Predicting Corporate Failure of ITI Ltd. by Applying Altman's Z-Score Model

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Abstract

To promote the Telecom Industry in India, the Government had established a PSU, Indian Telephones Industries Limited (ITI Ltd.) in the year 1950. It aimed at accommodating the nation's demand for defense and communication devices for almost 50 years. However, the major developments including the New Economic Policy in 1991 increased competition, which significantly impacted the profitability level of ITI Ltd. It was filed under Sick Industrial Companies Act (SICA) in 2003 and reported losses for 14 years.

The impact of the Great Depression on firms compelled Professor Edward Altman to propose a bankruptcy prediction model, i.e.: Altman's Z-Score Model, which provided financial implications. Thus, through a case study approach, this study aimed to understand if ITI Ltd. had used an effective tool like Altman Z-Score Model, would it implicateon the financial health beforehand. Profitability ratio analysis and the model were used for the purpose. The Z-Scores using financial data for 22 years revealed that ITI Ltd. was at the Grey Zone prior to insolvency. The findings proved that application of financial models would play a major role in predicting bankruptcy. It will facilitate in reviewing the effectiveness of existing strategies, with a view to eventually meet stakeholders' interests.

1. Introduction

The Indian Telecom industry is the second largest across the globe in terms of number of subscribers. Factors contributing to the industry's success include- reasonable tariffs, wider usage, favorable regulatory domain, and so on. The industry is expected to grow and cross Rs.6.6 trillion revenue target by the year 2020 (KPMG, 2017).

Indian Telephones Industries Limited (ITI Ltd.) was established in 1950 as a PSU under the GO linitiative cater to the growing demand of telecom requirements in defense, communication and also to develop the telecom infrastructure for the country.

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In spite of its profitable existence for 50 years, ITI Ltd. experienced decline in its performance. The New Economic Policy, in 1991, majorly impacted its performance as it opened up market for both private and MNC players (Satya Nandini & Zachariah, 2015). New and competitive prices and products augmented industry rivalry, which subsequently deteriorated the financial position of the firm. In 2003, ITI Ltd. turned sick under SICA (Economic Times, n.d.).

2. Rise and Fall of ITI Ltd.

ITI Ltd. entered the telecommunication industry as a private limited company in 1950. Later in 1985, it was converted into a public limited company. It manufactured and supplied varied products like telephone gadgets, electromechanical exchanges and so on.

The firm collaborated with companies in France, US and Singapore, to strengthen its operations and performed well with innovative products for 50 years. Events in the 1990s, such as the launch of the New Economic Policy, issuance of cellular mobile licenses, Telecom Regulatory Authority of India (TRAI) Act (1997) and National Telecom Policy in 1999 (Baruah & Baruah, 2014) encouraged private players to enter the market. Figure 1 below illustrates impact of policy amendments in the industry. The telecom industry abruptly grew from the year 2001, due to increase in cellular devices and subscribers.

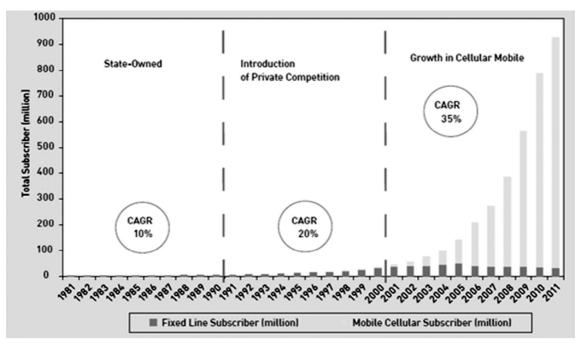


Figure 1: The Impact of Policy Amendments in the Industry

Source: http://www.trai.gov.in/sites/default/files/NCAER-Report08june12.pdf

Amidst the lurching changes in the industry, ITI Ltd. attempted to apply a turnaround strategy through a joint venture. However, it was effective only for a year and thereafter the company continued incurring losses. Besides the joint venture strategy, it had planned to introduce innovative products, sought to improve financial situation, utilized downsizing strategies and so on. As most of these were merely proposals while competition intensified, all the endeavors of the firm proved ineffectual and pushed the company towards financial turmoil, (Panicker, 2013).

3. Problem Statement

Industrial Sickness is a global issue. It occurs due to inadequate support from internal resources to run the organization. It leads to socio-economic problems and influences the stakeholders of the company. Causes of such an event include incompetent plans and marketing efforts, government intervention and policies and other factors that intimidate the profitability of an organization.

In this context, a PSU, ITI Ltd. strived to sustain in the market when the Government introduced the New Economic Policy which encouraged Alcatel, Fujitsu, Siemens and so on to participate. Later, in the same decade, New Telecom Policy was introduced, licenses for cellular mobiles were issued, TRAI Act in 1997 and National Telecom Policy in 1999 (Baruah & Baruah, 2014). All these events significantly impacted the financial health of ITI Ltd. However, the firm could have prevented industrial sickness with the help of financial tools. Hence, this study attempts to investigate if effective financial tools were employed during the turbulent period, could there have been any indication of vulnerability to its survival in the market. This would have helped ITI Ltd. to address the issue and ensure long-term sustainability.

4. Need for the Study and Objectives

Prior researches on sick units belonging to varied industries and sectors including PSUs, have emphasized the importance of using financial models in predicting bankruptcy. These models were empirically tested and proven to provide indication of sickness beforehand. Moreover, these models facilitate in decision-making if applied alongside conventional ratios (Bal, 2015),ease turnaround management, (Vikash, 2018), assist investors in decision-making (Altman, 1968) as it provides a preview of the financial condition(Panicker, 2013) and serves to meet interests of all stakeholders, (Mohammed, 2016). Therefore, the study is an ex-post analysis which aims to understand if ITI Ltd. had used an effective tool such as Altman Z-Score Model, would the results have indicated the firm about its financial distress.

Previous studies on ITI Ltd. have theoretically analyzed the financial situation or have used the Altman's Z-Score Model for a small sample size (i.e. financial data) but have not compared the scores alongside conventional ratios to implicate the essence of the Model. Hence, in order to thoroughly comprehend the financial situation, the study aimed to consider the development of ITI Ltd., it's fall and the reasons for the failure. Then, the financial status of ITI Ltd. was evaluated for 22 years using Altman's Z-Score Model and 5 years for Profitability ratio analysis. The Z-Score results

were compared with the conventional ratios to draw inference on the financial health of the firm. The findings may be useful in evaluating the efficacy of prevailing strategies and models with an aim to cater to the needs of the stakeholders.

5. Literature Review

Saini (2018), conducted a study on"**Evaluating Financial Health of Gujarat State Fertilizers through 'Z' Score Model**."The study examined the financial condition of Chambal Fertilizers and Chemicals Ltd. for 10 years (2007-08 to 2016-2017). Findings revealed that the model provided valuable analysis for fertilizers in India. The Z-Score values were higher than the Safe Zone benchmark in 2008-09, but in the subsequent year, it scored less than 2.90, implying the need to take immediate measures.

Murthy et al (2018) authored a study titled "Financial Strength Analysis of Unitech Company Using Altman's Z-Score Model." Financial data for 10 years (2008-2017) were used. The findings revealed that Z-Score Model can be utilized on Unitech Limited to predict the likelihood of bankruptcy in manufacturing firms. The Z-Score value in 2008, secured Safe Zone. However, it entered the Grey Zone from 2010. Therefore, to increase Z-Scores, the firm was suggested to devise plans to maximize Sales and Operating Income and maintain adequate working capital.

AlAli (2018), applied the Z-Score Model in a study titled"**The Application of Altman's Z-Score Model in Determining the Financial Soundness of Healthcare Companies Listed in Kuwait Stock Exchange.**" The study attempted to scrutinize the financial strength of two healthcare companies for 4 years (2012-13 to 2015-16). Financial data were procured from Kuwait Stock Exchange website. The findings revealed that both Yiaco Company and Advanced Technology Company were positioned in the Grey Zone. The study further suggested that the former company should concentrate more on earnings rather than on increasing assets. Whereas, the latter, was suggested to be cautious about increasing liabilities.

A study conducted by Aditya (2016), titled "**An Appraisal of Financial Solvency of ONGC a Z-Score Model**" for five years (2010-2015) revealed that the Z-Score values were fluctuating drastically above the benchmark indicating good financial health but due to fluctuations the firm may become bankrupt if indicators are overlooked. It was highlighted and concluded that Working Capital, Retained Earnings and EBIT need proper attention to avoid sickness.

Anurag Singh Thakur, Chairperson of Standing Committee on Information Technology(2015), presented the Ninth Report on the subject "**Revival of Indian Telephone Industries (ITI) Limited.**" The report briefed about ITI Ltd. background and its contributions over the years. It detailed on the major challenges that impacted the health of ITI Ltd., which included rapid technology transformation, huge borrowings from Banks/Institutions in order to expand, and so on.

The evolution and growth of the sector over the years were the aspects covered by Baruah et al, (2014) in a study titled "**Telecom Sector in India: Past, Present and Future**". It sourced information

from TRAI, Gol reports and so on. It was concluded that the industry has largely contributed to the nation's socio-economic position. The sector is continuing to grow in terms of telecom infrastructure and customers.

A study titled "**Fading of the Buzz at ITI**" conducted by Panicker (2013), used Altman's Z-Score Model for 10 years (2000-2009). The reasons for sickness at ITI Ltd. were identified as lack of working capital, technology, intense competition and so on. In order to overcome these problems, ITI Ltd. took measures, but were ineffective. Panicker suggested that the firm should primarily focus on cost reduction, upgrade technology, educate staff members, and so on.

Kumar et al (2012) authored a paper titled"A Comparison of Bankruptcy Models "for Texmo Industries. There were three models which were empirically compared in order to predict the financial distress of the firm. They included: Z-Score model, O-Score model and Zmijewski's model. The study narrated some of the merits and demerits of each model and tested for the best model for predicting bankruptcy at Texmo Industries. It was found that O-Score model was the most effective due to stronger positive correlation between O-Score model and conventional analysis (i.e.:0.95). However, the 9 variables of the model were derived without any theoretical justification.

Altman (1968), in a study titled"**Financial Ratios, Discriminant Analysis and The Prediction of Corporate Bankruptcy,**"aimed to evaluate the analytical quality of ratio analysis. The findings revealed that the conventional ratio analysis has become an insignificant analytical tool for academicians, due to the relatively inexperienced manner in which it has been displayed. Thus, to assess its ability meticulously, a cluster of financial ratios was merged in a discriminant analysis method to the issue of corporate bankruptcy prediction model. The discriminant ratio model, confirmed to be exceptionally accurate in forecasting bankruptcy, precisely categorizing 95 percent of the total sample (66 firms) into bankrupt and non-bankrupt firms allocated to their definite group taxonomy.

5.1. Importance of Altman's Z-Score Model

The Model has been lauded by various researchers for its versatile characteristics. It is widely accepted in the fields of credit risk assessment and turnaround management, (Saini, 2018). It aims to facilitate in decision-making for stakeholders (Mohammed, 2016), if utilized alongside traditional ratios, (Bal, 2015). The Z-Score Model was an extension of Beaver's Model; it was derived through Multiple Discriminant Analysis (MDA) therefore was considered more reliable and facilitated better understanding of the interaction between parameters. Beaver's Model was derived through a univariate analysis, which overlooked the interaction, (Gerristsen, 2015). Furthermore, Z-Score's discriminant nature is able to provide a glimpse of the performance of the organization (Panicker, 2013). Altman's Model is preferred to Ohlson's Model because of its convenience and is supported with a theoretical framework, (Kumar & Kumar, 2012). Moreover, this technique is useful in selecting a proficient stock portfolio, (Altman, 1968).

Evidently, this model plays a crucial role in determining sickness beforehand. Therefore, keeping in

view the critical situation of ITI Ltd. and considering the abilities of the Altman's Z-Score Model, the present study aimed at understanding if ITI Ltd. had used the Model, would there be any indication that the firm is approaching sickness, and prevent it on time. The study analyzed performance of the firm for 22 years (i.e. 1995-2016) and links the Z-Score results with Profitability Ratios results.

6. Objectives

- 1. To consider the growth of ITI Ltd., its fall and the reasons for its failure.
- 2. To evaluate the financial status of ITI using Profitability Ratio analysis and Altman's Z-Score Model, for a specific period, to identify an indication of sickness, if any, in advance.
- 3. To combine the outcome of the tools used and draw inferences on the financial health of ITI Ltd.

7. Research Methodology

Research Design and Methodology used: It is an analytical study which attempts to use financial tools like Profitability ratio analysis and Altman's Z-Score model to assess the financial health and predict if the company would have become bankrupt. Financial analysis was limited to 22 years (1995-2016). Secondary data were sourced from the company website, Moneycontrol.com, news articles, and research articles. Case study method was adopted to identify the reasons for sickness and to determine if it could have been averted promptly with the use appropriate tools and measures.

8. Data Analysis

The study attempted to findout if ITI Ltd. had used Z-Score model during the economic transitions, would it be able to identify the impact on its financial condition. Therefore, along with the computation of Z-Score Model, the conventional Profitability ratios have been computed to portray the relationship between the two. Moreover, traditional ratios or variables computed independently, do not demonstrate the actual financial position, hence Altman's Z-Score Model was used.

8.1 Profitability ratios: Gross Profit Ratio (GPR), Net Profit Ratio (NPR), Operating Profit Ratio (OPR) and Earnings Per Share (EPS) were calculated to determine the financial position of the firm.

8.2 Altman's Z-ScoreModel (Z – Score = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0 X5) was used to predict the company's financial position. The model comprises of five variables.

8.2.1 Components of the Model

X1 - Working Capital (WC) to Total Assets (TA)

This variable compares the liquid assets with the firm's size. Generally, when a firm constantly incurs operating losses, current assets will decline pertaining to total assets. A positive ratio can mean that the firm has the potential to reimburse its temporary debts (Jun, 2017).

X2 - Retained Earnings (RE) to Total Assets (TA)

RE/TA implies firm's dependence on debt. Higher the value of the variable, lesser the dependence on debt for Fixed Assets, in turn reducing the risk of bankruptcy.

X3 - Earnings Before Interest and Tax (EBIT) to Total Assets (TA)

EBIT/TA is similar to Return on Assets (ROA). It appraises the contribution and use of assets in generating profits. The firm's capacity to yield profits before deducting interest and tax is evaluated.

X4 - Market Capitalization (MC) to Total Liabilities (TL)

MC indicates the level of market's confidence in the firm's financial position. A high market capitalization level for a company indicates prolonged sustainability.

X5 - Sales to Total Assets (TA)

The effectiveness of a company's strategies is reflected in the ratio. It evaluates how well the company utilizes its assets to create revenue.

8.3 The Decision Benchmark for Categorizing ITI Ltd.

Z-Score of 3.0 or above indicates that the firm is under the Safe Zone. Similarly, Grey Zone indicates that the score lies between 1.8 and 3.0 and Red Zone if the score is below 1.8. Thus, comparing Z-Scores with the benchmark will convey firm's financial performance.

Forecast	Healthy	Grey	Red	
Score	Above 3.0	1.8 - 3.0	Below 1.8	

Source: https://strategiccfo.com/z-score-model/

	1999-00	2000-01	2001-02	2002-03	2003-04	
GPR	8.99%	7.15%	4.72%	-0.25%	-11.52%	
OPR	9.86%	5.53%	8.60 %	-11.15%	-29.65%	
NPR	2.43%	1.40%	0.97%	-21.64 %	-58.85 %	
EPS (in Rupees)	5.20	3.13	2.45	-42.60	-80.21	

Table 2: Profitability Ratios of ITI Itd.

Source: MS Excel

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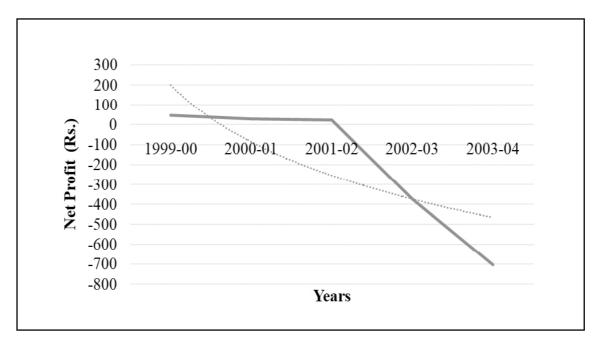


Figure 2: Trend Line of Net Profit of ITI Ltd.

Source: MS Excel

8.4 Analysis of Profitability Ratios of ITI Ltd.

- According to Table 2, the GPR of ITI Ltd. was 8.99% in the year 1999-2000 but declined at a faster rate in the subsequent years.
- OPR fluctuated from the year 1999-2000 to 2001-2002 but continued to decline from the year 2002-03.
- Decline in NPR initiated from the year 2000-01, but drastic decline was observed from the year 2002-03, i.e. -21.64%.
- EPS Ratio declined over the years and further decreased negatively, from the year 2002-03.
- According to Figure 2, Net Profit displayed a declining trend with the actual profit deviating around the trend line. There was a sudden decline in Net Profit from the year 2002-03 indicating sickness, but this was estimated through the trend line over the years.

	WC/TA (X1)	RE/TA (X2)	ЕВП/ТА (X3)	MVE/TL (X4)	Sales/TA (X5)	Z-Scores (1.2X1+1.4X2+3.3X 3+0.6X4+1.0X5)	Zone
1994-95	0.89	0.30	0.14	0.00	0.71	2.04	Grey
1995-96	0.83	0.18	-37.14	0.00	0.67	-35.46	Red
1996-97	0.76	0.02	0.29	0.00	0.91	1.98	Grey
1997-98	0.84	0.05	0.47	0.00	1.12	2.48	Grey
1998-99	0.83	0.07	0.52	0.11	1.38	2.91	Grey
1999-00	0.90	0.19	0.46	0.02	1.42	2.99	Grey
2000-01	0.91	0.19	0.25	0.00	1.34	2.69	Grey
2001-02	0.92	0.17	0.38	0.04	1.32	2.83	Grey
2002-03	0.89	-0.16	-0.39	0.02	1.06	1.42	Red
2003-04	0.72	-1.04	-0.95	0.03	0.97	-0.27	Red
2004-05	0.93	-1.48	0.42	0.80	1.64	2.31	Grey
2005-06	0.92	-2.29	-0.78	0.16	1.74	-0.25	Red
2006-07	0.44	-9.73	-1.96	0.21	6.23	-4.81	Red
2007-08	0.70	-8.03	-0.67	0.01	3.62	-4.37	Red
2008-09	-1.81	-12.89	-2.73	0.08	-5.50	-22.85	Red
2009-10	-2.33	-9.23	-8.01	1.03	-31.73	-50.27	Red
2010-11	-1.77	-6.11	-4.14	0.09	-7.60	-19.53	Red
2011-12	-1.47	-4.34	-1.91	0.10	-1.80	-9.42	Red
2012-13	-1.39	-4.13	-1.54	0.02	-1.38	-8.42	Red
2013-14	-1.38	-4.42	-1.18	0.08	-1.04	-7.94	Red
2014-15	-1.47	-7.99	-1.63	0.04	-1.35	-12.40	Red
2015-16	-1.58	-9.15	-1.72	0.09	-3.61	-15.97	Red

Table 3: Z-Scores of ITI Ltd.

Source: MS Excel

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8.5 Analysis of the Z-Scores of ITI Ltd.

WC to TA (X1)

After the introduction of policies in the 1990s, X1 reached 0.93 in the year 2004-05, being the highest value over the years. However, the ratio significantly declined and turned negative from the year 2008-09.

RE to TA(X2)

X2 remained positive and ranged between 0.02 and 0.30 from 1994-95 to 2001-02. However, it was from the year 2002-03, a huge reduction in the variable was observed.

EBIT to TA (X3)

The variable was negative in the year 1995-96, i.e. -37.14, however, X3 continued to fluctuate between 0.25 and 0.52 from 1996-97 to 2001-02, illustrating the potential to generate profits.

MC to TL (X4)

X4 was 0.11 in the year 1998-99 for the first time and thereafter marginal but positive fluctuations in the ratio were observed over the years.

Sales to TA (X5)

From the year 1994-95, the X5 variable constantly rose and reached 1.42 in 1999-00, but thereafter declined marginally. Volatility in the variable was observed from 2004-05 to 2007-08. Drastic decline and variability in the ratio was observed in the successive years.

9. Discussion

9.1. Inferences from Profitability Ratio Analysis of ITI Ltd.

- The GPR steadily declined consecutively as customers were attracted to innovation. This plunged sales and profits of the firm (Financial Accountancy.org, n.d.).
- The performance of OPR indicated operational inefficiency (Wilkinson, 2013).
- The decline in NPR indicated unproductive practices of the firm (Borad, 2018).
- EPS clearly displayed declining profitability. It also revealed reduced dividend capacity from the year 2000-01 (Accounting Tools, 2017).
- The trend line clearly indicated that the firm was approaching sickness highlighting the significance of Altman Z-Score Model.

9.2. Inferences from Altman's Z-Score Model of ITI Ltd.

 X1 improved in 2004-05 due to joint venture strategy, however, it was ineffective as the variable implied the incompetency to pay debts due to decline in turnover and intensified competition.

- The X2 variable signified that it had relied more on borrowings rather than Reserves. However, a negative fluctuating trend was observed for the remaining years.
- The fluctuation in X3 variable illustrated that it was incapable of generating profits before interest and tax were deducted. It can be attributed to changes in policies and customer expectations.
- Fluctuations in X4 variable implied unclear reactions and inadequate market confidence in ITI Ltd.'s financial position.
- The year 2004-05 marked the year of joint venture strategy which contributed in increasing Sales, hence an improvement in the variable was observed. However, it was a temporary relief, as for the subsequent years X5 variable demonstrated the ineffectiveness in firm's strategies and in adequate use of assets.

9.3. Transition of Zones from Grey to Red

- According to Table 3, the Zones of ITI Ltd. from the year 1994-95 to 1996-97 revealed a slight uneven trend. However, the Model promptly notified the firm about its unstable financial condition, which required quick attention and application of measures to avoid the financial crisis.
- Rapid changes in the industry's policies probably did not provide sufficient time for ITI Ltd. to make arrangements to sustain in the environment. Consequently, the existing strategies were obsolete, which directed the firm towards sickness in 2002-03.
- Despite of changes in government policies, intensified rivalry and internal inefficiencies, ITI Ltd. strived to utilize the turnaround strategy and accordingly implemented and devised new plans. However, these were feeble due to intensified rivalry.

9.4. Comparison with the previous studies

A few studies concentrated on the Indian PSU sector. Panicker (2013), tested the Z-Score Model on ITI Ltd. for 10 years, however, results slightly varied due to differences in sources of financial data. Satya Nandini and Zachariah (2015) studied ITI Ltd.'s operating ecosystem and the factors that led to the decline in performance. Whereas, the current study tested the Z-Score Model on ITI Ltd. for a larger data set (i.e. 22 years) and compared the results alongside conventional ratios.

9.5. Inferences Drawn by Relating Profitability Ratios with Altman's Z-Score Model

Profitability Ratios are one of the common financial tools applied by firms to communicate performance and improve investor decisions. If ITI had used these tools along with other more effectual tools like Altman's Z-Score Model, there could have been a possibility of averting sickness. This section discusses how the performance of profitability ratios was reflected in the Altman's Z-Score model values and provided enhanced results for sound decision-making.

WC to TA and OPR

- Low demand and severe competition from the new players resulted in an inconsistent trend in the OPR and was followed by constant decline from the year 2002-03. However, the PSU made an attempt to upgrade its products with borrowed funds, which consequently decreased liquidity and increased short-term liabilities. Therefore, impacted WC position and the same was reflected in the OPR. The firm was not able to meet its daily expenses, indicating operational inefficiency.
- Before private and MNC players proliferated in the telecom market, application of effectual tools could have facilitated in securing profits.

RE to TA and NPR

- NP and RE share a positive correlation. The NP constantly and gradually dropped, indicating inefficiency. RE is reliant on NP and thus, NPR was a reflection of RE to TA variable.
- ITI Ltd. could have relied on RE rather than on debt. Profitability position could have been maintained.

EBIT to TA and OPR

- EBIT and OP are quite similar in nature. When the firm has the ability to pay its variable costs (i.e.: wages, raw materials, etc.) it said to have high OPR. EBIT to TA verifies the ability of the firm to generate profits before deducting interest and tax.
- The OPR of the sick unit had negatively declined from the year 2002-03 and was reflected in EBIT to TA variable in the subsequent years. Evidently, fixed assets were used inadequately over the years.

MC to TL and EPS and NPR

- ITI Ltd.'s Net Profit Ratio constantly decreased from the year 2000-01. This largely impacted the shareholders' position in the succeeding years.
- Shareholders exhibited a positive but inadequate stance towards ITI Ltd. after it was filed under SICA. Hence, it was observed that the market price of shares slightly increased in the subsequent year (i.e. 2003-04). The trivial increase may be due to the firm's decision to procure additional funds to meet customer demand.

Sales to TA Ratio and GPR, NPR and OPR

- GP, OP, and NP largely rely on Sales. Sales of ITI Ltd. decreased due to its less competent products and intense rivalry.
- The unprecedented steps (i.e. new policies, and Acts) taken by the State did not probably provide sufficient time to accommodate improved strategies, which led to an increase in rivalry and consequently impacted Sales of the firm.

10. Conclusion

"Survival of the Fittest," a phrase coined by the Darwinian Evolutionary Theory suitably corresponds with the business ecosystem today. Organizations must constantly evolve to ensure sustainability by promptly identifying and responding to the environmental changes (i.e. enhancing strategies). This can be accomplished by applying robust financial tools. Accordingly, this study revealed that the Z-Scores warned ITI Ltd. about its financial condition 8 years prior to sickness, emphasizing the need to take action. It was identified that it failed to respond to the changing environment and was imprudent about increasing debt levels. Therefore, it can be inferred that along with conventional ratios, computation of Altman's model enhances sustainability. It can also facilitate top managers in reviewing the effectiveness of existing strategies and models, with a view to eventually meet stakeholders' interests.

References

Websites

- Bombay Stock Exchange (BSE). (n.d.). ITI Ltd. Stock Prices. Bombay Stock Exchange (BSE). Retrieved July 17, 2017, from http://www.bseindia.com/markets/equity/EQReports/ StockPrcHistori.aspx?expandable=7&scripcode=523610&flag=sp&Submit=G
- Indian Telephone Industries Ltd. Annual Report of ITI Ltd: Ten year Digest (1995-2004). Sansco Services-Annual Reports Library Services. Retrieved October 15, 2017, from, https:// www.reportjunction.com/Preview/ITI-Limited-2004-56081.htm
- ITI Limited. (2018, July 19). Investor Information. *ITI Limited*. Retrieved July, 2017, from http:// www.itiltd-india.com/investor_information
- Money Control. (n.d.). Balance Sheet of ITI. *Money Control.* Retrieved June 27, 2017, from, http://www.moneycontrol.com/financials/iti/balance-sheetVI/ITI
- Money Control. (n.d.). Profit & Loss account of ITI. Money Control. Retrieved Jun 28, 2017, from, http://www.moneycontrol.com/financials/iti/profit-lossVI/ITI#ITI

Research Articles

- Edward I. A. (September, 1968). Financial Ratios, Discriminant Analysis and The Prediction of Corporate Bankruptcy. *Journal of Finance*, 23(4). 589-609. Retrieved August 28, 2017, from https://onlinelibrary.wiley.com/
- Kumar Ganesh.R. and Kishore Kumar (April, 2012). A Comparison of Bankruptcy Models. International Journal of Marketing, Financial Services & Management Research, 1(4), Online ISSN 2277 3622. 76-86. Retrieved October 14, 2018 from http://indianresearchjournals.com/

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- Kumar.M. and Anand. M. (2013). Assessing Financial Health of a Firm Using Altman's Original and Revised Z-Score Models: A Case of Kingfisher Airlines Ltd. (India). *Journal of Applied Management and Investments*,2(1). 36-48. Retrieved October 12, 2018, from https:// www.researchgate.net/
- Panicker.S. (January, 2013). Fading of the Buzz at ITI. Global Journal of Arts & Management, 3(2), Online ISSN 2249-2658. 75-83. Retrieved January 21, 2018, from https:// www.researchgate.net/
- Satya Nandini. A and Zachariah. M. (2015). Business Ecosystem of ITI Limited- Factors that Affected the Bottom Line.1-12.
- Thakur S.A. (August, 2015). Revival of Indian Telephone Industries (ITI) Limited. Retrieved September, 26, 2017 from http://164.100.47.193/Isscommittee/Information%20Technology/ 16_Information_Technology_9.pdf
- Bal Ranjan.G. (September, 2015). Prediction of Financial Distress Using Altman Z-Score: A Study of Select FMCG Companies. *Indian Journal of Applied Research, 5*(9), Online ISSN 2249-555X. 129-131. Retrieved October 13, 2018, from https://www.worldwidejournals.com/indianjournal-of-applied-research (IJAR)/
- Gerritsen.P.(September 2015). Accuracy Rate of Bankruptcy Prediction Models for The Dutch Professional Football Industry. (Master thesis, University of Twente, Netherlands). Retrieved October 15, 2018, from https://essay.utwente.nl/68211/1/
- Mohammed.S. (2016). Bankruptcy Prediction by Using the Altman Z-Score Model in Oman: A Case Study of Raysut Cement Company SAOG and its Subsidiaries. Australasian Accounting, Business and Finance Journal, 10(4). 70-80. doi:10.14453/aabfj.v10i4.6. Retrieved October 12, 2018
- Aditya, K. (April, 2016). An Appraisal of Financial Solvency of ONGC a Z Score Model. Abhinav International Monthly Refereed Journal of Research in Management & Technology, 5(4), Online ISSN -2320-0073. 1-8. Retrieved April 2, 2017, from http://abhinavjournal.com/
- AlAli.S.M.(April, 2018). The Application of Altman's Z-Score Model in Determining the Financial Soundness of Healthcare Companies Listed in Kuwait Stock Exchange. International Journal of Economic Papers, 3(1). 1-5. Retrieved October 13, 2018, from https://www.researchgate.net/
- Murthy.B.S.R., Nara.M. and Gurukamal.M.(April, 2018). Financial Strength Analysis of Unitech Company Using Altman's Z Score Model. International Research Journal of Engineering and Technology (IRJET), 5(4), Online ISSN 2395-0056. 1804-1809. Retrieved October 13, 2018, from https://irjet.net/
- Saini.V.(July, 2018). Evaluating Financial Health of Gujarat State Fertilizers through 'Z' Score Model. International Journal of Research – Granthaalayah, 6(7), Online ISSN 2350-0530.
 115-120. doi: 10.5281/zenodo.1323027. Retrieved October 13, 2018.