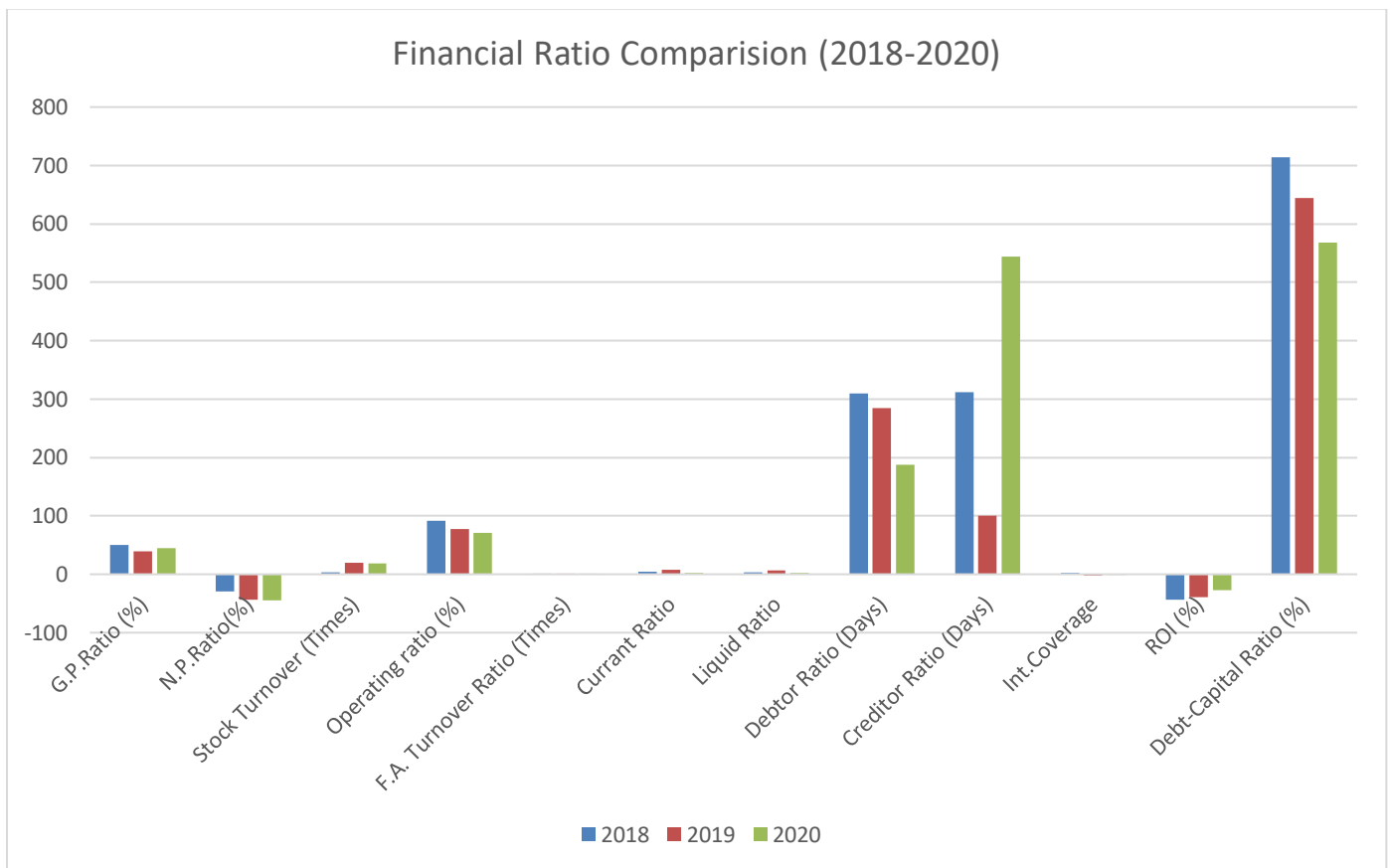
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12th Sample:

Ratio	Year		
	2018	2019	2020
Sales	2,14,54,873	1,32,63,240	99,53,293.26
Gross Profit Ratio (%)	50.56	39.48	44.45
Net Profit Ratio (%)	-29.8	-43.57	-44.46
Stock Turnover Ratio (Times)	2.89	19.13	19.05
Operating Ratio (%)	92.04	76.9	70.45
Fix Assets Turnover (Times)	0.27	0.17	0.14
Currant Ratio	4.63	7.71	2.41
Liquid Ratio	2.83	6.21	1.97
Debtor Ratio (Days)	310	284	187
Creditor Ratio (Days)	312	100	544
Interest Coverage (%)	1.76	-1.68	-1.56
Return on Investment (%)	-43.27	-39.04	-27.55
Debt-Capital Ratio (%)	714.39	644.62	567.88

(Table 4.2.12 Financial Data Of Sample 12)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.2.12 Financial Data Of Sample 12)

❖ Interpretation:

1. Sales:

- **2018:** ₹2,14,54,873
- **2019:** ₹1,32,63,240
- **2020:** ₹99,53,293.26

Interpretation:

Sales have been consistently declining from ₹2.14 crore in 2018 to ₹1.32 crore in 2019, a decrease of approximately 38%. The sales dropped further to ₹99.53 lakhs in 2020, a decline of around 25%. This significant drop in sales over the years suggests a negative trend and indicates potential challenges in revenue generation.

2. Gross Profit Ratio:

- **2018:** 50.56%
- **2019:** 39.48%
- **2020:** 44.45%

Interpretation:

The gross profit ratio decreased from 50.56% in 2018 to 39.48% in 2019, indicating a reduction in profitability after direct costs. However, it improved to 44.45% in 2020, suggesting that the company managed to increase its gross profit relative to sales, despite the decline in revenue.

3. Net Profit Ratio:

- **2018:** -29.8%
- **2019:** -43.57%
- **2020:** -44.46%

Interpretation:

The company faced negative net profit ratios over all three years, with losses widening from -29.8% in 2018 to -43.57% in 2019. The loss deepened further in 2020 to -44.46%, indicating that the company's expenses exceeded revenues significantly, leading to increased financial distress.

4. Stock Turnover Ratio:

- **2018:** 2.89
- **2019:** 19.13
- **2020:** 19.05

Interpretation:

The stock turnover ratio increased dramatically from 2.89 in 2018 to 19.13 in 2019, indicating a significant improvement in inventory management and faster stock movement. The ratio remained stable at 19.05 in 2020, suggesting that the company continued to manage inventory efficiently, despite the challenges faced in other areas.

5. Operating Ratio:

- **2018:** 92.04%
- **2019:** 76.9%
- **2020:** 70.45%

Interpretation:

The operating ratio decreased from 92.04% in 2018 to 76.9% in 2019, indicating that the company was able to reduce its operating expenses relative to its sales, improving operational efficiency. The ratio further improved to 70.45% in 2020, suggesting significant cost-cutting measures and better operational control, despite the decline in sales.

6. Fixed Assets Turnover:

- **2018:** 0.27
- **2019:** 0.17
- **2020:** 0.14

Interpretation:

The fixed assets turnover ratio declined over the three years, from 0.27 in 2018 to 0.17 in 2019, and further to 0.14 in 2020. This indicates a significant reduction in the efficiency of generating sales from fixed assets, suggesting underutilization of the company's capital assets.

7. Current Ratio:

- **2018:** 4.63
- **2019:** 7.71
- **2020:** 2.41

Interpretation:

The current ratio significantly increased from 4.63 in 2018 to 7.71 in 2019, indicating a very strong liquidity position. However, it decreased to 2.41 in 2020, which, while still above 1, suggests a reduction in liquidity and potential concerns over the company's ability to meet short-term liabilities without external financing.

8. Liquid Ratio:

- **2018:** 2.83
- **2019:** 6.21
- **2020:** 1.97

Interpretation:

The liquid ratio increased from 2.83 in 2018 to 6.21 in 2019, showing a very strong ability to meet immediate financial obligations. However, the ratio decreased to 1.97 in 2020, indicating a reduction in the liquidity buffer but still maintaining a relatively safe position to meet short-term liabilities.

9. Debtor Ratio (Days):

- **2018:** 310
- **2019:** 284
- **2020:** 187

Interpretation:

The debtor ratio improved from 310 days in 2018 to 284 days in 2019, indicating a slight improvement in the speed of receivables collection. The ratio further decreased to 187 days in 2020, reflecting a significant improvement in collection efficiency, reducing the time taken to collect payments from customers.

10. Creditor Ratio (Days):

- **2018:** 312
- **2019:** 100
- **2020:** 544

Interpretation:

The creditor ratio decreased from 312 days in 2018 to 100 days in 2019, showing faster payment to creditors. However, the ratio increased sharply to 544 days in 2020, indicating a significant delay in settling liabilities with suppliers, which could strain supplier relationships and negatively affect working capital.

11. Interest Coverage:

- **2018:** 1.76%
- **2019:** -1.68%
- **2020:** -1.56%

Interpretation:

The interest coverage ratio was 1.76% in 2018, indicating limited ability to cover interest expenses. In 2019 and 2020, the ratio turned negative (-1.68% and -1.56%, respectively), highlighting the company's inability to meet interest obligations from operating profits, leading to increased financial risk.

12. Return on Investment (ROI):

- **2018:** -43.27%
- **2019:** -39.04%
- **2020:** -27.55%

Interpretation:

The ROI remained negative throughout the period, with losses declining from -43.27% in 2018 to -39.04% in 2019. The loss further reduced to -27.55% in 2020, indicating a decrease in the negative returns but still reflecting poor investment performance and financial difficulties.

13. Debt-Capital Ratio:

- **2018:** 714.39%
- **2019:** 644.62%
- **2020:** 567.88%

Interpretation:

The debt-capital ratio remained extremely high throughout the period, indicating that the company was heavily reliant on debt financing. It decreased from 714.39% in 2018 to 644.62% in 2019 and further to 567.88% in 2020, suggesting some reduction in debt levels relative to equity but still indicating a highly leveraged capital structure, increasing financial risk.

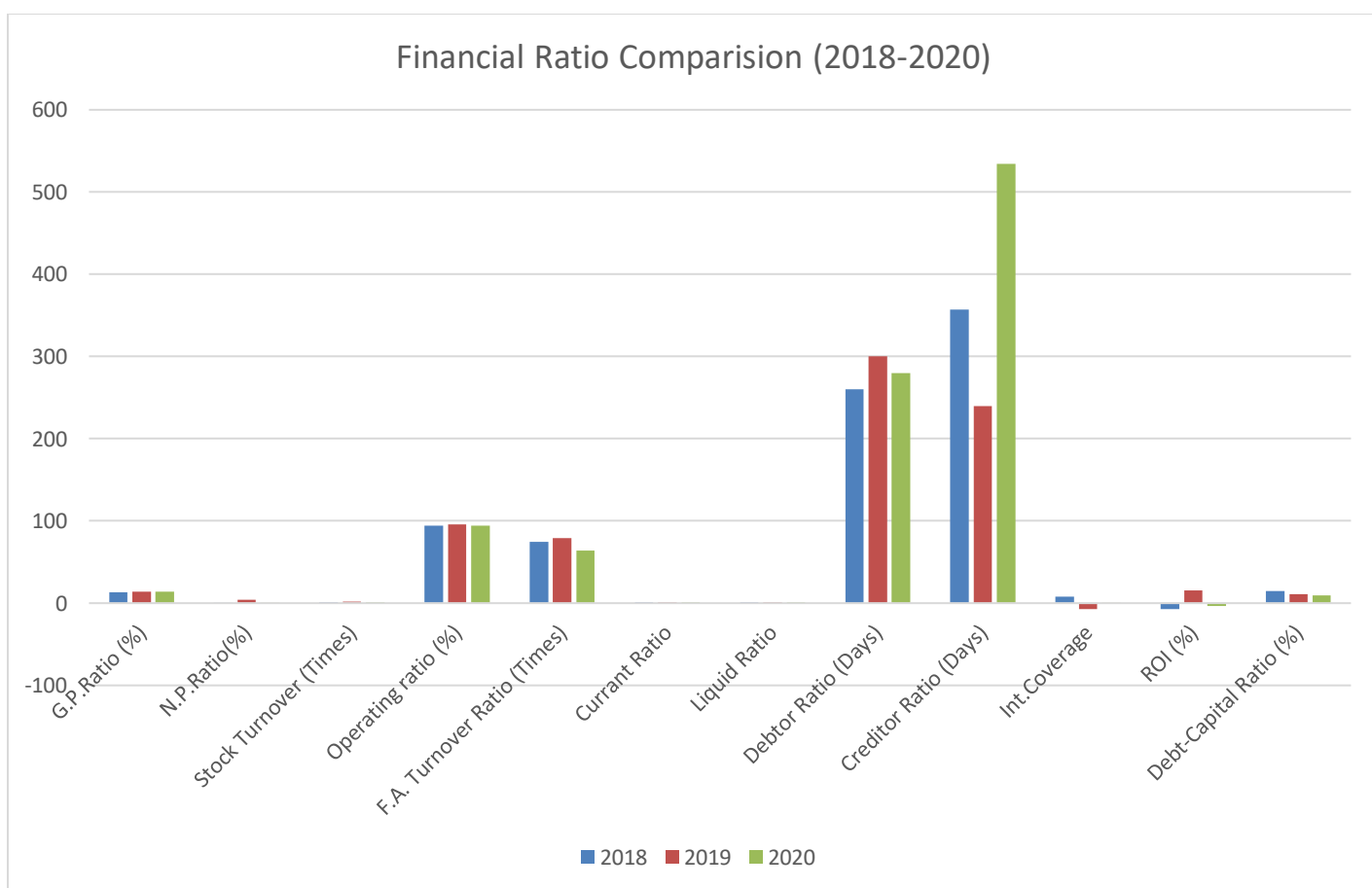
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13th Sample:

Ratio	Year		
	2018	2019	2020
Sales	36,57,690.18	38,86,468.09	38,09,290
Gross Profit Ratio (%)	13.27	14.10	13.82
Net Profit Ratio (%)	-0.02	3.94	-0.01
Stock Turnover Ratio (Times)	1.15	2.05	0.99
Operating Ratio (%)	94.07	96.06	94.05
Fix Assets Turnover (Times)	74.52	79.18	63.71
Current Ratio	1.05	1.11	1.1
Liquid Ratio	0.34	0.88	0.56
Debtor Ratio (Days)	260	300	280
Creditor Ratio (Days)	357	240	534
Interest Coverage (%)	8.28	-7.11	-0.04
Return on Investment (%)	-7.3	15.37	-3.8
Debt-Capital Ratio (%)	14.39	11.19	9.59

(Table 4.2.13 Financial Data Of Sample 13)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.2.13 Financial Data Of Sample 13)

❖ Interpretation:

1. Sales:

- **2018:** ₹36,57,690.18
- **2019:** ₹38,86,468.09
- **2020:** ₹38,09,290

Interpretation:

Sales have shown a slight increase from ₹36.57 lakh in 2018 to ₹38.86 lakh in 2019, reflecting a growth of about 6.3%. However, the sales declined to ₹38.09 lakh in 2020, indicating a slight decrease of 2% from 2019. This shows a relatively stable sales trend, but there is some fluctuation over the three years.

2. Gross Profit Ratio:

- **2018:** 13.27%
- **2019:** 14.10%
- **2020:** 13.82%

Interpretation:

The gross profit ratio improved from 13.27% in 2018 to 14.10% in 2019, indicating better profitability from core operations. However, it slightly decreased to 13.82% in 2020, suggesting a slight reduction in efficiency in generating profit from sales, although still maintaining a healthy gross margin.

3. Net Profit Ratio:

- **2018:** -0.02%
- **2019:** 3.94%
- **2020:** -0.01%

Interpretation:

The company experienced a small loss in 2018 with a net profit ratio of -0.02%, but in 2019, it turned positive with a net profit ratio of 3.94%, indicating improved overall profitability. However, the net profit ratio returned to near zero at -0.01% in 2020, showing a lack of profitability in that year, with the company unable to generate significant profit despite positive gross margin.

4. Stock Turnover Ratio:

- **2018:** 1.15
- **2019:** 2.05
- **2020:** 0.99

Interpretation:

The stock turnover ratio improved from 1.15 times in 2018 to 2.05 times in 2019, indicating an efficient use of inventory. However, it decreased to 0.99 times in 2020, signaling a slowdown in the movement of inventory, which may suggest a buildup of unsold stock or reduced demand for products during the year.

5. Operating Ratio:

- **2018:** 94.07%
- **2019:** 96.06%
- **2020:** 94.05%

Interpretation:

The operating ratio increased from 94.07% in 2018 to 96.06% in 2019, indicating a rise in operating expenses relative to sales, which means the company was less efficient in controlling costs.

However, it decreased to 94.05% in 2020, suggesting a slight improvement in cost control, although still showing a high percentage of expenses relative to sales.

6. Fixed Assets Turnover:

- **2018:** 74.52
- **2019:** 79.18
- **2020:** 63.71

Interpretation:

The fixed assets turnover ratio increased from 74.52 in 2018 to 79.18 in 2019, reflecting a higher efficiency in generating sales from fixed assets. However, it decreased to 63.71 in 2020, indicating a reduction in the efficiency of generating sales from fixed assets, possibly due to underutilization or a decline in asset utilization.

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7. Current Ratio:

- **2018:** 1.05
- **2019:** 1.11
- **2020:** 1.10

Interpretation:

The current ratio improved from 1.05 in 2018 to 1.11 in 2019, suggesting a better ability to meet short-term liabilities. It remained stable at 1.10 in 2020, indicating that the company maintained a sufficient level of current assets to cover current liabilities, reflecting a safe liquidity position.

8. Liquid Ratio:

- **2018:** 0.34
- **2019:** 0.88
- **2020:** 0.56

Interpretation:

The liquid ratio improved significantly from 0.34 in 2018 to 0.88 in 2019, indicating a stronger ability to meet short-term obligations with liquid assets. However, it decreased to 0.56 in 2020, suggesting a reduction in the company's ability to meet immediate obligations without selling inventory, which could be a potential concern for liquidity management.

9. Debtor Ratio (Days):

- **2018:** 260
- **2019:** 300
- **2020:** 280

Interpretation:

The debtor ratio increased from 260 days in 2018 to 300 days in 2019, indicating that the company was taking longer to collect payments from its customers. The ratio decreased to 280 days in 2020, showing a slight improvement in receivables collection, though it remains relatively high, indicating inefficiency in the credit policy or collection process.

10. Creditor Ratio (Days):

- **2018:** 357
- **2019:** 240
- **2020:** 534

Interpretation:

The creditor ratio decreased from 357 days in 2018 to 240 days in 2019, suggesting that the company was paying off its creditors more quickly. However, the ratio increased sharply to 534 days in 2020, reflecting a significant delay in payments to suppliers, which may strain supplier relationships or indicate cash flow issues.

11. Interest Coverage:

- **2018:** 8.28%
- **2019:** -7.11%
- **2020:** -0.04%

Interpretation:

The interest coverage ratio was healthy at 8.28% in 2018, indicating that the company could comfortably meet its interest obligations from operating profits. However, it turned negative in 2019 (-7.11%) and remained negative in 2020 (-0.04%), showing that the company struggled to cover its interest expenses from profits, reflecting poor financial health and increasing risk.

12. Return on Investment (ROI):

- **2018:** -7.3%
- **2019:** 15.37%
- **2020:** -3.8%

Interpretation:

The return on investment was negative at -7.3% in 2018, indicating a loss for investors. In 2019, it improved significantly to 15.37%, showing strong returns. However, it turned negative again in 2020 with a -3.8% ROI, indicating a decrease in profitability and poor investment performance in that year.

13. Debt-Capital Ratio:

- **2018:** 14.39%
- **2019:** 11.19%
- **2020:** 9.59%

Interpretation:

The debt-capital ratio decreased from 14.39% in 2018 to 11.19% in 2019, indicating a reduction in the company's reliance on debt for financing. It decreased further to 9.59% in 2020, showing a continued decline in debt reliance and a shift towards less leveraged financing, which can be positive for the company's financial stability.

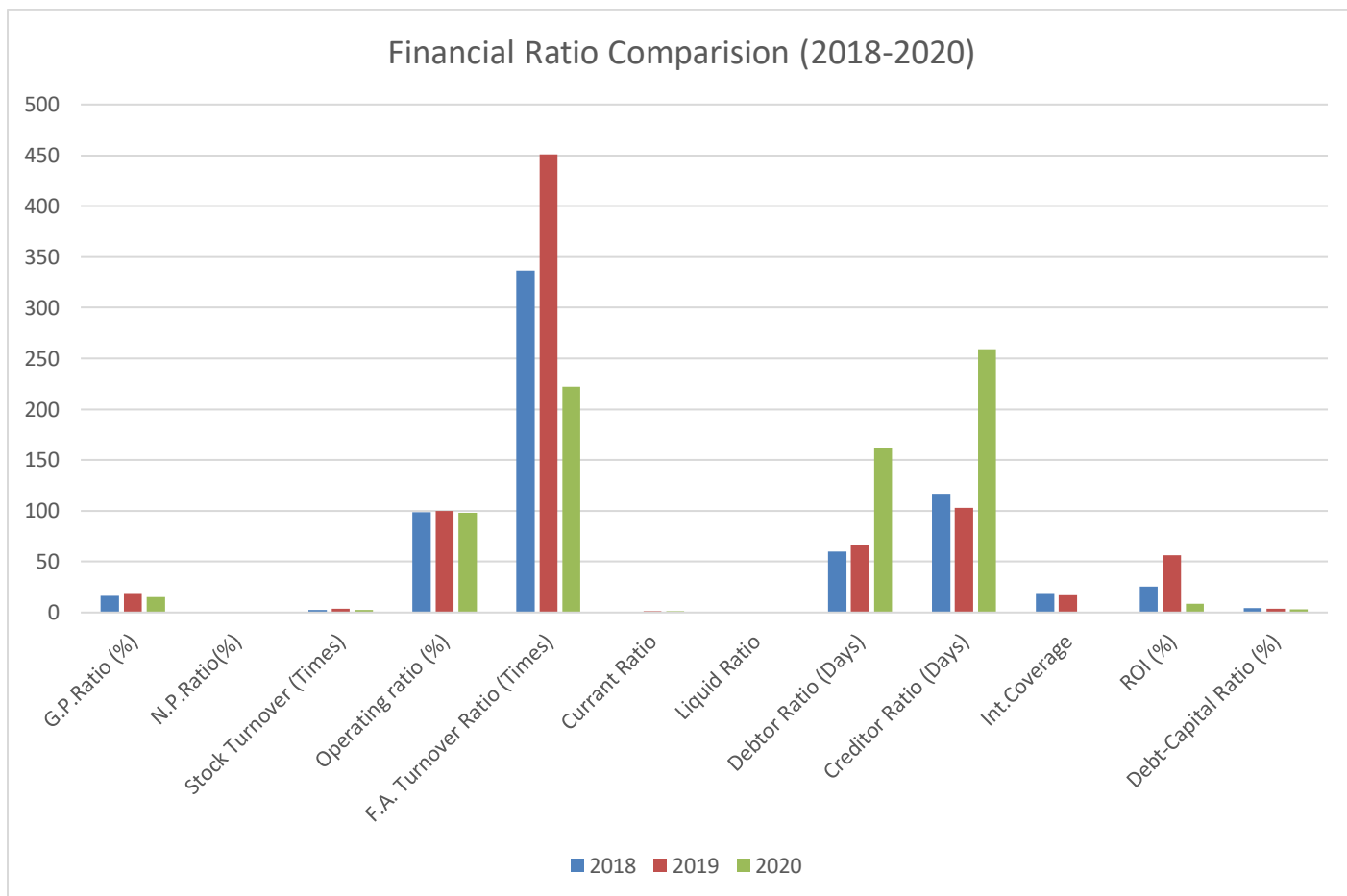
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14th Sample:

Ratio	Year		
	2018	2019	2020
Sales	26,04,69,493	28,32,90,083	19,95,37,257
Gross Profit Ratio (%)	16.55	15	15
Net Profit Ratio (%)	0.01	0.02	0.01
Stock Turnover Ratio (Times)	2.57	3.47	2.43
Operating Ratio (%)	98.92	99.97	97.94
Fix Assets Turnover (Times)	336.57	451.23	221.98
Current Ratio	0.95	1	1
Liquid Ratio	0.86	0.88	0.88
Debtor Ratio (Days)	60	66	162
Creditor Ratio (Days)	117	103	259
Interest Coverage (%)	18.10	17.09	0.41
Return on Investment (%)	25.37	56.21	8.26
Debt-Capital Ratio (%)	4.12	3.68	2.93

(Table 4.2.14 Financial Data Of Sample 14)

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(Figure 4.2.14 Financial Data Of Sample 14)

❖ Interpretation:

1. Sales:

- **2018:** ₹26,04,69,493
- **2019:** ₹28,32,90,083
- **2020:** ₹19,95,37,257

Interpretation:

Sales grew from ₹26.05 crore in 2018 to ₹28.33 crore in 2019, reflecting a positive increase of about 8.8%. However, in 2020, sales declined sharply to ₹19.95 crore, showing a significant drop of around 29.5%. This decrease in sales could be attributed to various factors like market conditions or external disruptions, such as the pandemic.

2. Gross Profit Ratio:

- **2018:** 16.55%
- **2019:** 15%
- **2020:** 15%

Interpretation:

The gross profit ratio decreased from 16.55% in 2018 to 15% in 2019, indicating a slight reduction in profitability from core operations. This stability continued in 2020 with the ratio remaining at 15%, reflecting consistent efficiency in generating profit from sales, despite the sales decline in 2020.

3. Net Profit Ratio:

- **2018:** 0.01%
- **2019:** 0.02%
- **2020:** 0.01%

Interpretation:

The net profit ratio remained very low over the three years, showing minimal profitability. It increased slightly from 0.01% in 2018 to 0.02% in 2019, but it dropped back to 0.01% in 2020. This low profitability indicates that the company had very tight margins, possibly due to high operating expenses or financial burdens.

4. Stock Turnover Ratio:

- **2018:** 2.57
- **2019:** 3.47
- **2020:** 2.43

Interpretation:

The stock turnover ratio improved from 2.57 in 2018 to 3.47 in 2019, indicating better efficiency in converting inventory into sales. However, the ratio dropped to 2.43 in 2020, reflecting a slower movement of stock, which could be related to reduced sales or inventory management issues during the year.

5. Operating Ratio:

- **2018:** 98.92%
- **2019:** 99.97%
- **2020:** 97.94%

Interpretation:

The operating ratio increased slightly from 98.92% in 2018 to 99.97% in 2019, showing a small rise in operating expenses relative to sales. However, it improved to 97.94% in 2020, indicating a slight reduction in operating expenses, which could be a result of cost-cutting measures or operational efficiencies.

6. Fixed Assets Turnover:

- **2018:** 336.57
- **2019:** 451.23
- **2020:** 221.98

Interpretation:

The fixed assets turnover ratio increased significantly from 336.57 in 2018 to 451.23 in 2019, indicating higher efficiency in generating sales from fixed assets. However, the ratio dropped drastically to 221.98 in 2020, signaling a decrease in efficiency, possibly due to underutilization of fixed assets as sales declined.

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7. Current Ratio:

- **2018:** 0.95
- **2019:** 1
- **2020:** 1

Interpretation:

The current ratio improved from 0.95 in 2018 to 1 in 2019, reflecting a better ability to meet short-term liabilities. It remained stable at 1 in 2020, showing that the company had just enough current assets to cover its current liabilities, which is considered a neutral liquidity position.

8. Liquid Ratio:

- **2018:** 0.86
- **2019:** 0.88
- **2020:** 0.88

Interpretation:

The liquid ratio improved slightly from 0.86 in 2018 to 0.88 in 2019, showing a marginal improvement in the company's ability to meet short-term obligations with its most liquid assets. The ratio remained stable at 0.88 in 2020, still indicating a somewhat low level of liquidity, suggesting potential challenges in meeting obligations without relying on inventory sales.

9. Debtor Ratio (Days):

- **2018:** 60
- **2019:** 66
- **2020:** 162

Interpretation:

The debtor ratio increased from 60 days in 2018 to 66 days in 2019, showing a slight delay in collecting receivables. However, it surged to 162 days in 2020, indicating a significant slowdown in the collection process, which could be due to weak credit management or customer payment delays, impacting cash flow.

10. Creditor Ratio (Days):

- **2018:** 117
- **2019:** 103
- **2020:** 259

Interpretation:

The creditor ratio decreased from 117 days in 2018 to 103 days in 2019, indicating faster payments to creditors. However, it increased sharply to 259 days in 2020, suggesting significant delays in paying suppliers, which could reflect cash flow issues or a strategic decision to delay payments during challenging financial times.

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11. Interest Coverage:

- **2018:** 18.10%
- **2019:** 17.09%
- **2020:** 0.41%

Interpretation:

The interest coverage ratio was strong at 18.10% in 2018 and slightly decreased to 17.09% in 2019, showing that the company could comfortably meet its interest obligations from operating profits. However, it dropped drastically to 0.41% in 2020, indicating severe difficulty in covering interest expenses from profits, signaling financial distress.

12. Return on Investment (ROI):

- **2018:** 25.37%
- **2019:** 56.21%
- **2020:** 8.26%

Interpretation:

The return on investment was strong at 25.37% in 2018 and significantly improved to 56.21% in 2019, indicating excellent returns on invested capital. However, the ROI dropped sharply to 8.26% in 2020, reflecting a decline in profitability and a decrease in returns for investors during the year.

13. Debt-Capital Ratio:

- **2018:** 4.12%
- **2019:** 3.68%
- **2020:** 2.93%

Interpretation:

The debt-capital ratio decreased from 4.12% in 2018 to 3.68% in 2019, and further to 2.93% in 2020, indicating a reduction in the company's reliance on debt for financing. This decline is positive, as it reflects a lower level of financial leverage and reduced financial risk over the period.

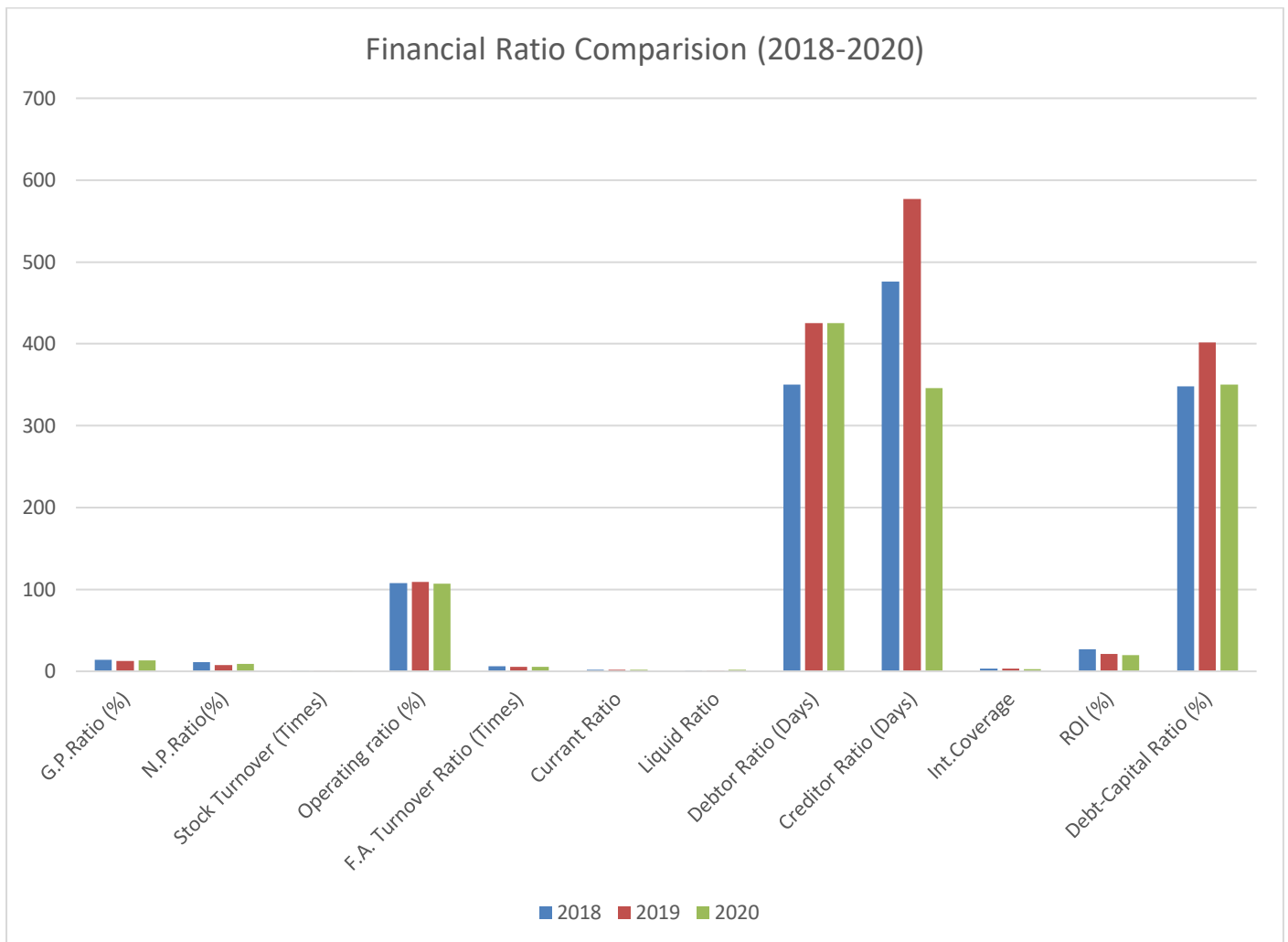
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15th Sample:

Ratio	Year		
	2018	2019	2020
Sales	80,89,335	1,05,20,250	97,67,920
Gross Profit Ratio (%)	13.78	12.56	13.24
Net Profit Ratio (%)	11.04	7.9	8.95
Stock Turnover Ratio (Times)	0.52	0.24	0.42
Operating Ratio (%)	107.62	109.08	107.27
Fix Assets Turnover (Times)	6.32	5.25	5.21
Current Ratio	2.15	1.7	2.24
Liquid Ratio	1.43	1.46	1.74
Debtor Ratio (Days)	350	425	425
Creditor Ratio (Days)	476	577	346
Interest Coverage (%)	3.4	3.24	2.94
Return on Investment (%)	26.887	21.35	20
Debt-Capital Ratio (%)	348.4	401.74	350.5

(Table 4.2.15 Financial Data Of Sample 15)

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(Figure 4.2.15 Financial Data Of Sample 15)

❖ Interpretation:

1. Sales:

- **2018:** ₹80,89,335
- **2019:** ₹1,05,20,250
- **2020:** ₹97,67,920

Interpretation:

Sales grew from ₹80.89 lakh in 2018 to ₹1.05 crore in 2019, reflecting an increase of around 30%. However, sales declined to ₹97.67 lakh in 2020, a decrease of approximately 7.2%. The decline in 2020 could be attributed to external factors like market conditions or economic disruptions.

2. Gross Profit Ratio:

- **2018:** 13.78%
- **2019:** 12.56%
- **2020:** 13.24%

Interpretation:

The gross profit ratio decreased from 13.78% in 2018 to 12.56% in 2019, showing a reduction in profitability from core operations. However, it improved to 13.24% in 2020, reflecting a recovery in gross profit margin despite the decrease in sales, indicating better efficiency in cost management.

3. Net Profit Ratio:

- **2018:** 11.04%
- **2019:** 7.9%
- **2020:** 8.95%

Interpretation:

The net profit ratio decreased from 11.04% in 2018 to 7.9% in 2019, indicating a decline in overall profitability. However, it improved slightly to 8.95% in 2020, suggesting that the company managed to control costs better and improved its profitability despite challenges, such as lower sales in 2020.

4. Stock Turnover Ratio:

- **2018:** 0.52
- **2019:** 0.24
- **2020:** 0.42

Interpretation:

The stock turnover ratio decreased from 0.52 in 2018 to 0.24 in 2019, reflecting slower movement of inventory. However, it improved to 0.42 in 2020, indicating that inventory management slightly improved, although the company still faced challenges in selling off stock efficiently.

5. Operating Ratio:

- **2018:** 107.62%
- **2019:** 109.08%
- **2020:** 107.27%

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Interpretation:

The operating ratio increased from 107.62% in 2018 to 109.08% in 2019, indicating higher operating expenses relative to sales, suggesting the company faced increased costs. The ratio slightly decreased to 107.27% in 2020, showing a slight improvement but still indicating that operating costs were higher than the revenues.

6. Fixed Assets Turnover:

- **2018:** 6.32
- **2019:** 5.25
- **2020:** 5.21

Interpretation:

The fixed assets turnover ratio decreased from 6.32 in 2018 to 5.25 in 2019 and further slightly to 5.21 in 2020. This suggests a decline in the efficiency of utilizing fixed assets to generate sales, possibly due to underutilization or reduced capacity in operations.

7. Current Ratio:

- **2018:** 2.15
- **2019:** 1.7
- **2020:** 2.24

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Interpretation:

The current ratio decreased from 2.15 in 2018 to 1.7 in 2019, indicating a weakening ability to meet short-term liabilities. However, it improved to 2.24 in 2020, reflecting better liquidity and a stronger ability to pay off short-term debts in the face of reduced sales.

8. Liquid Ratio:

- **2018:** 1.43
- **2019:** 1.46
- **2020:** 1.74

Interpretation:

The liquid ratio increased from 1.43 in 2018 to 1.46 in 2019, indicating a slight improvement in the company's ability to meet its immediate obligations with its most liquid assets. The ratio further improved to 1.74 in 2020, reflecting a stronger liquidity position, suggesting better financial flexibility.

9. Debtor Ratio (Days):

- **2018:** 350
- **2019:** 425
- **2020:** 425

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Interpretation:

The debtor ratio increased from 350 days in 2018 to 425 days in 2019, indicating a significant delay in collecting payments from customers. The ratio remained unchanged at 425 days in 2020, further showing continued difficulty in collecting receivables and a potential cash flow issue.

10. Creditor Ratio (Days):

- **2018:** 476
- **2019:** 577
- **2020:** 346

Interpretation:

The creditor ratio increased from 476 days in 2018 to 577 days in 2019, suggesting that the company was taking longer to pay its creditors. However, the ratio decreased to 346 days in 2020, indicating a faster payment cycle, possibly due to tighter cash management or improved vendor relationships.

11. Interest Coverage:

- **2018:** 3.4%
- **2019:** 3.24%
- **2020:** 2.94%

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Interpretation:

The interest coverage ratio slightly decreased from 3.4% in 2018 to 3.24% in 2019 and further to 2.94% in 2020. While the ratio remains positive, it indicates a reduction in the company's ability to cover its interest expenses from operating profits, suggesting increasing financial strain.

12. Return on Investment (ROI):

- **2018:** 26.89%
- **2019:** 21.35%
- **2020:** 20%

Interpretation:

The return on investment decreased from 26.89% in 2018 to 21.35% in 2019 and further to 20% in 2020. This decline indicates a reduction in the effectiveness of capital utilization and a lower return for investors, reflecting challenges in achieving profitability and growth.

13. Debt-Capital Ratio:

- **2018:** 348.4%
- **2019:** 401.74%
- **2020:** 350.5%

Interpretation:

The debt-capital ratio increased from 348.4% in 2018 to 401.74% in 2019, indicating that the company relied more heavily on debt for financing its capital. Although it slightly decreased to 350.5% in 2020, the ratio remains very high, highlighting the company's high financial leverage and associated risks in managing debt obligations.

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**FINANCIAL
COMPETITIVENESS
OF
BRASS INDUSTRIES
Based on RATIO
ANALYSIS**

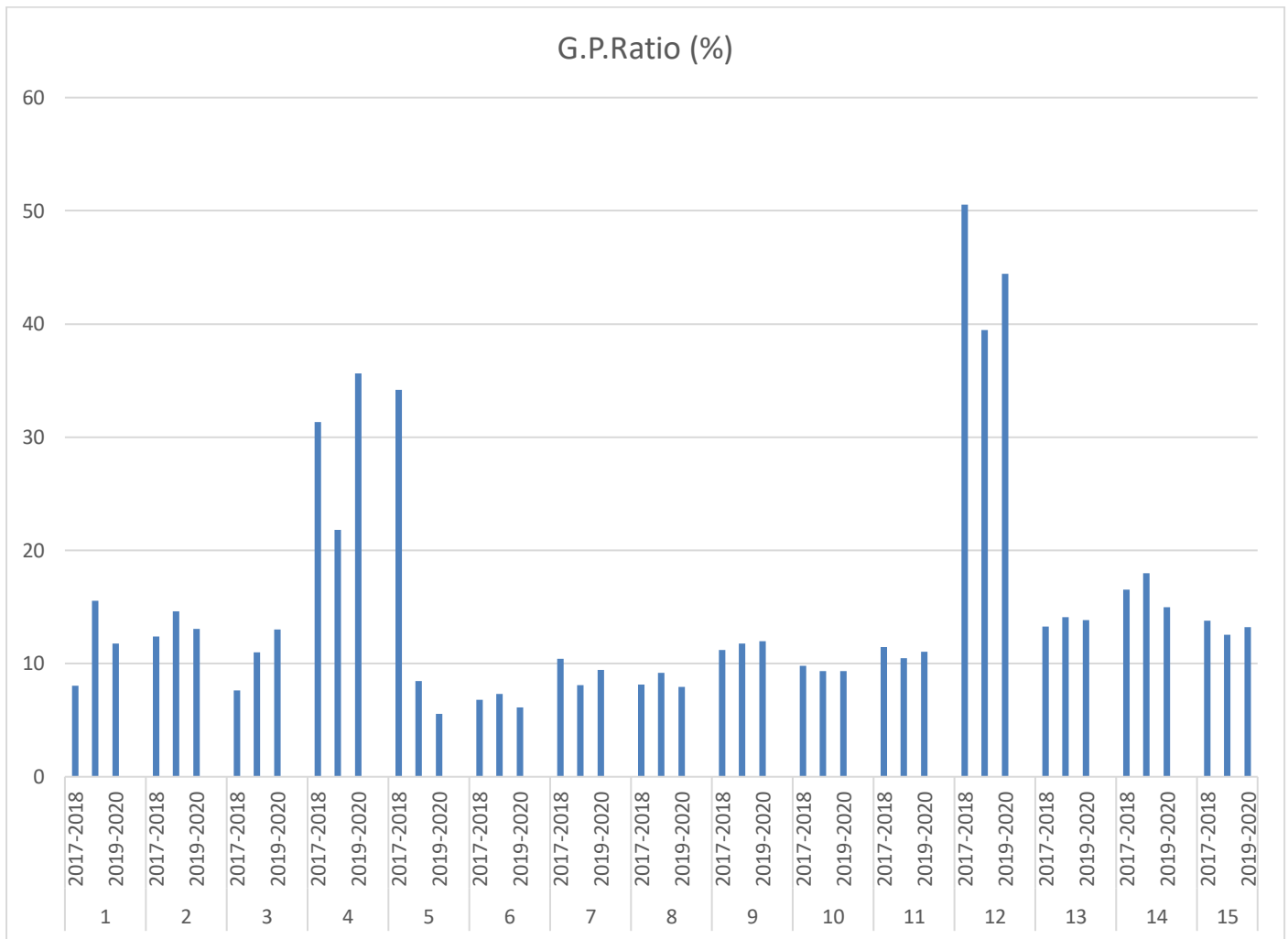
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1) Gross Profit Ratio:

SAMPLE	YEAR (%)		
	2017-2018	2018-2019	2019-2020
1	8.05	15.56	11.75
2	12.4	14.61	13.08
3	7.63	10.99	13
4	31.34	21.83	35.63
5	34.16	8.44	5.56
6	6.79	7.32	6.11
7	10.42	8.08	9.45
8	8.13	9.17	7.95
9	11.2	11.75	11.99
10	9.79	9.31	9.31
11	11.48	10.47	11.03
12	50.46	39.48	44.45
13	13.27	14.10	13.82
14	16.55	18	15
15	13.78	12.56	13.24

(Table 4.3.1 Gross Profit Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.1 Gross Profit Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

The data provided appears to show the Gross Profit (G.P.) ratio in percentages for various entities (or categories labeled 1 to 15) across three years (2017-2018, 2018-2019, and 2019-2020). Let's break down the interpretation of this data:

❖ **General Observations:**

- 1. Variability in G.P. Ratios:** The Gross Profit (G.P.) ratios show considerable variation across the years for most entities, reflecting changing financial performance.
- 2. Trends:**
 - Some entities demonstrate steady improvement (e.g., Entity 3 and Entity 12).
 - Others experience significant declines over the years (e.g., Entity 5).
 - A few entities maintain relative stability in their G.P. ratios (e.g., Entity 9 and Entity 10).
- 3. Notable Fluctuations:**
 - Entity 4 exhibits a sharp increase from 21.83% in 2018-2019 to 35.63% in 2019-2020, marking strong recovery and growth.
 - Entity 5 experiences a steep decline from 34.16% in 2017-2018 to 5.56% in 2019-2020, indicating declining profitability.
 - Entity 12 shows consistently high G.P. ratios, peaking at 50.46% in 2017-2018, though it dips in subsequent years before recovering slightly in 2019-2020.

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❖ Detailed Entity-Level Analysis:

1. Entities 1 to 3:

- **Entity 1:** Reports a significant rise from 8.05% in 2017-2018 to 15.56% in 2018-2019, followed by a slight decline to 11.75% in 2019-2020, indicating overall improvement despite minor fluctuations.
- **Entity 2:** Shows steady growth, peaking at 14.61% in 2018-2019 before dropping slightly to 13.08% in 2019-2020, reflecting stable profitability.
- **Entity 3:** Records consistent improvement, rising from 7.63% in 2017-2018 to 13% in 2019-2020, indicating growing profitability.

2. Entities 4 to 6:

- **Entity 4:** Experiences significant fluctuation, dropping from 31.34% in 2017-2018 to 21.83% in 2018-2019, then recovering strongly to 35.63% in 2019-2020, highlighting volatility.
- **Entity 5:** Declines sharply from 34.16% in 2017-2018 to just 5.56% in 2019-2020, indicating worsening financial performance.
- **Entity 6:** Maintains relatively consistent performance, with ratios fluctuating modestly between 6.11% and 7.32%.

3. Entities 7 to 9:

- **Entity 7:** Declines slightly from 10.42% in 2017-2018 to 8.08% in 2018-2019, but rebounds to 9.45% in 2019-2020, showing moderate stability.
- **Entity 8:** Improves from 8.13% to 9.17% between 2017-2018 and 2018-2019, followed by a slight decline to 7.95% in 2019-2020, indicating stable yet fluctuating performance.
- **Entity 9:** Demonstrates stability, with ratios ranging from 11.2% to 11.99%, reflecting consistent financial health.

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4. Entities 10 to 12:

- **Entity 10:** Remains steady at 9.31% in 2018-2019 and 2019-2020 after a slight decline from 9.79% in 2017-2018, suggesting consistent profitability.
- **Entity 11:** Records minor fluctuations, decreasing from 11.48% in 2017-2018 to 10.47% in 2018-2019, before recovering slightly to 11.03% in 2019-2020, indicating stability.
- **Entity 12:** Shows high profitability, though it declines from 50.46% in 2017-2018 to 39.48% in 2018-2019, then partially recovers to 44.45% in 2019-2020, reflecting resilience.

5. Entities 13 to 15:

- **Entity 13:** Reports minimal variation, ranging from 13.27% to 14.10%, indicating consistent performance.
- **Entity 14:** Peaks at 18% in 2018-2019 before dropping slightly to 15% in 2019-2020, suggesting overall stability with minor fluctuations.
- **Entity 15:** Demonstrates slight variations, with G.P. ratios ranging from 12.56% to 13.78%, reflecting stable financial health.

Conclusion:

The dataset highlights diverse trends in profitability, with some entities improving significantly (e.g., Entity 4 and Entity 3), while others face challenges (e.g., Entity 5). Stable performance is observed in a few entities (e.g., Entity 9 and Entity 13). Entities like Entity 12 show resilience despite temporary declines. The data reflects both opportunities for growth and areas requiring financial intervention.

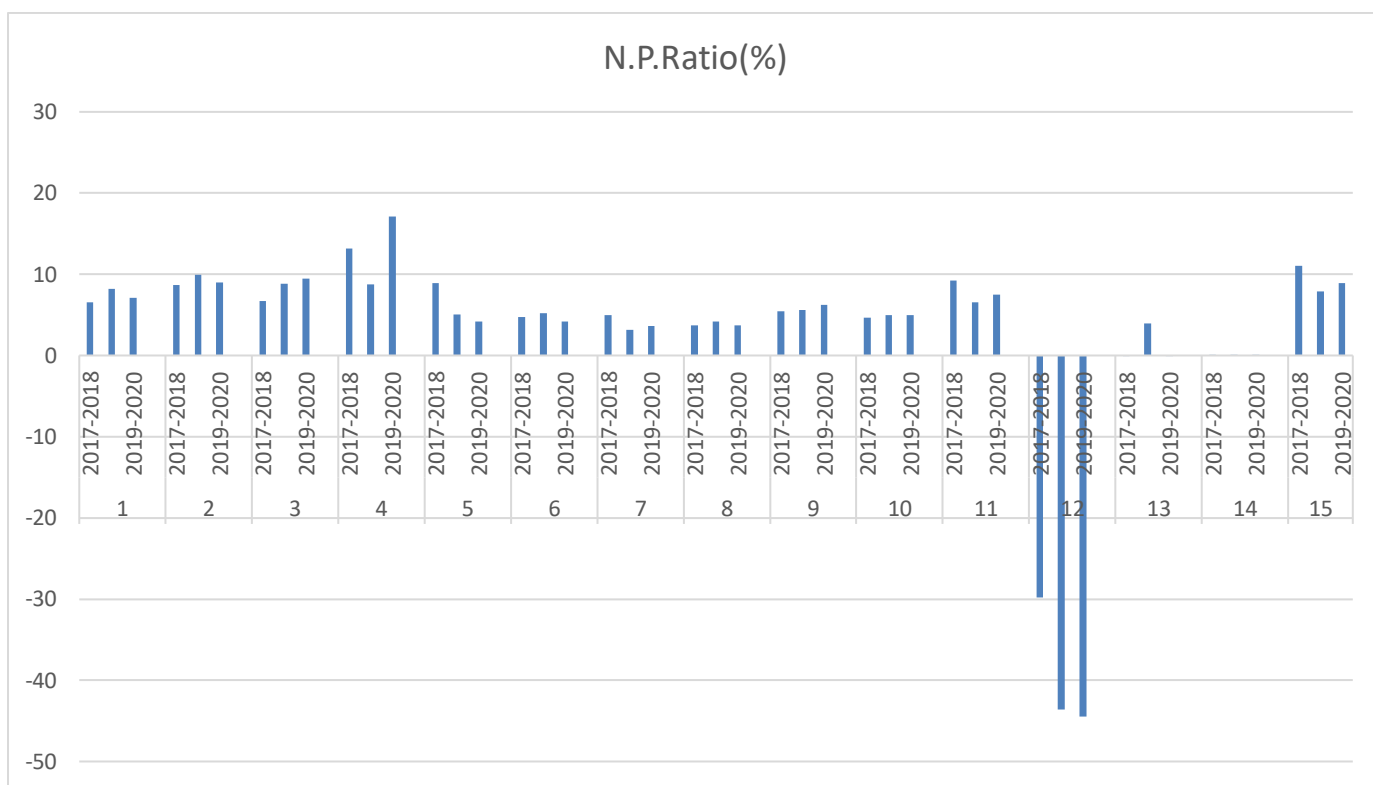
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2) Net Profit Ratio:

SAMPLE	YEAR (%)		
	2017-2018	2018-2019	2019-2020
1	6.58	8.24	7.1
2	8.68	9.93	9.02
3	6.74	8.86	9.46
4	13.16	8.73	17.10
5	8.88	5.06	4.17
6	4.77	5.18	4.18
7	5	3.13	3.66
8	3.74	4.22	3.69
9	5.42	5.59	6.27
10	4.63	4.96	4.96
11	9.2	6.58	7.46
12	-29.8	-43.57	-44.46
13	-0.02	3.94	-0.01
14	0.01	0.02	0.01
15	11.04	7.9	8.95

(Table 4.3.2 Net Profit Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.2 Net Profit Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

The data you've provided shows the **Net Profit (N.P.) ratio** in percentages for different entities (labeled from 1 to 15) over three years: 2017-2018, 2018-2019, and 2019-2020. The **Net Profit Ratio (N.P. Ratio)** typically reflects the percentage of net profit relative to revenue, indicating the profitability after all expenses have been deducted.

❖ **General Observations:**

1. **Variability in G.P. Ratios:**

The data reveals notable fluctuations in Gross Profit (G.P.) ratios for most entities across the three years, indicating varying financial performances over time.

2. **Trends:**

- Some entities exhibit steady improvement in their ratios (e.g., Entity 3 and Entity 9).
- Others show declining profitability over the years (e.g., Entity 5 and Entity 6).
- Negative G.P. ratios are observed for Entity 12 and Entity 13, indicating potential losses or operational challenges.

3. **Notable Fluctuations:**

- Entity 4 shows a significant dip from 13.16% in 2017-2018 to 8.73% in 2018-2019, but recovers strongly to 17.10% in 2019-2020.
- Entity 12 experiences extreme negative values, declining further from -29.8% in 2017-2018 to -44.46% in 2019-2020, reflecting severe financial challenges.
- Entity 15 displays a decrease from 11.04% in 2017-2018 to 7.9% in 2018-2019, followed by a partial recovery to 8.95% in 2019-2020.

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❖ Detailed Entity-Level Analysis:

1. Entities 1 to 3:

- **Entity 1:** Records modest improvement from 6.58% in 2017-2018 to 8.24% in 2018-2019 but declines to 7.1% in 2019-2020, indicating slight instability.
- **Entity 2:** Demonstrates consistent growth, peaking at 9.93% in 2018-2019 before a minor dip to 9.02% in 2019-2020, reflecting stable profitability.
- **Entity 3:** Shows steady improvement from 6.74% in 2017-2018 to 9.46% in 2019-2020, signalling growing financial strength.

2. Entities 4 to 6:

- **Entity 4:** Exhibits a decline from 13.16% in 2017-2018 to 8.73% in 2018-2019 but recovers strongly to 17.10% in 2019-2020, indicating resilience.
- **Entity 5:** Faces consistent declines from 8.88% in 2017-2018 to 4.17% in 2019-2020, signalling a steady decrease in profitability.
- **Entity 6:** Shows minor fluctuations, with a small dip from 4.77% in 2017-2018 to 4.18% in 2019-2020, reflecting stable but low profitability.

3. Entities 7 to 9:

- **Entity 7:** Declines steadily from 5% in 2017-2018 to 3.66% in 2019-2020, showing reduced profitability over time.
- **Entity 8:** Improves slightly from 3.74% in 2017-2018 to 4.22% in 2018-2019 but drops to 3.69% in 2019-2020, indicating stability with minor fluctuations.
- **Entity 9:** Displays consistent growth, rising from 5.42% in 2017-2018 to 6.27% in 2019-2020, suggesting improved performance.

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4. Entities 10 to 12:

- **Entity 10:** Remains stable, fluctuating minimally between 4.63% and 4.96%, reflecting steady financial performance.
- **Entity 11:** Declines from 9.2% in 2017-2018 to 6.58% in 2018-2019, but recovers to 7.46% in 2019-2020, showing moderate resilience.
- **Entity 12:** Experiences severe losses, with G.P. ratios plummeting further from -29.8% in 2017-2018 to -44.46% in 2019-2020, indicating ongoing financial distress.

5. Entities 13 to 15:

- **Entity 13:** Shows mixed performance, fluctuating from -0.02% in 2017-2018 to 3.94% in 2018-2019, then declining again to -0.01% in 2019-2020, reflecting instability.
- **Entity 14:** Maintains minimal fluctuations, with a G.P. ratio hovering near 0% across all three years, suggesting negligible profitability.
- **Entity 15:** Records a decline from 11.04% in 2017-2018 to 7.9% in 2018-2019, followed by a slight recovery to 8.95% in 2019-2020, indicating moderate stability.

Conclusion:

The dataset reveals diverse trends in profitability across the entities, with some showing resilience and growth (e.g., Entity 3 and Entity 9), while others face challenges and declining profitability (e.g., Entity 5 and Entity 12). Stability is observed in a few cases (e.g., Entity 10), whereas entities like Entity 4 and Entity 15 demonstrate recovery after initial dips. Negative G.P. ratios for Entity 12 and Entity 13 highlight significant financial issues that warrant attention. Overall, the data underscores the varying financial health and operational performance of the entities over the three years.

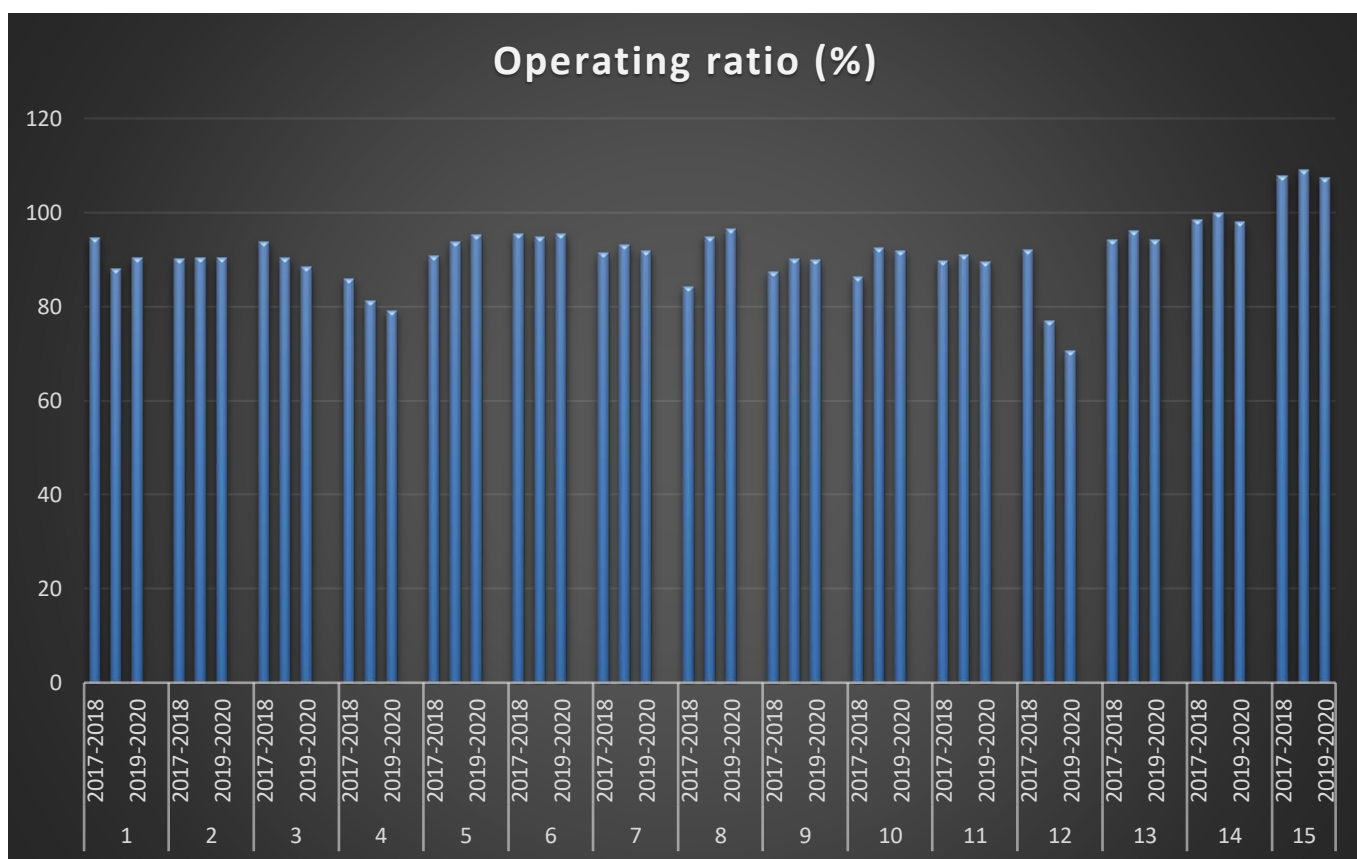
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3) Operating Ratio:

SAMPLE	YEAR (%)		
	2017-2018	2018-2019	2019-2020
1	94.56	88	90.2
2	90.12	90.2	90.2
3	93.77	90.4	88.38
4	85.88	81.31	79.08
5	90.63	93.72	95.08
6	95.48	94.91	95.41
7	91.29	93.14	91.84
8	84.10	94.86	96.32
9	87.40	90.15	89.88
10	86.28	92.44	91.81
11	89.68	90.9	89.39
12	92.04	6.9	70.45
13	94.07	96.06	94.05
14	98.92	99.97	97.94
15	107.62	109.08	107.27

(Table 4.3.3 Operating Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.3 Operating Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

The **Operating Ratio** is a measure of a company's operating efficiency, typically showing the percentage of revenue that is consumed by operating expenses. It is calculated by dividing operating expenses by total revenue. A **lower operating ratio** suggests better efficiency (i.e., the company is able to keep a greater portion of its revenue as profit), while a **higher operating ratio** indicates less efficiency (i.e., a larger portion of revenue is spent on operational costs).

Let's analyze the provided data:

❖ **General Observations:**

1. **Overall Trends:** Most entities maintain consistently high percentages, suggesting stable performance across the years. A few entities, however, show significant variations, indicating fluctuations in performance.
2. **Notable Consistency:** Several entities exhibit minimal fluctuations, staying within a narrow range of percentages (e.g., Entity 6 and Entity 13).
3. **Significant Variations:** Entity 12 shows an abrupt and drastic drop in 2018-2019, recovering somewhat in 2019-2020, while Entity 14 and Entity 15 consistently achieve the highest percentages.

❖ **Detailed Entity-Level Analysis:**

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1. Entities 1 to 3:

- **Entity 1:** Displays slight fluctuations, with a drop from 94.56% in 2017-2018 to 88% in 2018-2019, followed by a recovery to 90.2% in 2019-2020, indicating overall stability.
- **Entity 2:** Maintains remarkable consistency at approximately 90.2% across all three years, reflecting steady performance.
- **Entity 3:** Shows a gradual decline from 93.77% in 2017-2018 to 88.38% in 2019-2020, indicating a minor downward trend.

2. Entities 4 to 6:

- **Entity 4:** Experiences a continuous decline from 85.88% in 2017-2018 to 79.08% in 2019-2020, suggesting a decrease in performance over time.
- **Entity 5:** Improves steadily, rising from 90.63% in 2017-2018 to 95.08% in 2019-2020, indicating consistent growth.
- **Entity 6:** Remains highly stable, fluctuating only slightly around 95%, reflecting consistent high performance.

3. Entities 7 to 9:

- **Entity 7:** Displays minor fluctuations, peaking at 93.14% in 2018-2019 before settling at 91.84% in 2019-2020, showing stable performance.
- **Entity 8:** Improves significantly, rising from 84.1% in 2017-2018 to 96.32% in 2019-2020, indicating notable growth.
- **Entity 9:** Shows a stable trend, hovering around 89-90%, with minor fluctuations, suggesting consistent performance.

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4. Entities 10 to 12:

- **Entity 10:** Displays steady improvement from 86.28% in 2017-2018 to 92.44% in 2018-2019, followed by a slight dip to 91.81% in 2019-2020, indicating stability.
- **Entity 11:** Maintains consistency, fluctuating slightly around 89-90%, reflecting steady performance.
- **Entity 12:** Experiences a sharp decline from 92.04% in 2017-2018 to 6.9% in 2018-2019, before recovering to 70.45% in 2019-2020, highlighting significant instability.

5. Entities 13 to 15:

- **Entity 13:** Remains highly stable, maintaining percentages around 94%, indicating consistent high performance.
- **Entity 14:** Achieves the highest percentages, peaking at 99.97% in 2018-2019 before a slight dip to 97.94% in 2019-2020, showing exceptional performance.
- **Entity 15:** Consistently exceeds 100%, rising slightly from 107.62% in 2017-2018 to 109.08% in 2018-2019, then stabilizing at 107.27% in 2019-2020, demonstrating outstanding and stable performance.

❖ Conclusion:

Most entities exhibit stable and high performance, with notable improvements for some (e.g., Entity 5 and Entity 8). However, a few entities, such as Entity 4 and Entity 12, experience significant challenges, reflected in declining or fluctuating percentages. Entities 14 and 15 stand out as the top performers, consistently achieving the highest percentages, while entities like Entity 6 and Entity 13 display remarkable consistency. Overall, the dataset indicates a mix of stability and growth, with isolated cases of performance instability.

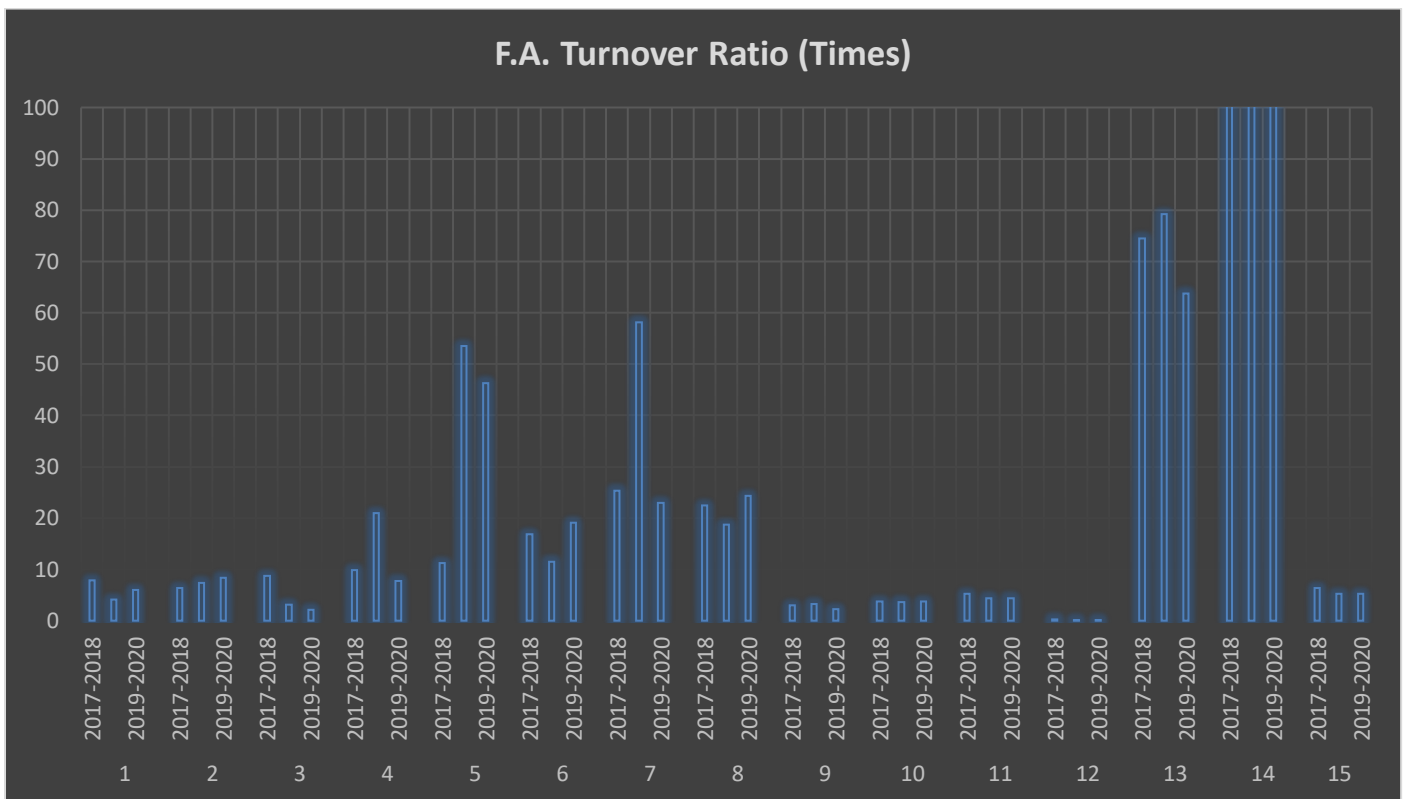
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4) Fixed Assets Turnover Ratio:

SAMPLE	YEAR (Times)		
	2017-2018	2018-2019	2019-2020
1	7.9	4.15	6.03
2	6.32	7.38	8.4
3	8.68	3.13	2.09
4	9.9	20.9	7.76
5	11.24	53.58	46.24
6	16.79	11.5	19.08
7	25.33	58.1	22.97
8	22.49	18.7	24.35
9	3.03	3.21	2.24
10	3.80	3.62	3.74
11	5.27	4.38	4.34
12	0.27	0.17	0.14
13	74.52	79.18	63.71
14	336.57	451.23	221.98
15	6.32	5.25	5.21

(Table 4.3.4 Fixed Assets Turnover Ratio)

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(Figure 4.3.4 Fixed Assets Turnover Ratio)

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The **Fixed Assets Turnover Ratio (F.A. Turnover Ratio)** is a financial metric that measures how effectively a company uses its fixed assets (such as property, plant, and equipment) to generate sales. The ratio is calculated as:

$$\text{Fixed Assets Turnover Ratio} = \text{Sales} / \text{Fixed Assets}$$

❖ General Observations:

1. **Diverse Trends:** The data shows considerable variability in the times across different entities and years, ranging from exceptionally high values (e.g., Entity 14) to very low values (e.g., Entity 12).
2. **Significant Fluctuations:** Some entities (e.g., Entity 7 and Entity 14) experience dramatic changes in their values over the years, while others (e.g., Entity 10 and Entity 11) remain relatively stable.
3. **Outstanding Performers:** Entities 13 and 14 stand out for their consistently high values, though Entity 14 shows a decline in 2019-2020 after peaking in 2018-2019.

❖ Detailed Entity-Level Analysis:

1. Entities 1 to 3:

- **Entity 1:** Shows a drop from 7.9 in 2017-2018 to 4.15 in 2018-2019, followed by a recovery to 6.03 in 2019-2020, indicating fluctuation but partial stabilization.
- **Entity 2:** Demonstrates steady growth, increasing from 6.32 in 2017-2018 to 8.4 in 2019-2020, reflecting consistent improvement.
- **Entity 3:** Experiences a sharp decline from 8.68 in 2017-2018 to 2.09 in 2019-2020, signalling a significant drop over the years.

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2. Entities 4 to 6:

- **Entity 4:** Peaks sharply at 20.9 in 2018-2019 before declining to 7.76 in 2019-2020, indicating volatility.
- **Entity 5:** Shows an exceptional increase from 11.24 in 2017-2018 to 53.58 in 2018-2019, followed by a slight decline to 46.24 in 2019-2020, indicating sustained high performance despite the dip.
- **Entity 6:** Displays significant variation, starting at 16.79 in 2017-2018, dropping to 11.5 in 2018-2019, and rebounding to 19.08 in 2019-2020, suggesting recovery after a dip.

3. Entities 7 to 9:

- **Entity 7:** Peaks dramatically at 58.1 in 2018-2019 before declining to 22.97 in 2019-2020, indicating substantial volatility.
- **Entity 8:** Remains relatively stable, with values ranging from 18.7 to 24.35, reflecting consistent performance.
- **Entity 9:** Shows a slight decline from 3.03 in 2017-2018 to 2.24 in 2019-2020, indicating minor but steady deterioration.

4. Entities 10 to 12:

- **Entity 10:** Maintains stability, with values fluctuating narrowly between 3.62 and 3.80, showing consistent performance.
- **Entity 11:** Similarly stable, with minor changes from 5.27 in 2017-2018 to 4.34 in 2019-2020, reflecting steady trends.
- **Entity 12:** Declines marginally from 0.27 in 2017-2018 to 0.14 in 2019-2020, maintaining low values overall.

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5. Entities 13 to 15:

- **Entity 13:** Remains one of the top performers, peaking at 79.18 in 2018-2019 before declining slightly to 63.71 in 2019-2020, maintaining strong performance.
- **Entity 14:** Demonstrates the highest values, with a peak of 451.23 in 2018-2019, but drops significantly to 221.98 in 2019-2020, indicating a sharp decline while remaining dominant.
- **Entity 15:** Stays stable, with values hovering around 5.21-6.32, reflecting consistent performance.

❖ Conclusion:

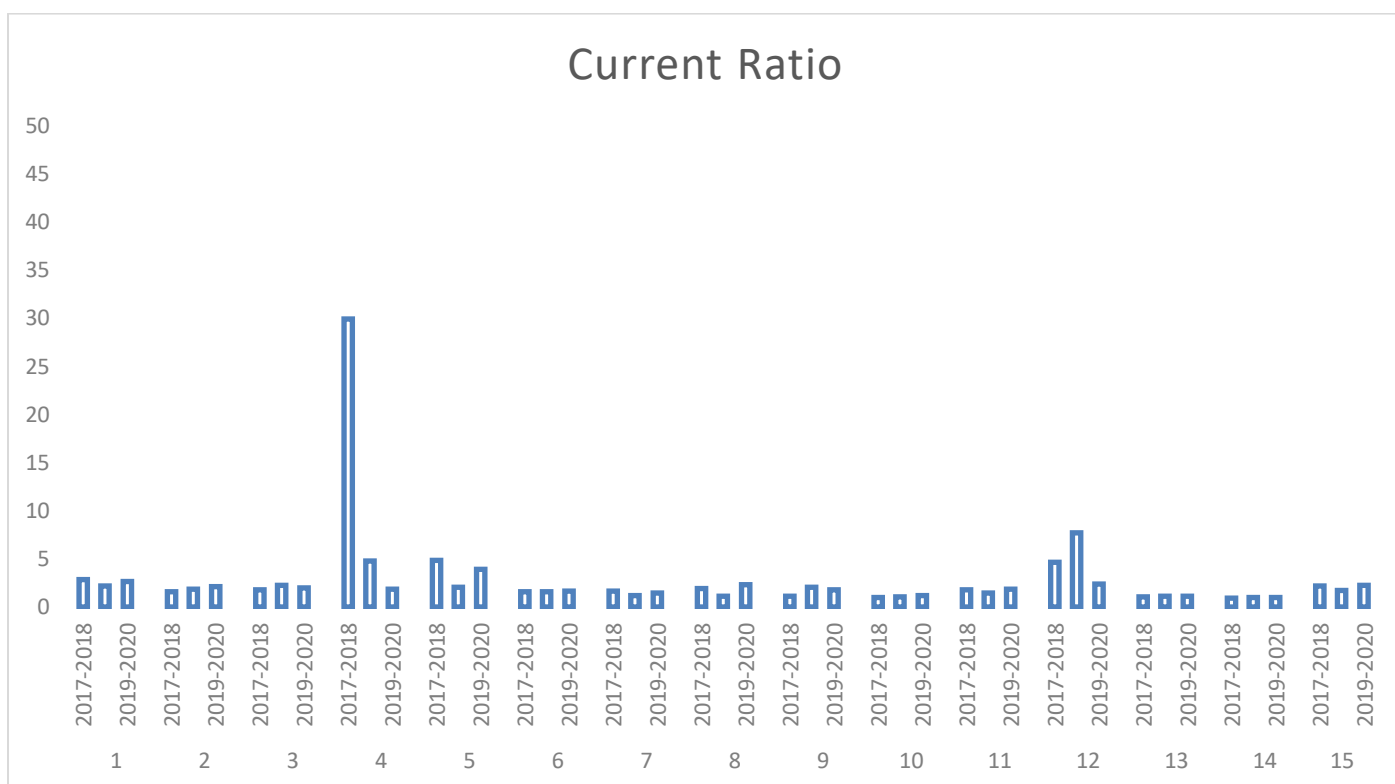
The dataset reveals a mix of stability, growth, and fluctuation across entities. Entities like 13 and 14 exhibit exceptional values, though Entity 14 shows a sharp decline in the final year. Stable entities (e.g., Entity 10 and Entity 11) highlight consistent performance, while others (e.g., Entity 7 and Entity 4) show dramatic fluctuations. Overall, the data reflects varied dynamics, with significant outliers and patterns of growth and decline.

5) Current Ratio:

SAMPLE	YEAR		
	2017-2018	2018-2019	2019-2020
1	2.85	2.18	2.63
2	1.6	1.88	2.1
3	1.8	2.22	1.99
4	29.9	4.77	1.84
5	4.84	2.07	3.89
6	1.56	1.59	1.63
7	1.66	1.16	1.45
8	1.93	1.15	2.3
9	1.15	2.04	1.76
10	0.97	1.07	1.17
11	1.79	1.42	1.87
12	4.63	7.71	2.41
13	1.05	1.11	1.1
14	0.95	1	1
15	2.15	1.7	2.24

(Table 4.3.5 Current Ratio)

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(Figure 4.3.4 Current Ratio)

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The **Current Ratio** is a liquidity ratio that measures a company's ability to pay its short-term obligations (those due within one year) using its current assets (assets that can be converted into cash within a year). It is calculated as:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

❖ General Observations:

1. **Stability and Variation:** The dataset shows a mix of relatively stable trends (e.g., Entities 13 and 14) and significant fluctuations (e.g., Entity 12).
2. **Overall Moderation:** Most values remain within a close range, typically between 1 and 5, with the exception of Entity 4, which displays an outlier in 2017-2018.
3. **Performance Peaks and Dips:** Certain entities, such as Entity 12, exhibit substantial variation, peaking in 2018-2019 before a decline.

❖ Detailed Entity-Level Analysis:

1. **Entities 1 to 3:**
 - **Entity 1:** Displays moderate fluctuations, with a slight dip in 2018-2019 (2.18) before rising again to 2.63 in 2019-2020, reflecting recovery.
 - **Entity 2:** Shows steady growth over the years, increasing from 1.6 in 2017-2018 to 2.1 in 2019-2020, indicating consistent improvement.
 - **Entity 3:** Fluctuates moderately, peaking at 2.22 in 2018-2019 before declining slightly to 1.99 in 2019-2020, reflecting a minor downturn.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

2. Entities 4 to 6:

- **Entity 4:** Stands out as an outlier with a very high value of 29.9 in 2017-2018, which drops drastically to 4.77 in 2018-2019 and further to 1.84 in 2019-2020, indicating significant volatility.
- **Entity 5:** Peaks at 4.84 in 2017-2018, then drops to 2.07 in 2018-2019 before recovering slightly to 3.89 in 2019-2020, showing fluctuations with partial recovery.
- **Entity 6:** Remains stable, with minimal changes from 1.56 in 2017-2018 to 1.63 in 2019-2020, indicating consistent performance.

3. Entities 7 to 9:

- **Entity 7:** Experiences a decline from 1.66 in 2017-2018 to 1.16 in 2018-2019, followed by a slight recovery to 1.45 in 2019-2020, reflecting a moderate downturn.
- **Entity 8:** Fluctuates, dipping from 1.93 in 2017-2018 to 1.15 in 2018-2019 before rising to 2.3 in 2019-2020, showing recovery after a dip.
- **Entity 9:** Peaks at 2.04 in 2018-2019 before declining to 1.76 in 2019-2020, indicating some fluctuation.

4. Entities 10 to 12:

- **Entity 10:** Shows gradual improvement, rising steadily from 0.97 in 2017-2018 to 1.17 in 2019-2020, reflecting consistent growth.
- **Entity 11:** Fluctuates slightly, declining from 1.79 in 2017-2018 to 1.42 in 2018-2019 before rising again to 1.87 in 2019-2020, indicating recovery.
- **Entity 12:** Displays significant variation, peaking at 7.71 in 2018-2019 before declining sharply to 2.41 in 2019-2020, highlighting volatility.

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5. Entities 13 to 15:

- **Entity 13:** Remains stable, with values consistently hovering around 1.1, indicating no significant variation.
- **Entity 14:** Also exhibits stability, remaining constant at 0.95 to 1 across all three years.
- **Entity 15:** Fluctuates moderately, dipping from 2.15 in 2017-2018 to 1.7 in 2018-2019 before rising to 2.24 in 2019-2020, reflecting a recovery.

❖ Conclusion:

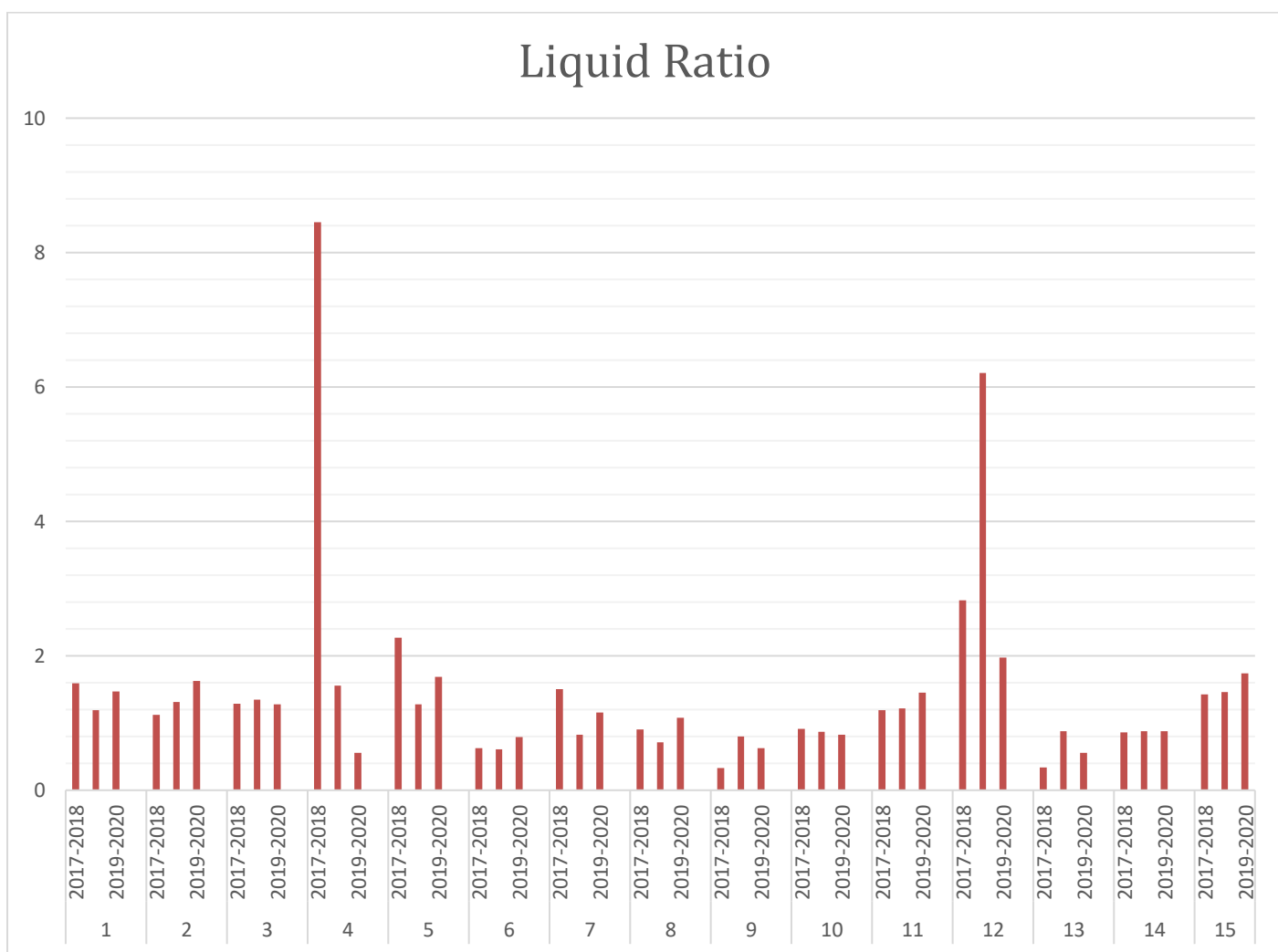
The data reveals varied dynamics, with entities like 4 and 12 showing substantial fluctuations and volatility, while others, such as 13 and 14, maintain consistent performance. Stable trends dominate the dataset, but peaks and dips in certain entities suggest underlying factors that may influence their variability. Overall, most values remain moderate, contributing to a balanced distribution.

6) Liquid Ratio:

SAMPLE	YEAR		
	2017-2018	2018-2019	2019-2020
1	1.59	1.19	1.47
2	1.12	1.31	1.63
3	1.29	1.35	1.28
4	8.45	1.56	0.56
5	2.27	1.28	1.69
6	0.63	0.61	0.79
7	1.5	0.83	1.16
8	0.90	0.71	1.08
9	0.33	0.8	0.63
10	0.91	0.87	0.83
11	1.19	1.22	1.45
12	2.83	6.21	1.97
13	0.34	0.88	0.56
14	0.86	0.88	0.88
15	1.43	1.46	1.74

(Table 4.3.6 Liquid Ratio)

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(Figure 4.3.6 Liquid Ratio)

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The **Liquid Ratio** (also known as the **Acid-Test Ratio**) is a financial metric that measures a company's ability to meet its short-term liabilities with its most liquid assets (i.e., assets that can be quickly converted into cash). The formula for the liquid ratio is:

$$\text{Liquid Ratio} = \text{Liquid Assets} / \text{Liquid Liabilities}$$

❖ General Observations:

1. **Stability vs. Volatility:** The data reveals a mix of stability in some entities (e.g., Entities 14 and 3) and notable fluctuations in others (e.g., Entities 4 and 12).
2. **Overall Moderation:** Most values are within the range of 0.5 to 2, with a few significant outliers, such as Entity 4 in 2017-2018 and Entity 12 in 2018-2019.
3. **Gradual Shifts:** Several entities show gradual upward or downward trends over the years, reflecting consistent changes.

❖ Detailed Entity-Level Analysis:

1. Entities 1 to 3:

- **Entity 1:** Displays moderate fluctuation, dipping to 1.19 in 2018-2019 but recovering to 1.47 in 2019-2020, suggesting slight volatility with recovery.
- **Entity 2:** Shows consistent growth, increasing steadily from 1.12 in 2017-2018 to 1.63 in 2019-2020, indicating continuous improvement.
- **Entity 3:** Remains relatively stable, with minor fluctuations between 1.28 and 1.35, reflecting steadiness.

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2. Entities 4 to 6:

- **Entity 4:** A significant outlier, peaking at 8.45 in 2017-2018 before a sharp drop to 1.56 in 2018-2019 and further to 0.56 in 2019-2020, highlighting extreme volatility.
- **Entity 5:** Fluctuates moderately, dipping to 1.28 in 2018-2019 before recovering to 1.69 in 2019-2020, showing partial recovery.
- **Entity 6:** Remains stable with minor changes, ranging from 0.61 to 0.79, reflecting consistency.

3. Entities 7 to 9:

- **Entity 7:** Shows a decline from 1.5 in 2017-2018 to 0.83 in 2018-2019, followed by a recovery to 1.16 in 2019-2020, indicating moderate volatility.
- **Entity 8:** Fluctuates slightly, dipping to 0.71 in 2018-2019 before rising to 1.08 in 2019-2020, reflecting recovery after a minor decline.
- **Entity 9:** Peaks at 0.8 in 2018-2019 before declining to 0.63 in 2019-2020, showing slight instability.

4. Entities 10 to 12:

- **Entity 10:** Maintains relative stability, fluctuating within a narrow range (0.83 to 0.91), reflecting consistent performance.
- **Entity 11:** Displays gradual growth, increasing steadily from 1.19 in 2017-2018 to 1.45 in 2019-2020, indicating consistent improvement.
- **Entity 12:** Experiences significant variation, peaking at 6.21 in 2018-2019 before declining to 1.97 in 2019-2020, highlighting volatility.

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5. Entities 13 to 15:

- **Entity 13:** Shows moderate fluctuations, peaking at 0.88 in 2018-2019 before dropping to 0.56 in 2019-2020, indicating some instability.
- **Entity 14:** Remains extremely stable, maintaining a constant value of 0.88 over the three years, reflecting no variation.
- **Entity 15:** Displays consistent growth, rising from 1.43 in 2017-2018 to 1.74 in 2019-2020, indicating gradual improvement.

❖ Conclusion:

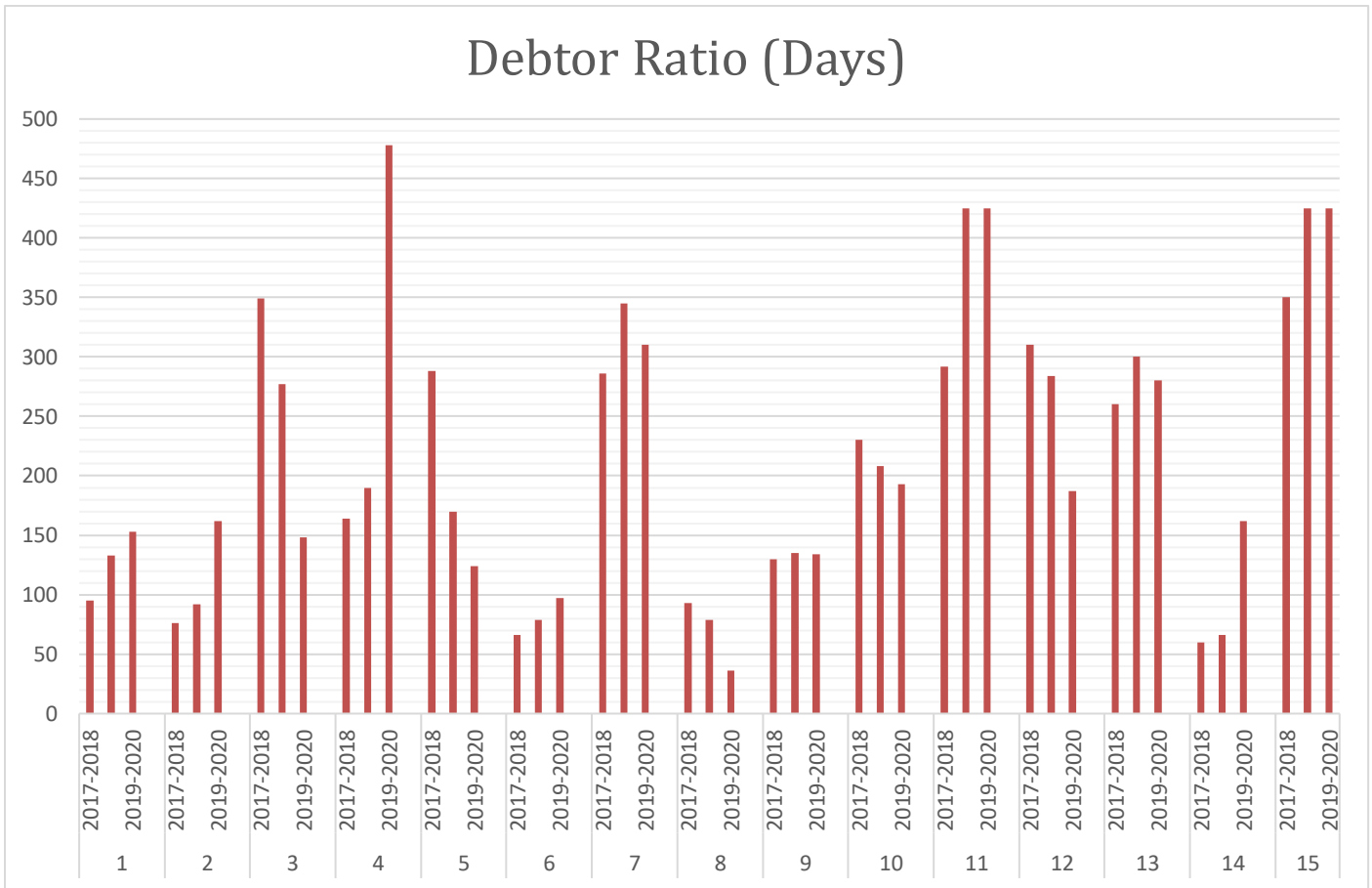
The dataset reflects a mix of stability and variability, with entities like 14 and 6 maintaining consistent performance while others, such as 4 and 12, exhibit significant fluctuations. Gradual improvements in entities such as 2, 11, and 15 indicate positive trends, whereas declines in entities like 4 suggest underlying volatility. Overall, the values remain moderate, with occasional outliers influencing the overall dynamics.

7) Debtor Ratio:

SAMPLE	YEAR (Days)		
	2017-2018	2018-2019	2019-2020
1	95	133	153
2	76	92	162
3	349	277	148
4	164	190	478
5	288	170	124
6	66	79	97
7	286	345	310
8	93	79	36
9	130	135	134
10	230	208	193
11	292	425	425
12	310	284	187
13	260	300	280
14	60	66	162
15	350	425	425

(Table 4.3.7 Debtor Ratio)

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(Figure 4.3.7 Debtor Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ **General Observations:**

1. **Stability vs. Volatility:** The dataset reveals a mix of stability and variability. Entities like 6 and 9 exhibit relative steadiness, while entities such as 4 and 12 show substantial fluctuations.
2. **Overall Trends:** Some entities display gradual improvement (e.g., Entity 1), while others (e.g., Entity 8) decline over time. Entities 11 and 15 remain consistent with high values over the years.
3. **Extreme Variations:** Outliers such as Entity 4 in 2019-2020 (478 days) and Entity 15 (425 days across two years) significantly impact overall dynamics.

❖ **Detailed Entity-Level Analysis:**

Entities 1 to 3:

- **Entity 1:** Shows steady growth over three years, increasing from 95 in 2017-2018 to 153 in 2019-2020, reflecting consistent improvement.
- **Entity 2:** Displays moderate growth, rising from 76 in 2017-2018 to 162 in 2019-2020, suggesting a positive trend.
- **Entity 3:** Peaks at 349 in 2017-2018, followed by a steady decline to 148 in 2019-2020, indicating instability.

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Entities 4 to 6:

- **Entity 4:** Displays significant volatility, with values rising from 164 in 2017-2018 to 478 in 2019-2020, highlighting extreme variability.
- **Entity 5:** Peaks at 288 in 2017-2018, drops sharply to 124 in 2019-2020, showing a declining trend.
- **Entity 6:** Remains relatively stable, with values fluctuating between 66 and 97 over the three years, indicating consistency.

Entities 7 to 9:

- **Entity 7:** Maintains high values with slight fluctuations, peaking at 345 in 2018-2019 before settling at 310 in 2019-2020, reflecting stability.
- **Entity 8:** Declines steadily from 93 in 2017-2018 to 36 in 2019-2020, indicating a negative trend.
- **Entity 9:** Remains steady across the years, with values ranging narrowly between 130 and 135, showing consistency.

Entities 10 to 12:

- **Entity 10:** Declines gradually from 230 in 2017-2018 to 193 in 2019-2020, suggesting a slight downward trend.
- **Entity 11:** Maintains very high values, peaking at 425 in 2018-2019 and sustaining it in 2019-2020, reflecting remarkable consistency.
- **Entity 12:** Peaks at 310 in 2017-2018, followed by a steady decline to 187 in 2019-2020, indicating variability.

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Entities 13 to 15:

- **Entity 13:** Displays minor fluctuations, peaking at 300 in 2018-2019 before slightly declining to 280 in 2019-2020, reflecting stability with mild variation.
- **Entity 14:** Rises significantly from 60 in 2017-2018 to 162 in 2019-2020, indicating notable growth.
- **Entity 15:** Maintains very high values, consistently at 350 in 2017-2018 and peaking at 425 in the following years, showing excellent performance.

❖ Conclusion:

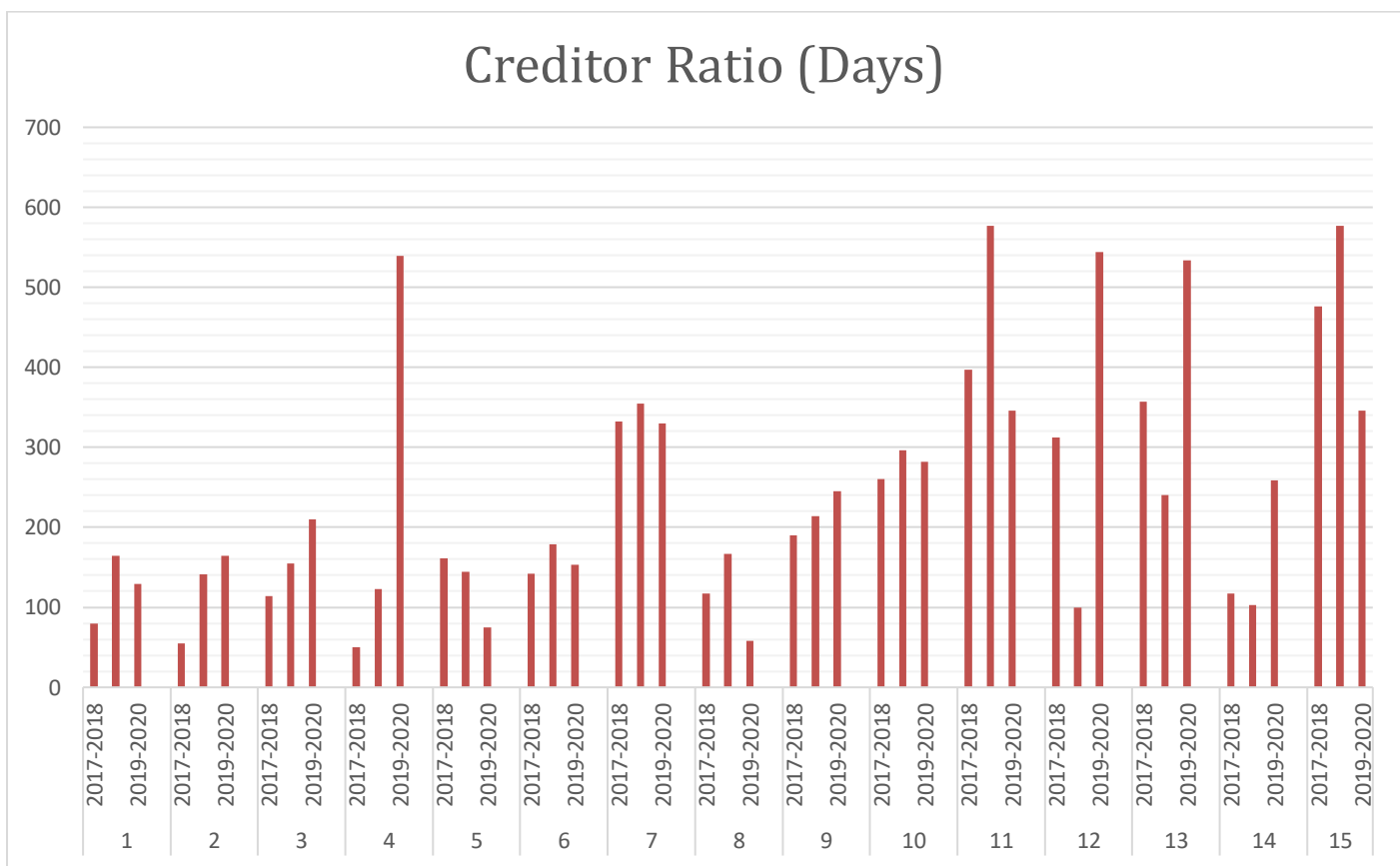
The dataset presents a mix of stability and variability. Entities like 6 and 9 maintain consistency, while others, such as 4 and 12, exhibit significant fluctuations. Positive trends in entities like 1, 2, and 14 reflect growth, whereas declining trends in entities like 3 and 8 highlight areas of concern. High-performing entities such as 11 and 15 demonstrate outstanding and stable performance over the years.

8) Creditor Ratio:

SAMPLE	YEAR (Days)		
	2017-2018	2018-2019	2019-2020
1	80	164	129
2	55	141	164
3	114	155	210
4	50	123	539
5	161	144	75
6	142	179	153
7	332	355	330
8	117	167	58
9	190	214	245
10	260	296	282
11	397	577	346
12	312	100	544
13	357	240	534
14	117	103	259
15	476	577	346

(Table 4.3.8 Creditor Ratio)

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(Figure 4.3.8 Creditor Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **Stability vs. Volatility:** The dataset showcases a mix of stability in entities such as 7 and 10 and significant fluctuations in entities like 4, 12, and 13.
2. **Overall Trends:** Several entities (e.g., 9 and 4) show sharp increases in 2019-2020, while others (e.g., 5 and 8) decline significantly. Entities like 15 maintain consistently high values.
3. **Extreme Variations:** Outliers include Entity 4's significant spike in 2019-2020 (539 days) and Entity 15's sustained peak values (577 in two years).

❖ Detailed Entity-Level Analysis:

Entities 1 to 3:

- **Entity 1:** Displays moderate fluctuations, peaking at 164 in 2018-2019 before declining to 129 in 2019-2020, indicating slight volatility.
- **Entity 2:** Exhibits consistent growth, increasing steadily from 55 in 2017-2018 to 164 in 2019-2020, reflecting continuous improvement.
- **Entity 3:** Shows steady growth across the years, rising from 114 in 2017-2018 to 210 in 2019-2020, indicating positive momentum.

Entities 4 to 6:

- **Entity 4:** A significant outlier, jumping from 50 in 2017-2018 to 539 in 2019-2020, highlighting extreme volatility.
- **Entity 5:** Peaks at 161 in 2017-2018, followed by a steep decline to 75 in 2019-2020, indicating a negative trend.
- **Entity 6:** Maintains relative stability with minor fluctuations, ranging from 142 to 179, reflecting consistency.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Entities 7 to 9:

- **Entity 7:** Remains remarkably stable, with values consistently exceeding 300 across the years, indicating excellent performance.
- **Entity 8:** Peaks at 167 in 2018-2019 before plummeting to 58 in 2019-2020, reflecting significant variability.
- **Entity 9:** Shows steady growth, rising from 190 in 2017-2018 to 245 in 2019-2020, reflecting consistent improvement.

Entities 10 to 12:

- **Entity 10:** Maintains high values with slight fluctuations, peaking at 296 in 2018-2019 and marginally declining to 282 in 2019-2020, showing stability.
- **Entity 11:** Peaks sharply at 577 in 2018-2019 before declining to 346 in 2019-2020, indicating significant volatility.
- **Entity 12:** Drops to a low of 100 in 2018-2019 before rebounding dramatically to 544 in 2019-2020, highlighting extreme variation.

Entities 13 to 15:

- **Entity 13:** Declines from 357 in 2017-2018 to 240 in 2018-2019 but rebounds strongly to 534 in 2019-2020, reflecting a recovery after a dip.
- **Entity 14:** Shows gradual growth, increasing from 117 in 2017-2018 to 259 in 2019-2020, indicating consistent improvement.
- **Entity 15:** Maintains exceptionally high values, peaking at 577 in 2018-2019 before stabilizing at 346 in 2019-2020, demonstrating remarkable performance with slight volatility.

❖ Conclusion:

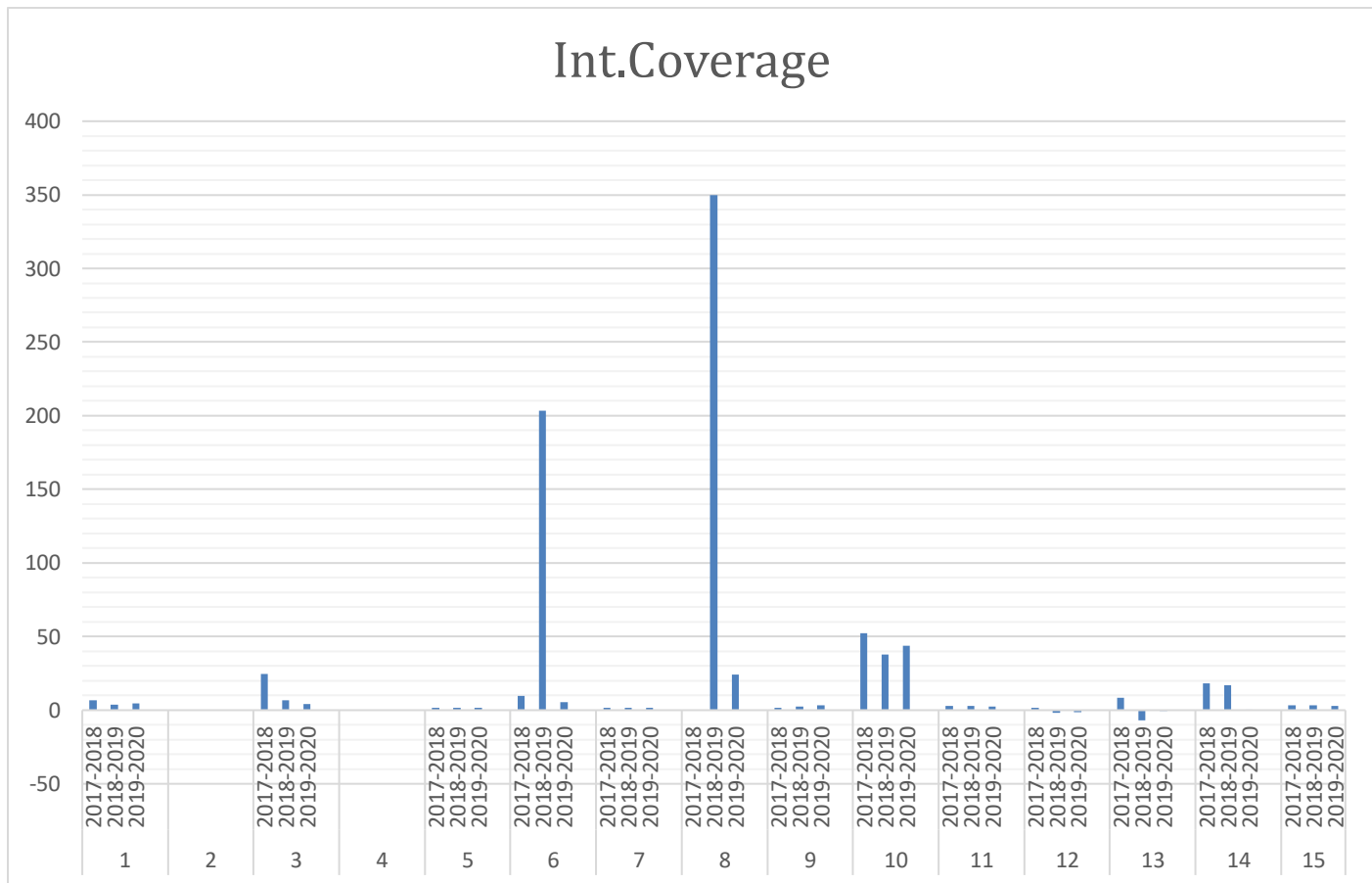
The dataset demonstrates a blend of stability and variability. Entities such as 7, 10, and 6 remain consistent, while others like 4, 12, and 13 exhibit dramatic fluctuations. Positive trends in entities like 2, 3, and 9 highlight consistent improvement, while declining patterns in entities like 5 and 8 indicate areas of concern. High-performing entities like 11 and 15 continue to show exceptional results despite minor variations.

9) Interest Coverage Ratio:

SAMPLE	YEAR		
	2017-2018	2018-2019	2019-2020
1	6.62	3.76	4.67
2	No Debt or Loan Taken		
3	24.56	6.8	4
4	No Debt or Loan Taken		
5	1.65	1.48	1.57
6	9.72	203.53	5.43
7	1.65	1.48	1.60
8	0	349.64	23.99
9	1.65	2.48	3.1
10	52.35	37.95	43.65
11	2.83	2.7	2.45
12	1.76	-1.68	-1.56
13	8.28	-7.11	-0.04
14	18.10	17.49	0.41
15	3.4	3.24	2.94

(Table 4.3.9 Interest Coverage Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.9 Interest Coverage Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **Stability vs. Volatility:** The dataset exhibits a mix of stability and volatility. Entities like 5, 7, and 15 maintain steady values, while entities such as 6, 8, and 13 show significant fluctuations.
2. **Presence of Extremes:** Outliers such as Entity 8 in 2018-2019 (349.64) and Entity 6 in the same period (203.53) influence overall dynamics, reflecting exceptional variability.
3. **Debt-Free Entities:** Entities 2 and 4 consistently report no debt or loans, indicating stability and independence in their financial status.

❖ Detailed Entity-Level Analysis:

Entities 1 to 3:

- Entity 1: Experiences a significant decline from 6.62 in 2017-2018 to 3.76 in 2018-2019, followed by a partial recovery to 4.67 in 2019-2020, reflecting moderate volatility.
- Entity 2: Reports no debt or loans across all years, indicating consistent financial stability.
- Entity 3: Peaks at 24.56 in 2017-2018, followed by a sharp decline to 6.8 and 4 in subsequent years, highlighting a downward trend.

Entities 4 to 6:

- Entity 4: Like Entity 2, reports no debt or loans across all years, reflecting a stable financial position.
- Entity 5: Maintains stability, fluctuating narrowly between 1.48 and 1.65, indicating consistent performance.
- Entity 6: Shows extreme volatility, spiking to 203.53 in 2018-2019 before dropping sharply to 5.43 in 2019-2020, reflecting instability.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Entities 7 to 9:

- Entity 7: Remains stable, with values ranging from 1.48 to 1.65, reflecting consistent performance.
- Entity 8: Exhibits significant variability, with a sharp spike to 349.64 in 2018-2019 followed by a substantial drop to 23.99 in 2019-2020, indicating high volatility.
- Entity 9: Shows steady growth, increasing from 1.65 in 2017-2018 to 3.1 in 2019-2020, reflecting a positive trend.

Entities 10 to 12:

- Entity 10: Declines from 52.35 in 2017-2018 to 37.95 in 2018-2019, followed by a partial recovery to 43.65 in 2019-2020, indicating moderate variability.
- Entity 11: Exhibits stability with minor fluctuations, gradually decreasing from 2.83 in 2017-2018 to 2.45 in 2019-2020.
- Entity 12: Displays a declining trend with negative values in 2018-2019 (-1.68) and 2019-2020 (-1.56), indicating consistent losses.

Entities 13 to 15:

- Entity 13: Peaks at 8.28 in 2017-2018, followed by sharp declines to -7.11 in 2018-2019 and -0.04 in 2019-2020, highlighting extreme instability.
- Entity 14: Declines from 18.10 in 2017-2018 to 0.41 in 2019-2020, reflecting a significant downward trend.
- Entity 15: Maintains steady performance, with a gradual decline from 3.4 in 2017-2018 to 2.94 in 2019-2020, indicating minor variability.

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Conclusion:

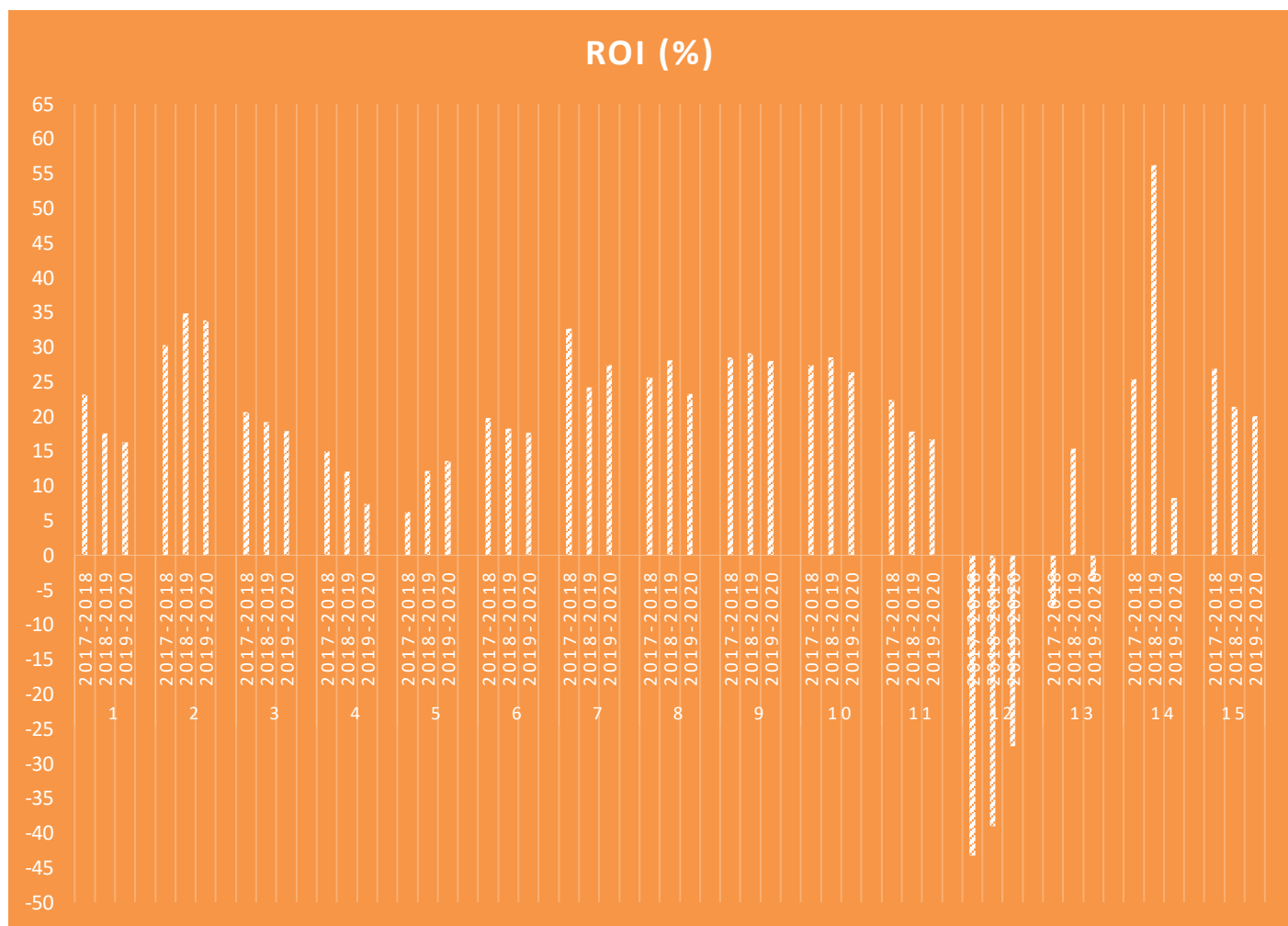
The dataset reflects a mix of financial stability and volatility. Debt-free entities like 2 and 4 demonstrate consistent stability, while others like 6, 8, and 13 experience extreme fluctuations. Positive trends in entities like 9 highlight improvement, while declining patterns in entities like 3, 10, and 14 suggest areas of concern. Stable entities such as 5, 7, and 15 underscore consistent performance despite minor variations.

10) Return on Capital Ratio:

SAMPLE	YEAR (%)		
	2017-2018	2018-2019	2019-2020
1	23.2	17.55	16.27
2	30.28	34.88	33.86
3	20.61	19.18	17.87
4	14.96	12.08	7.40
5	6.20	12.13	13.62
6	19.76	18.24	17.63
7	32.63	24.21	27.43
8	25.65	28.06	23.24
9	28.50	29.06	27.95
10	27.43	28.52	26.34
11	22.39	17.79	16.69
12	-43.27	-39.04	-27.55
13	-7.31	15.37	-3.8
14	25.37	56.21	8.26
15	26.887	21.35	20

(Table 4.3.10 Return on Capital Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.10 Return on Investment Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **Stability vs. Variability:** The dataset shows both consistent trends (e.g., Entity 2 and Entity 6 with minor fluctuations) and notable variability (e.g., Entity 14 with a sharp increase in 2018-2019 and subsequent drop).
2. **Positive vs. Negative Values:** Most entities maintain positive percentages, with exceptions like Entities 12 and 13, which exhibit negative values, indicating possible losses or declines.
3. **Year-to-Year Trends:** Several entities, such as Entity 1 and Entity 11, display a consistent downward trend, while others, like Entity 5, show gradual improvement.

❖ Detailed Entity-Level Analysis:

Entities 1 to 3:

- **Entity 1:** Displays a gradual decline from 23.2 in 2017-2018 to 16.27 in 2019-2020, reflecting a steady downward trend.
- **Entity 2:** Shows consistent stability, with slight increases in 2018-2019 (34.88) before a minor decrease to 33.86 in 2019-2020.
- **Entity 3:** Declines slightly over the years, decreasing from 20.61 in 2017-2018 to 17.87 in 2019-2020, indicating moderate stability.

Entities 4 to 6:

- **Entity 4:** Experiences a significant drop from 14.96 in 2017-2018 to 7.4 in 2019-2020, highlighting a sharp downward trend.
- **Entity 5:** Improves steadily over the years, increasing from 6.20 in 2017-2018 to 13.62 in 2019-2020, showing positive growth.
- **Entity 6:** Remains stable, fluctuating narrowly between 19.76 and 17.63, indicating consistent performance.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Entities 7 to 9:

- **Entity 7:** Declines from 32.63 in 2017-2018 to 24.21 in 2018-2019, followed by a recovery to 27.43 in 2019-2020, reflecting moderate volatility.
- **Entity 8:** Peaks at 28.06 in 2018-2019 before declining to 23.24 in 2019-2020, showing variability with a slight recovery trend.
- **Entity 9:** Maintains relative stability, fluctuating narrowly between 28.50 and 27.95, indicating steady performance.

Entities 10 to 12:

- **Entity 10:** Declines slightly, with values decreasing from 27.43 in 2017-2018 to 26.34 in 2019-2020, reflecting moderate stability.
- **Entity 11:** Experiences a consistent decline from 22.39 in 2017-2018 to 16.69 in 2019-2020, highlighting a downward trend.
- **Entity 12:** Displays significant negative values, improving slightly from -43.27 in 2017-2018 to -27.55 in 2019-2020, indicating a gradual recovery but remaining in the negative range.

Entities 13 to 15:

- **Entity 13:** Peaks at 15.37 in 2018-2019, flanked by negative values in 2017-2018 (-7.31) and 2019-2020 (-3.8), reflecting high volatility.
- **Entity 14:** Surges dramatically to 56.21 in 2018-2019 before dropping sharply to 8.26 in 2019-2020, indicating extreme instability.
- **Entity 15:** Declines steadily from 26.887 in 2017-2018 to 20 in 2019-2020, showing a moderate downward trend.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ **Conclusion:**

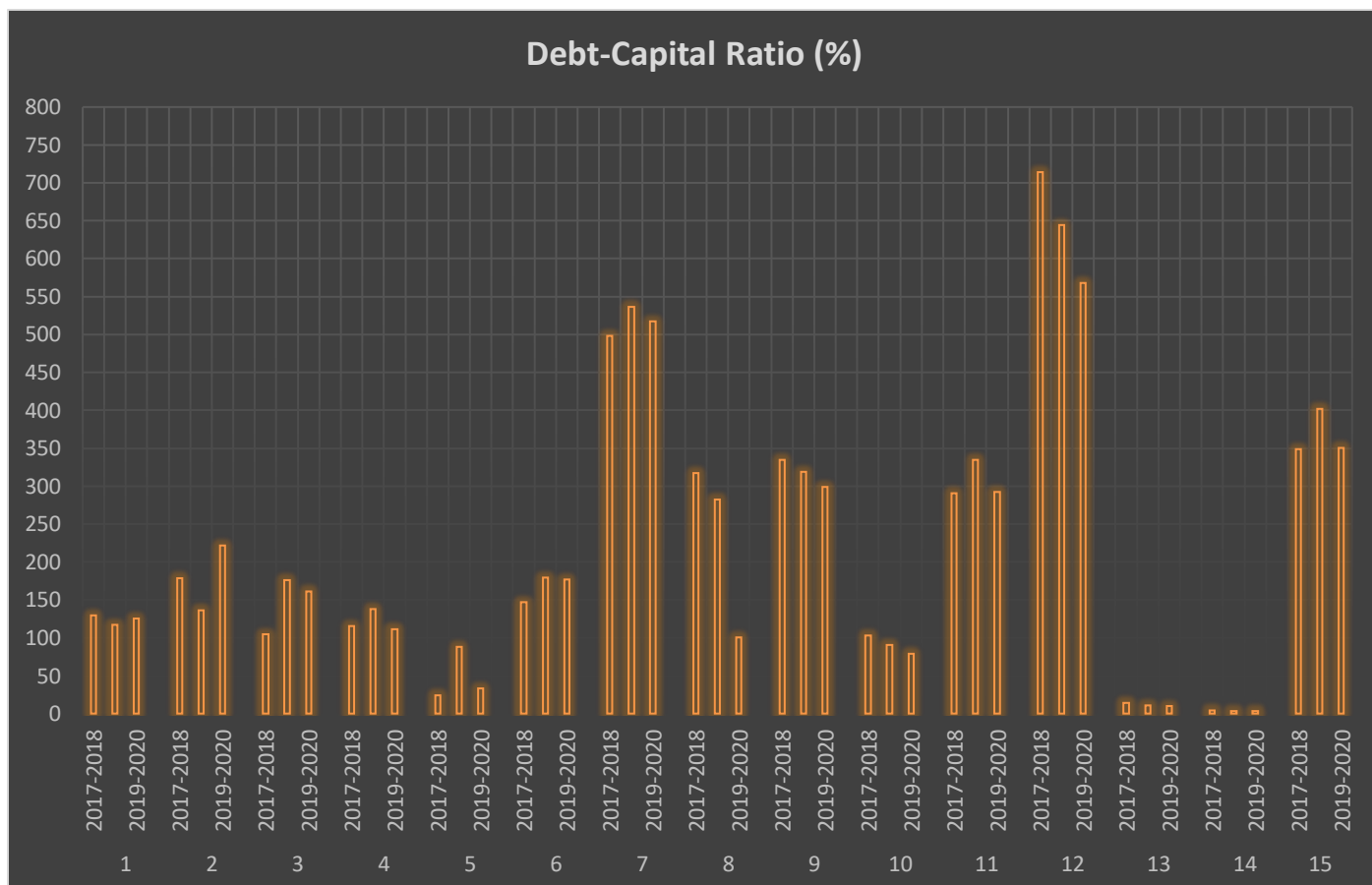
The dataset highlights a mix of stability and variability. Entities like 2, 6, and 9 maintain consistent performance, while entities such as 4, 14, and 12 exhibit significant fluctuations or declines. Positive trends are observed in entities like 5, while declines in entities like 11 and 1 suggest areas of concern. Outliers such as Entity 14 in 2018-2019 and Entity 12 with persistent negative values emphasize the diverse range of trends within the dataset.

11) **Debt-capital Ratio:**

SAMPLE	YEAR		
	2017-2018	2018-2019	2019-2020
1	129.52	117.12	125
2	178.82	136.17	221.46
3	104.85	176.25	161.33
4	115.54	137.83	111.27
5	24.32	88.3	33.28
6	147.33	179.68	177.15
7	497.85	536.48	517.16
8	317.24	282.2	100.08
9	334.24	318.84	298.64
10	102.67	90.6	79.22
11	290.34	334.78	298.08
12	714.39	644.62	567.88
13	14.39	11.19	9.59
14	25.37	3.68	2.93
15	348.4	401.74	350.5

(Table 4.3.11 Debt-capital Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.11 Debt-capital Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **High Variability:** The dataset demonstrates notable fluctuations in values across years, with entities like 12 and 8 showing significant changes, while others, such as Entity 7, maintain relative consistency.
2. **Consistent Trends:** Certain entities, such as 6 and 7, display stable trends with minor year-to-year variations, reflecting steady performance.
3. **Divergent Patterns:** Some entities, such as 14 and 5, show sharp declines, while others, like 2 and 15, display upward trends, indicating diverse growth trajectories.

❖ Detailed Entity-Level Analysis:

Entities 1 to 3:

- **Entity 1:** Displays minor fluctuations, starting at 129.52 in 2017-2018, dipping to 117.12 in 2018-2019, and recovering to 125 in 2019-2020, reflecting moderate stability.
- **Entity 2:** Exhibits significant growth, rising from 178.82 in 2017-2018 to 221.46 in 2019-2020, with a temporary dip in 2018-2019.
- **Entity 3:** Peaks at 176.25 in 2018-2019 but declines to 161.33 in 2019-2020, showing a variable yet upward trend over three years.

Entities 4 to 6:

- **Entity 4:** Remains relatively stable, with minor fluctuations between 115.54 and 137.83, reflecting consistent performance.
- **Entity 5:** Experiences sharp variations, peaking at 88.3 in 2018-2019 before dropping to 33.28 in 2019-2020, indicating high volatility.
- **Entity 6:** Maintains stability, fluctuating narrowly between 147.33 and 179.68, indicating steady performance with slight growth.

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Entities 7 to 9:

- **Entity 7:** Shows consistent performance, peaking at 536.48 in 2018-2019 and declining slightly to 517.16 in 2019-2020, reflecting stability.
- **Entity 8:** Displays significant fluctuations, dropping from 317.24 in 2017-2018 to 100.08 in 2019-2020, highlighting a declining trend.
- **Entity 9:** Declines gradually, with values decreasing from 334.24 in 2017-2018 to 298.64 in 2019-2020, showing a moderate downward trend.

Entities 10 to 12:

- **Entity 10:** Declines steadily from 102.67 in 2017-2018 to 79.22 in 2019-2020, indicating a consistent downward trend.
- **Entity 11:** Peaks at 334.78 in 2018-2019 before declining to 298.08 in 2019-2020, showing slight instability.
- **Entity 12:** Displays significant variability, declining consistently from 714.39 in 2017-2018 to 567.88 in 2019-2020, highlighting a sharp downward trend.

Entities 13 to 15:

- **Entity 13:** Declines steadily, dropping from 14.39 in 2017-2018 to 9.59 in 2019-2020, reflecting consistent negative growth.
- **Entity 14:** Experiences a dramatic decline, falling from 25.37 in 2017-2018 to 2.93 in 2019-2020, indicating extreme volatility.
- **Entity 15:** Peaks at 401.74 in 2018-2019 before returning to 350.5 in 2019-2020, showing a moderate upward trend over the years.

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❖ **Conclusion:**

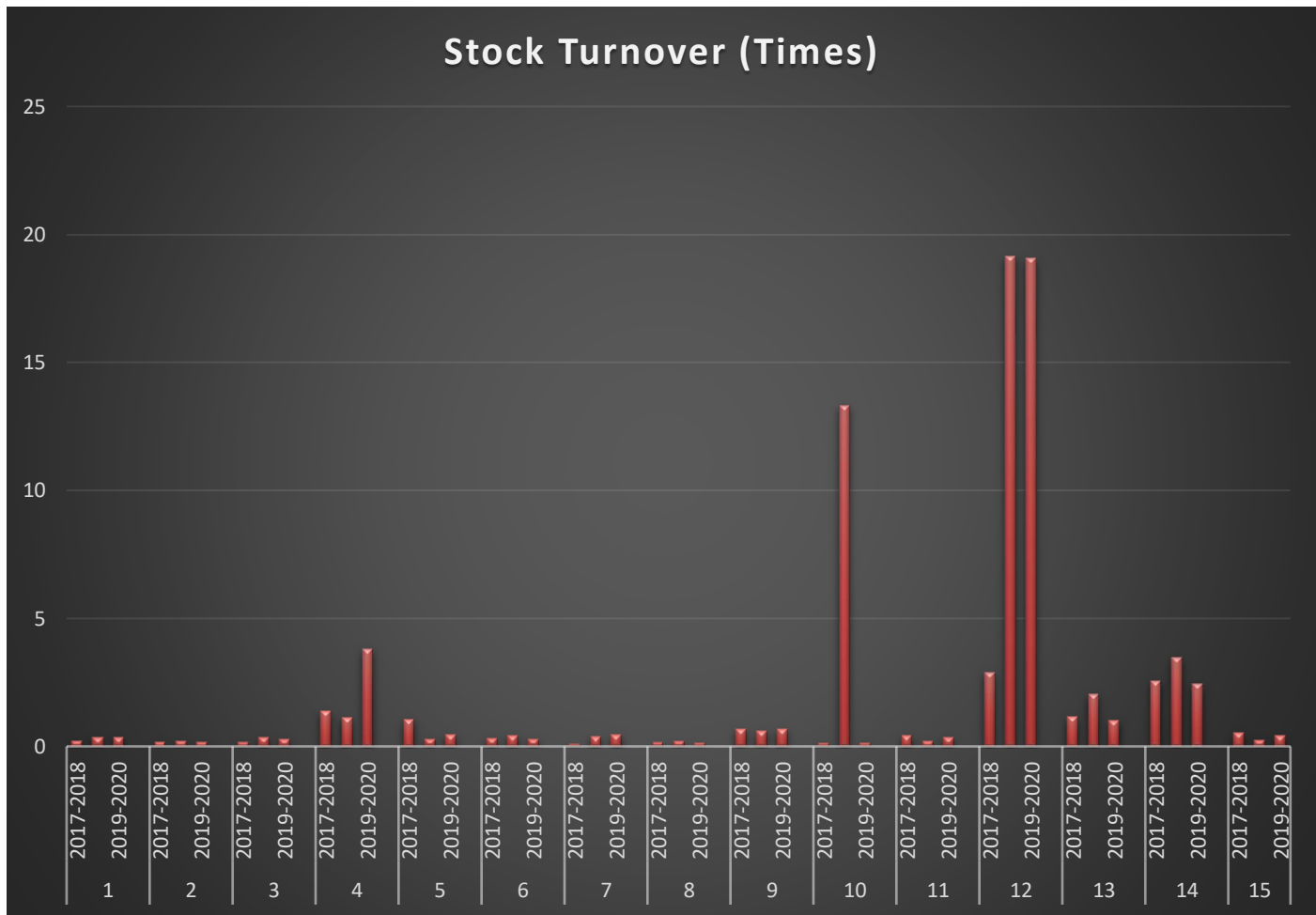
The dataset showcases a mix of stability and variability. Entities like 7 and 6 maintain consistent performance, while entities such as 12 and 8 exhibit sharp declines. Positive growth is evident in entities like 2 and 15, whereas declines in entities like 13 and 14 indicate potential concerns. Overall, the data reflects diverse trends, with both steady and highly volatile patterns.

12) Stock Turnover Ratio:

SAMPLE	YEAR (Times)		
	2017-2018	2018-2019	2019-2020
1	0.22	0.34	0.35
2	0.17	0.2	0.16
3	0.15	0.35	0.29
4	1.38	1.12	3.79
5	1.07	0.29	0.45
6	0.31	0.42	0.29
7	0.08	0.38	0.45
8	0.14	0.19	0.13
9	0.65	0.58	0.65
10	0.12	13.31	0.13
11	0.43	0.2	0.35
12	2.89	19.13	19.05
13	1.15	2.05	0.99
14	2.57	3.47	2.43
15	0.52	0.24	0.42

(Table 4.3.12 Stock Turnover Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.12 Stock Turnover Ratio)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **Fluctuating Patterns:** The data reflects notable year-to-year variations, with some entities, such as 12 and 10, experiencing sharp peaks, while others, such as 7 and 14, show consistent performance.
2. **Outliers:** Entities like 12 (2018-2019) and 10 (2018-2019) stand out due to significantly higher values compared to their other years, indicating unique circumstances or anomalies.
3. **Stability in Some Entities:** A few entities, such as 1, 8, and 9, display relative stability with minor variations over the years.

❖ Detailed Entity-Level Analysis:

Entities 1 to 3:

- **Entity 1:** Demonstrates steady growth, rising from 0.22 in 2017-2018 to 0.35 in 2019-2020, reflecting gradual improvement.
- **Entity 2:** Shows minimal fluctuations, peaking at 0.2 in 2018-2019 and slightly declining to 0.16 in 2019-2020, indicating stability.
- **Entity 3:** Peaks at 0.35 in 2018-2019 before declining to 0.29 in 2019-2020, highlighting moderate volatility.

Entities 4 to 6:

- **Entity 4:** A significant outlier, increasing dramatically from 1.12 in 2018-2019 to 3.79 in 2019-2020, indicating extreme volatility.
- **Entity 5:** Experiences sharp declines, falling from 1.07 in 2017-2018 to 0.29 in 2018-2019, followed by partial recovery to 0.45 in 2019-2020.
- **Entity 6:** Remains stable, with minor fluctuations between 0.29 and 0.42, reflecting consistency.

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Entities 7 to 9:

- **Entity 7:** Shows growth, peaking at 0.45 in 2019-2020, indicating a steady upward trend over the years.
- **Entity 8:** Maintains stability, fluctuating narrowly between 0.13 and 0.19, indicating consistent performance.
- **Entity 9:** Remains relatively stable, with values ranging from 0.58 to 0.65, reflecting steadiness.

Entities 10 to 12:

- **Entity 10:** A notable outlier in 2018-2019 with a sharp spike to 13.31 before returning to a normal range of 0.13 in 2019-2020, indicating a one-off anomaly.
- **Entity 11:** Displays slight volatility, peaking at 0.43 in 2017-2018 and declining to 0.2 in 2018-2019 before recovering to 0.35 in 2019-2020.
- **Entity 12:** Another significant outlier, peaking dramatically at 19.13 in 2018-2019 and remaining high at 19.05 in 2019-2020, reflecting extreme values over the latter years.

Entities 13 to 15:

- **Entity 13:** Peaks at 2.05 in 2018-2019 before declining to 0.99 in 2019-2020, indicating variability.
- **Entity 14:** Shows consistent performance with values ranging from 2.43 to 3.47, reflecting moderate stability.
- **Entity 15:** Declines to 0.24 in 2018-2019 before recovering to 0.42 in 2019-2020, suggesting slight volatility.

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❖ **Conclusion:**

The dataset reflects a combination of stability and sharp fluctuations. Entities like 1, 8, and 14 display consistent trends, while outliers such as 12 and 10 indicate unique or extreme occurrences. Gradual improvement is seen in entities like 7 and 1, while declining patterns are evident in entities like 5 and 13. Overall, the data highlights diverse performance trajectories with occasional anomalies influencing the overall patterns.

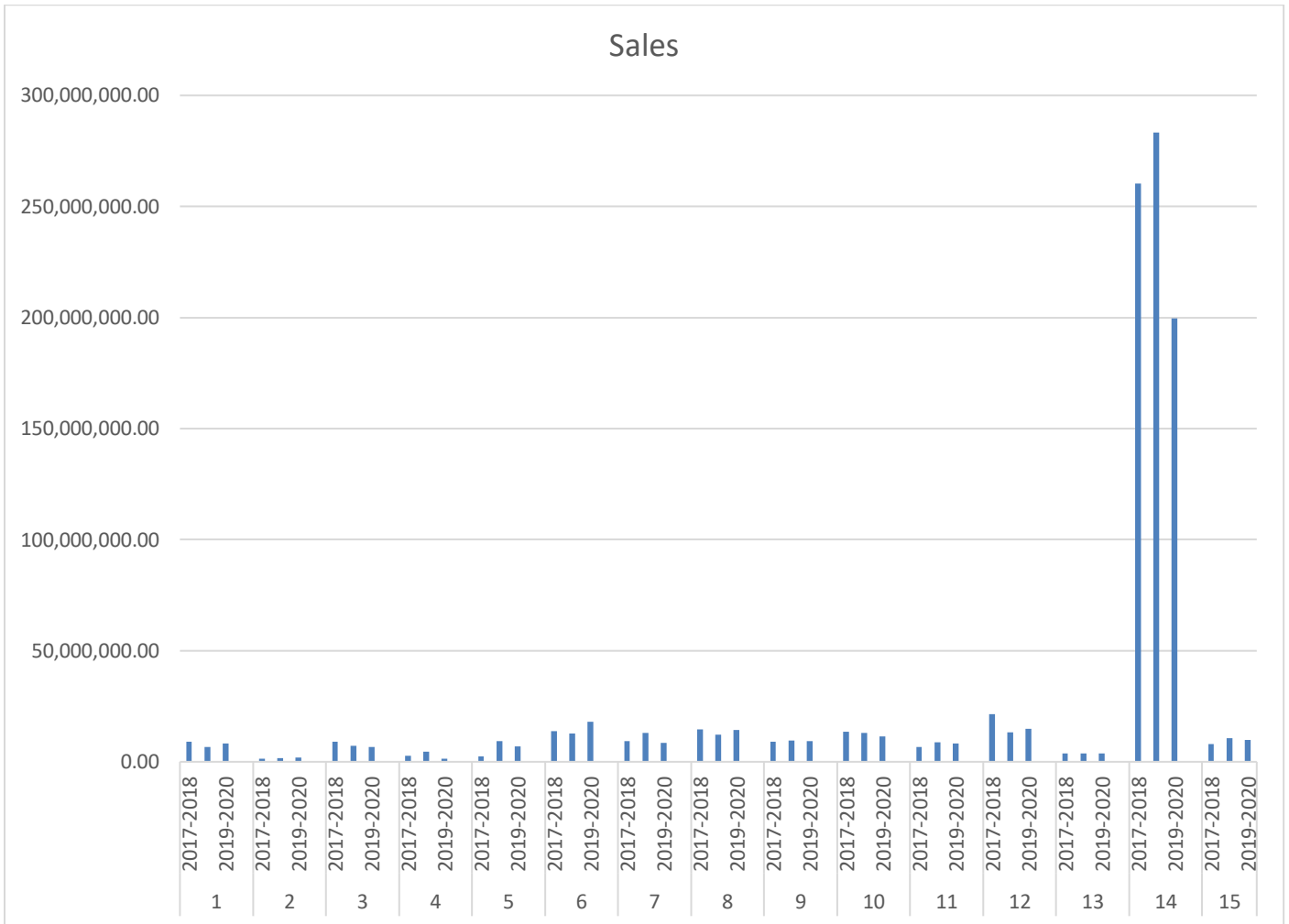
"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

13) Sales:

SAMPLE	YEAR		
	2017-2018	2018-2019	2019-2020
1	90,61,390.60	67,42,304.80	83,16,366.85
2	13,76,525.66	16,05,946.60	18,27,706.57
3	89,98,378.39	71,20,745.34	67,39,476.60
4	28,15,763.25	45,58,785.80	14,52,762.10
5	23,21,678.00	94,24,730.10	69,27,602.59
6	1,36,90,083.50	1,28,14,697.85	1,81,30,121.08
7	92,84,829.55	1,30,80,830.94	84,20,502.81
8	1,46,34,092	1,21,63,815.58	1,43,10,089.95
9	90,76,912	96,04,805	93,09,128
10	1,35,61,814.00	1,28,95,421.00	1,15,37,947.00
11	67,41,111.60	87,66,873.00	81,39,934.00
12	2,14,54,873	1,32,63,240	1,49,32,903.20
13	36,57,690.18	38,86,468.09	38,09,290
14	26,04,69,493	28,32,90,083	19,95,37,257
15	80,89,335	1,05,20,250.00	97,67,920.00

(Table 4.3.13 Sales)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



(Figure 4.3.13 Sales)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ General Observations:

1. **High Variability Across Samples:** The monetary values for different samples vary significantly, with figures ranging from a few lakh rupees to several crores, highlighting diverse scales of operations or activities.
2. **Year-on-Year Changes:** Certain samples, such as 4, 5, and 14, show dramatic changes in values across the three years, reflecting fluctuations in underlying factors like funding, revenues, or expenditures.
3. **Relatively Stable Samples:** Samples such as 2, 9, and 13 demonstrate minimal fluctuations, indicating consistent performance over the years.

❖ Detailed Analysis:

Entities 1 to 3:

- **Entity 1:** Displays a decline in 2018-2019 but recovers to a higher value in 2019-2020, suggesting resilience and recovery.
- **Entity 2:** Shows steady growth over the years, increasing incrementally from ₹13.76 lakh in 2017-2018 to ₹18.27 lakh in 2019-2020, reflecting stability.
- **Entity 3:** Peaks in 2017-2018 and declines consistently over the subsequent years, indicating possible challenges or reduced activities.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Entities 4 to 6:

- **Entity 4:** Exhibits extreme volatility, with a peak in 2018-2019 at ₹45.58 lakh, followed by a sharp drop to ₹14.52 lakh in 2019-2020, indicating instability.
- **Entity 5:** Grows significantly in 2018-2019 to ₹94.24 lakh before declining in 2019-2020, suggesting a short-term surge in activities.
- **Entity 6:** Shows consistent growth, with a substantial increase from ₹1.36 crore in 2017-2018 to ₹1.81 crore in 2019-2020, indicating strong and sustained growth.

Entities 7 to 9:

- **Entity 7:** Peaks in 2018-2019 at ₹1.30 crore but declines significantly in 2019-2020, reflecting a temporary high.
- **Entity 8:** Displays a U-shaped trend, with a dip in 2018-2019 and recovery to almost the same level in 2019-2020, indicating stability despite short-term fluctuations.
- **Entity 9:** Remains relatively stable across all years, with values hovering around ₹90–96 lakh, suggesting consistency.

Entities 10 to 12:

- **Entity 10:** Peaks in 2017-2018 at ₹1.35 crore and gradually declines over the next two years, indicating a downward trend.
- **Entity 11:** Grows from ₹67.41 lakh in 2017-2018 to ₹87.66 lakh in 2018-2019 before slightly declining in 2019-2020, reflecting moderate volatility.
- **Entity 12:** Shows significant fluctuations, with a peak in 2017-2018 at ₹2.14 crore, a sharp decline in 2018-2019, and partial recovery in 2019-2020.

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Entities 13 to 15:

- **Entity 13:** Remains stable across all three years, with values consistently around ₹36–38 lakh, indicating consistent performance.
- **Entity 14:** An outlier with exceptionally high values, peaking at ₹28.32 crore in 2018-2019 before declining sharply to ₹19.95 crore in 2019-2020, suggesting extraordinary operations or funding during the peak year.
- **Entity 15:** Peaks in 2018-2019 at ₹1.05 crore before declining to ₹97.67 lakh in 2019-2020, reflecting moderate volatility.

❖ Conclusion:

The dataset reflects a mix of stability, growth, and volatility among the samples. While some entities like 2, 9, and 13 show consistent performance, others like 6 and 14 indicate significant growth or fluctuations due to unique circumstances. Large-scale entities like 14 dominate in terms of absolute values, whereas mid-range entities like 6 and 12 highlight significant year-to-year variability. Overall, the data underscores the diversity in performance dynamics across different samples.

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PANEL DATA REGRESSION MODEL

❖ **PANEL DATA REGRESSION MODEL:**

The theoretical concept of panel data regression is rooted in the understanding of longitudinal data structures, which involve observations on multiple entities (e.g., individuals, firms, countries) over time. This type of data structure provides researchers with rich information that can capture both cross-sectional and time-series variations, offering several advantages over purely cross-sectional or time-series data analysis. This type of data is common in economics, social sciences, and other fields where data is collected over time.

❖ **Testing Standard:**

Dependent Variable	
<u>Method: Panel Least Squares</u>	
<u>Standard Value</u>	
P value	0.05 < Affected 0.05 > Not Affected
R Square	0.5 to 1 [Accepted] 0 to 0.5below [Rejected]
Hausman Test	0.5 to 1 [Accepted] 0 to 0.5below [Rejected]

(Table 4.4.1. Standard of Testing Data)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

Dependent Variable: SALE

Method: Panel Least Squares

Date: 01/08/24 Time: 20:46

Sample: 2017 2020

Cross-sections included: 11

Periods included: 3

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10993270	34720412	0.316623	0.7562
CR	29117.59	29201.50	0.997127	0.3356
CR1	-1926532.	10237065	-0.188192	0.8534
DCR	-29744.78	12756.27	-2.331778	0.0352
DRD	-21230.55	37397.40	-0.567701	0.5792
FAT	712184.8	42513.11	16.75212	0.0000
GPR	-263048.6	751927.1	-0.349833	0.7317
IC	-1386.545	29192.39	-0.047497	0.9628
LR	1820122.	12621696	0.144206	0.8874
NPR	758209.0	666316.3	1.137912	0.2743
OPR	211411.9	391377.4	0.540174	0.5976
ROI	-1079309.	297162.9	-3.632044	0.0027
STT	537409.1	824067.9	0.652142	0.5249
R-squared	0.988694	Mean dependent var		27476657
Adjusted R-squared	0.979004	S.D. dependent var		62806754
S.E. of regression	9100690.	Akaike info criterion		35.19178
Sum squared resid	1.16E+15	Schwarz criterion		35.81570
Log likelihood	-462.0891	Hannan-Quinn criter.		35.37731
F-statistic	102.0277	Durbin-Watson stat		1.402430
Prob(F-statistic)	0.000000			

(Table 4.4.2 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Creditor ratio does not impact sales.

H1: Creditors ratio does impact on sales.

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Debtor ratio does not impact sales.

H1: Debtor ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Gross Profit ratio does not impact sales.

H1: Gross Profit ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

H1: Liquidity ratio does impact on sales.

Ho : Net Profit ratio does not impact sales.

H1: Net Profit ratio does impact on sales.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Operating ratio does not impact sales.

H1: Operating ratio does impact on sales.

Ho : Stock Turnover ratio does not impact sales.

H1: Stock Turnover ratio does impact on sales.

Ho : ROI ratio does not impact sales.

H1: ROI ratio does impact on sales.

❖ F statistic

Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

Dependent Variable: SALE

Method: Panel Least Squares

Date: 01/08/24 Time: 20:50

Sample: 2017 2020

Cross-sections included: 11

Periods included: 3

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10425759	3380186.	3.084374	0.0051
FAT	680451.2	26378.87	25.79531	0.0000
ROI	-326577.6	142498.4	-2.291798	0.0310
R-squared	0.967967	Mean dependent var		27476657
Adjusted R-squared	0.965298	S.D. dependent var		62806754
S.E. of regression	11699931	Akaike info criterion		35.49250
Sum squared resid	3.29E+15	Schwarz criterion		35.63649
Log likelihood	-476.1488	Hannan-Quinn criter.		35.53532
F-statistic	362.6187	Durbin-Watson stat		1.780804
Prob(F-statistic)	0.000000			

(Table 4.4.3 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : ROI ratio does not impact sales.

H1: ROI ratio does impact on sales.

❖ F statistic

Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

Dependent Variable: SALE					
					Date: 01/08/24 Time: 20:46
<i>Method: Panel Least Squares</i>					
Sample: 2017 2019					
Periods included: 3					
Total panel (unbalanced) observations: 27					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	1.16E+08	47734710	2.423001	0.1363	
CREDITOR RATIO	-29.88352	1838.077	-0.016258	0.9885	
CURRENT RATIO	-8279781.	1668108.	-4.963577	0.0383	
DEBTCAPITAL RATIO	-17048.89	3846.541	-4.432266	0.0473	
DEBTOR RATIO	-9279.535	3652.167	-2.540830	0.1262	
FATURNOVERRATIO	383374.6	33561.34	11.42310	0.0076	
GP RATIO	-1855573.	598153.7	-3.102168	0.0901	
INT COVERAGE	-10677.25	1976.611	-5.401797	0.0326	
LIQUID RATIO	9999328.	1373289.	7.281298	0.0183	
NP RATIO	1513131.	516134.2	2.931662	0.0993	
OPERATING RATIO	-758110.6	407617.0	-1.859860	0.2040	
ROI	16357.19	131528.9	0.124362	0.9124	
STOCKTURNOVERTIMES	-9761.764	32870.42	-0.296977	0.7945	
Effects Specification					
Cross-section fixed (dummy variables)			Period fixed (dummy variables)		
R-squared	0.999999	Mean dependent var		27476657	
Adjusted R-squared	0.999988	S.D. dependent var		62806754	
S.E. of regression	214764.5	Akaike info criterion		26.64163	
Sum squared resid	9.22E+10	Schwarz criterion		27.84148	
Log likelihood	-334.6621	Hannan-Quinn criter.		26.99841	
F-statistic	92650.84	Durbin-Watson stat		2.803368	
Prob(F-statistic)	0.000011				

(Table 4.4.4 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Creditor ratio does not impact sales.

H1: Creditors ratio does impact on sales.

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Debtor ratio does not impact sales.

H1: Debtor ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Gross Profit ratio does not impact sales.

H1: Gross Profit ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

H1: Liquidity ratio does impact on sales.

Ho : Net Profit ratio does not impact sales.

H1: Net Profit ratio does impact on sales.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Operating ratio does not impact sales.

H1: Operating ratio does impact on sales.

Ho : Stock Turnover ratio does not impact sales.

H1: Stock Turnover ratio does impact on sales.

Ho : ROI ratio does not impact sales.

H1: ROI ratio does impact on sales.

❖ F statistic

Ho All variables jointly does not impact sales.

H1All variables jointly does impact on sales. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

Dependent Variable: SALE

Date: 01/08/24 Time: 20:46

Method: Panel Least Squares

Sample: 2017 2020

Periods included: 3

Total panel (unbalanced) observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8295858.	8100334.	1.024138	0.3169
CURRANRATIO	-6334084.	8568051.	-0.739268	0.4676
DEBTCAPITALRATIO	-25631.55	14736.41	-1.739335	0.0960
FATURNOVERRATIOTIMES	634826.0	35881.50	17.69229	0.0000
INTCOVERAGE	-173.9934	39667.18	-0.004386	0.9965
LIQUIDRATIO	11628504	10403791	1.117718	0.2757
R-squared	0.952254	Mean dependent var		26631394
Adjusted R-squared	0.941402	S.D. dependent var		61794773
S.E. of regression	14958613	Akaike info criterion		36.06688
Sum squared resid	4.92E+15	Schwarz criterion		36.35235
Log likelihood	-498.9363	Hannan-Quinn criter.		36.15415
F-statistic	87.75408	Durbin-Watson stat		1.336648
Prob(F-statistic)	0.000000			

(Table 4.4.5 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

H1: Liquidity ratio does impact on sales.

❖ F statistic

Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

❖ Random Effect

Dependent Variable: SALE

Method: Panel EGLS (Cross Section Random Effects)

Date: 01/30/24 Time: 18:46

Sample: 2017 2019

Periods included: 3

Cross Sections included:12

Total panel (unbalanced) observations: 28

Swamy & Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16640689	3812751.	4.364483	0.0002
CURRANRATIO	-5236327.	1442880.	-3.629081	0.0015
DEBTCAPITALRATIO	-10152.46	2357.858	-4.305800	0.0003
FATURNOVERRATIOTIMES	371926.1	5955.092	62.45514	0.0000
INTCOVERAGE	-3010.355	4127.537	-0.729334	0.4735
LIQUIDRATIO	7574557.	1819475.	4.163044	0.0004

Effects Specification

	S.D.	Rho
Cross-section random	12860049	0.9942
Idiosyncratic random	979871.3	0.0058

Weighted Statistics

R-squared	0.979679	Mean dependent var	1385248.
Adjusted R-squared	0.975060	S.D. dependent var	11927164
S.E. of regression	1882187.	Sum Squared resid	7.79E+13
F-statistic	212.1233	Durbin-Watson stat	0.460247
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.788260	Mean dependent var	26631394
Sum squared resid	2.18E+16	Durbin-Watson stat	0.001643

(Table 4.4.6 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

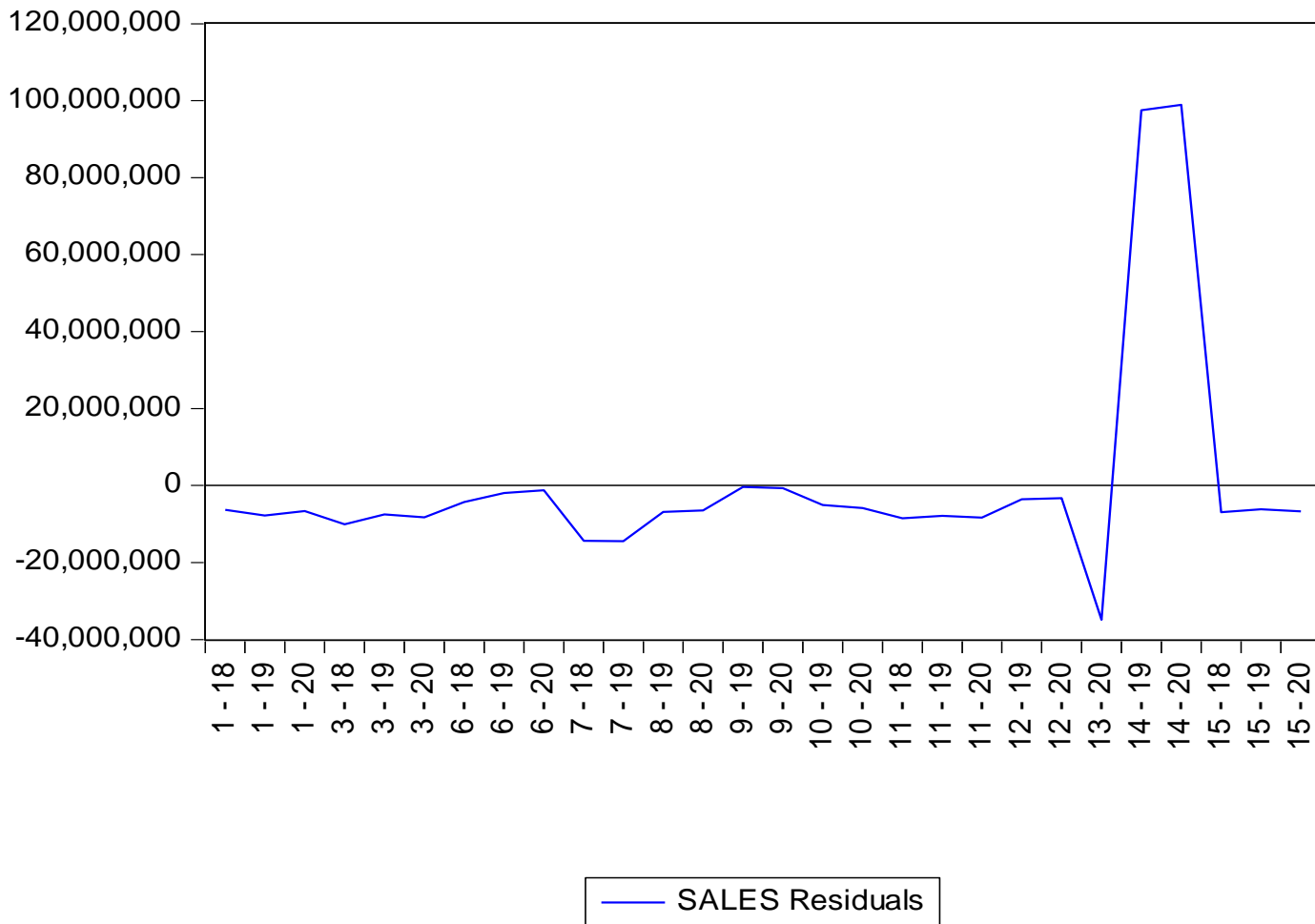
H1: Liquidity ratio does impact on sales.

❖ F statistic

Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



[Figure 4.4.1 Sales Residuals]

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

► Random Effect

Dependent Variable: SALE				
Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	58.301140	5	0.0000	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff)	Prob
CURRANRATIO	-4761512.960887	-5236326.623738	58804305470.923588	0.0502
DEBTCAPITALRATIO	-9274.438292	-10152.463972	158129.993666	0.0272
FATURNVERRATIOTIMES	365095.742869	371926.106075	842408.921455	0.0000
INTCOVERAGE	-2654.038801	-3010.354766	265679.994863	0.4894
LIQUIDRATIO	6993973.439253	7574556.743661	98103131327.494138	0.0638

(Table 4.4.7 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

H1: Liquidity ratio does impact on sales.

❖ F statistic

Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

1) There is no significant difference in sales of the selected brass firms over the years.

Dependent Variable: SALE

Date: 01/08/24 Time: 20:46

Method: Panel Least Squares

Sample: 2017 2019

Periods included: 3

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	16530827	877799.6	18.83212	0.0000
CURRANTRATIO	-4761513.	1463115.	-3.254367	0.0077
DEBTCAPITALRATIO	-9274.438	2391.155	-3.878644	0.0026
FATURNOVERRATIOTIMES	365095.7	6025.407	60.59271	0.0000
INTCOVERAGE	-2654.039	4159.596	-0.638052	0.5365
LIQUIDRATIO	6993973.	1846238.	3.788230	0.0030

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.999898	Mean dependent var	26631394
Adjusted R-squared	0.999749	S.D. dependent var	61794773
S.E. of regression	979871.3	Akaike info criterion	30.70821
Sum squared resid	1.06E+13	Schwarz criterion	31.51704
Log likelihood	-412.9149	Hannan-Quinn criter.	30.95548
F-statistic	6710.652	Durbin-Watson stat	2.900323
Prob(F-statistic)	0.000000		

(Table 4.4.8 Table of Panel Data Regression Model when Sales is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Currant ratio does not impact sales.

H1: Currant ratio does impact on sales.

Ho : Debt equity ratio does not impact sales.

H1: Debt equity ratio does impact on sales.

Ho : Fix Asset turnover ratio does not impact sales.

H1: Fix Asset turnover ratio does impact on sales.

Ho : Int-Coverage ratio does not impact sales.

H1: Int-Coverage ratio does impact on sales.

Ho : Liquidity ratio does not impact sales.

H1: Liquidity ratio does impact on sales.

❖ F statistic

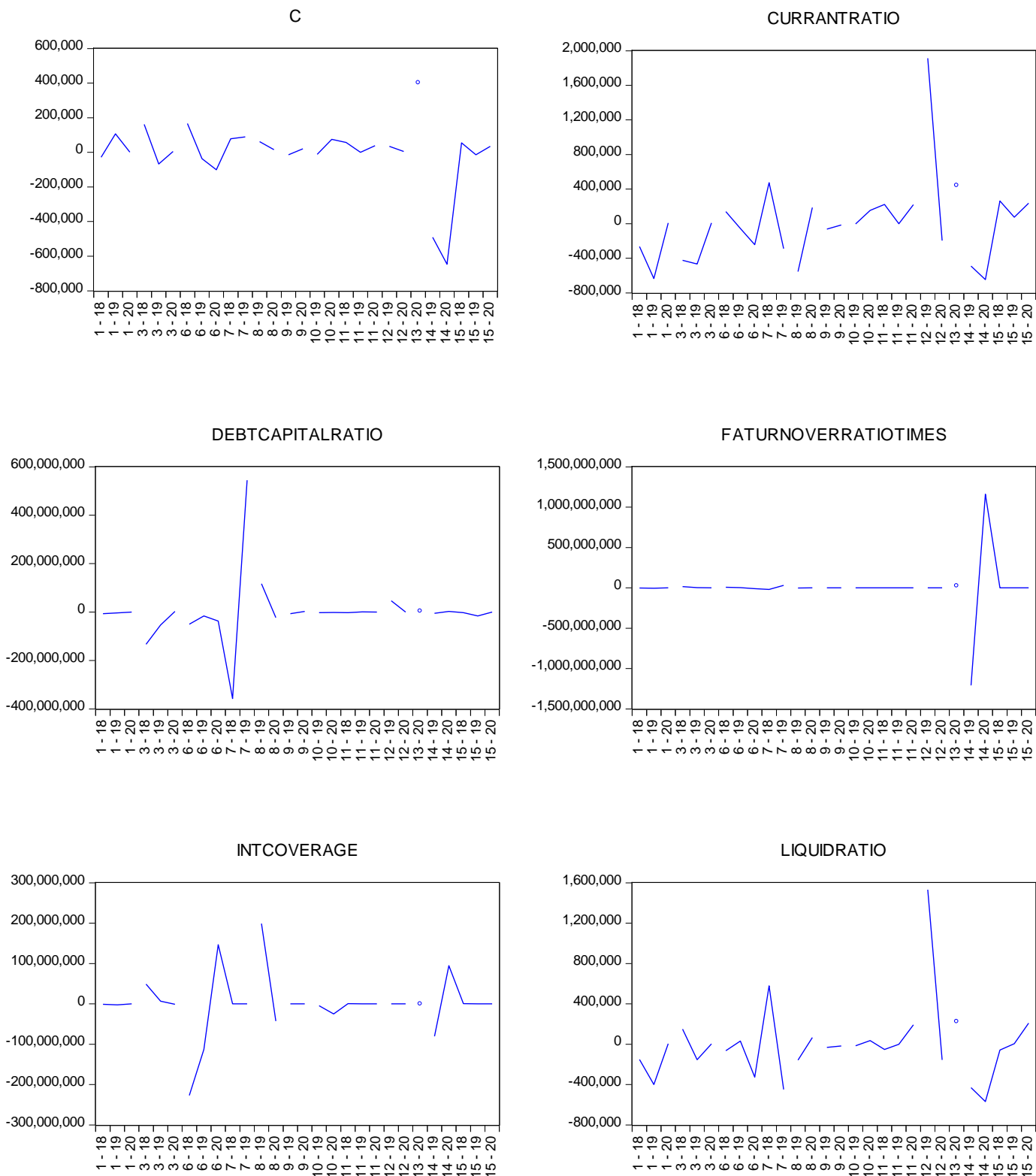
Ho: All variables jointly does not impact sales.

H1: All variables jointly does impact on sales. Therefore, model is fit.

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"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Gradients of the Objective Function



[Figure 4.4.2 Different Ratio Position When Sales is Variable factor]

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From the above analysis it is clear that there is no significant difference in sales of the selected brass firms over the years. So one can conclude that **Null Hypothesis is rejected** in the case of Current Ratio, Debt-Capital Ratio, Fixed Assets Turnover Ratio & Liquid Ratio and the **Alternative Hypothesis is accepted** in the case of Gross Profit Ratio, Net Profit Ratio, Stock Turnover Ratio, Operating Ratio, Debtor Ratio, Creditor Ratio, Interest Coverage Ratio, Return on Investment.

This analysis employs panel data and tests whether a fixed effects model or a random effects model is more appropriate for the dataset. Here's a breakdown of the interpretation:

1. Hausman Test:

- This test determines whether the individual effects are correlated with the regressors. A significant p-value (in this case, 0.0000) suggests that the fixed effects model is more suitable.

2. Cross-Section Random Effects Test Comparisons:

- For each variable, it compares coefficients from the fixed effects and random effects models.
- Variables like DEBTCAPITALRATIO and FATURNOVERRATIOTIMES have significant p-values, indicating a preference for the fixed effects model.
- Other variables like CURRANTRATIO and LIQUIDRATIO have p-values close to the significance threshold, suggesting that the choice between fixed and random effects may not be clear-cut for these variables.

3. Panel Least Squares Regression (Fixed Effects Model):

- This section provides coefficients, standard errors, t-statistics, and p-values for each variable in the fixed effects regression model.
- Significant p-values for some variables (e.g., CURRANTRATIO, DEBTCAPITALRATIO, FATURNOVERRATIOTIMES, and LIQUIDRATIO) indicate their significant impact on sales.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

4. Model Summary:

- R-squared and adjusted R-squared values indicate the goodness of fit of the model, with a very high R-squared suggesting that the model explains most of the variance in sales.
- The F-statistic and associated p-value indicate the overall significance of the model.
- Durbin-Watson statistic assesses the presence of autocorrelation in residuals, which seems negligible here.

5. Conclusion:

- Based on the Hausman test and the regression results, the fixed effects model is deemed appropriate for this dataset.
- Certain financial ratios (CURRANRATIO, DEBTCAPITALRATIO, FATURNOVERRATIOTIMES, and LIQUIDRATIO) significantly influence sales.

In essence, this analysis suggests that the fixed effects model provides a reliable fit for the panel data and identifies key.

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2) There is no significant difference in Profitability of the selected brass firms over the years

Dependent Variable: Net Profit Ratio					
					Date: 01/08/24 Time: 20:46
<i>Method: Panel Least Squares</i>					
Sample: 2017 2020					
Periods included: 3					
Total panel (unbalanced) observations: 27					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LIQUID_RATIO	-4.199223	4.715442	-0.890526	0.3882	
INT_COVERAGE	-0.002728	0.011180	-0.244011	0.8108	
G_P_RATIO____	-0.451870	0.263448	-1.715215	0.1083	
DEBTOR_RATIO_DAYS_	0.022582	0.013201	1.710615	0.1092	
F.A.TURNOVER_RATIO	-0.091814	0.070705	-1.298547	0.2151	
DEBT_CAPITAL_RATIO____	-0.006728	0.005481	-1.227669	0.2398	
CURRANT_RATIO	3.204076	3.839083	0.834594	0.4180	
CREDITOR_RATIO_DAYS_	0.000265	0.011597	0.022874	0.9821	
OPERATING_RATIO____	0.041049	0.151351	0.271218	0.7902	
SALES	1.12E-07	9.81E-08	1.137912	0.2743	
ROI____	0.360846	0.126321	2.856582	0.0127	
STOCK_TURNOVER_TIMES_	-0.614849	0.275753	-2.229710	0.0427	
C	-4.812849	13.30952	-0.361609	0.7230	
R-squared	0.964489	Mean dependent var	2.298519		
Adjusted R-squared	0.934050	S.D. dependent var	13.59926		
S.E. of regression	3.492379	Akaike info criterion	5.645227		
Sum squared resid	170.7540	Schwarz criterion	6.269148		
Log likelihood	-63.21056	Hannan-Quinn criter.	5.830751		
F-statistic	31.68672	Durbin-Watson stat	2.009926		
Prob(F-statistic)	0.000000				

(Table 4.4.9 Table of Panel Data Regression Model when Net Profit is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Liquid ratio does not impact on Net Profit.

H1: Liquid ratio does impact on Net Profit.

Ho : Interest Coverage ratio does not impact Net Profit.

H1: Interest Coverage ratio does impact on Net Profit.

Ho : Debtor ratio does not impact Net Profit.

H1: Debtor ratio does impact on Net Profit.

Ho : Fix Asset turnover ratio does not impact Net Profit.

H1: Fix Asset turnover ratio does impact on Net Profit.

Ho : Debt capital ratio does not impact Net Profit.

H1: Debt capital ratio does impact on Net Profit.

Ho : Current ratio does not impact Net Profit.

H1: Current ratio does impact on Net Profit.

Ho : Creditor ratio does not impact Net Profit.

H1: Creditor ratio does impact on Net Profit.

Ho : Sales does not impact on Net Profit.

H1: Sales does impact on Net Profit.

Ho : Operating ratio does not impact Net Profit.

H1: Operating ratio does impact on Net Profit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : ROI ratio does not impact on Net Profit.

H1: ROI ratio does impact on Net Profit.

Ho : Stock Turnover ratio does not impact on Net Profit.

H1: Stock Turnover ratio does impact on Net Profit.

Ho : Sales does not impact on Net Profit.

H1: Sales ratio does impact on Net Profit.

❖ F statistic

Ho: All variables jointly does not impact on Net Profit.

H1: All variables jointly does impact on Net Profit. Therefore model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

2) There is no significant difference in Profitability of the selected brass firms over the years

Dependent Variable: Net Profit Ratio

Method: Panel EGLS (Cross Section Random Effects)

Date: 06/01/24 Time: 13:15

Sample: 2017 2019

Periods included: 3

Cross Sections included:11

Total panel (unbalanced) observations: 27

Swamy & Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SALES	-6.52E-08	1.56E-08	-4.188144	0.0004
ROI___	0.222806	0.034405	6.475982	0.0000
STOCK_TURNOVER__TIMES_	-0.517332	0.100857	-5.129361	0.0000
C	0.474722	1.230521	0.385789	0.7032

Effects Specification

	S.D.	Rho
Cross-section random	3.489489	0.9133
Idiosyncratic random	1.075375	0.0867

Weighted Statistics

R-squared	0.419374	Mean dependent var	0.332496
Adjusted R-squared	0.343640	S.D. dependent var	2.942237
S.E. of regression	2.392265	Sum Squared resid	131.6274
F-statistic	5.537470	Durbin-Watson stat	1.251819
Prob(F-statistic)	0.005189		

Unweighted Statistics

R-squared	0.614152	Mean dependent var	2.298519
Sum squared resid	1855.327	Durbin-Watson stat	0.088811

(Table 4.4.10 Table of Panel Data Regression Model when Net Profit is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Sales does not impact on Net Profit.

H1: Sales ratio does impact on Net Profit.

Ho : ROI ratio does not impact on Net Profit.

H1: ROI ratio does impact on Net Profit.

Ho : Stock Turnover ratio does not impact on Net Profit.

H1: Stock Turnover ratio does impact on Net Profit.

❖ F statistic

Ho: All variables jointly does not impact on Net Profit.

H1: All variables jointly does impact on Net Profit. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

2) There is no significant difference in Profitability of the selected brass firms over the years

Dependent Variable: Net Profit Ratio				
Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		98.665840	3	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff)	Prob
SALES	-0.000000	-0.000000	0.000000	0.7742
ROI____	0.089399	0.2228006	0.003261	0.0195
STOCK_TURNOVER__TIMES_	0.003867	-0.517332	0.003203	0.0000

(Table 4.4.11 Table of Panel Data Regression Model when Net Profit is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Sales does not impact on Net Profit.

H1: Sales ratio does impact on Net Profit.

Ho : ROI ratio does not impact on Net Profit.

H1: ROI ratio does impact on Net Profit.

Ho : Stock Turnover ratio does not impact on Net Profit.

H1: Stock Turnover ratio does impact on Net Profit.

❖ F statistic

Ho: All variables jointly does not impact on Net Profit.

H1: All variables jointly does impact on Net Profit. Therefore model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

2) There is no significant difference in Profitability of the selected brass firms over the years

Dependent Variable: Net Profit Ratio

Date: 06/01/24 Time: 13:16

Method: Panel Least Squares [Cross Section Random Effect Test Equation]

Sample: 2017 2019

Periods included: 3

Cross-sections include:11

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.081587	0.632074	3.293263	0.0058
SALES	-5.43E-08	4.09E-08	-1.326200	0.2076
ROI____	0.089399	0.066667	1.340981	0.2029
STOCK_TURNOVER__TIMES_	0.003867	0.115650	0.033438	0.9738

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.996873	Mean dependent var	2.298519
Adjusted R-squared	0.993747	S.D. dependent var	13.59926
S.E. of regression	1.075375	Akaike info criterion	3.289366
Sum squared resid	15.03362	Schwarz criterion	3.961282
Log likelihood	-30.40645	Hannan-Quinn criter.	3.489162
F-statistic	318.8457	Durbin-Watson stat	3.126421
Prob(F-statistic)	0.000000		

(Table 4.4.12 Table of Panel Data Regression Model when Net Profit is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Sales does not impact on Net Profit.

H1: Sales ratio does impact on Net Profit.

Ho : ROI ratio does not impact on Net Profit.

H1: ROI ratio does impact on Net Profit.

Ho : Stock Turnover ratio does not impact on Net Profit.

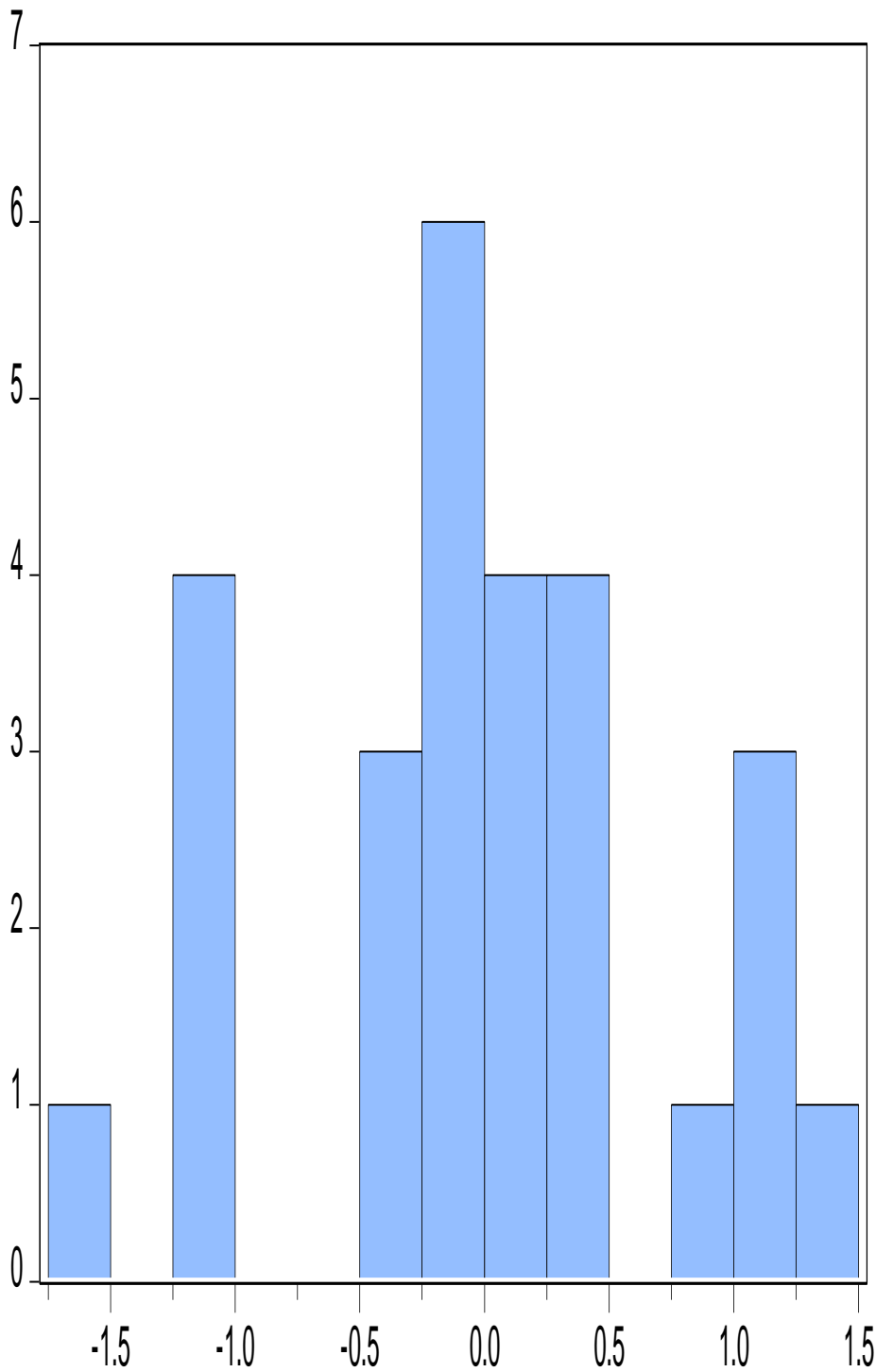
H1: Stock Turnover ratio does impact on Net Profit.

❖ F statistic

Ho: All variables jointly does not impact on Net Profit.

H1: All variables jointly does impact on Net Profit. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."



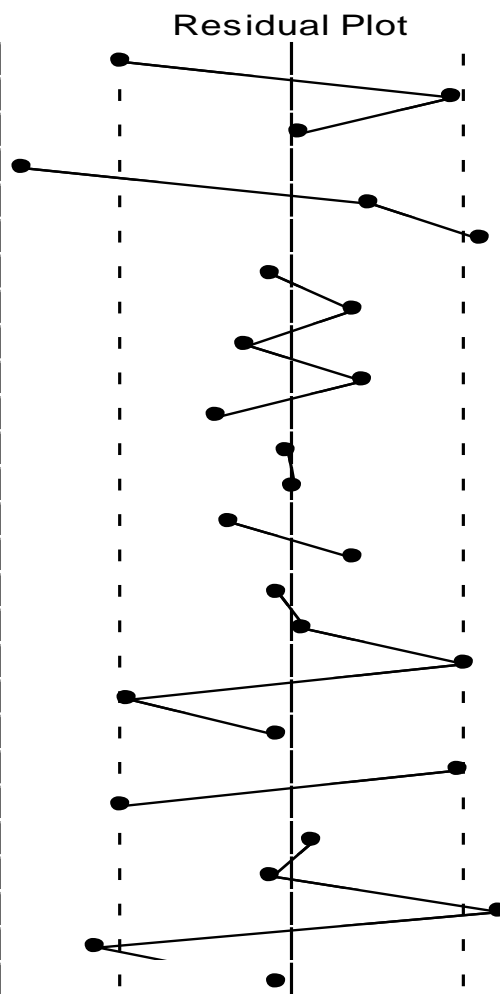
Series: Standardized Residuals	
Sample 2018 2020	
Observations 27	
Mean	5.60e-17
Median	-0.008835
Maximum	1.298236
Minimum	-1.662293
Std. Dev.	0.760405
Skewness	-0.208417
Kurtosis	2.605949
Jarque-Bera	0.370156
Probability	0.831040

[Figure 4.4.3 : Standardized Residual When Profit take as a dependent variable]

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	CROSSID	Effect
1	1	3.961279
2	3	4.966198
3	6	1.777187
4	7	0.048999
5	8	0.298436
6	9	1.811203
7	10	1.063541
8	11	4.397113
9	12	-42.56359
10	14	8.148159
11	15	5.693724

obs	Actual	Fitted	Residual
1 - 18	6.58	7.62576...	-1.0457...
1 - 19	8.24	7.24704...	0.99295...
1 - 20	7.1	7.04718...	0.05281...
3 - 18	6.74	8.40229...	-1.6622...
3 - 19	8.86	8.37717...	0.48282...
3 - 20	9.46000...	8.28053...	1.17946...
6 - 18	4.76999...	4.88316...	-0.1131...
6 - 19	5.18	4.79523...	0.38476...
6 - 20	4.18	4.45159...	-0.2715...
7 - 18	5	4.54384...	0.45615...
7 - 19	3.13	3.58615...	-0.4561...
8 - 19	4.22	4.22883...	-0.0088...
8 - 20	3.69	3.68116...	0.00883...
9 - 19	5.59	5.97145...	-0.3814...
9 - 20	6.27	5.88854...	0.38145...
10 - 19	4.96	5.04607...	-0.0860...
10 - 20	4.96	4.87392...	0.08607...
11 - 18	9.19999...	8.11598...	1.08401...
11 - 19	6.58	7.59386...	-1.0138...
11 - 20	7.46	7.53014...	-0.0701...
12 - 19	-43.57	-44.618...	1.04830...
12 - 20	-44.46	-43.411...	-1.0483...
14 - 19	0.02	-0.1133...	0.13339...
14 - 20	0.01	0.14339...	-0.1333...
15 - 18	11.04	9.74176...	1.29823...
15 - 19	7.9	9.11368...	-1.2136...
15 - 20	8.94999...	9.03454...	-0.0845...



"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Estimation Command:

=====

LS(? , CX=F) N_P_RATIO___ SALES ROI___ STOCK_TURNOVER__TIMES_ C

Estimation Equation:

=====

$$N_P_RATIO_ = C(1)*SALES + C(2)*ROI_ + C(3)*STOCK_TURNOVER_TIMES_ + C(4) + [CX=F]$$

Substituted Coefficients:

=====

$$N_P_RATIO_ = -5.4296529015e-08*SALES + 0.0893987991126*ROI_ + 0.00386707415024*STOCK_TURNOVER_TIMES_ + 2.0815868014 + [CX=F]$$

[Figure 4.4.4 : Chart represents Residual Plot]

From the above analysis it is clear that there is no significant difference in Profitability of the selected brass firms over the years. So one can conclude that **Null Hypothesis is rejected** in the case of Return Of Investment (Capital), Stock Turnover and the **Alternative Hypothesis is accepted** in the case of Sales, Gross Profit Ratio, Operating Ratio, Fix Asset Turnover Ratio, Currant Ratio, Liquid Ratio, Debtor Ratio, Creditor Ratio, Interest Coverage Ratio, Debt-capital Ratio

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

❖ Interpretation:

Model Appropriateness: The Hausman test indicates that the fixed effects model is more appropriate for this dataset, given the significant difference between fixed and random effects.

❖ Variable Significance:

SALES: The p-value (0.2076) indicates that SALES is not a statistically significant predictor of N_P_RATIO in the fixed effects model.

ROI: The p-value (0.2029) suggests that ROI is also not statistically significant.

STOCK_TURNOVER_TIMES: The extremely high p-value (0.9738) indicates no significance.

Constant Term: The constant term is statistically significant (p-value = 0.0058), indicating it has a significant impact on the dependent variable.

❖ Model Fit:

R-squared (0.996873) and Adjusted R-squared (0.993747): These high values suggest that the model explains almost all of the variance in the dependent variable.

F-statistic (318.8457) and its p-value (0.000000) indicate that the overall model is statistically significant.

Durbin-Watson stat (3.126421): This value indicates potential negative autocorrelation in the residuals, which might need to be addressed.

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❖ Summary:

The fixed effects model is more appropriate for the data, as indicated by the Hausman test. However, none of the variables (SALES, ROI, STOCK_TURNOVER_TIMES) are statistically significant predictors of N_P_RATIO in this model. The high R-squared values suggest a good model fit, but the Durbin-Watson statistic points to potential issues with autocorrelation.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

3) There is no significant difference in Overall financial competency of the selected brass firms over the years

Dependent Variable: F_A_Turnover_Ratio

Date: 06/01/24 Time: 13:34

Method: Panel Least Squares

Sample: 2017 2020

Periods included: 3

Cross Sections included:11

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEBTOR_RATIO_DAYS_	0.021986	0.062755	0.350354	0.7317
DEBT_CAPITAL_RATIO____	0.038987	0.019922	1.956921	0.0722
CURRENT_RATIO	-4.343771	14.69142	-0.295667	0.7722
CREDITOR_RATIO_DAYS_	-0.054810	0.040523	-1.352564	0.1993
G_P_RATIO____	0.695255	1.175450	0.591480	0.5643
INT_COVERAGE	-0.010838	0.041594	-0.260564	0.7985
LIQUID_RATIO	4.402606	18.99035	0.231834	0.8203
N_P_RATIO__	-0.891379	4.348808	-0.204971	0.8408
N_P_RATIO_F	-0.332845	5.058783	-0.065796	0.9485
OPERATING_RATIO____	-0.073803	0.577166	-0.127870	0.9002
ROI____	1.603292	0.394063	4.068620	0.0013
SALES	1.34E-06	8.31E-08	16.07917	0.0000
STOCK_TURNOVER_TIMES_	-1.027137	1.175026	-0.874139	0.3979
R-squared	0.990431	Mean dependent var		34.18259
Adjusted R-squared	0.980862	S.D. dependent var		93.53772
S.E. of regression	12.93988	Akaike info criterion		8.264655
Sum squared resid	2176.727	Schwarz criterion		8.936570
Log likelihood	-97.57284	Hannan-Quinn criter.		8.464451
F-statistic	103.5064	Durbin-Watson stat		1.452652
Prob(F-statistic)	0.000000			

(Table 4.4.13 Table of Panel Data Regression Model when Fixed Assets Turnover is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Liquid ratio does not impact on Fix Asset Turnover ratio.

H1: Liquid ratio does impact on Fix Asset Turnover ratio.

Ho : Interest Coverage ratio does not impact on Fix Asset Turnover ratio.

H1: Interest Coverage ratio does impact on Fix Asset Turnover ratio.

Ho : Debtor ratio does not impact on Fix Asset Turnover ratio.

H1: Debtor ratio does impact on Fix Asset Turnover ratio.

Ho : Debt capital ratio does not impact on Fix Asset Turnover ratio.

H1: Debt capital ratio does impact on Fix Asset Turnover ratio.

Ho : Current ratio does not impact on Fix Asset Turnover ratio.

H1: Current ratio does impact on Fix Asset Turnover ratio.

Ho : Creditor ratio does not impact on Fix Asset Turnover ratio.

H1: Creditor ratio does impact on Fix Asset Turnover ratio.

Ho : Operating ratio does not impact on Fix Asset Turnover ratio.

H1: Operating ratio does impact on Fix Asset Turnover ratio.

Ho : ROI ratio does not impact on Fix Asset Turnover ratio.

H1: ROI ratio does impact on Fix Asset Turnover ratio.

Ho : Stock Turnover ratio does not impact on Fix Asset Turnover ratio.

H1: Stock Turnover ratio does impact on Fix Asset Turnover ratio.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Gross Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Gross Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Net Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Net Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Sales does not impact on Fix Asset Turnover ratio.

H1: Sales ratio does impact on Fix Asset Turnover ratio.

❖ F statistic

Ho: All variables jointly does not impact on Fix Asset Turnover ratio.

H1: All variables jointly does impact on Fix Asset Turnover ratio. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

3) There is no significant difference in Overall financial competency of the selected brass firms over the years

Dependent Variable: F_A_Turnover Ratio

Date: 06/01/24 Time: 13:41

Method: Panel Least Squares

Sample: 2017 2020

Periods included: 3

Cross Sections included:11

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
N_P_RATIO_F	-2.306190	0.619231	-3.724282	0.0013
OPERATING_RATIO_____	0.044648	0.479600	0.093094	0.9267
ROI_____	1.740473	0.328758	5.294081	0.0000
SALES	1.30E-06	5.39E-08	24.14954	0.0000
STOCK_TURNOVER__TIMES_	-1.750044	1.048229	-1.669524	0.1099
C	-29.32098	44.26199	-0.662442	0.5149
R-squared				
R-squared	0.984017	Mean dependent var		34.18259
Adjusted R-squared	0.980211	S.D. dependent var		93.53772
S.E. of regression	13.15815	Akaike info criterion		8.185089
Sum squared resid	3635.873	Schwarz criterion		8.473053
Log likelihood	-104.4987	Hannan-Quinn criter.		8.270716
F-statistic	258.5771	Durbin-Watson stat		1.660795
Prob(F-statistic)	0.000000			

(Table 4.4.14 Table of Panel Data Regression Model when Fixed Assets Turnover is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Net Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Net Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Operating ratio does not impact on Fix Asset Turnover ratio.

H1: Operating ratio does impact on Fix Asset Turnover ratio.

Ho : ROI ratio does not impact on Fix Asset Turnover ratio.

H1: ROI ratio does impact on Fix Asset Turnover ratio.

Ho : Sales does not impact on Fix Asset Turnover ratio.

H1: Sales ratio does impact on Fix Asset Turnover ratio.

Ho : Stock Turnover ratio does not impact on Fix Asset Turnover ratio.

H1: Stock Turnover ratio does impact on Fix Asset Turnover ratio.

❖ F statistic

Ho: All variables jointly does not impact on Fix Asset Turnover ratio.

H1: All variables jointly does impact on Fix Asset Turnover ratio. Therefore model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

3) There is no significant difference in Overall financial competency of the selected brass firms over the years

Dependent Variable: F_A_Turnover Ratio

Method: Panel EGLS (Cross Section Random Effects)

Date: 06/01/24 Time: 13:42

Sample: 2017 2019

Periods included: 3

Cross Sections included: 11

Total panel (unbalanced) observations: 27

Swamy & Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
N_P_RATIO_F	-2.507664	0.418919	-5.986030	0.0000
OPERATING_RATIO____	0.439147	0.456777	0.961405	0.3473
ROI____	2.024125	0.182533	11.08910	0.0000
SALES	1.31E-06	5.09E-08	25.71757	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	8.446440	0.6839
Idiosyncratic random	5.742020	0.3161

Weighted Statistics

R-squared	0.969566	Mean dependent var	14.53257
Adjusted R-squared	0.962319	S.D. dependent var	49.88685
S.E. of regression	9.618217	Sum squared resid	1942.712
F-statistic	133.8016	Durbin-Watson stat	2.273778
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.980963	Mean dependent var	34.18259
Sum squared resid	4330.546	Durbin-Watson stat	1.020032

(Table 4.4.15 Table of Panel Data Regression Model when Fixed Assets Turnover is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Net Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Net Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Operating ratio does not impact on Fix Asset Turnover ratio.

H1: Operating ratio does impact on Fix Asset Turnover ratio.

Ho : ROI ratio does not impact on Fix Asset Turnover ratio.

H1: ROI ratio does impact on Fix Asset Turnover ratio.

Ho : Sales does not impact on Fix Asset Turnover ratio.

H1: Sales ratio does impact on Fix Asset Turnover ratio.

❖ F statistic

Ho: All variables jointly does not impact on Fix Asset Turnover ratio.

H1: All variables jointly do impact on Fix Asset Turnover ratio. Therefore, model is fit.

3) There is no significant difference in Overall financial competency of the selected brass firms over the years.

Dependent Variable: Net Profit Ratio				
Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		36.595993	4	0.0000
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff)	Prob
N_P_RATIO_F	-57.198518	-2.507664	25581.182505	0.7321
OPERATING_RATIO_____	-0.350801	0.439147	0.370075	0.1941
ROI_____	5.135618	2.024125	205.363456	0.8281
SALES	-0.000000	0.000001	0.000000	0.8466

(Table 4.4.16 Table of Panel Data Regression Model when Fixed Assets Turnover is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Net Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Net Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Operating ratio does not impact on Fix Asset Turnover ratio.

H1: Operating ratio does impact on Fix Asset Turnover ratio.

Ho : ROI ratio does not impact on Fix Asset Turnover ratio.

H1: ROI ratio does impact on Fix Asset Turnover ratio.

Ho : Sales does not impact on Fix Asset Turnover ratio.

H1: Sales ratio does impact on Fix Asset Turnover ratio.

❖ F statistic

Ho: All variables jointly does not impact on Fix Asset Turnover ratio.

H1: All variables jointly does impact on Fix Asset Turnover ratio. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

3) There is no significant difference in Overall financial competency of the selected brass firms over the years.

Dependent Variable: F_A_Turnover Ratio

Date: 06/01/24 Time: 13:42

Method: Panel Least Squares [Cross Section Random Effect Test Equation]

Sample: 2017 2019

Periods included: 3

Cross-sections include: 11

Total panel (unbalanced) observations: 27

WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	110.8459	337.5231	0.328410	0.7483
N_P_RATIO_F	-57.19852	159.9417	-0.357621	0.7268
OPERATING_RATIO____	-0.350801	0.760736	-0.461134	0.6529
ROI____	5.135618	14.33167	0.358341	0.7263
SALES	-3.72E-07	8.70E-06	-0.042744	0.9666
STOCK_TURNOVER__TIMES_	NA	NA	NA	NA

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.998261	Mean dependent var	34.18259
Adjusted R-squared	0.996232	S.D. dependent var	93.53772
S.E. of regression	5.742020	Akaike info criterion	6.633680
Sum squared resid	395.6495	Schwarz criterion	7.353589
Log likelihood	-74.55468	Hannan-Quinn criter.	6.847747
F-statistic	491.9642	Durbin-Watson stat	2.955972
Prob(F-statistic)	0.000000		

(Table 4.4.17 Table of Panel Data Regression Model when Fixed Assets Turnover is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Net Profit ratio does not impact on Fix Asset Turnover ratio.

H1: Net Profit ratio does impact on Fix Asset Turnover ratio.

Ho : Operating ratio does not impact on Fix Asset Turnover ratio.

H1: Operating ratio does impact on Fix Asset Turnover ratio.

Ho : ROI ratio does not impact on Fix Asset Turnover ratio.

H1: ROI ratio does impact on Fix Asset Turnover ratio.

Ho : Sales does not impact on Fix Asset Turnover ratio.

H1: Sales ratio does impact on Fix Asset Turnover ratio.

Ho : Stock Turnover ratio does not impact on Fix Asset Turnover ratio.

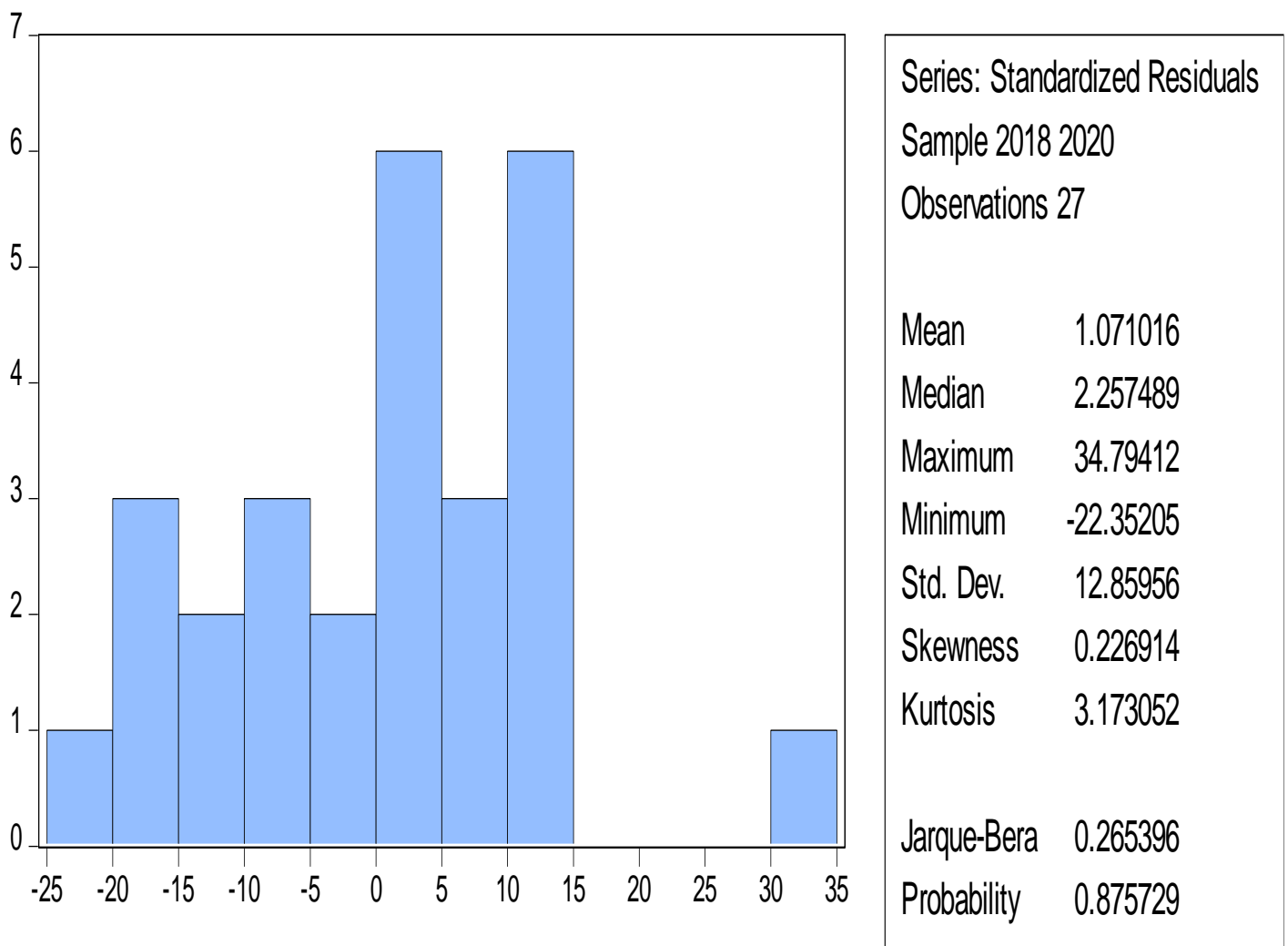
H1: Stock Turnover impact on Fix Asset Turnover ratio.

❖ F statistic

Ho: All variables jointly does not impact on Fix Asset Turnover ratio.

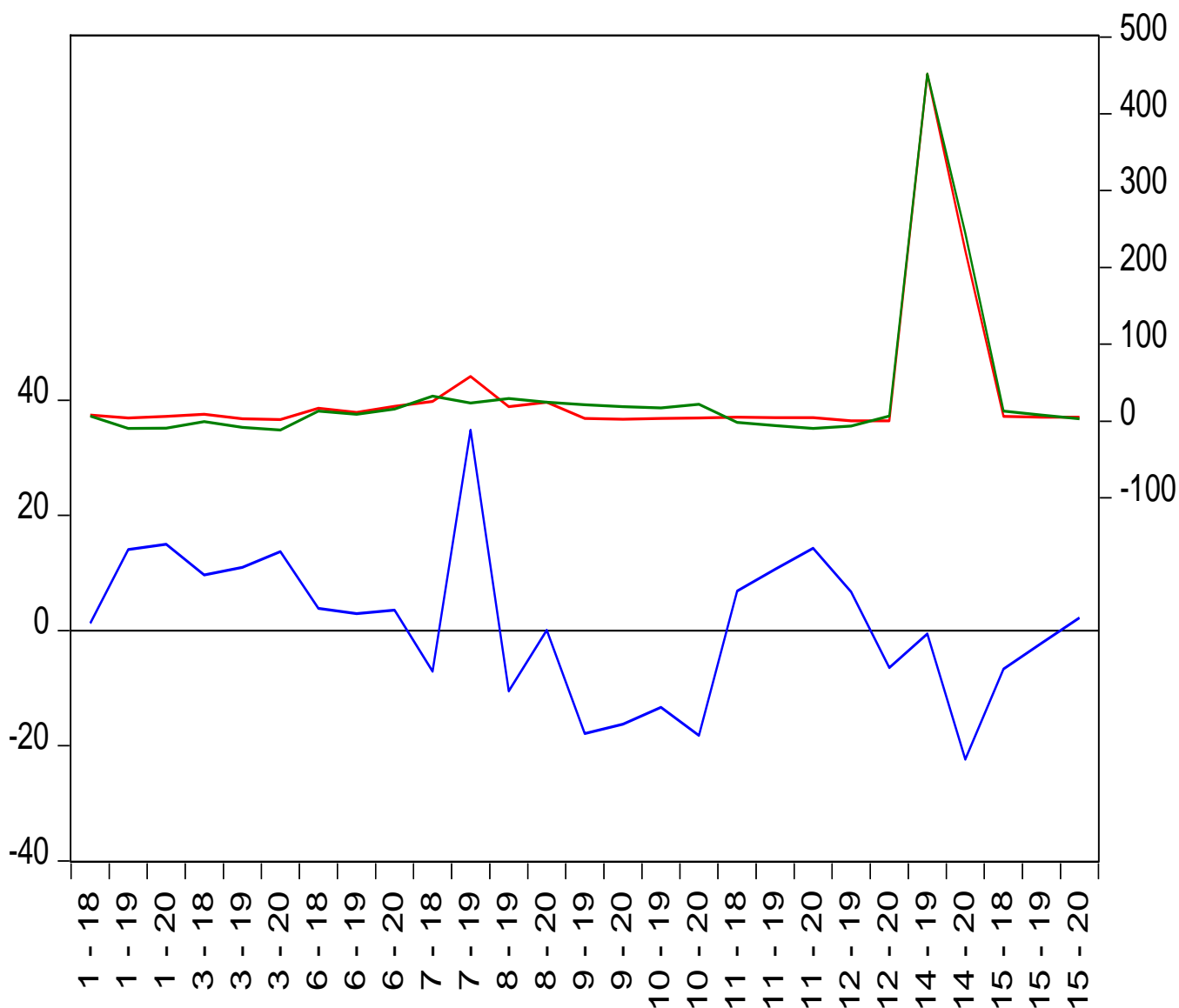
H1: All variables jointly does impact on Fix Asset Turnover ratio. Therefore, model is fit.

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[Figure 4.4.5 : Standardized Residual When fixed assets turnover take as a dependent variable]

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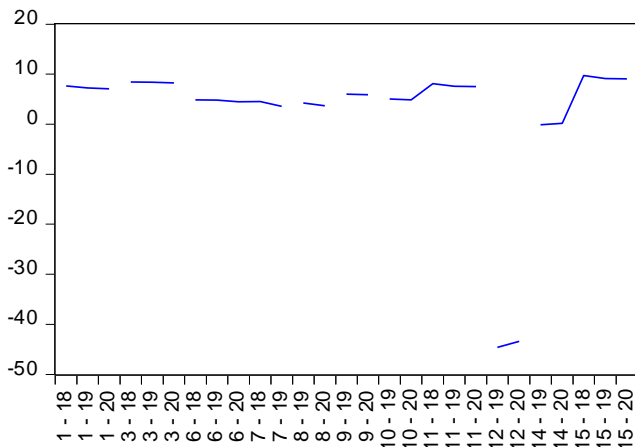
— Residual — Actual — Fitted

[Figure 4.4.6 : Chart represents Residual Plot]

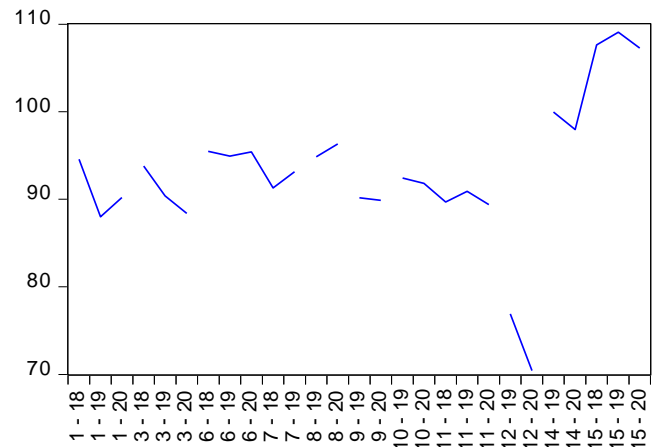
"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Derivatives of the Equation Specification

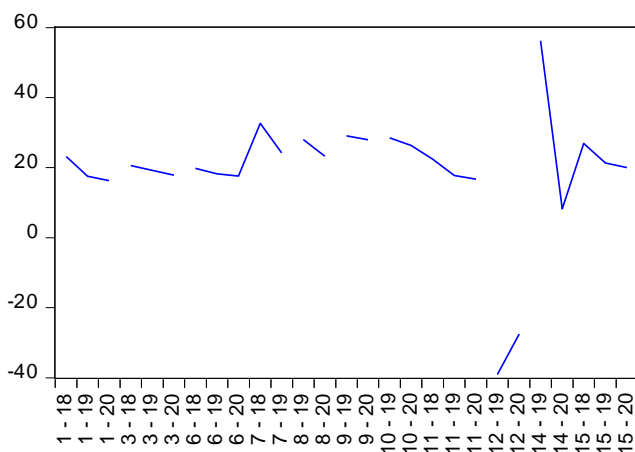
C(1)



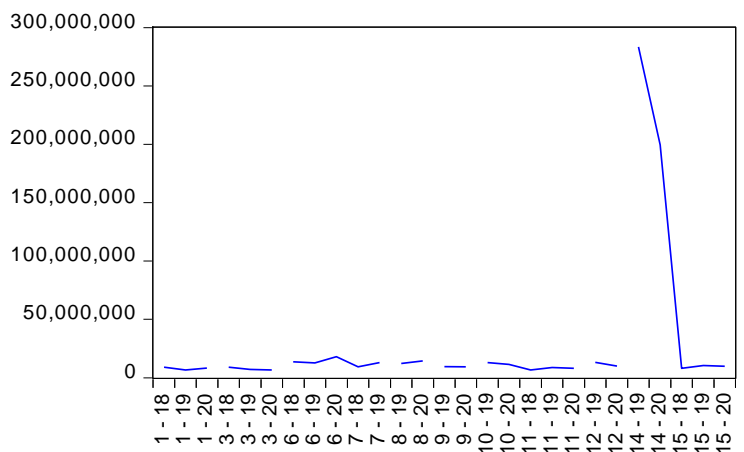
C(2)



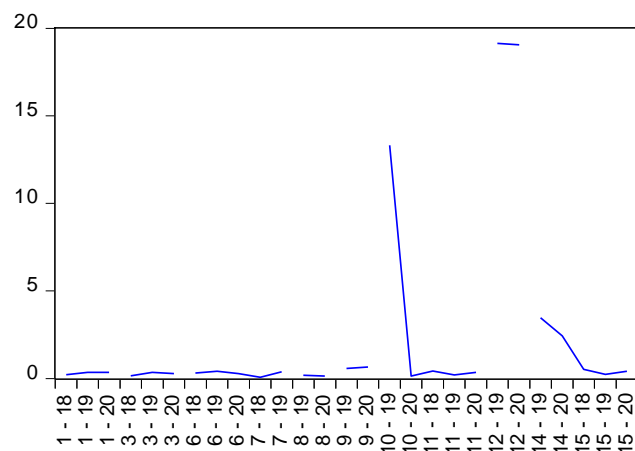
C(3)



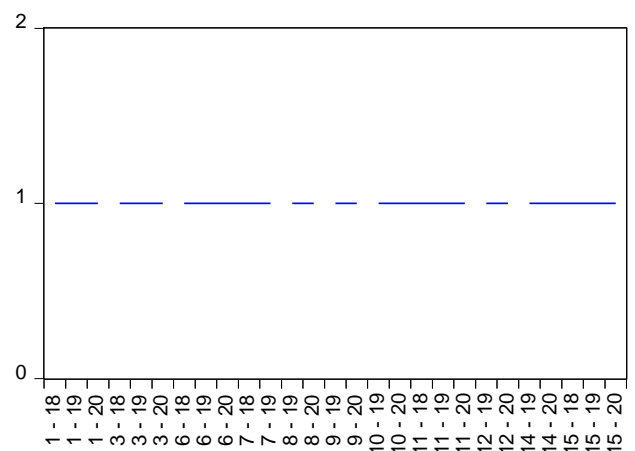
C(4)



C(5)



C(6)



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From the above analysis it is clear that there is no significant difference in Overall financial competency of the selected brass firms over the years. So, one can conclude that **Null Hypothesis is rejected** in the case of Net Profit, Return of Investment (Capital) & Sales and the **Alternative Hypothesis is accepted** in the case of Gross Profit Ratio, Stock Turnover Ratio, Operating Ratio, Currant Ratio, Liquid Ratio, Debtor Ratio, Creditor Ratio, Interest Coverage Ratio, Debt-capital Ratio.

This output appears to be from a panel data analysis using a fixed effects model with correlated random effects. The Hausman test is a diagnostic test to determine whether the coefficients estimated under the random effects model are consistent and efficient compared to the coefficients estimated under the fixed effects model.

Here's how to interpret the output:

1. ****Test Summary****: The test statistic for the Hausman test is 36.595993, with 4 degrees of freedom. The probability associated with this test statistic is 0.0000, indicating that the null hypothesis of no difference between the coefficients estimated under the random effects model and the fixed effects model is rejected at conventional levels of significance ($p < 0.05$). This suggests that there is a significant difference between the coefficients estimated by the two models, implying that the random effects model may be inconsistent or inefficient compared to the fixed effects model.
2. ****Cross-section random effects test comparisons****: This section compares the coefficients estimated under the fixed effects model with those estimated under the random effects model for each variable. For each variable, it provides the coefficient estimated under the fixed effects model, the coefficient estimated under the random effects model, the variance of the difference between these coefficients, and the probability associated with this variance. For instance, for the variable

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N_P_RATIO_F, the coefficient estimated under the fixed effects model is -57.198518, under the random effects model is -2.507664, and the probability associated with the variance of the difference between these coefficients is 0.7324.

3. **Cross-section random effects test equation:** This section provides details about the panel data regression equation used for estimating the coefficients under the random effects model. It includes information such as the dependent variable, method, sample period, number of cross-sections, and observations.

4. **Variable coefficients:** This section presents the coefficients estimated for each variable in the regression model under the random effects specification. It includes the coefficient estimate, standard error, t-statistic, and probability associated with the t-statistic. For example, the coefficient estimate for the variable N_P_RATIO_F is -57.19852, with a standard error of 159.9417, a t-statistic of -0.357621, and a probability of 0.7268.

5. **Effects Specification:** This section provides summary statistics and diagnostics for the regression model, including R-squared, adjusted R-squared, standard error of regression, sum squared residuals, and various information criteria.

Overall, the output suggests that the fixed effects model may be more appropriate for the data than the random effects model, as indicated by the results of the Hausman test.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

4) There is no significant difference in Liquidity requirement of the selected brass firms over the years.

Dependent Variable: Liquid Ratio

Date: 06/01/24

Time: 13:46

Method: Panel Least Squares

Sample: 2017 2020

Periods included: 3

Cross Sections included:11

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT_COVERAGE	0.000817	0.000578	1.414080	0.1792
G_P_RATIO____	-0.013241	0.015583	-0.849713	0.4098
F_A__TURNOVER_RATIO__TIMES_	0.001149	0.004115	0.279127	0.7842
DEBTOR_RATIO__DAYS_	0.002121	0.000565	3.754715	0.0021
DEBT_CAPITAL_RATIO____	-0.000201	0.000313	-0.642224	0.5311
CURRENT_RATIO	0.761055	0.075268	10.11131	0.0000
CREDITOR_RATIO__DAYS_	0.000332	0.000633	0.525024	0.6078
N_P_RATIO____	-0.012766	0.014336	-0.890526	0.3882
OPERATING_RATIO____	-0.003553	0.008313	-0.427428	0.6756
SALES	8.15E-10	5.65E-09	0.144206	0.8874
ROI____	0.001053	0.008758	0.120203	0.9060
STOCK_TURNOVER__TIMES_	0.017775	0.017050	1.042510	0.3148
C	-0.298625	0.732944	-0.407432	0.6899
Model Fit Statistics				
R-squared	0.981617	Mean dependent var	1.328889	
Adjusted R-squared	0.965861	S.D. dependent var	1.042181	
S.E. of regression	0.192562	Akaike info criterion	-0.150615	
Sum squared resid	0.519121	Schwarz criterion	0.473306	
Log likelihood	15.03330	Hannan-Quinn criter.	0.034909	
F-statistic	62.29884	Durbin-Watson stat	1.756141	
Prob(F-statistic)	0.000000			

(Table 4.4.18 Table of Panel Data Regression Model when Liquid is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Interest Coverage ratio does not impact on Liquid ratio.

H1: Interest Coverage ratio does impact on Liquid ratio.

Ho : Fix Asset turnover ratio does not impact on Liquid ratio.

H1: Fix Asset turnover ratio does impact on Liquid ratio.

Ho : Debtor ratio does not impact on Liquid ratio.

H1: Debtor ratio does impact on Liquid ratio.

Ho : Creditor ratio does not impact on Liquid ratio.

H1: Creditor ratio does impact on Liquid ratio.

Ho : Debt capital ratio does not impact on Liquid ratio.

H1: Debt capital ratio does impact on Liquid ratio.

Ho : Current ratio does not impact on Liquid ratio.

H1: Current ratio does impact on Liquid ratio.

Ho : Operating ratio does not impact on Liquid ratio.

H1: Operating ratio does impact on Liquid ratio.

Ho : ROI ratio does not impact on Liquid ratio.

H1: ROI ratio does impact on Liquid ratio.

Ho : Stock Turnover ratio does not impact on Liquid ratio.

H1: Stock Turnover ratio does impact on Liquid ratio.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Gross Profit ratio does not impact on Liquid ratio.

H1: Gross Profit ratio does impact on Liquid ratio.

Ho : Net Profit ratio does not impact on Liquid ratio.

H1: Net Profit ratio does impact on Liquid ratio.

Ho : Sales does not impact on Liquid ratio.

H1: Sales ratio does impact on Liquid ratio.

❖ F statistic

Ho: All variables jointly does not impact on Liquid ratio.

H1: All variables jointly does impact on Liquid ratio. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

4) There is no significant difference in Liquidity requirement of the selected brass firms over the years.

Dependent Variable: Liquid Ratio

Date: 06/01/24 Time: 13:48

Method: Panel Least Squares

Sample: 2017 2020

Periods included: 3

Cross Sections included:15

Total panel (unbalanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEBTOR_RATIO__DAYS_	0.000562	0.000912	0.615654	0.5425
DEBT_CAPITAL_RATIO____	0.001162	0.000529	2.196486	0.0354
CURRENT_RATIO	0.287234	0.021829	13.15843	0.0000
C	0.298338	0.228970	1.302957	0.2019
R-squared	0.846706	Mean dependent var		1.533056
Adjusted R-squared	0.832335	S.D. dependent var		1.509915
S.E. of regression	0.618264	Akaike info criterion		1.980638
Sum squared resid	12.23202	Schwarz criterion		2.156584
Log likelihood	-31.65148	Hannan-Quinn criter.		2.042048
F-statistic	58.91643	Durbin-Watson stat		1.152086
Prob(F-statistic)	0.000000			

(Table 4.4.19 Table of Panel Data Regression Model when Liquid Ratio is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Debtor ratio does not impact on Liquid ratio.

H1: Debtor ratio does impact on Liquid ratio.

Ho : Debt capital ratio does not impact on Liquid ratio.

H1: Debt capital ratio does impact on Liquid ratio.

Ho : Current ratio does not impact on Liquid ratio.

H1: Current ratio does impact on Liquid ratio.

❖ F statistic

Ho: All variables jointly does not impact on Liquid ratio.

H1: All variables jointly do impact on Liquid ratio. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

4) There is no significant difference in Liquidity requirement of the selected brass firms over the years.

Dependent Variable: Liquid Ratio

<i>Method: Panel EGLS (Cross Section Random Effects)</i>		Date: 06/01/24 Time: 13:50
Sample: 2017 2019		
Periods included: 3		
Cross Sections included:15		
Total panel (unbalanced) observations: 36		Swamy & Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEBTOR_RATIO__DAYS_	0.001140	0.000990	1.150926	0.2583
DEBT_CAPITAL_RATIO__	0.000777	0.000591	1.314599	0.1980
CURRENT_RATIO	0.298328	0.019250	15.49717	0.0000
C	0.239297	0.272618	0.877776	0.3866

Effects Specification				
			S.D.	Rho
Cross-section random			0.463115	0.5162
Idiosyncratic random			0.448343	0.4838

Weighted Statistics			
R-squared	0.884029	Mean dependent var	0.794246
Adjusted R-squared	0.873157	S.D. dependent var	1.265117
S.E. of regression	0.452087	Sum Squared resid	6.540243
F-statistic	81.31038	Durbin-Watson stat	2.006201
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.842114	Mean dependent var	1.533056
Sum squared resid	12.59844	Durbin-Watson stat	1.041481

(Table 4.4.20 Table of Panel Data Regression Model when Liquid Ratio is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Ho : Debtor ratio does not impact on Liquid ratio.

H1: Debtor ratio does impact on Liquid ratio.

Ho : Debt capital ratio does not impact on Liquid ratio.

H1: Debt capital ratio does impact on Liquid ratio.

Ho : Current ratio does not impact on Liquid ratio.

H1: Current ratio does impact on Liquid ratio.

❖ F statistic

Ho: All variables jointly does not impact on Liquid ratio.

H1: All variables jointly do impact on Liquid ratio. Therefore, model is fit.

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

Dependent Variable: Liquid Ratio				
Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		2.774273	3	0.4278
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff)	Prob
DEBTOR_RATIO_DAYS_	0.002023	0.001140	0.000001	0.3541
DEBT_CAPITAL_RATIO_	-0.000378	0.000777	0.000001	0.1625
CURRANT_RATIO	0.306846	0.298328	0.000109	0.4152

(Table 4.4.21 Table of Panel Data Regression Model when Liquid is Dependent Variable)

"A study of Financial Competency of Selected Brass Industry of Jamnagar District."

4) There is no significant difference in the Liquidity requirement of the selected brass firms over the years.

Dependent Variable: Liquid Ratio				
				Date: 06/01/24 Time: 13:50
<i>Method: Panel Least Squares [Cross Section Random Effect Test Equation]</i>				
Sample: 2017 2019				
Periods included: 3				
Cross-sections include:15				
Total panel (unbalanced) observations: 36				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.273334	0.383895	0.712003	0.4856
DEBTOR_RATIO__DAYS_	0.002023	0.001374	1.471794	0.1583
DEBT_CAPITAL_RATIO____	-0.000378	0.001017	-0.372098	0.7142
CURRANT_RATIO	0.306846	0.021907	14.00681	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.954656	Mean dependent var	1.533056	
Adjusted R-squared	0.911831	S.D. dependent var	1.509915	
S.E. of regression	0.448343	Akaike info criterion	1.540336	
Sum squared resid	3.618204	Schwarz criterion	2.332095	
Log likelihood	-9.726045	Hannan-Quinn criter.	1.816681	
F-statistic	22.29209	Durbin-Watson stat	3.412602	
Prob(F-statistic)	0.000000			

(Table 4.4.22 Table of Panel Data Regression Model when Liquid is Dependent Variable)

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Ho : Debtor ratio does not impact on Liquid ratio.

H1: Debtor ratio does impact on Liquid ratio.

Ho : Debt capital ratio does not impact on Liquid ratio.

H1: Debt capital ratio does impact on Liquid ratio.

Ho : Current ratio does not impact on Liquid ratio.

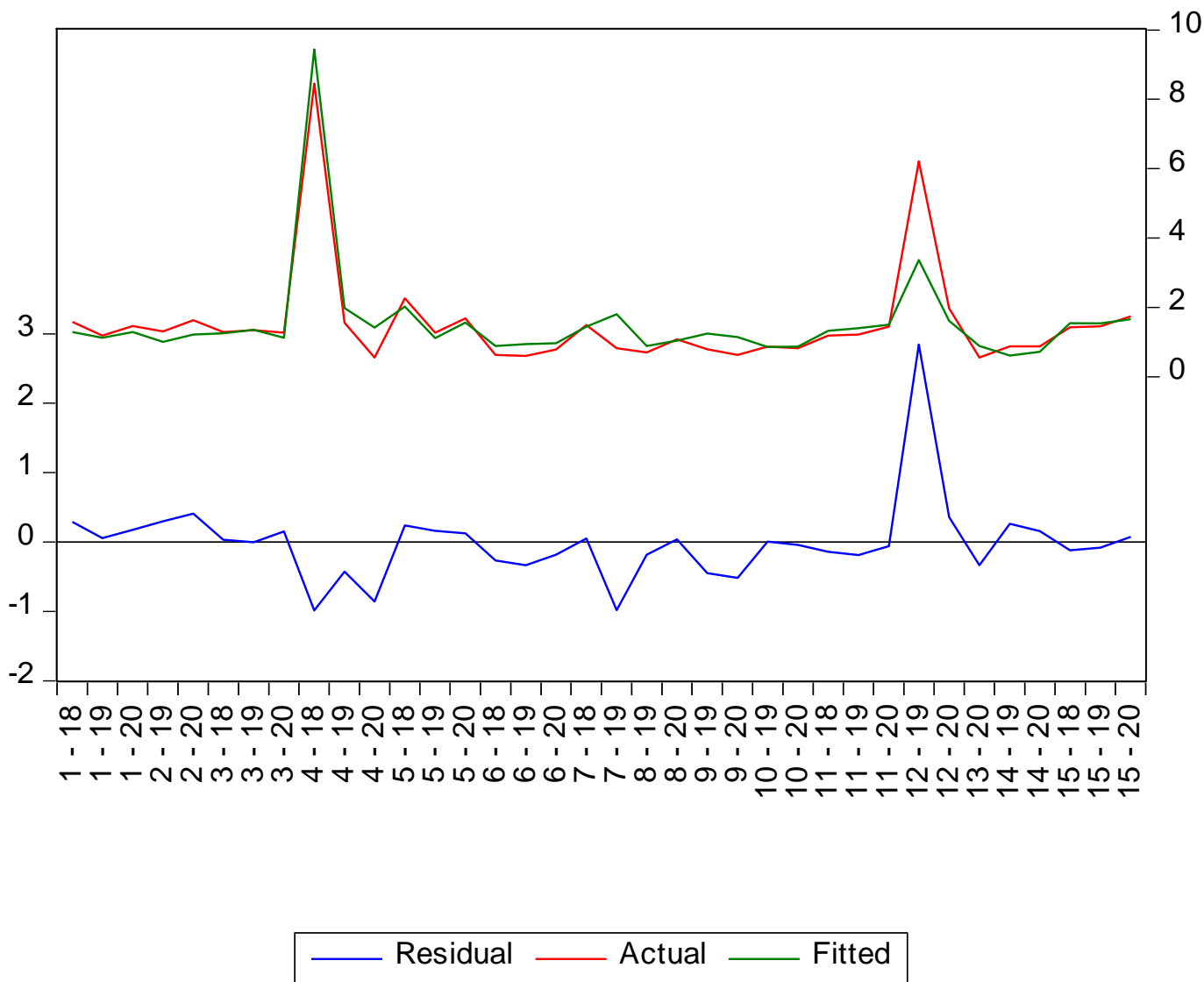
H1: Current ratio does impact on Liquid ratio.

❖ F statistic

Ho: All variables jointly does not impact on Liquid ratio.

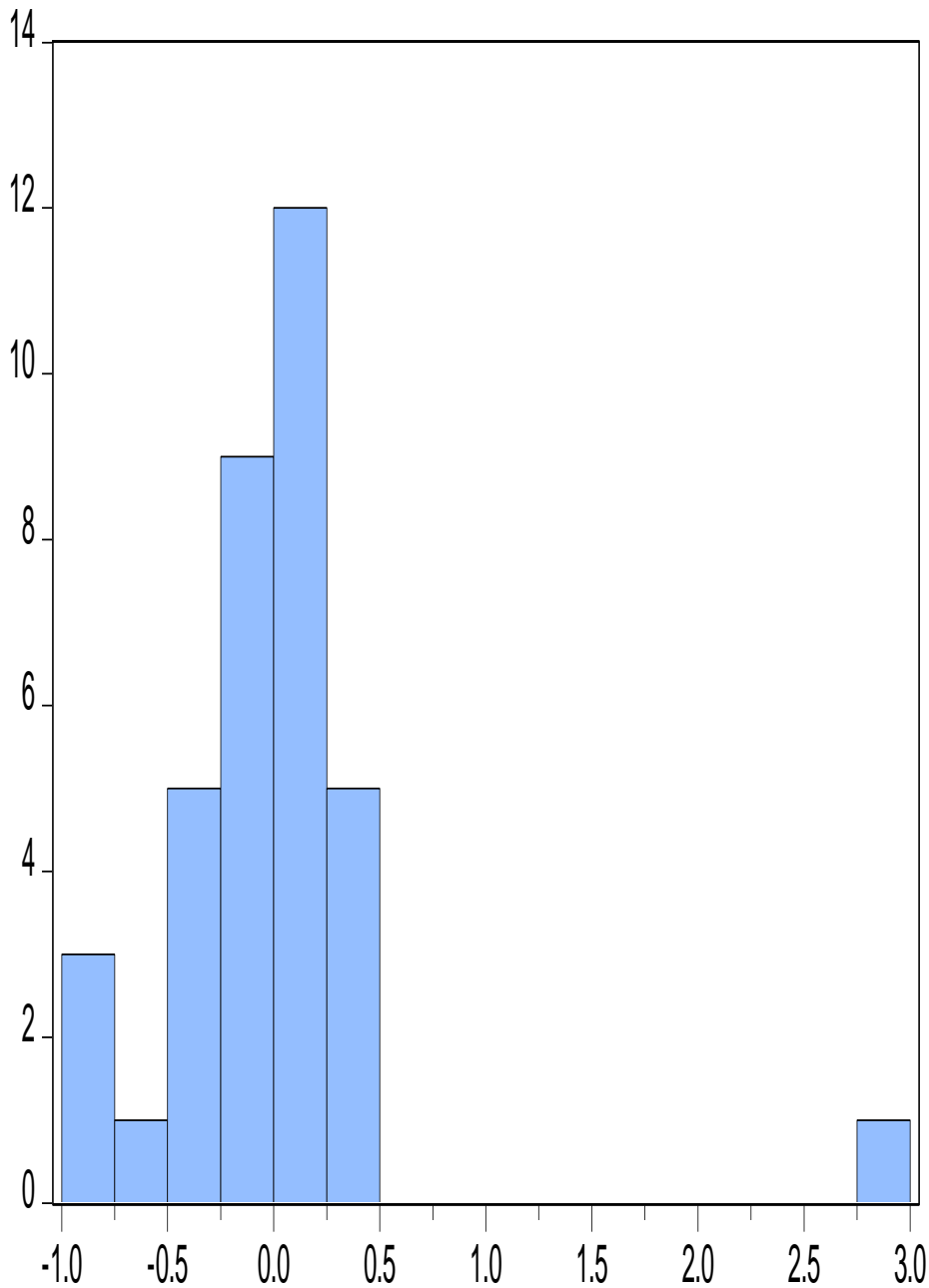
H1: All variables jointly does impact on Liquid ratio. Therefore, model is fit.

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[Figure 4.4.7 : Chart represents Residual Plot]

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Series: Standardized Residuals

Sample 2018 2020

Observations 36

Mean -0.011700

Median -8.83e-05

Maximum 2.846048

Minimum -0.985977

Std. Dev. 0.599845

Skewness 2.785221

Kurtosis 15.71741

Jarque-Bera 289.1434

Probability 0.000000

[Figure 4.4.8 : Standardized Residual When liquid ratio take as a dependent variable]

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From the above analysis it is clear that there is no significant difference in Liquidity Requirement of the selected brass firms over the years. So, one can conclude that **Null Hypothesis is rejected** in the case of Current ratio and the **Alternative Hypothesis is accepted** in the case of Sales, Gross Profit Ratio, Net Profit Ratio, Stock Turnover Ratio, Operating Ratio, Fix Asset Turnover Ratio, Debtor Ratio, Creditor Ratio, Interest Coverage Ratio, ROI, Debt-capital Ratio

❖ **Model Appropriateness:**

The Hausman test suggests that the random effects model is appropriate for your data, given the high p-value.

Variable Significance:

The CURRANT_RATIO is highly significant (p-value < 0.01), suggesting it has a strong influence on the LIQUID_RATIO.

The DEBTOR_RATIO_DAYS_ and DEBT_CAPITAL_RATIO___ are not statistically significant (p-values > 0.05), indicating they might not have a meaningful impact on the LIQUID_RATIO in this model.

Model Fit:

The high R-squared (0.954656) and adjusted R-squared (0.911831) values indicate that the model explains a large portion of the variance in the dependent variable (LIQUID_RATIO). The F-statistic is highly significant, suggesting the overall model fit is good.

Durbin-Watson stat: The value of 3.412602 suggests there might be some issues with autocorrelation in the residuals. Typically, values around 2 indicate no autocorrelation, while values closer to 0 or 4 suggest positive or negative autocorrelation, respectively.

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In summary, the Hausman test indicates that the random effects model is suitable. The CURRENT_RATIO is a significant predictor of the LIQUID_RATIO, while the other variables are not. The model fits the data well, but the Durbin-Watson statistic suggests potential autocorrelation issues.

Testing Overview:

This table provides an analysis of the impact of rejecting or accepting the null hypothesis (H₀) on various financial ratios related to four key variables: **Sales, Net Profit Ratio, Liquid Ratio, and Fixed Asset Turnover Ratio**. The table explain which financial ratios are affected or unaffected when H₀ is either rejected or accepted for each variable. Here's a detailed interpretation of each row and column:

Variables Overview:

1. **Sales:** Represents the total revenue generated by a company from its operations.
2. **Net Profit Ratio:** Measures the profitability of a company as a percentage of its total revenue.
3. **Liquid Ratio:** Indicates the company's ability to pay off its short-term liabilities with its most liquid assets.
4. **Fixed Asset Turnover Ratio:** Assesses how efficiently a company uses its fixed assets to generate sales.

Column Interpretation:

- **H₀ Rejected (Affected):** Lists the financial ratios that are significantly impacted when the null hypothesis for the given variable is rejected (i.e., there is a statistically significant effect).
- **H₀ Accepted (Not Affected):** Lists the financial ratios that are not impacted when the null hypothesis for the given variable is accepted (i.e., no significant effect is detected).

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❖ Row-by-Row Interpretation:

1. Sales

- **H0 Rejected (Affected):** When the null hypothesis for Sales is rejected, it indicates that changes in Sales significantly affect:
 - **Current Ratio:** The company's ability to cover its short-term obligations.
 - **Debt-Capital Ratio:** The proportion of debt in the company's capital structure.
 - **Fixed Assets Turnover Ratio:** The efficiency in using fixed assets to generate revenue.
 - **Liquid Ratio:** The ability to meet short-term liabilities with liquid assets.

- **H0 Accepted (Not Affected):** When the null hypothesis for Sales is accepted, it suggests that changes in Sales do not significantly impact:
 - Ratios related to profitability (e.g., Gross Profit Ratio, Net Profit Ratio).
 - Ratios related to operational efficiency (e.g., Stock Turnover Ratio, Operating Ratio).
 - Ratios measuring financial health (e.g., Debtor Ratio, Creditor Ratio, Interest Coverage Ratio, Return on Investment [ROI]).

2. Net Profit Ratio

- **H0 Rejected (Affected):** When the null hypothesis for the Net Profit Ratio is rejected, the affected ratios are:
 - **Return on Investment (Capital):** The return generated on the capital invested in the business.
 - **Stock Turnover:** The frequency at which the company sells and replaces its stock.

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- **H0 Accepted (Not Affected):** When H0 is accepted, the following ratios are not affected:
 - A broad set of profitability and operational metrics, such as Sales, Gross Profit Ratio, Operating Ratio, and various asset and liability management ratios (e.g., Creditor Ratio, Debt-Capital Ratio, Interest Coverage Ratio).

3. Liquid Ratio

- **H0 Rejected (Affected):** The only ratio significantly affected when the null hypothesis for the Liquid Ratio is rejected is:
 - **Current Ratio:** Indicates a direct relationship between the liquid ratio and the company's current financial position.
- **H0 Accepted (Not Affected):** When H0 is accepted, it shows that changes in the Liquid Ratio do not impact other key financial and operational ratios, including Sales, Gross Profit Ratio, Net Profit Ratio, Fixed Asset Turnover Ratio, and many more.

4. Fixed Asset Turnover Ratio

- **H0 Rejected (Affected):** Rejection of the null hypothesis for the Fixed Asset Turnover Ratio suggests that:
 - **Net Profit:** The company's profitability is affected by changes in asset utilization.
 - **Return on Investment (Capital):** Efficiency of capital use is impacted.
 - **Sales:** The amount of revenue generated is influenced by asset utilization.
- **H0 Accepted (Not Affected):** Acceptance indicates that changes in the Fixed Asset Turnover Ratio do not impact:
 - A range of other ratios related to profitability, operational performance, and financial stability, such as the Gross Profit Ratio, Operating Ratio, Current Ratio, and Debt-Capital Ratio.

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Overall Insights:

- **Impact Analysis:** The table highlights which specific financial ratios are sensitive to changes in key financial variables when statistical tests either reject or accept the null hypothesis.
- **Risk Assessment:** It shows potential areas of risk where fluctuations in a variable can affect key performance indicators, helping analysts and decision-makers prioritize metrics that need closer monitoring.
- **Financial Health:** Ratios in the "H0 Accepted (Not Affected)" column suggest areas of financial stability, where the variable does not significantly impact the ratios, indicating less sensitivity to changes.

This table is useful for financial analysts to understand the interconnectedness of financial variables and their impact on a company's performance metrics.

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References:

- 1) Annual Aduit Report
- 2) E-Views Software