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NEED/IMPORTANCE OF THE STUDY

STATEMENT OF THE PROBLEM

OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

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EVALUATING FINANCIAL HEALTH OF HINDUSTAN PETROLEUM CORPORATION LIMITED THROUGH Z SCORE MODEL: A CASE STUDY

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ABSTRACT

Generally the individuals and institutions whomsoever is directly or indirectly connected with Business, Known as Stakeholders like Shareholders, Bank, Government, Financial Institution, creditors, investors, employees etc wants to be aware about the financial health of Business. There are various accounting tools available to know about success and solvency of Business. Out of them Ratio analysis is very easy and widely used tool to measure financial position of Business. But single ratio would not provide proper information about the financial condition of Business and it is not possible to combine different ratios in single measurement. Prof. Edward Altman, Professor of finance at New York University was the first person who made an attempt to combine ratios in single model named Multiple Discriminant Analysis later popularly known as "Z score Model" to evaluate financial health of Business. Researcher has made an attempt to Evaluate Financial Health of Hindustan Petroleum Corporation Limited (HPCL) through K.B.Mehta's model, a modified version of Altman Z score Model. Researcher found very good result of HPCL in terms of Liquidity, profitability, Productivity of Assets, solvency and Sales generating capacity of Assets.

KEYWORDS

Financial Health, HPCL, Multiple Discriminant Analysis, Ratio Analysis, Z score Model.

INTRODUCTION

A financial statement shows what happened during particular financial year. Generally the individuals and institutions whomsoever is directly or indirectly connected with Business, Known as Stakeholders like Shareholders, Bank, Government, Financial Institution, creditors, investors, employees etc wants to be aware about the financial health of Business. Generally they want to know about success and solvency position of the business. There are various accounting tools available to know about success and solvency position of Business. These Tools are like, ratio analysis, common size statements, comparative statement analysis, trend percentage and decision theory, etc. Ratio analysis is very easy and widely used tool to know about financial soundness of business.

Z SCORE MODEL – BRIEF IDEA

There are various tools available to know about financial performance and financial soundness of business. Generally Ratio analysis is widely used and easy tool to forecast financial health of business. But single ratio would not provide proper information about the financial condition of Business and it is not possible to combine different ratios in single measurement. To remove this limitation, Prof. Edward Altman, Professor of finance at New York University was the first person who made an attempt to combine ratios in single model named Multiple Discriminant Analysis, later it is known as "Z score Model" to evaluate financial health of Business. It contains five business ratios, weighted by coefficients. Five Ratios are Liquidity, profitability, Productivity of Assets, solvency and Sales generating capacity of Assets.

Prof. Edward Altman's "Z score Model" is internationally accepted model to evaluate financial health of business. The Z score Model was first published in September, 1968 titled "Financial Ratio, Discriminant analysis and the prediction of corporate Bankruptcy", in journal of finance [23(4), pp. 589-609].

Z Score formula given By Prof Edward Altman was as follows:

$$Z = 0.012T1 + 0.014T2 + 0.033T3 + 0.006T4 + 0.999T5.$$

T1 = Working Capital / Total Assets.

T2 = Retained Earning / Total Assets.

T3 = Earnings before Interest and Taxes / Total Assets.

T4 = Market value of Equity / Book value of Total Liabilities.

T5 = Sales / Total Assets.

Standard Z score Parameters/Zones for Evaluation (Altman's Model)

Z score Values	Zones	Prediction
Below 1.8	Bankruptcy Zone	Failure is definite
1.8 – 2.99	Grey Zone	Failure is Uncertain to predict
Above 2.99	Safe Zone	Good Financial Health

Above mentioned parameters are given by Prof Altman to evaluate financial health of business.

Prof. K.B.Mehata's Model: Indian Context

Prof. K.B.Mehata has modified Altman's model as per Indian condition.

$$Z = 0.717X1 + 0.845X2 + 3.107X3 + 0.42X4 + 0.995X5$$

X1 = Net Working Capital to Total Assets which measures liquid assets in relation to the size of the company.

X2 = Retained Earning to Total Assets which measures profitability.

X3 = Earnings Before Interest and Taxes to Total Assets which measures operating efficiency apart from tax and leveraging factors.

X4 = Book value of Equity to Book value of Total Debts shows long term solvency position.

X5 = Net Sales to Total Assets Standard measure sales generating capacity.

Z score Values	Zones	Prediction
Below 1.2	Bankruptcy Zone	Failure is definite
1.2 – 2.9	Grey Zone	Failure is Uncertain to predict
Above 2.9	Safe Zone	Good Financial Health

Above mentioned parameters are given by Prof K.B. Mehta to evaluate financial health of business.

BRIEFING OF HINDUSTAN PETROLEUM CORPORATION LIMITED (HPCL)

HPCL was established in 1974. It is a public limited company having headquarters at Mumbai and Maharashtra. Operations of HPCL are spread over two major refineries, one is at Mumbai and other is at Vishakhapatnam. HPCL has large marketing network over the country and globe. Shares of HPCL are listed in NSE, BSE and many other major stock exchanges all over the world. It is financially sound and profitable company. Because of remarkable success, it has Navratna

status and has been ranked by Fortune Global 500 (260th rank in 2013) as world's biggest corporation. Many excellence awards make HPCL more trustworthy and popular in market. The Balance of 31st March 2014 shows very good and growing position of HPCL. Researcher has made an attempt to evaluate financial health of HPCL through Z score model. (K. B. Mehta's model, modified version of Altman's model)

REVIEW OF LITERATURE

Prof. Adward Altman (1968) taken five ratios of twenty two initially considered, took 33 successful and 33 failure firms for comparison and developed a popular model which is known as 'Z score model'.

Selvam, M. and others (2004) made a study to make prediction of the financial health and viability of India Cement Ltd. they found that the cement company under the study was just on the range of Bankruptcy.

V.Dheenadhyan (2008) used Z score model to make prediction about Corporate failure of steel authority of Indian Limited. The Z score of SAIL showed a increasing trend during the study period and it was found that the financial health of the SAIL was good.

Prof. Dr. Sheetal. P. Vekariya (2012) used Z score model to check financial health of Dr. Reddy's Laboratories. It was found that company was in the good condition during the study period.

Prof. K. M. Jani and Prof. Manish. Raval (2013) used Z score model to check financial health of TATA Consultancy Services Limited. It was found that company was in the good condition during the study period.

IMPORTANCE OF THE STUDY

This research work will be helpful to the Stakeholders to know about financial health of Hindustan Petroleum corporation limited (HPCL). HPCL is oil refinery owned by Government of India. Its contribution is major in India's economic development and growth.

OBJECTIVES OF THE STUDY

1. To predict financial Health of Selected Company.
2. To assess efficiency and financial performance of selected Company.

PERIOD OF THE STUDY

The present study has been made by researcher on the basis of the financial data collected for the period of last ten years i.e. year 2004-05 to 2013-14.

LIMITATIONS OF THE STUDY

- [1] The present research work is completely based on secondary data only.
- [2] The research study is based on only 10 years time period.

RESEARCH METHODOLOGY

SELECTION OF THE SAMPLE UNIT

Universe of the study include all companies established in India under the companies act 1956. From the above mentioned universe, the researcher has randomly selected Hindustan Petroleum corporation limited (HPCL) to check financial health by applying Z score Model.

SOURCES OF THE DATA COLLECTION

The present study is based on the secondary data collected from the Annual Report of HPCL, various websites, Published information, magazines etc for better reliability and authenticity. Researcher has made an attempt to make investigation at micro level.

TOOLS AND TECHNIQUES FOR DATA ANALYSIS

Ratio analysis (accounting technique) and multiple discriminant analysis (Statistical Technique) is used by researcher to analyze the financial data collected from various sources and try to give valuable suggestions for future growth.

TABLE-1: SHOWING FINANCIAL DATA OF HINDUSTAN PETROLEUM CORPORATION LIMITED.(HPCL) [RS. IN CRORES]

Year	Net Sales	EBIT	Book Value of Equity	Book Value of Debt	Retained Earnings	Net Current Assets (Working Capital)	Total Assets
2004-05	60164.55	1731.64	338.93	2185.35	8101.92	1138.88	10626.20
2005-06	71430.62	448.31	338.94	6663.83	8396.80	1670.65	15399.57
2006-07	89725.03	2395.73	338.95	10517.53	9259.70	-75.69	20116.18
2007-08	104312.99	1929.21	338.01	16786.70	10224.28	5267.71	27349.99
2008-09	124935.02	2806.42	339.01	22755.17	10391.62	2633.51	33485.80
2009-10	107300.57	3032.98	339.01	21302.37	11218.96	2278.86	32860.34
2010-11	133213.79	3248.42	339.01	25021.19	12206.79	3788.74	37566.99
2011-12	178735.50	3358.97	339.01	27479.25	12783.51	4937.15	40601.77
2012-13	206958.80	3380.5	339.01	32458.27	13387.39	7836.17	46184.67
2013-14	223271.33	4010.24	339.01	31930.05	14673.15	5584.54	46942.21

(Source: www.moneycontrol.com and annual reports of HPCL)

TABLE- 2: SHOWING CALCULATION OF RATIOS USED IN K. B. MEHTA'S Z SCORE MODEL

Year	Net Working Capital To Total assets ratio X_1	Retained Earnings to Total Assets Ratio X_2	EBIT to Total Assets Ratio X_3	Book Value of Equity to Book Value of Debt Ratio X_4	Net Sales to Total Assets Ratio X_5
2004-05	0.11	0.76	0.16	0.16	5.66
2005-06	0.11	0.55	0.03	0.05	4.64
2006-07	-0.00	0.46	0.12	0.03	4.46
2007-08	0.19	0.37	0.07	0.02	3.81
2008-09	0.08	0.31	0.08	0.01	3.73
2009-10	0.07	0.34	0.09	0.02	3.27
2010-11	0.10	0.32	0.09	0.01	3.55
2011-12	0.12	0.31	0.08	0.01	4.40
2012-13	0.17	0.29	0.07	0.01	4.48
2013-14	0.12	0.31	0.09	0.01	4.76

TABLE- 3 SHOWING CALCULATION BASED ON Z SCORE MODEL (K. B. MEHTA'S MODIFIED MODEL)

	Z Score = $0.712X_1 + 0.842X_2 + 3.107X_3 + 0.42X_4 + 0.995X_5$					
Year	$0.712X_1$	$0.842X_2$	$3.107X_3$	$+ 0.42X_4$	$0.995X_5$	Z Score
2004-05	0.08	0.64	0.50	0.07	5.63	6.92
2005-06	0.08	0.46	0.09	0.02	4.62	5.27
2006-07	0.00	0.39	0.37	0.01	4.44	5.21
2007-08	0.27	0.31	0.22	0.01	3.79	4.60
2008-09	0.06	0.26	0.25	0.00	3.71	4.28
2009-10	0.05	0.29	0.28	0.01	3.25	3.88
2010-11	0.07	0.27	0.28	0.00	3.53	4.15
2011-12	0.09	0.26	0.25	0.00	4.38	4.98
2012-13	0.12	0.24	0.22	0.00	4.46	5.04
2013-14	0.09	0.26	0.28	0.01	4.74	5.38

TABLE- 4: SHOWS FINDINGS OF Z SCORE ANALYSIS OF HPCL HINDUSTAN PETROLIUM CORPORATION LIMITED

YEAR	Z Score	Findings
2004-05	6.92	Safe Zone
2005-06	5.27	Safe Zone
2006-07	5.21	Safe Zone
2007-08	4.60	Safe Zone
2008-09	4.28	Safe Zone
2009-10	3.88	Safe Zone
2010-11	4.15	Safe Zone
2011-12	4.98	Safe Zone
2012-13	5.04	Safe Zone
2013-14	5.38	Safe Zone

CONCLUSION

Findings mentioned in table no 4 indicate very good and sound financial position of the selected company HPCL. Findings as per the Z score parameters prove that company is in safe zone during last ten years. HPCL has been continuously maintaining its profitability, liquidity, productivity, solvency and confidence of investors. This study will be helpful to all companies, researchers and Particularly shareholders who want to invest their surplus fund in HPCL.

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