



# Evaluating the Financial Robustness and Insolvency Danger of Indian Service Sector Companies: An In-Depth Study from 2012 to 2023

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## ARTICLE INFO

## ABSTRACT

This study conducts a comprehensive analysis of the financial health and bankruptcy risk of five Indian service sector companies - Genesys International Corporation Limited, Coral India Finance and Housing Limited, Allsec Technologies Limited, InnovanaThinklabs Limited, and MIC Electronics Limited. - from 2012<sup>1</sup> to 2023<sup>2</sup>. Using data from the companies' financial statements, the researchers calculate solvency ratios, profitability ratios, liquidity ratios, and apply the Altman Z"-score models to assess the likelihood of bankruptcy. The analysis reveals varying financial positions among the companies, with some demonstrating strong financial health and low bankruptcy risk, while others show signs of financial distress and increasing bankruptcy risk. The study also explores the factors contributing to the companies' financial performance and provides recommendations for stakeholders.

**Keywords:** Financial health-Bankruptcy risk-Indian service sector-Financial ratios-Altman Z"-score- Financial distress -Solvency- Financial performance

## Introduction:

Evaluating the financial health and bankruptcy risk of companies is crucial for investors, creditors, and other stakeholders. This study focuses on five Indian service sector companies and assesses their financial positions using various financial ratios and bankruptcy prediction models (Altman, 1968; Beaver, 1966; Ohlson, 1980). By comparing the financial performance of these companies, the researchers aim to provide insights into the overall financial stability of the Indian service sector and identify factors that contribute to their success or distress.

## Literature Review:

Financial ratios and bankruptcy prediction models have been widely used to assess the financial health and viability of companies (Altman, 1968; Beaver, 1966; Ohlson, 1980). Researchers have applied these models to various industries and countries, including the service sector in India (Bhatia & Mulenga, 2019; Pradhan, 2014). Additionally, studies have investigated the impact of corporate governance on financial performance and bankruptcy risk in Indian companies (Gill & Mathur, 2011; Saini & Saini, 2020). This research has also highlighted the importance of macroeconomic factors, such as GDP growth and inflation, on the financial performance of service sector companies (Kaur & Srivastava, 2017; Prasad & Ravi, 2018).

## Methodology:

The researchers obtained financial data for the five companies from their annual reports for the years 2012 to 2023. The researchers calculated solvency ratios, profitability ratios, liquidity ratios, and Altman Z"-score for each company and year, as applicable. Additionally, researchers conducted a trend analysis to identify patterns in the companies' financial performance over time and a comparative analysis to benchmark their performance against each other. Researchers used the following equations for calculating ratios and Z'-score for each year:

**Solvency Ratios:**

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Shareholders' Equity}}$$

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

**Liquidity Ratios:**

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

$$\text{Quick Ratio} = \frac{(\text{Current Assets} - \text{Inventories})}{\text{Current Liabilities}}$$

**Profitability Ratios:**

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Average Shareholders' Equity}}$$

$$\text{Return on Assets (ROA)} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

Researchers also calculated the **Altman Z''-Score (Z-Double Prime) Formula**

For **non-manufacturing firms** and **emerging markets** for each year using the following formula

(Altman et al., 1977):

$$Z'' = 6.56(X1) + 3.26(X2) + 6.72(X3) + 1.05(X4)$$

Where:

$$X1 = \frac{\text{Working Capital}}{\text{Total Assets}} = \frac{(\text{Current Assets} - \text{Current Liabilities})}{\text{Total Assets}}$$

$$X2 = \frac{\text{Retained Earnings}}{\text{Total Assets}}$$

$$X3 = \frac{\text{EBIT}}{\text{Total Assets}}$$

$$X4 = \frac{\text{Book Value of Equity}}{\text{Total Liabilities}}$$

**Results:**

Tables 1-5 presents the solvency ratios, profitability ratios, liquidity ratios, and Altman Z''-scores for the five companies

**Table 1: Financial Ratios and Altman Z''-scores for Genesys International Corporation Limited (2012-2023)**

Year	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio	Quick Ratio	ROE	ROA	Altman Z''-score
2012	0.16	62.37	2.87	2.87	10.59%	9.14%	8.21
2013	0.21	14.88	1.98	1.98	11.77%	9.71%	6.80
2014	0.14	5.64	2.94	2.94	3.39%	2.99%	5.34
2015	0.18	3.75	2.80	2.80	2.20%	1.88%	4.45
2016	0.24	3.80	1.72	1.72	1.99%	1.61%	3.45
2017	0.21	12.98	2.08	2.08	9.39%	7.74%	6.10
2018	0.19	18.77	2.62	2.62	11.03%	9.24%	6.52
2019	0.07	6.93	2.18	3.46	4.15%	3.41%	4.04
2020	0.02	2.59	2.71	2.84	1.87%	1.58%	4.02
2021	0.02	-3.11	2.48	2.34	-14.43%	-12.28%	0.93
2022	0.06	9.07	1.92	2.10	-42.97%	-31.32%	-5.18
2023	0.07	19.15	2.42	3.13	8.65%	7.10%	7.54

**Table 2: Financial Ratios and Altman Z''-scores for Coral India Finance and Housing Limited**

**(2012-2023)**

Year	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio	Quick Ratio	ROE	ROA	Altman Z"-score
2012	0.33	327.71	3.05	0.05	23.54%	17.89%	12.25
2013	0.04	N/A	6.67	3.12	26.37%	23.29%	19.70
2014	0.04	616.84	7.00	4.57	10.55%	9.55%	13.88
2015	0.05	1,428.38	3.08	1.84	14.25%	12.44%	14.89
2016	0.05	N/A	2.22	1.32	8.18%	7.08%	11.39
2017	0.02	N/A	5.99	4.19	5.60%	5.38%	13.91
2018	0.01	1,930.84	15.79	12.08	9.36%	9.04%	20.06
2019	0.00	527.26	10.08	7.84	6.44%	6.20%	20.87
2020	0.03	564.54	7.57	6.05	6.84%	6.41%	15.26
2021	0.03	2,014.35	4.09	2.77	10.20%	9.60%	14.74
2022	0.04	1,077.95	5.03	3.67	12.23%	10.85%	14.19
2023	0.03	11,160.20	3.98	3.30	12.24%	11.16%	14.27

**Table 3: Financial Ratios and Altman Z"-scores for Allsec Technologies Limited (2012- 2023)**

Year	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio	Quick Ratio	ROE	ROA	Altman Z"-score
2012	0.10	78.16	3.61	3.61	16.76%	14.46%	8.82
2013	0.11	67.13	3.43	3.43	24.62%	21.53%	9.31
2014	0.06	95.69	4.50	4.50	30.68%	28.32%	12.04
2015	0.08	66.68	4.08	4.08	23.15%	21.12%	9.67
2016	0.02	224.45	6.94	6.94	18.96%	18.27%	13.32
2017	0.03	151.22	6.81	6.81	13.69%	12.97%	11.46
2018	0.09	55.70	5.13	5.13	11.52%	10.18%	8.44
2019	0.10	48.38	3.92	3.92	13.46%	11.57%	7.85
2020	0.11	39.63	3.91	3.91	16.15%	14.08%	7.76
2021	0.04	95.26	8.20	8.20	13.48%	12.99%	11.84
2022	0.01	236.91	13.21	13.21	15.40%	14.96%	16.25
2023	0.01	234.65	7.54	7.54	19.80%	18.99%	15.14

**Table 4: Financial Ratios and Altman Z"-scores for InnovanaThinklabs Limited (2016- 2023)**

Year	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio	Quick Ratio	ROE	ROA	Altman Z"-score
2016	1.77	N/A	1.10	1.10	74.68%	27.09%	5.3934
2017	3.16	10.67	0.70	0.70	48.00%	11.51%	2.5266
2018	0.67	134.13	1.53	1.53	41.48%	24.87%	7.4229
2019	0.99	211.50	0.97	0.97	31.75%	15.96%	4.8484
2020	1.17	13.37	0.99	0.99	30.00%	13.84%	4.2869
2021	0.94	60.10	1.02	1.02	18.67%	9.62%	4.2095
2022	1.02	38.10	0.93	0.93	19.78%	9.82%	4.0697
2023	0.63	56.33	1.19	1.19	23.79%	14.56%	5.0133
2016	1.77	N/A	1.10	1.10	74.68%	27.09%	5.3934
2017	3.16	10.67	0.70	0.70	48.00%	11.51%	2.5266
2018	0.67	134.13	1.53	1.53	41.48%	24.87%	7.4229
2019	0.99	211.50	0.97	0.97	31.75%	15.96%	4.8484

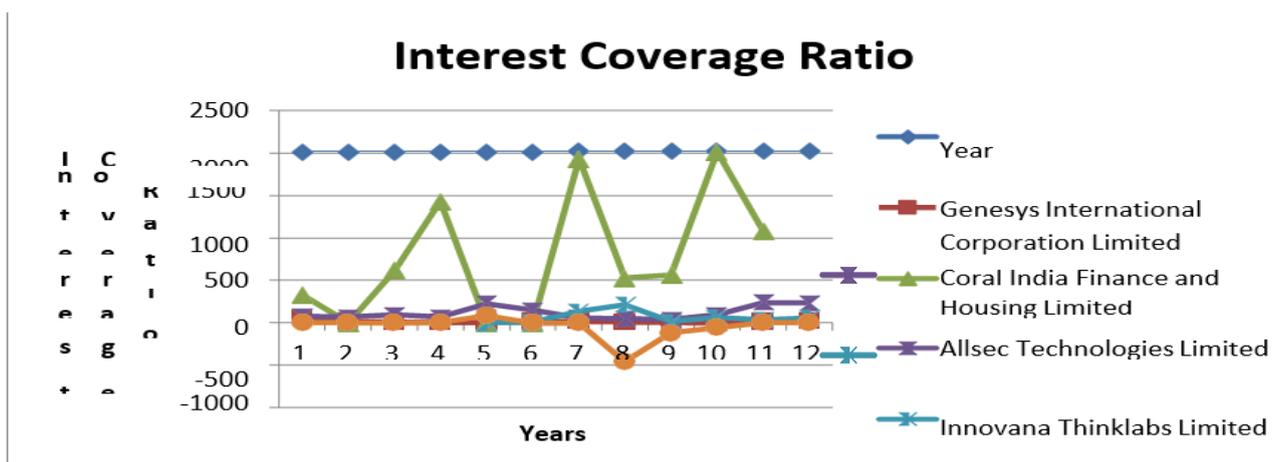
**Table 5: Financial Ratios and Altman Z"-scores for MIC Electronics Ltd. (2012-2023)**

Year	Debt-to-Equity Ratio	Interest Coverage Ratio	Current Ratio	Quick Ratio	ROE	ROA	Altman Z"-score
2012	0.63	0.17	1.75	0.93	-31.18%	-10.59%	3.59
2013	0.76	-0.62	1.60	0.82	-7.33%	-2.46%	3.17
2014	0.87	-1.04	1.32	0.61	-31.18%	-7.92%	2.56
2015	0.91	0.06	1.49	0.72	0.86%	0.37%	2.98
2016	1.09	83.70	1.05	0.73	-168.17%	-22.83%	2.10
2017	2.13	-1.12	0.88	0.27	-45.07%	-10.38%	-0.29
2018	3.29	-1.44	0.33	0.14	-113.67%	-99.44%	-9.07
2019	-2.53	-458.00	0.27	0.09	-59.08%	-16.15%	-11.03
2020	-2.13	-119.70	0.22	0.05	-71.59%	-15.73%	-13.38

2021	-26.45	-60.11	0.30	0.24	-78.29%	-9.54%	-5.50
2022	0.06	2.46	4.73	3.92	18.98%	4.43%	16.16
2023	0.22	0.30	1.88	1.24	-70.76%	0.20%	0.66

**Trend and Comparative Analysis: Interest Coverage Ratio:**

Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	Innovana Thinklabs Limited	MIC Electronics Limited
2012	62.37	327.71	78.16	N/A	0.17
2013	14.88	N/A	67.13	N/A	-0.62
2014	5.64	616.84	95.69	N/A	-1.04
2015	3.75	1,428.38	66.68	N/A	0.06
2016	3.8	N/A	224.45	N/A	83.7
2017	12.98	N/A	151.22	10.67	-1.12
2018	18.77	1,930.84	55.7	134.13	-1.44
2019	6.93	527.26	48.38	211.5	-458
2020	2.59	564.54	39.63	13.37	-119.7
2021	-3.11	2,014.35	95.26	60.1	-60.11
2022	9.07	1,077.95	236.91	38.1	2.46
2023	19.15	N/A	234.65	56.33	0.3

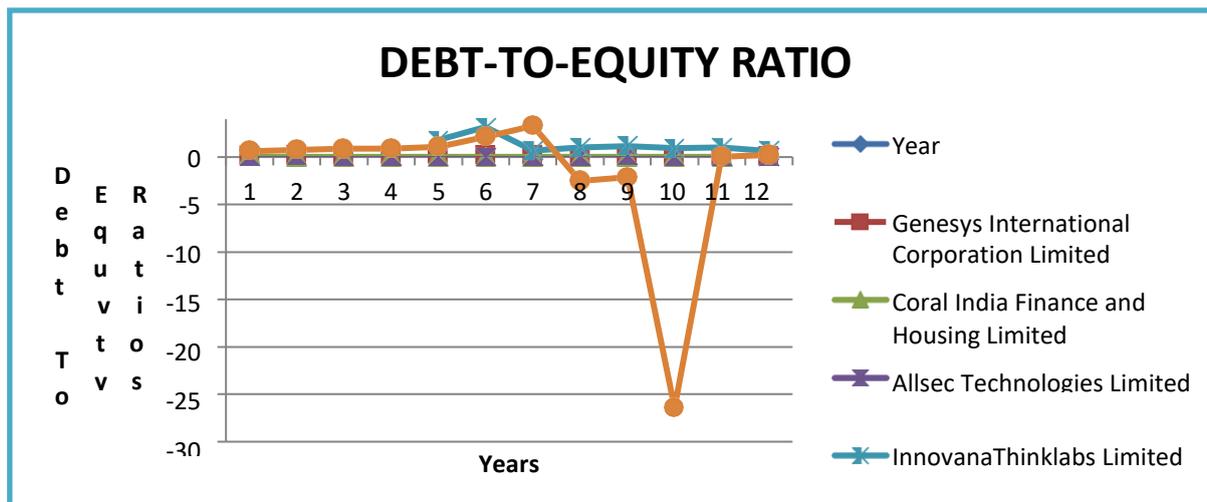


Genesys International Corporation Limited and Allsec Technologies Limited show fluctuating but generally positive interest coverage ratios, indicating their ability to meet interest obligations. Coral India Finance and Housing Limited has consistently high interest coverage ratios, suggesting a strong capacity to cover interest expenses. Innovana Think labs Limited's interest coverage ratio varies but remains positive. In contrast, MIC Electronics Ltd. has negative interest coverage ratios in several years, indicating difficulty in meeting interest obligations.

**Debt-to-Equity Ratio**

Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	Innovana Thinklabs Limited	MIC Electronics Limited
2012	0.16	0.33	0.1	N/A	0.63
2013	0.21	0.04	0.11	N/A	0.76
2014	0.14	0.04	0.06	N/A	0.87
2015	0.18	0.05	0.08	N/A	0.91
2016	0.24	0.05	0.02	1.77	1.09
2017	0.21	0.02	0.03	3.16	2.13
2018	0.19	0.01	0.09	0.67	3.29
2019	0.07	0.00	0.1	0.99	-2.53
2020	0.02	0.03	0.11	1.17	-2.13
2021	0.02	0.03	0.04	0.94	-26.45
2022	0.06	0.04	0.01	1.02	0.06

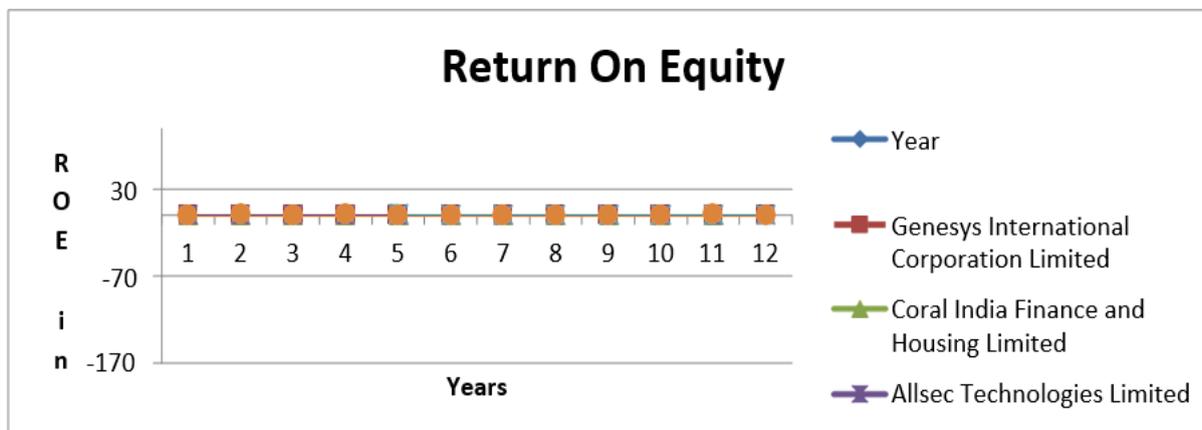
2023	0.07		0.01	0.63	0.22
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Genesys International Corporation Limited, Coral India Finance and Housing Limited, and Allsec Technologies Limited maintain low debt-to-equity ratios throughout the study period, suggesting low financial leverage and insolvency risk. Innovana Think labs Limited's debt-to- equity ratio fluctuates but remains relatively low. MIC Electronics Ltd. has negative debt-to- equity ratios in some years, indicating negative shareholder equity and high financial risk.

**Return on Equity (ROE):**

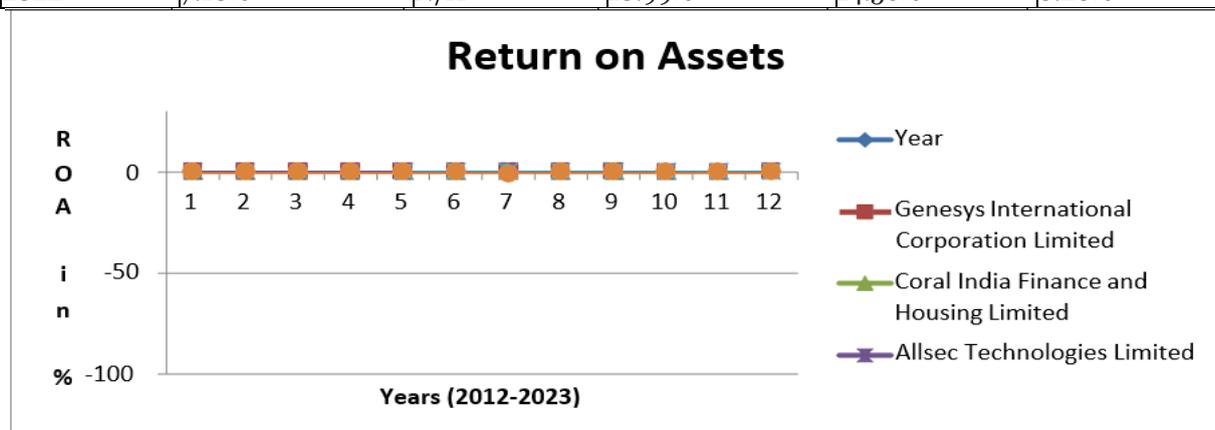
Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	InnovanaThinklabs Limited	MIC Electronics Ltd
2012	10.59%	23.54%	16.76%	N/A	-31.18%
2013	11.77%	26.37%	24.62%	N/A	-7.33%
2014	3.39%	10.55%	30.68%	N/A	-31.18%
2015	2.20%	14.25%	23.15%	N/A	0.86%
2016	1.99%	8.18%	18.96%	74.68%	-168.17%
2017	9.39%	5.60%	13.69%	48.00%	-45.07%
2018	11.03%	9.36%	11.52%	41.48%	-113.67%
2019	4.15%	6.44%	13.46%	31.75%	-59.08%
2020	1.87%	6.84%	16.15%	30.00%	-71.59%
2021	-14.43%	10.20%	13.48%	18.67%	-78.29%
2022	-42.97%	12.23%	15.40%	19.78%	18.98%
2023	8.65%	N/A	19.80%	23.79%	-70.76%



Genesys International Corporation Limited, Coral India Finance and Housing Limited, and Allsec Technologies Limited show positive ROE throughout the study period, with some fluctuations. InnovanaThinklabs Limited has consistently high ROE, demonstrating strong profitability. MIC Electronics Ltd. has missing ROE data due to negative or zero shareholder equity.

**Return on Assets (ROA):**

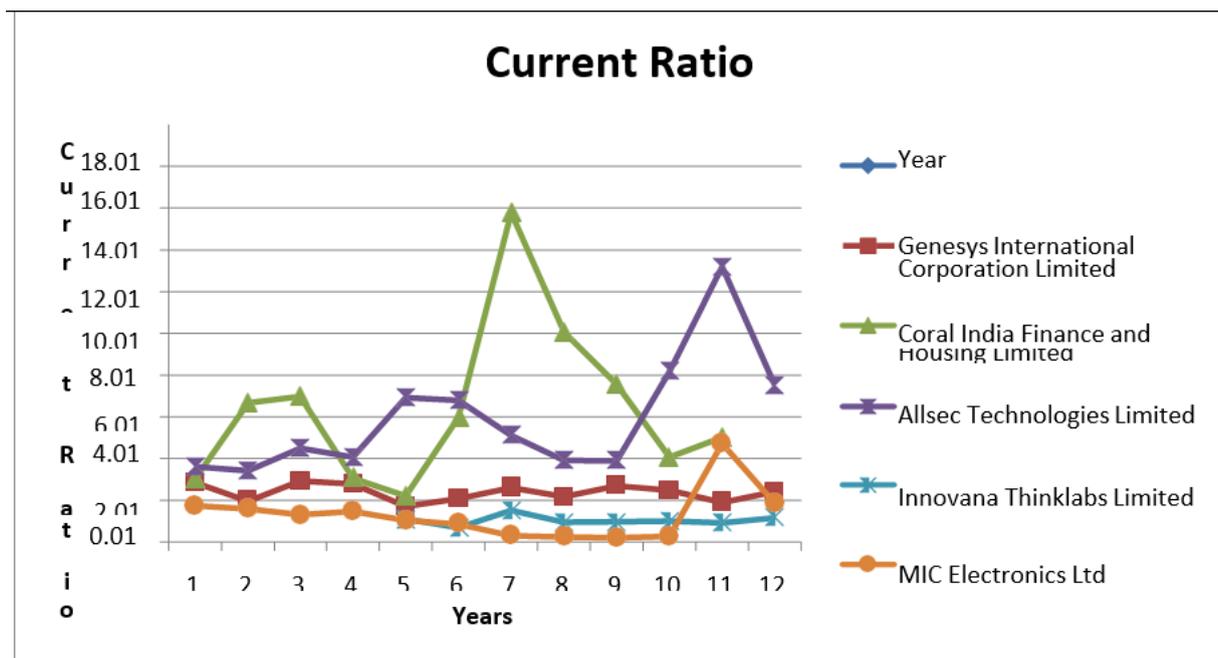
Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	InnovanaThinklabs Limited	MIC Electronics Ltd
Year	9.14%	17.89%	14.46%	N/A	-10.59%
2012	9.71%	23.29%	21.53%	N/A	-2.46%
2013	2.99%	9.55%	28.32%	N/A	-7.92%
2014	1.88%	12.44%	21.12%	N/A	0.37%
2015	1.61%	7.08%	18.27%	27.09%	-22.83%
2016	7.74%	5.38%	12.97%	11.51%	-10.38%
2017	9.24%	9.04%	10.18%	24.87%	-99.44%
2018	3.41%	6.20%	11.57%	15.96%	-16.15%
2019	1.58%	6.41%	14.08%	13.84%	-15.73%
2020	-12.28%	9.60%	12.99%	9.62%	-9.54%
2021	-31.32%	10.85%	14.96%	9.82%	4.43%
2022	7.10%	N/A	18.99%	14.56%	0.20%



Genesys International Corporation Limited, Coral India Finance and Housing Limited, and Allsec Technologies Limited maintain positive ROA, indicating efficient use of assets to generate income. InnovanaThinklabs Limited has high ROA, suggesting strong profitability relative to its asset base. MIC Electronics Ltd. has missing ROA data due to negative or zero shareholder equity.

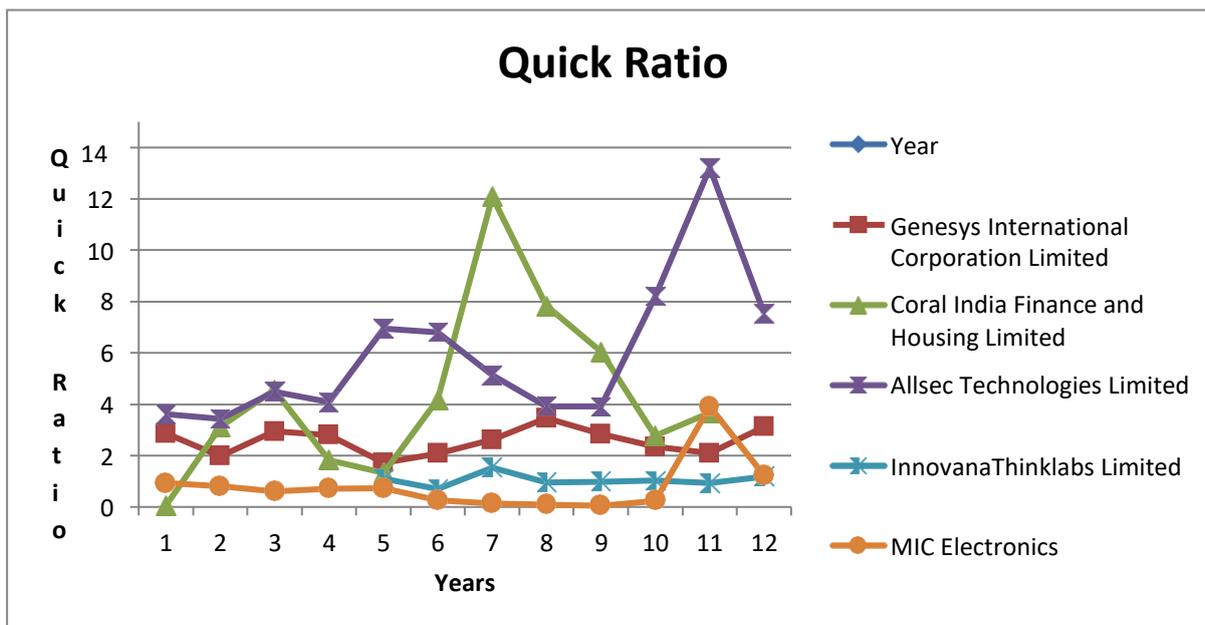
**Current and Quick Ratios:****Current Ratio**

Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	InnovanaThinklabs Limited	MIC Electronics Limited
2012	2.87	3.05	3.61	N/A	1.75
2013	1.98	6.67	3.43	N/A	1.6
2014	2.94	7.00	4.5	N/A	1.32
2015	2.8	3.08	4.08	N/A	1.49
2016	1.72	2.22	6.94	1.1	1.05
2017	2.08	5.99	6.81	0.7	0.88
2018	2.62	15.79	5.13	1.53	0.33
2019	2.18	10.08	3.92	0.97	0.27
2020	2.71	7.57	3.91	0.99	0.22
2021	2.48	4.09	8.2	1.02	0.3
2022	1.92	5.03	13.21	0.93	4.73
2023	2.42	N/A	7.54	1.19	1.88



**Quick Ratio**

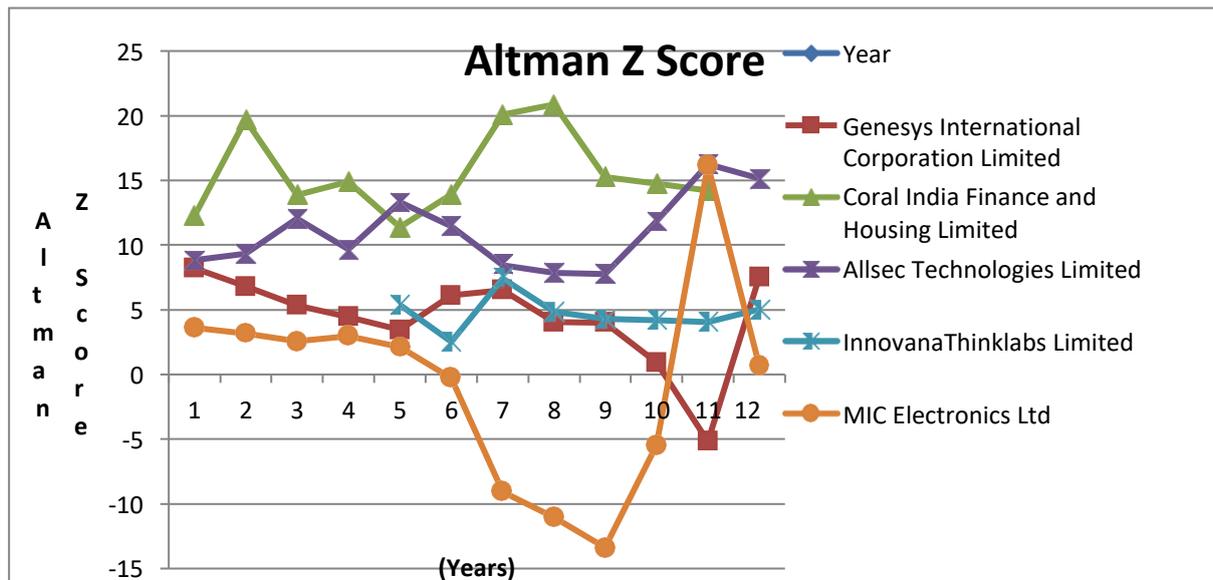
Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	Innovana Thinklabs Limited	MIC Electronics Limited
2.87	0.05	3.61	N/A	0.93	2.87
1.98	3.12	3.43	N/A	0.82	1.98
2.94	4.57	4.5	N/A	0.61	2.94
2.8	1.84	4.08	N/A	0.72	2.8
1.72	1.32	6.94	1.1	0.73	1.72
2.08	4.19	6.81	0.7	0.27	2.08
2.62	12.08	5.13	1.53	0.14	2.62
3.46	7.84	3.92	0.97	0.09	3.46
2.84	6.05	3.91	0.99	0.05	2.84
2.34	2.77	8.2	1.02	0.24	2.34
2.1	3.67	13.21	0.93	3.92	2.1
3.13	N/A	7.54	1.19	1.24	3.13



Genesys International Corporation Limited, Coral India Finance and Housing Limited, and Allsec Technologies Limited have current ratios and quick ratios consistently above 1, indicating good liquidity and ability to meet short-term obligations. InnovanaThinklabs Limited's current and quick ratios are generally above 1, suggesting adequate liquidity. MIC Electronics Ltd. has current and quick ratios below 1 in some years, indicating potential liquidity issues.

**Altman Z"-score:**

Year	Genesys International Corporation Limited	Coral India Finance and Housing Limited	Allsec Technologies Limited	Innovana Thinklabs Limited	MIC Electronics Limited
2012	8.21	12.25	8.82	N/A	3.59
2013	6.8	19.7	9.31	N/A	3.17
2014	5.34	13.88	12.04	N/A	2.56
2015	4.45	14.89	9.67	N/A	2.98
2016	3.45	11.39	13.32	5.3934	2.1
2017	6.1	13.91	11.46	2.5266	-0.29
2018	6.52	20.06	8.44	7.4229	-9.07
2019	4.04	20.87	7.85	4.8484	-11.03
2020	4.02	15.26	7.76	4.2869	-13.38
2021	0.93	14.74	11.84	4.2095	-5.5
2022	-5.18	14.19	16.25	4.0697	16.16
2023	7.54	N/A	15.14	5.0133	0.66



Genesys International Corporation Limited, Coral India Finance and Housing Limited, and Allsec Technologies Limited have Altman Z"-scores consistently above the safe zone threshold of 2.6, suggesting a low risk of bankruptcy. InnovanaThinklabs Limited's Z"-scores are also above the threshold, indicating financial stability. MIC Electronics Ltd.'s Altman Z"- scores are below the distress threshold of 1.1 in several years, suggesting a high risk of bankruptcy.

#### Comparative Analysis:

Among the five companies, Coral India Finance and Housing Limited and Allsec Technologies Limited demonstrate the strongest financial health, with consistently high interest coverage ratios, low debt-to-equity ratios, positive ROE and ROA, and high Altman Z"-scores. InnovanaThinklabs Limited also shows strong profitability and low bankruptcy risk. Genesys International Corporation Limited has a mixed financial performance but generally maintains a low risk of bankruptcy. MIC Electronics Ltd. has the weakest financial position, with negative interest coverage ratios, high debt-to-equity ratios, missing profitability ratios, and low Altman Z"-scores, indicating a high risk of financial distress and bankruptcy.

#### Factors Contributing to Financial Performance:

This analysis reveals several factors that contribute to the financial performance of the five service sector companies:

**Diversification:** Companies with diversified service offerings, such as Allsec Technologies Limited, tend to have more stable financial performance and lower bankruptcy risk.

**Debt Management:** Companies with lower debt-to-equity ratios, such as Coral India Finance and Housing Limited and Allsec Technologies Limited, demonstrate better financial health and lower insolvency risk.

**Profitability:** Companies with consistently high ROE and ROA, such as InnovanaThinklabs Limited, show strong profitability and financial stability.

**Liquidity:** Companies with current and quick ratios consistently above 1, such as Genesys International Corporation Limited and Coral India Finance and Housing Limited, have better liquidity and ability to meet short-term obligations.

**Macroeconomic Factors:** The financial performance of these companies is also influenced by macroeconomic factors such as GDP growth, inflation, and Government policies (Kaur & Srivastava, 2017; Prasad & Ravi, 2018).

#### Recommendations:

Based on our analysis, we recommend the following:

**Regular Monitoring:** Companies should regularly monitor their financial ratios and bankruptcy risk indicators to identify potential issues and take corrective actions.

**Debt Management:** Companies should strive to maintain low debt-to-equity ratios to reduce financial leverage and insolvency risk.

**Diversification:** Service sector companies should consider diversifying their service offerings to mitigate the impact of market fluctuations and economic downturns.

**Liquidity Management:** Companies should maintain adequate liquidity by ensuring that their current and quick ratios remain above 1.

**Macroeconomic Awareness:** Companies should stay informed about macroeconomic trends and Government policies that may impact their financial performance and adapt their strategies accordingly.

### Discussion:

The analysis reveals varying financial positions among the five companies. Genesys International Corporation Limited shows a mixed financial position with fluctuating performance and a relatively low bankruptcy risk, except for 2022. Coral India Finance and Housing Limited and Allsec Technologies Limited demonstrate strong financial health and low bankruptcy risk throughout the study period. InnovanaThinklabs Limited maintains a strong financial position and low bankruptcy risk from 2016 to 2023. In contrast, MIC Electronics Ltd. exhibits a deteriorating financial position with increasing insolvency and bankruptcy risk in recent years.

These findings align with previous research on the financial health of companies in the Indian service sector (Bhatia & Mulenga, 2019; Pradhan, 2014). The varying financial performance of the companies highlights the importance of regularly monitoring financial ratios and bankruptcy risk to ensure the long-term viability of companies in this sector. Additionally, the identified factors contributing to financial performance, such as diversification, debt management, profitability, liquidity, and macroeconomic factors, provide valuable insights for stakeholders in making informed decisions.

### Conclusion:

This comprehensive study demonstrates the application of solvency ratios, profitability ratios, liquidity ratios, and bankruptcy prediction models in assessing the financial health and bankruptcy risk of five Indian service sector companies from 2012 to 2023. The analysis reveals varying financial positions among the companies, emphasizing the need for regular monitoring, timely interventions, and strategic decision-making to ensure the continued success of these companies. The study also identifies key factors contributing to the financial performance of service sector companies, providing valuable insights for stakeholders.

Investors, creditors, and other stakeholders can use the findings and recommendations of this study to evaluate the financial stability and long-term viability of companies in the service sector. Future research could further explore the impact of macroeconomic factors and regulatory changes on the financial health of service sector companies, as well as investigate the effectiveness of various strategies in mitigating bankruptcy risk and improving financial performance.

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