International Journal of Advanced Research and Development
www.multistudiesjournal.com
ISSN: 2455-4030
Received: 09-08-2025, Accepted: 08-09-2025, Published: 23-09-2025
Volume 10, Issue 3, 2025, Page No. 47-51

Analyzing the financial health of selected IT companies in India: A case study using the Altman Z-Score Model

Abhijit Roy[1], Aditya Sarkar[2]
[1] Research Scholar, Department of Commerce, Cooch Behar Panchanan Barma University, West Bengal, India
[2] Research Scholar, Department of Commerce, University of Calcutta, West Bengal, India

Abstract
The Altman Z-Score model is employed to assess the financial health and stability of companies, particularly in the IT sector. In this study, an analysis of the top five companies (TCS, Infosys, HCL Technologies, Wipro, and LTI Mindtree) reveals a consistent demonstration of robust financial performance over time. Through the evaluation of their Altman Z-Scores, it is evident that these companies have maintained secure financial positions, indicating stability and strength. For investors, this signifies a positive outlook, as these firms exhibit sustained financial wellbeing and are regarded as stable entities in the market.

Keywords: Altman z-score, financial health, IT companies, India

Introduction

In the modern era of globalization and rapid technological advancements, the financial health of companies, particularly within the Information Technology (IT) sector, plays a crucial role in shaping the economic background Saini, S. (2020) [9]. Financial analysis has developed as a critical tool for evaluating the performance and stability of businesses Financial Accounting Standards Board (FASB). (2020). Many financial methods are available to assess a company's financial health, including but not limited to ratio analysis, cash flow analysis, trend analysis, and the Altman Z-score. Despite the availability of various financial methods, this research focuses specifically on the Altman Z-score due to its comprehensive and proven efficacy in predicting corporate insolvency and assessing overall financial stability. The IT sector is instrumental in driving economic growth, fostering innovation, and enhancing productivity across various industries. IT companies, with their rapid growth and significant contributions to GDP, employment, and technological progress, serve as a backbone for modern economies OECD. (2019) [16]. Their financial stability and performance are thus of paramount importance. By selecting the Altman Z-score, a well-established model that integrates multiple financial ratios into a single score, this research aims to provide a focused and reliable assessment of financial health in the IT industry.

The decision to analyze IT companies is driven by their critical role in the economy and their unique financial characteristics. Unlike traditional industries, IT companies often have high levels of intangible assets, significant R&D expenditures, and rapidly changing market dynamics Arora, A., & Gambardella, A. (1994) [6]. These factors necessitate a robust and adaptable method for financial evaluation, making the Altman Z-score an ideal choice.

A substantial body of literature directed towards the significance of financial analysis in evaluating the performance and stability of IT companies. In the study of, Chandra and Agarwal (2018) [13] they emphasize the pivotal role of financial metrics in determining the competitiveness and sustainability of IT firms, particularly within the complexities of globalization and technological combination. Similarly, Gupta and Mittal (2019) highlighted the imperative of employing quantitative models such as Altman Z-Score to measure the financial strength and viability of IT sector, thereby enabling informed decision-making by stakeholders and investors.

Hence, the selection of IT companies for this study underscores their importance in economic growth and the need for fixed financial health assessment. By leveraging the Altman Z-score, this research aims to deliver valuable insights into the financial stability of IT companies, contributing to the broader understanding of their impact on the economy.

Literature Review

Jain, A., & Dua, S. (2024): The study analyzes the financial health of the top five NSE-listed private-sector banks in India from 2013-2014 to 2017-2018 using Altman's Z-score model. This model assesses the banks' performance and categorizes their financial stability. The research highlights the evolution of private banking in India, including the historical merger of major banks and the establishment of the Reserve Bank of India.

Cındık, Z., &Armutlulu, I. H. (2021) [2]: This paper introduces four models to predict financial distress, including Altman Z Score and Random Forest, with a focus on Turkish companies, demonstrating Random Forest's superior performance at 95% accuracy, particularly for publicly traded firms.

Karpagalakshmi, S. (2018) [5]: This paper analyzes the financial health of firms in the Indian steel industry using Altman's Z-Score. It focuses on key financial metrics such as liquidity, profitability, sustainability, and feasibility. The study aims to evaluate and predict the financial strength of these firms.

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., &Suvas, A. (2017): This paper evaluates the Z-Score model's effectiveness in predicting bankruptcy and firm distress across 31 European and three non-European countries, highlighting its utility for international banks. Results indicate the model performs well globally (accuracy ~75%) and can be enhanced (>90%) with country-specific adjustments, showcasing its potential for robust risk assessment.

Boďa, M., &Úradníček, V. (2016) [4]: A study on Altman's Z-score model's applicability in Slovak corporate practice found it effective in predicting financial distress, suggesting it as a viable tool. Altman's original and revised Z-score formulations are recommended for accurate classification, with re-estimating coefficients for focused analysis on distressed enterprises.

Almamy, J., Aston, J., &Ngwa, L. N. (2016) [7]: This paper extends Altman's Z-score model by incorporating cash flow, enhancing prediction accuracy of UK companies' health to 82.9% and outperforming during financial crises, offering a valuable tool for risk management by researchers, managers, and regulators.

Lubawa, G., &Louangrath, P. (2016) [8]: This study investigates the validity of the Altman Zscore model in predicting financial failure among insurance companies listed on the Amman Stock Exchange from 2011 to 2016. Results indicate a high predictive power for the Z-score model, suggesting its usefulness for financial decision-making by various stakeholders.

Celli, M. (2015) [10]: A study tested the Altman Z-score model on Italian industrial companies, finding it effectively predicts bankruptcy, albeit with slightly lower reliability compared to Anglo-Saxon contexts, suggesting its applicability to Italy with considerations for critical points identified.

Thai, S. B., Goh, H. H., HengTeh, B., Wong, J., & San Ong, T. (2014) [11]: A study in Malaysia utilized Discriminant Analysis on 30 companies, revealing working capital to total assets as the primary discriminator between financially distressed and non-distressed firms, achieving a 76.7% accuracy rate in predicting financial distress.

Altman, E. I., Danovi, A., &Falini, A. (2013): This study examines the application of the ZScore model to Italian companies in Extraordinary Administration between 2000 and 2010, crucial for identifying firms in need of financial support amid Italy's influence on the fate of the Euro.

Anjum, S. (2012) [15]: This paper reviews global literature on Altman Z-Score bankruptcy prediction model efficacy, highlighting varied performance. Its international analysis suggests general effectiveness, but emphasizes the potential for improved accuracy with country-specific models incorporating additional variables.

Rama, K. D., & Swartz, G. (2012) [14]: The study evaluates the effectiveness of Altman's 1968 failure prediction model on 227 South African JSE listed companies, finding it reliable for firms with positive Z-scores but less so for those with negative scores or falling within a specific uncertainty range. Early detection of company failure using such models could enable proactive management strategies to mitigate financial risks.

Objectives of the study

The objective of the present study is to evaluate the Financial Health of selected Top five IT companies (As per market capitalization) through Altman Z score model.

Research Methodology

Sample Size

This study includes the top five IT companies by market capitalization in the IT sector in the year 2024. The researcher has selected TCS, Infosys, HCL Technologies, Wipro, and LTI Mind tree as a sample.

Data Source and Type

The study is supported by quantitative data that was gathered from the website: Money Control (*https://www.moneycontrol.com/).*From this website the researcher collected all the financial data of selected IT companies.

Model used

The sample has been analyses by Altman Z Score. Which was developed by Edward I. Altman in the late 1960s. It is a predictive tool used to assess the financial health and bankruptcy risk of a company. The Z score is calculated by using this formula

Z = 1.2A+1.4B+3.3C+0.6D+1.0E Where

A = represents the Working Capital to Total Assets Ratio.
B= represents the Retained Earnings to Total Assets Ratio.
C= represents the Earnings Before Interest and Taxes (EBIT) to Total Assets Ratio.
D= represents the Market Value of Equity to Book Value Of Total Liabilities Ratio. E= represents the Sales to Total Assets Ratio.

Data Analysis & Interpretation

Evaluating a company's financial health is essential for determining its stability, performance, and potential risks. One of the most widely used and reliable tools for this purpose is the Altman Z-Score Model, which integrates several financial ratios into a single score to evaluate the likelihood of bankruptcy. Based on the Z-Score value, companies are classified into three categories. A score above 2.60 places a company in the *Safe Zone*, indicating strong financial health, low risk of distress, and generally sound liquidity, profitability, and operational efficiency. Scores between 1.10 and 2.60 fall into the *Grey Zone*, where the company is in a moderate financial position, not facing immediate danger but requiring improvement in certain areas to ensure long-term stability. A score below 1.10 indicates the *Distress Zone*, reflecting a high risk of bankruptcy and the urgent need for corrective measures. This classification provides valuable insights for investors, creditors, and management by highlighting a company's overall financial condition and helping identify early warning signs for timely intervention.

Table 1: Guideline for the measurement of Financial Health

Z Score	Zone	Interpretation
Above 2.60	"Safe" Zone	The company is in a safe financial position.
Between1.10-2.60	"Grey Zone"	The company is in a risky position and may face financial difficulties.
Below 1.10	"Distress Zone"	The company is likely to go bankrupt.

Source: Anjum, S. (2012) [15]

From the above table, it becomes easier to understand how the Z-Score values translate into specific financial health categories, helping stakeholders quickly assess the level of risk associated with a company.

Based on the above guidelines for measuring financial health, the Altman Z-Score values of the selected IT companies are calculated and analyzed for a period of ten years. The following tables present the year-wise Z-Scores for each company along with their respective financial health classification, enabling a clear understanding of their stability, performance trends, and potential risks.

Table 1: Z-Score of Tata Consultancy Services

Year	A (Working Capital / Total Assets)	B (Retained Earnings / Total Assets)	C (EBIT / Total Assets)	D (Market Value of Equity / Book Value of Liabilities)	E (Sales / Total Assets)	Z-Score	Zone
Mar23	0.44614319	0.618992381	0.431371894	1.645830113	1.588573527	5.4015600	SAFE
Mar22	0.4642059	0.6333919	0.4100426	1.7503516	1.3222582	5.1694056	SAFE
Mar21	0.499493	0.680411	0.385076	2.162489	1.243022	5.363232	SAFE
Mar20	0.5255347	0.7048631	0.4000095	2.429771	1.2508312	5.646175	SAFE
Mar19	0.6043819	0.7891759	0.4090955	3.8296282	1.2378894	6.715786	SAFE
Mar18	0.5948427	0.831082	0.3506743	5.0547005	1.0691882	7.1365598	SAFE
Mar17	0.6432964	0.8670536	0.3349674	6.7633495	1.032699	8.1819318	SAFE
Mar16	0.543395	0.837232	0.378974	5.28948	1.10911	7.35761	SAFE

Source: Author's own calculation

From the above table 1, it is found that TCS has maintained a consistently healthy financial position over the years. This suggests that the company has been managing its finances well and is less likely to face bankruptcy. Despite potential fluctuations in financial performance over the years, TCS has remained in the safe zone according to this model. It indicates that the company has maintained stability in financial operations.

Table 2: Z-Score of Infosys

Year	A (Working Capital / Total Assets)	B (Retained Earnings / Total Assets)	C (EBIT / Total Assets)	D (Market Value of Equity / Book Value of Liabilities)	E (Sales / Total Assets)	Z-Score	Zone
Mar-23	0.2431491	0.63938147	0.31225515	2.0167004	1.22377809	4.6511533	SAFE
Mar-22	0.2763037	0.6700776	0.2867075	2.3039793	1.0458108	4.6440063	SAFE
Mar-21	0.326382	0.7348279	0.2605627	3.1922081	0.9145509	5.1101502	SAFE
Mar-20	0.352907787	0.737996816	0.252674572	3.309087042	0.97539517	5.2513584	SAFE
Mar-19	0.3901305	0.76692006	0.25246421	3.86651458	0.92622577	5.6211111	SAFE
Mar-18	0.42737588	0.82251539	0.262372	5.13147475	0.81633433	6.4254194	SAFE
Mar-17	0.44934593	0.83706578	0.23706578	5.73112572	0.74217938	6.6742791	SAFE
Mar-16	0.4744679	0.8240389	0.2419843	5.2430901	0.742218	6.4096362	SAFE
Mar-15	0.46975555	0.7683497	0.26508987	3.49712623	0.7652112	5.3776798	SAFE
Mar-14	0.549799	0.793102	0.265632	3.963465	0.841194	5.86596	SAFE

Source: Author's own calculation

Infosys has consistently maintained a safe financial position over the period of time. The Z-Score ranges from approximately 4.65 to 6.67 over the years, it indicates that the company has maintained stable financial position and a lower likelihood of bankruptcy. This means that Infosys has managed its finances well, has the ability to withstand economic challenges.

Table 3: Z-Score of HCL Tech

Year	A (Working Capital / Total Assets)	B (Retained Earnings / Total Assets)	C (EBIT / Total Assets)	D (Market Value of Equity / Book Value of Liabilities)	E (Sales / Total Assets)	Z-Score	Financial Health
Mar-23	0.3355322	0.7601387	0.2757871	3.3925388	0.8672414	5.2796949	SAFE
Mar-22	0.3340130	0.7870770	0.2483570	3.9545960	0.7606840	5.4557440	SAFE
Mar-21	0.3196290	0.7769010	0.2241650	3.6884320	0.6443710	5.0683900	SAFE
Mar-20	0.1791834	0.6867794	0.2088573	2.2295252	0.6092871	3.8547427	SAFE
Mar-19	0.3291328	0.8054250	0.2651378	4.3378937	0.6944682	5.6947135	SAFE
Mar-18	0.3271165	0.8314035	0.2780486	5.2450999	0.6725882	6.2944333	SAFE
Mar-17	0.3769114	0.7935498	0.2556609	4.0595499	0.5967687	5.4394431	SAFE
Mar-16	0.4937250	0.7978960	0.2174490	4.2221000	0.5052890	5.4656560	SAFE
Mar-15	0.4484800	0.7676890	0.3089910	3.5223520	0.6884770	5.4343460	SAFE
Mar-14	0.3971400	0.7153800	0.3391200	2.6103500	0.7562600	4.9196500	SAFE

Source: Author's own calculation

HCL Technologies has generally maintained a safe financial position over the period of time. The Z-Score ranges from around 3.85 to 6.29 over the years, indicating overall financial stability and a lower likelihood of facing bankruptcy. There was a slight dip in the Z-Score in March 2020, which might indicate some financial stress during that time. But overall, the company maintained a strong financial position being comfortably above the threshold.

Table 4: Z-Score of Wipro

Year	A (Working Capital / Total Assets)	B (Retained Earnings / Total Assets)	C (EBIT / Total Assets)	D (Market Value of Equity / Book Value of Liabilities)	E (Sales / Total Assets)	Z-Score	Financial Health
Mar-14	0.38675	0.63106	0.21008	2.27975	0.84739	4.25607	SAFE
Mar-15	0.421098	0.639899	0.197665	2.505816	0.771596	4.327295	SAFE
Mar-16	0.509944	0.691246	0.179792	3.393146	0.758267	4.967144	SAFE
Mar-17	0.523894	0.731803	0.1692151	4.0836242	0.7291071	5.2460856	SAFE
Mar-18	0.4760658	0.7049068	0.1710257	3.5934529	0.7602421	5.0406472	SAFE
Mar-19	0.4714432	0.7192025	0.1743251	3.934949	0.718286	5.1377111	SAFE
Mar-20	0.4481873	0.6938211	0.1685547	3.353864	0.7118539	4.8495758	SAFE
Mar-21	0.414491	0.671559	0.192965	3.076927	0.765169	4.685682	SAFE
Mar-22	0.355779	0.662509	0.189984	2.960487	0.741134	4.498523	SAFE
Mar-23	0.4118625	0.7162492	0.1438195	3.6143821	0.7942247	4.9344423	SAFE

Source: Author's own calculation

From the above table 4, we interpret that Wipro has consistently maintained a safe financial position. The Z-Score ranges from approximately 4.26 to 5.43 over the years, indicating financial stability. Even though there might be some fluctuations in the Z-Score from year to year, overall, Wipro appears to be in a healthy financial state.

Table 5: Z-Score of LTI Mindtree

Year	A (Working Capital/Total Assets)	B (Retained Earnings/Total Assets)	C (EBIT / Total Assets)	D (Market Value of Equity / Book Value of Liabilities)	E (Sales / Total Assets)	Z-Score	Financial Health
Mar23	0.5079089	0.6895991	0.2488444	2.4779067	1.4239261	5.306786	SAFE
Mar22	0.488871	0.711517	0.257227	2.546025	1.230969	5.190201	SAFE
Mar21	0.526566	0.685268	0.239515	2.278465	1.157942	4.906676	SAFE
Mar20	0.4691645	0.6138372	0.2413217	1.6933191	1.2245482	4.4592706	SAFE
Mar19	0.5395722	0.7541997	0.3147304	3.1151279	1.4305078	6.0415609	SAFE
Mar18	0.5343258	0.7327183	0.2906802	2.7896474	1.3671708	5.6672004	SAFE
Mar17	0.4432101	0.7025564	0.281089	2.4084951	1.4676114	5.3557335	SAFE
Mar16	0.31404	0.570189	0.356133	1.411269	1.720033	4.917147	SAFE
Mar15	0.349396	0.656834	0.324242	2.475571	1.632134	5.526319	SAFE
Mar-14	0.2738	0.57957	0.3536	1.53485	1.85327	5.08101	SAFE

Source: Author's own calculation

From the above table 5, it is found that LTI Mindtree has consistently maintained a safe financial position. The Z-Score ranges from around 4.46 to 6.04 over the years. Even though there were some ups and downs in the Z-Score from year to year but overall, they maintained healthy financial state.

Conclusion

From the above data, researchers conclude that the selected top five companies in the IT sector— TCS, Infosys, HCL Technologies, Wipro, and LTI Mindtree—have consistently demonstrated strong financial health over the years. Analyzing their Altman Z-Scores reveals that these companies have maintained safe financial positions, indicative of their stability and resilience in the market. This is particularly reassuring for investors, as the Z-Score is a reliable metric for predicting the likelihood of bankruptcy; scores above the threshold signify a low risk of financial distress. Consequently, the ability of these companies to sustain high Z-Scores over time underscores their operational efficiency, effective management, and strong market presence. In simpler terms, these IT giants are performing well financially, making them attractive and dependable options for investors seeking stable and secure investments in the Technology sector. This consistent financial stability not only reflects their current success but also suggests a positive outlook for their future performance.

Limitations of the Study

This study limited to five Indian IT companies, and therefore might not provide a comprehensive view of entire IT sector or companies outside India. It uses only the Altman Z-Score method, which was developed primarily for manufacturing companies, and its direct applicability to IT companies may have limitations. The study relies solely on data from Money-Control and does not incorporate qualitative factors such as management quality or external market changes, which can also influence a company's financial health.

References

1. Altman EI. Financial ratios, discriminant analysis the prediction of corporate bankruptcy. The journal of finance,1968:23(4):589-609.
2. Cındık Z, Armutlulu IH. A revision of Altman Z-Score model a comparative analysis of Turkish company's financial distress prediction. National Accounting Review,2021:3(2):237-255.
3. Altman EI, Iwanicz-Drozdowska M, Laitinen EK, Suvas A. Financial distress prediction in an international context: A review empirical analysis of Altman's Z-score model. Journal of international financial management accounting,2017:28(2):131-171.
4. Boďa M, Úradníček V. The portability of Altman's Z-score model to predicting corporate financial distress of

Slovak companies. Technological Economic Development of Economy,2016:22(4):532-553.
5. Karpagalakshmi S. Analysis of Financial Strength of Select Firms from Indian Steel Industry Using Altman's "Z" Score Analysis, International Journal of Research Culture Society,2018:2(11):38-41.
6. Arora A, Gambardella A. Evaluating technological information utilizing it. The Journal of Economic Perspectives,1994:8(2):157-181.
7. Almamy J, Aston J, Ngwa LN. An evaluation of Altman's Z-score using cash flow ratio to predict corporate failure amid the recent financial crisis: Evidence from the UK. Journal of Corporate Finance,2016:36:278-285.
8. Lubawa G, Louangrath P. Using Altman z-score to assess the financial effects of multiple loans on SMEs. International Journal of Research Methodology in Social Science,2016:2(1):63-86.
9. Saini S. Evaluating financial health of IT companies using financial ratios: A study of listed firms. International Journal of Financial Management,2020:20(3):112-125.
10. Celli M. Can Z-score model predict listed companies' failures in Italy? An empirical test. International Journal of Business Management,2015:10(3):57.
11. Thai SB, Goh HH, HengTeh B, Wong J, San Ong T. A revisited of Altman z-score model for companies listed in Bursa Malaysia. International Journal of Business Social Science, 2014, 5(12).
12. Altman EI, Danovi A, Falini A. Z-Score Models' application to Italian company's subject to extraordinary administration. Journal of Applied Finance. Formerly Financial Practice Education, 2013, 23(1).
13. Chandra A, Agarwal A. Impact of globalisation technological convergence on economic growth. Journal of Economic Studies,2018:45(2):218-235.
14. Rama KD, Swartz G. An empirical evaluation of the Altman (1968) failure prediction model on South African JSE listed companies (Doctoral dissertation, University of the Witwatersrand, Faculty of Commerce, Law Management, School of Accountancy, 2012, 01-45.
15. Anjum S. Business bankruptcy prediction models: A significant study of the Altman's Zscore model. Asian Journal of Management Research,2012:3(1):212-219.
16. OECD. Economic Outlook for Southeast Asia, China India 2020: Rethinking Education for Better Skills Better Jobs. OECD Publishing, Paris, 2019, 01-45.
17. https://www.moneycontrol.com.
18. https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176168364257&acce ptedDisclaimer=true